



INTERNATIONAL SEMINAR & CONFERENCE  
ON LEARNING ORGANIZATION

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Encouraging State-Owned Enterprises and  
Strategic Industries with Their Support System  
to Boost Indonesia Economic Growth

Organized By:



**Fakultas Ekonomi & Bisnis**  
School of Economic & Business  
Telkom University

# Proceedings of the 5<sup>th</sup> International Seminar and Conference on Learning Organization, “Encouraging State-Owned Enterprises and Strategic Industries with Their Support System to Boost Indonesia Economic Growth”

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## PREFACE

In early 2016, Indonesian State-Owned Enterprises (SOE's) have been challenged by Indonesian Government to increase their performances in order to increase Indonesian economic growth. According to Indonesian Minister of Finance Sri Mulyani, State-Owned Enterprises are reflecting the pride of the country, their assets are the symbol of the wealth of the country. She also said that Indonesian Gross Domestic Product is recently US 862 billion, which is rated Indonesia as the 16th world's largest economy. This position put Indonesia as a country which is more capable maintaining its economic growth than other G20 countries, where this is also confirmed by World Bank that in 2018 Indonesian economic growth will increase by 5.5%. Therefore the achievement as the 16th largest GDP in the world is supposed to be reflected on the assets of Indonesia, such as its State-Owned Enterprises.

Indonesia as developing country still has to face many challenges to develop its economy. These challenges become the responsibility for all integrated parties in Indonesia. One of the challenges is to encourage and to support Indonesia's State-Owned Enterprises as the symbol of pride, which their wealth since the Asian crisis, has been fading out through these years, especially those with high technology and defense products.

The changing in rules and regulation, the additional government policy packages and also other contribution from many parties, are supposed to give supports for Indonesian Economic Growth in 2017 especially for Indonesia's State-Owned Enterprises. The regulation such as Government Regulation PP No.72/2016 on Procedures for State Capital Participation which was issued last year as a revision to PP No. 44/2005, regulates the mechanism of state capital participation and administration for State Owned Enterprises.

Telkom University is delighted to announce The 5th International Seminar & Conference on Learning Organization with theme "Encouraging State-Owned Enterprises and Strategic Industries with Their Support Systems to Boost Indonesian Economic Growth". Telkom University as centralized of academicians drives many parties including government, practitioners, and academicians to share and propose the strategic in the learning organization context to boost Indonesian Economic Growth.

### Themes

- Business Continuity and Risk Management
- Economics and Financial Management
- Entrepreneurship, Marketing and Strategic
- Management Operations and innovations
- Organization and Sustainable Development
- Social Sciences and Humanities
- Technology and Business Management

# **INTERNATIONAL SEMINAR AND CONFERENCE ON LEARNING ORGANIZATION (ISCLO)**

## **1<sup>st</sup> International Seminar and Conference on Learning Organization (ISCLO) 2013**

*4 – 5 December 2013, Trans Luxury Hotel, Bandung, Indonesia*

PT Telekomunikasi Indonesia, Tbk (Telkom) bridges the needs of business enterprise with scientific research and academia through the organization of the International Seminar & Conference on Learning Organization (ISCLO) 2013 with the theme "Corporate University to Improve Organizational Performance". University (Tel-U) in collaboration with Telkom Corporate University (CorpU). Telkom being a pioneer of international conferences to discuss the field of Learning Organization and Corporate Learning in Indonesia. This provides an opportunity for Telkom to be a driving force in the field of Corporate Learning. This international event attended by more than 250 participants consisting of academics and practitioners from countries including Indonesia, Malaysia, Singapore, India, China, USA, France and Korea.

## **2<sup>nd</sup> International Seminar and Conference on Learning Organization (ISCLO) 2014**

*5 – 6 November 2014, Hotel Indonesia, Kempinski, Jakarta, Indonesia*

Telkom Corporate University and Telkom University are delighted to announce the 2<sup>nd</sup> International Seminar and Conference on Learning Organization with the theme, "Learning Organization in Increasing the Organization Performance". The purpose of the seminar and conference is to identify and explore the major challenges in implementing Learning Organization and assess the real impacts on organization performance also to form the future research guidance through the publication of high quality applied and theoretical research findings. The following general topics in this conference are Learning Organization, Leadership Pipeline, Global Competitiveness, Knowledge Management, Instructional System Design and High Performance Technology, and Learning Technology and Methodology. All accepted papers will be published in ISSN conference proceedings.

## **3<sup>rd</sup> International Seminar and Conference on Learning Organization (ISCLO) 2015**

*25 – 26 November 2015, Hotel Tentrem, Yogyakarta, Indonesia*

Telkom University & Telkom Corporate University are delighted to announce the 3<sup>rd</sup> International Seminar & Conference on Learning Organization with the theme, "Enhancing Organizational Survivability through Learning Organization". This conference is driven by the function of corporate university as a centralized training or education system within a corporation together with Telkom University as a centralized of academicians in knowledge management. It focused on the integrated development of learning organization, human resources and knowledge management development aligned with the corporation's values and business requirements.

## **4<sup>th</sup> International Seminar and Conference on Learning Organization (ISCLO) 2016**

*26 October 2016, Grand Tjokro Hotel, Bandung, Indonesia*

Telkom University is delighted to announce the 4<sup>th</sup> International Seminar & Conference on Learning Organization (ISCLO). For the first time in 2016, this event organized by Telkom University. This conference is driven by the function of Telkom University as a centralized of

academicians in human capital and talent development. It will focus on the integrated development of learning organization, human resources and knowledge management development, strategic alignment, workforce planning, performance management, talent management aligned with the corporation's values and business requirements. Academicians and practitioners from around the world will share recently business researches, best practices and engaging conference participants in discussions on continues Improvement of Business Process, Expanding Possibilities in Digital Era. All submitted abstracts/ papers will go through a blind peer review process and accepted manuscripts will be published in conference proceedings. Selected conference papers will be published in special / regular issue of Scopus, DOAJ, EBSCOhost Research Databases, ProQuest indexed Journal, and Journal associated with this conference as follows: International Journal of Business and Globalisation (IJBG), International Journal of Learning and Change (IJLC), Oeconomia Copernicana, Journal of Competitiveness, and Management and Business International Journal [ISSN: 2354-6603].

### **5<sup>th</sup> International Seminar and Conference on Learning Organization (ISCLO) 2017**

*6 September 2017, Bidakara Grand Savoy Human, Bandung, Indonesia*

Telkom University is delighted to announce The 5th International Seminar & Conference on Learning Organization with theme "Encouraging State-Owned Enterprises and Strategic Industries with Their Support Systems to Boost Indonesian Economic Growth". Telkom University as centralized of academicians drives many parties including government, practitioners, and academicians to share and propose the strategic in the learning organization context to boost Indonesian Economic Growth.

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## TECHNOLOGY ACCEPTANCE OF DIGITAL OPEN LIBRARY TELKOM UNIVERSITY BASED ON MODIFIED UTAUT MODEL (Case Study at Telkom University 2016)

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**Abstract:** Digital Library is the innovative solution on how information can be distributed quickly, accurately, and globally. Although the implementation of digital library service at Telkom University has been done since long time ago, but it is still unknown whether the benefits of the implementation has been accepted and adopted by users. Therefore, a research is needed to be conducted concerning the technological acceptance based on modification UTAUT model. The purpose of this study is to find out the factors that affect the users in receiving the digital library using the variables of performance expectancy, effort expectancy, information quality, service quality, behavior intention and use behavior. This study uses 218 samples. The data was analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The result shows that effort expectancy, information quality, and service quality have significant influence on behavioral intention and use behavior. Performance expectancy is proven to have no significant influence on behavioral intention.

**Keywords:** *Open Library, Acceptance Technology, UTAUT; PLS-SEM*

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### 1. Introduction

The turn of the 21st century, human beings tend to occupy a central place in the production process. Wardiana (2006) explain that along with economic development, knowledge becomes the basis of community economic development and focused on the information. This makes telecommunications and informatics play a role as an enabler technology.

In this time, technology becomes more advanced, especially information and telecommunication. It will allowing the implementation of new methods that are more efficient for production, distribution and consumption of goods and services (Barton 2013).

In this information age, physical distance or geographical distance is no longer a limiting factor in human relations or inter-institutions (Wardiana 2006). Hendrawati (2013) suggest that information is a necessity in this era of information, thus causing information sharing culture in

society. The trend led to information and communication technologies (ICT) have an important role.

Information and communication technology (ICT) is an absolute value that must be mastered in order to compete in the era of globalization included in the world of education [11]. Implementation of ICT in the education sector is expected to boost innovation which will ultimately improve the quality of education (Firli, 2014). Wahyudi [16] argued that the availability of ICT in education is not only as a support, but rather a necessity and obligation. The use of ICT in education can be applied through a variety of applications such as e-learning, online courses, electronic library, and a variety of other applications.

The availability of ICT in education is not only as a support, but rather as a necessity and obligation [16]. The new challenge in the library world of today's information age is on how to transfer information using electronic protocol through computer networks quickly, accurately and globally. One solution to this issue is the digital library [15]. However, research conducted by Hammond [6] concludes that digital library is beneficial and able to facilitate access to information, but digital library is still frequently neglected by students or users. So, this research has a title Technology Acceptance Of Telkom University Digital Open Library Based On Modified UTAUT Model. Based on phenomenom above, the problem formulation of this study is:

- a. How technology acceptance of Digital Open Library Telkom University based on performance expectancy?
- b. How technology acceptance of Digital Open Library Telkom University based on effort expectancy?
- c. How technology acceptance of Digital Open Library Telkom University based on information quality?
- d. How technology acceptance of Digital Open Library Telkom University based on service quality?
- e. How technology acceptance of Digital Open Library Telkom University based on behavior intention?
- f. How technology acceptance of Digital Open Library Telkom University based on use behavior?

## **2. Literature Review**

### **Technology and the Technology Acceptance**

Khalil [7] defines technology as knowledge, products, processes, tools, methods and systems needed to make goods or provide services. Swanson [13] reveals that understanding why people accept or reject the information technology is a most difficult issue in the study of information systems [2].

Acceptance of the use of information technology is defined by Succi and Walter [9] as the users will implement a system of information technology in their work. The higher their acceptance, the greater the willingness of users to change existing practices into a system of information technology.

### ***Technology Acceptance Model (TAM)***

According to Lee [8], TAM is the most influential theories which applied to determine the individual acceptance of the Information Systems (IS). TAM was adapted from the Theory of Reasoned Action (TRA). Although it has proven to be successful, there are a few studies have attempted to investigate the development of TAM, evaluating their limitations, and to predict future developments. Here is the development of TAM:

1. Introduction Model Period (1986-1995).  
After the introduction of the SI into the organization, in this period the user acceptance technology (UAT) get more attention. TAM evolved from TRA and led the researchers to conduct a study focusing on two things, namely how to apply TAM on technology or other disciplines and compare TAM with its predecessor (TRA) to determine what is the difference between TAM and TRA and the excess of each model.
2. Validation Model Period (1992-1996).  
In this period, research was conducted to investigate whether the instruments of TAM was powerful enough to survive.
3. Development Model Period (1994-2003)  
After the validation process is considered satisfactory, then the process of development is conducted by involving external variables that contain elements of individuals, organizations, and job characteristics.
4. Elaboration Model Period (2000 - present).  
The process of elaboration in this period is divided into two. First, it aims to build the next generation of TAM. Secondly, it aims to overcome the limitations of TAM.

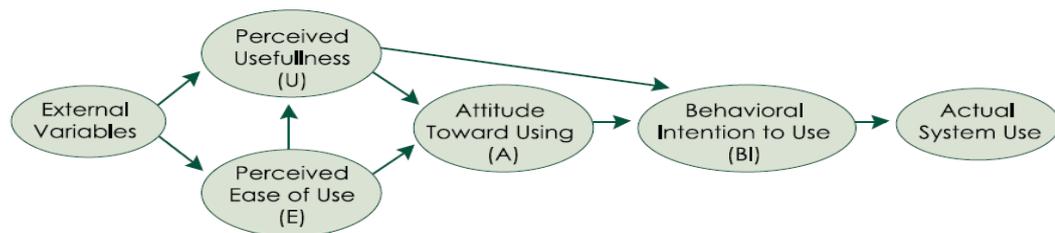


Fig. 1 Technology Acceptance Model (Davis, Bagozzi & Warshaw, 1989)

TAM in Figure 1 shows two trust, that is Perceived Usefulness (PU) and percieved Ease of Use (PEOU) which is the main link of technology acceptance behavior. PU is the confidence level of the individual against a technology that will improve the capability or performance (Cheung 2001). This definition is in accordance with the meaning of the word usefulness, which means it can be used so that profitable. In the context of the organization, performance improvement can be done with the promotions, bonuses and awards (Pfeffer 1982; Vroom 1964). Systems with high value of PU will cause a positive relationship with its performance (Siregar 2008).

### **Unified Theory of Acceptance and Use of Technology (UTAUT)**

Unified Theory of Acceptance and Use of Technology (UTAUT) is one of the latest technology acceptance model developed by [14]. UTAUT incorporate successful features from eight leading technology acceptance theories into one theory. Eighth leading theory which unified in UTAUT is the theory of reasoned action (TRA), technology acceptance model (TAM), motivational model (MM), theory of planned behavior (TPB), combined TAM and TPB, the model of the PC utilization (MPTU), innovation diffusion theory (IDT), and social cognitive theory (SCT). UTAUT proved more successful than the other theories in explaining variance, up to 70 percent of the variance [14].

Venkatesh [14] evaluated the eight models and found seven indicators that have become a direct determinant of the behavioral intention or use behavior. These factors are performance expectancy, effort expectancy, social influence, facilitating conditions, attitude toward using technology, and self-efficacy. At the end of the study, Venkatesh found four main factors that play an important role as a direct determinant on behavioral intention and use behavior, which is performance expectancy, effort expectancy, social influence, and facilitating conditions. While other factors are not significant as a direct determinant of behavioral intention. In this

UTAUT model, there are also four moderators, which is gender, age, voluntariness, and experience Figure 2 is UTAUT model:

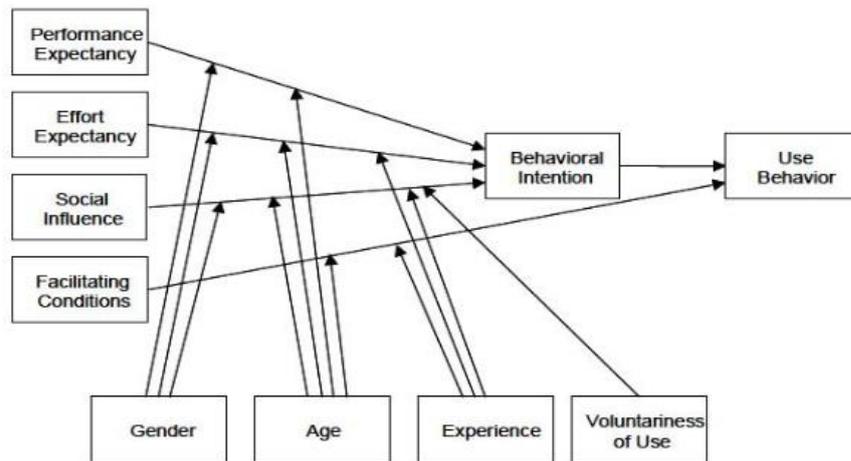


Fig. 2 UTAUT Model (Venkatesh 2003)

*Unified Theory of Acceptance and Use of Technology (UTAUT)* is one of the latest technology acceptance models developed by Venkatesh [14]. UTAUT incorporates successful features from eight leading technology acceptance theories into one theory. Four main factors that play an important role as the direct determinant on *behavioral intention* and *use behavior*, namely, *performance expectancy*, *effort expectancy*, *social influence*, and *facilitating conditions* [14].

This study is based on the phenomena of technological developments and expanding trends of ICT into educational sector. The implementation of ICT in educational sector is expected to boost innovations which will ultimately improve the quality of education, especially within the academic community of Telkom University. As what has already been known that the availability of ICT applications such as digital library at Telkom University has become a new challenge in order to benefit and facilitate access to information.

It is expected that through this research, digital library Telkom University could improve its service by knowing the factors which can affect acceptance technology and *use behavior* in general. Increase in the *use* of digital library at Telkom University will improve work performance and facilitate the users in *sharing knowledge*. Figure 3 represents the framework of this study.

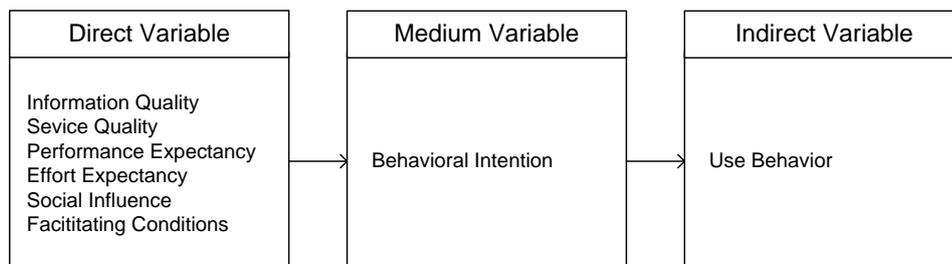


Fig. 3 Framework of This Study

### 3. Methods

The data in this study is processed using PLS-SEM analysis. It is suitable used in this research with sample size relatively small (200 until 300 repondent) as requirement [12]. PLS-

SEM assumed does not require for random sample, then researcher used non probability sampling like purposive sampling as data collection method. Data collection is done use questionnaire by choosing respondents in accordance consideration researcher. The number of sample in this research is 218 samples which are tabulated and analyzed with the assistance of SMARTPLS 2.0 M3 software.

There are six latent variables in this study, namely *Performance Expectancy* (PE), *Effort Expectancy* (EE), *Information Quality* (IQ), *Service Quality* (SQ), *Behavioral Intention* (BI), and *Use Behavior* (UB). The theoretical model used in this study is aimed to analyze the causal relationships and the influences of each latent variable in affecting the use acceptance of *Open Library* at Telkom University.

#### 4. Results And Discussion

##### ***Evaluation of Model Measurement (Outer Model)***

Criteria of model measurement at the first stage of PLS-SEM is done with a *measurement model* on a reflective model which is measured based on *internal consistency reliability* and *validity* [5]. The first criterion that will be evaluated is *internal consistency reliability*. This study uses *composite reliability* as the reliability criteria. The results of the *composite reliability* test can be seen in Table 1 below.

Table 1 Composite Realibility

<b>Constructs</b>	<b>Composite Reliability</b>
PE	0,88
EE	0,90
IQ	0,86
SQ	0,86
BI	0,85
UB	0,92

According to Table 1, the *composite reliability* values of each construct is greater than 0.70. it can be said that all construct variables have good reliability. So, it can be also know that questionnaire as instrument in this study is reliable or believable.

The second criterion is *validity*, measured by *convergent validity* and *discriminant validity*. To determine the *convergent validity*, it is must to consider two indicator like *outer loading* and *average variance extracted (AVE)*. The *rule of thumb* as minimum standard of the *outer loading* value is greater than 0.7 and AVE value greater than 0.50 [5]. The results of *outer loading* test can be seen in Table 2 below.

Table 2 Outer Loadings

<b>Constructs</b>	<b>Indicators</b>	<b>Outer Loadings</b>
PE	PE1	0,81
	PE2	0,79
	PE3	0,81
	PE4	0,80
EE	EE1	0,83
	EE2	0,79
	EE3	0,89
	EE4	0,81
IQ	IQ1	0,81

Constructs	Indicators	Outer Loadings
	IQ2	0,84
	IQ3	0,75
	IQ4	0,72
SQ	SQ1	0,74
	SQ2	0,85
	SQ3	0,78
	SQ4	0,73
BI	BI1	0,78
	BI2	0,83
	BI3	0,81
UB	UB1	0,90
	UB2	0,92

The value of outer loading indicates the high contribution of indicator to construct variable. Based on Table 2, the *outer loading* values for each indicator have value greater than 0.70, so we can say that all of the construct variable have good validity. We can also know that subs set indicator above have correlation with each construct variable. Then the result of AVE can be seen in Table 3 below.

Table 3 Average Variance Extracted (AVE)

Construct	AVE
PE	0,65
EE	0,70
IQ	0,61
SQ	0,61
BI	0,65
UB	0,84

According to Table 3, the value of AVE in each construct is greater than 0.50 indicates one construct (latent variable) can explain more than half variance from the indicators in average. It can be said the whole construct variables have good validity.

Steps in determining discriminant validity is cross-loading indicator where outer loading indicator which are connected to the construct should be higher than all the outer loadings of other construct and also by comparing the square root value of latent variable correlation with AVE. Square root AVE value on each construct must be higher than the highest correlation on other construct as can be seen in Table 4.

Table 4 Square Root AVE and Latent Variables Correlation

	PE	EE	IQ	SQ	BI	UB
PE	<b>0,80</b>					
EE	0,21	0,83				
IQ	0,17	0,48	0,78			
SQ	-0,03	0,16	0,19	0,78		
BI	0,20	0,53	0,48	0,23	0,80	
UB	0,20	0,46	0,38	0,19	0,58	0,91

Based on Table 4 the values of AVE square root in each construct has higher value than other indicator which can be said to have good *discriminant validity* value. Because the result from

evaluation of model measurement (outer model) indicates that the data is valid, so the instrument that used in this study can measure what researcher want to measure.

**Evaluation of Structural Model (Inner Model)**

The second stage of evaluation is the test of inner model, done by looking at the values of R-square on endogenous latent constructs. Based on the results of the calculations, it is known that this research model provides the R<sup>2</sup> values of 0.371 for BI and 0.347 for UB. These results can be interpreted and presented in the following Table 5.

Table 5 R-Square Test Results

Independent Variable	Dependent Variable	R-Square Value
PE	BI	0,371
EE		
IQ		
SQ		
BI	UB	0,347

Based on Table 5, it can be concluded that (1) 37.1% of the behavioural intention variation of digital open library Telkom University can be explained from four independent variables which are performance expectancy, effort expectancy, information quality, and service quality. While the rest of 62.9% is explained by other factors outside the model. (2) 34.7% of use behaviour variation of digital open library Telkom University can be explained from the variable of behavioural intention. Whereas the rest of 65.3% is explained by other factors outside the model. The results of R2 values obtained indicate the model in the "moderate" category.

The test is then continued to find out the significance of the independent variables influence toward the dependent variables by seeing the significant values of t-statistic and path coefficient of each construct. The results of the t-statistic test of this study can be seen in Figure 4 below.

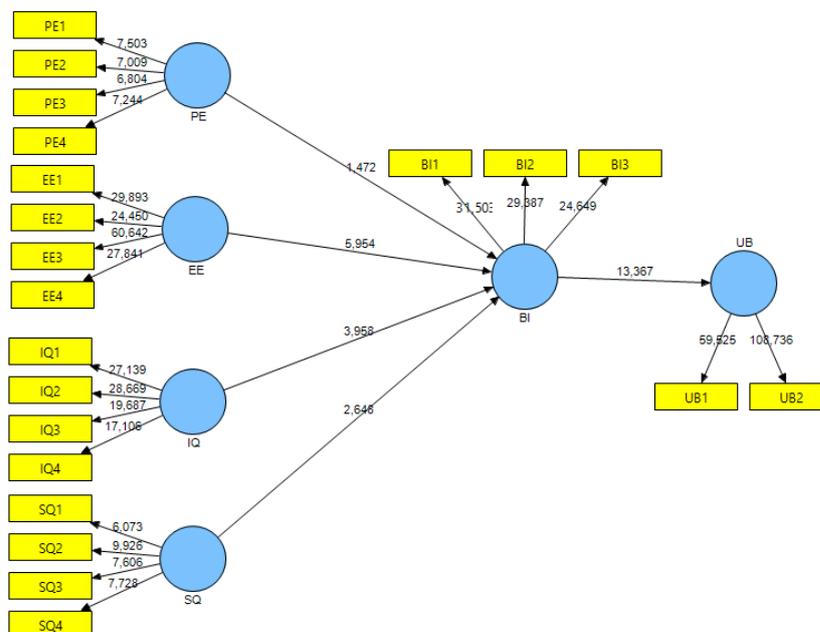


Fig. 4 T-Statistic Test Results

Based on Figure 4, it can be seen that the analysis of this research model results in the values of t-statistic for each construct variable which can be seen in Table 6 below.

Table 6 The Values of Path Coefficient and Statistic

Construct Correlation	Path Coefficient (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T-Statistic ( O/STERR )
PE→BI	0,085	0,092	0,058	0,058	1,472
EE→BI	0,369	0,367	0,062	0,062	5,954
IQ→BI	0,259	0,259	0,065	0,065	3,958
SQ→BI	0,127	0,141	0,048	0,048	2,647
BI→UB	0,589	0,590	0,044	0,044	13,366

Based on Table 6, the t-statistic value of each construct can be obtained. By using a significance level of 5% and a two-tailed hypothesis test then a t table value of 1.96 is obtained. It means that if the value of t-statistic is bigger than 1.96 then there is a significant influence between the exogenous latent variables and the endogenous latent variables tested. In Table 6, it can be seen that effort expectancy, information quality, and service quality have significant influence on the behavioral intention and the behavioral intention has a significant influence on use behavior. While performance expectancy does not have any significant effect on behavioral intention.

This study has the same research model and object with the previous one [4]. The difference between this research and that one is on the data analysis techniques used, in which the previous study used simple and multiple regression analysis. While this research uses PLS-SEM analysis and is conducted in 2016. The comparisons between the results of this research and the previous study are shown in Table 7 below.

Table 7 The Comparison of The Research Result

Construct Correlation	Dwiharnanto's Reseach (2015)		This Research (2016)	
	T-statistic		T-statistic	
PE→BI	1,985		1,472	
EE→BI	1,731		5,954	
IQ→BI	2,502		3,958	
SQ→BI	3,751		2,647	
BI→UB	11,419		13,366	
	R2		R2	
PE	BI	35,7%	37,1%	
EE				
IQ				
SQ				
BI→UB	25,1%		34,7%	

According to Table 7, in this research, effort expectancy has the biggest influence which significantly affects behavioural intention of digital open library Telkom University which is stated in the t test of 5.954. This result is in contrast to the previous study [4] which produced no significant influence with t test equal to 1.731. While the results of this study support the research done, there was a significant relationship between effort expectancy and behavioural intention in the use of digital library and student response system (SRS) [3] [10]. This condition indicates that ease of use of Open Library Telkom University perceived by students would significantly affect their interests in using the service. The ease factor in using digital library service Telkom University this year has become an important factor affecting the interests of

use compared with that of the previous year. This can be the influence of rapid advances in information technology so that the users will consider the convenience of the service before using it.

Information quality variable has a significant influence on the behavioral intention of digital library which is showed in the t test value of 3.958. This association is not found in the study of UTAUT [14], other studies have made information quality as one of the predictors of behavioral intention [3] [10] showed the same results that there is a significant relationship between information quality toward behavioral intention. Compared with the previous research [4], there is an increase of t value from 2.502 to become 3,958. This result indicates that at this time, the improvement of information quality provided by digital open library Telkom University becomes one of the important factors that affect the student interests in using digital open library Telkom University.

Service quality variable has a significant influence on the behavioral intention of digital open library Telkom University which is stated in the t test value of 2.647. The result of this study is consistent with the previous studies [3] [4] which showed a significant relationship between service quality and behavioral intention. Compared with the research in the previous year, there is a decline in the value of t test value obtained which is from 3,751 into 2,647. This result indicates that the quality of the service provided by Digital open library Telkom University is no longer to be the major factor affecting the student interests in using digital open library Telkom University.

Behavioral intention variable has a significant influence toward the use behavior of digital open library Telkom University which is stated in the t test value of 13.366. This result is consistent with the research of UTAUT [14] and the previous study [4] which state that there is a significant correlation between behavioral intention and use behavior of information system. Compared with the research in previous year, there is an increase in the t value obtained from 11.419 to 13.366. This result shows that there is an increase in the factors that affect the interests of students to use digital open library Telkom University. The interests will remain intact if the factors such as ease of use, quality of information, and the quality of service provided can be properly maintained.

Performance expectancy variable is a variable that does not have a significant influence on behavioral intention of digital open library Telkom University which is illustrated in the t test result of 1.472. This result has something in common with [17] in which the performance expectancy variable does not have any significant effect on behavioral intention to the use of I Pass in Taiwan, he said users were still using the traditional mechanisms of tickets in using MRT. In association with this research, performance expectancy factor does not significantly affect the interest of student in the use of digital library service on open library Telkom University. This can happen because students often look for the books catalog in the library directly through the shelves of books available as they haven't yet known specifically what books they want to search, and seeking directly can give an impulse to the other books around that might relate to the one(s) they are looking for.

Based on the value of R2 obtained which is 37.1% behavioral intention variation in this study could be explained by the variables of performance expectancy, effort expectancy, information quality, and service quality. While 34.7% of the use behavior variation can be described by use behavior variable. The test results using this PLS-SEM analysis techniques have improved compared with the previous study [4] which used linear regression analysis and was simple (35.7% → 37.1% and 25.1% → 34,7%). Thus, it can be concluded that this study is able to produce a better variance in explaining the factors that affect in the research model, compared with the past studies.

## 5. Conclusion

Conclusion on the results of this study is that the factors that influence students in receiving the digital library information system of open library Telkom University is sequentially starting from the greatest influence is effort expectancy, information quality, and service quality. These factors are the factors that affect student behavioral intention to use digital open library Telkom University. While behavioral intention significantly influences on the use behavior of digital open library Telkom University. The magnitude of effect from the factors influence the behavioral intention is amounted to 37.1%, whereas the magnitude of influence from the factors that affect use behavior is 34.7%.

The factors which are proven to affect students in accepting digital open library Telkom University are all factors that are known to have the ability to predict the effect of interest and the acceptance behavior to use the system so it can be used as an evaluation consideration in developing the work performance of open library Telkom University.

For the future study, the research can be done using other method with larger sample. So that the data obtained are more accurate. In addition, researcher can also calculate the existing work performance and work performance digital open library if it is developed

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## THE INFLUENCE OF USER EXPERIENCE TOWARD CUSTOMER LOYALTY THROUGH CUSTOMER BASED BRAND EQUITY IN SERVICE PROVIDER GSM IN INDONESIA

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**Abstract:** The cellular operators companies in Indonesia are competing to get customers. The market controlled by GSM mobile operators. The mobile operators are compete on a competitive basis in a variety of new breakthroughs products offered to raise or attract the number of customers. On the other hand, one of the challenges in building a strong brand is how to ensure that consumers have the right experience to products, services and marketing strategies that accompany.

This study aims to determine the effect of the user experience, such as: Service Quality, functionallity, trustworthiness, Social customer loyalty through customer based brand equity either simultaneously or partially. This study uses primary data by distributing questionnaires to 384 respondents in all regions of Indonesia. Non-probability sampling techniques are used in this type of convenience sampling to collect data. In this study using Cronbach Alpha and the product moment correlation to test the measurement scale. In addition, this study used path analysis (path analysis) to examine the test model of the relationship between the variables in the form of causation.

Based on the results of this study indicate user experience is consist of Service Quality, functionality, trustworthiness, Social simultaneously affect to customer based brand equity. It means that the user experience is able to influence the customer based brand equity in GSM mobile operator in Indonesia.

**Keywords:** *Customer loyalty, Service Quality, Functionallity, Trustworthiness, Social, brand equity, Customer Based Brand Equity*

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## 1. Introduction

Development of the telecommunications industry has become one of the important needs for Indonesian People. This is certainly a positive impact for industries engaged in telecommunications, especially for the mobile phone industry and cellular service provider industry. The existence of intense competition in the industry led to providers of mobile operators compete with each other to make various new breakthroughs on products offered to increase or attract the number of customers. The cellular industry moves to the business business that is in the field of BTS (Base Transceiver Station), Internet Service Provider, Digital Advertising, Bundling Handset, Joint Venture. (Hidranto, 2017).

One of the main drivers of business competition in the telecommunications industry is that cellular operators are increasingly making Telecommunication industry in Indonesia focus and update on all developments. The existence of the increasingly fierce competition phenomenon will move the service provider to always develop and increase market share that is by building Customer Based Brand Equity. There are only some operators who occupy the top four based on market share, Telkomsel by 45%, Indosat 21.6%, Tri 14.4% and XL-Axiata 14%. This means that mobile operators in Indonesia are 95% dominated by GSM operators (Indepth, 2017).

The existence of a brand owned by Telkomsel, Indosat, XL and Tri, which teaches the same target market makes the competition among brand operators to be unhealthy. Therefore, telecommunication companies have used the right branding strategy and meticulous to compete with other brands in order to create customer loyalty that continues to increase by measuring customer-based brand equity so as not to get caught up in the price war. Strong brands have a high customer base brand equity. Customer-based brand equity becomes a priority for every company, because of a strong customer-based brand equity to produce a loyal Customer. (Aaker, 2014).

Customer Number of mobile operators states that there is an increase in the number of subscribers from 2016 to 2017. Customer Number of mobile operators 2015 to 2016 that is in 2016 Telkomsel has subscribers as much as 153,641 million subscribers and now in 2017 Telkomsel as much as 173.9 million subscribers. 2016 Indosat has 70.0 million subscribers subscribers, then 2017 Indosat 81.6 million subscribers. By 2016 XL- Axiata has a subscriber count of 42.5 million subscribers and for 2017 XL-Axiata of 48 million subscribers. And Tri of 2016 has subscribers totaling 55.5 million subscribers and by 2017 Tri owns 56.5 million subscribers. (Pamungkas, 2017).

However, if viewed from the explanation Average Revenue Per User on four GSM mobile operators. Although the number of customer numbers on four mobile operators increases but it can not be ascertained whether for higher Average Revenue Per User, it can create value and profitability of the company. Due to intense competition in attracting customers. Average Revenue Per User Telkomsel in 2017 for Rp.45000, Indosat Ooredoo Rp.25000, XL-Axiata Rp.35.000 and Tri Rp. 24,000. (Annual Report, 2017) so even though the number of cellular subscribers from 2015 to 2017 increased, the Average Revenue Per User from each mobile operator tended to stagnate. The competitive conditions of the Telecommunication Industry make the advantage of certain operators will decrease, due to the users of mobile operators Have a desire to have cellular operators that provide low prices for SMS and phone services, as well as fast internet access, but the facts have not been able to fulfill that desire, causing customers to move from one operator to another operator. The rate of churn rate. In this case, the churn rate in the cellular operator market ranges from 12% to 15%, (Roesdione, 2016) which is a fairly high number for the churn rate of cellular operators, and the churn rate is also dependent on their respective mobile operators. This is triggered by the low price of the card and triggered the high level of churn rate and decreased user loyalty of mobile operators.

Mobile operators must build a brand that has more value in order to avoid an increase in churn rate, Loyalty rate on the use of a brand decreases, because when customer- based brand equity is created when the Customer already has a high awareness and sensitivity with the brand, But unfortunately is the war between Brand mobile operators, even bad impact because it leads to decreased product quality, revenue, customer loyalty level and churn rate. (Roesdione, 2016) Thus customer loyalty becomes one measure used in measuring the success of the company.

On the other hand, each of the cellular operators has many service equations that are offered because a brand must have an edge. One of the challenges in building a strong brand is how to ensure that consumers have the right experience of the products, services and marketing strategies that accompany them, so as to how good the level of service delivered is in accordance with customer expectations, Users to meet their needs and achieve their goals Functionality, relates to the confidence level customers feel when using products Trustworthiness, related to social participation that allows user interaction with various on existing products Social as the dimensions of the user Experience can be associated with the brand.(Cerejo, 2012).

## **2. Research Methodology**

This Research takes a quantitative and using path analysis. approach and will be conducted in four stage, namely literature review, Framework, Data collection, Data analysis and conclusion.

Literature review is an essential stage in conducting the research project. Before undertaking the literature review, problem statement objectives of the research will be identified by using sources such academic journals, dissertations, textbooks, articles and the internet.

The second stage is to collect raw data to be analyzed in this research in order to achieve the set objectives identified. A questionnaire survey are the whole Indonesian people who use a mobile operator Telkomsel, Indosat, XL-Axiata and Tri.

The third stage is to convert the raw data collected to required information data was analyzed using Statistical Product and Service Solutions. From there, the main dimension Service quality, Functionality, Trustworthiness, Social will effect the customer loyal.

In the final stage, the findings of the study were analyzed in relation to the objective of this research in addition, recommendations and suggestions for Mobile carrier companies must improve in terms of quality of service, convenience, affordable prices for customers, programs and services that attract customers loyal to the brand of the product And also positive impact in improving a value, brand equity and profitability for GSM cellular operator company, namely Telkomsel with Simpatinya, Indosat with its im3, XL-Axita with its XL and Hutchinson 3 Indonesia with Tri.

## **3. Literatur Review**

(Schmitt, 2012) defines “Experiences are private events that occur in response to some stimulation” Is a personal event or a person that occurs due to a certain stimulus (eg given by the marketer before and after the purchase of goods or services) Meanwhile, according to (Pine and Gilmore, 2011) argue that “Experience are event that engage individuals in a personal way” Which means experience is an event that occurs and binds to each individual personally.

(Garret, 2011) defines User Experience as the experience of a product or service created for someone who uses it in the real world. User Experience is attributed as the achievement of a product or service that is considered successful or failure by the user. (Garret, 2011) User Experience as understanding something that users feel, seen where users need experience in using the product.

(Kraft, 2012) Defines User experience as the feelings that the user gets when using a product. Using feelings as a comparison model allows us to understand that the user experience can be anything from hate to love. From anger to happiness. From indifference to passion. From expectance to nostalgia. From pride to humiliation. And so forth.

Brand Equity according to (Fandy Tjiptono, 2014) develops from producer identifiers into product identifiers and then becomes a brand asset / equity, where the ability to own and trade a brand, plus the opportunity to extend the brand's mergers and indicate that brand equity has the potential to exist indefinitely (Indefinitely) in marketing. Meanwhile, according to (Aaker in Tjiptono, 2011) brand equity is a series of brand assets and liabilities associated with a brand, its name and its symbol, which add or decrease the value of a given product or service to the company or its customers.

Customer Based Brand Equity According (Tjiptono, 2011) Customer-based customer equity Describes the creation of the brand into four dimensions: brand awareness, perceived quality, brand associations, and brand loyalty. According to the key keller model in creating brand-based customer equity is brand knowledge which consists of brand awareness and brand image

According to (Sheth and Mittal 2004 in Tjiptono, 2014) customer loyalty is the customer's commitment to a brand, store or supplier based on a very positive attitude and is reflected in a consistent repeat purchase. According to (Sumarwan in Sumarwan et al, 2011) consumer loyalty as consumers who are satisfied with the product or brand that is consumed or used and will buy back the product. Continuous repeated purchases of the same product and brand will show customer loyalty to the brand.

#### **4. Framework**

Competition Telecommunication industry, especially cellular phones that have owned Customer Based Brand Equity increasingly fierce with the increasing number of mobile operators competing in the market. The competition of the telecommunications industry certainly makes the producers do various ways to attract interest Mobile carrier users, one of them giving different experiences to each product. Facing the problem of research background, the researcher wanted to know the effect of User xperience to Customer Loyalty through customer base Brand Equity on GSM cellular operator in Indonesia. User Experience with 4 (four) dimensions of service quality, functionality, Trustwhortiness and social is the experience that users feel when using a product from one of the service provider. User experience is an important factor in determining whether or not a convenient product or service provided by the service provider This is because the user experience is a perceived experience by its users, of course, can be the basis of consideration of the operator's users to keep using the product or service so that the company The service provider will have a fixed customer who is certainly loyal and profitable company. Customer Loyalty itself demonstrates a commitment to continue to use the products and services consistently and sustainably offered by the service provider. While Custmer Based Brand Equity is a product and service offered by 4 (four) namely Telkomsel with its sympathy, Indosat with its IM3, XL with its XL and Tri with Tri which respectively have more value among operators. Customer-based brand equity is an intervening variable which is an interrupt variable or between which lies between independent and dependent variables ie user experience variable with customer loyalty variable. The relationship of user experience and customer loyalty will be stronger if the

customer base brand equity service in telecommunication system is very good and the relationship is very weak if customer base brand equity less good. The dimension of the user experience will determine the level of Customer Based Brand Equity, meaning that the increased User Experience perceived by the user must improve Customer Based Brand Equity to the operator. User Experience is also a determinant factor of loyalty. If the user feels the service to the operator, will certainly grow the sense of loyal user to the operator. Further Customer Based Brand Equity is an Intervening variable between User Experience with Customer Loyalty, meaning that the higher service quality on the operator will certainly improve Customer Based Brand Equity so that the User will feel loyal to the operator. User Experience and Customer Loyalty relationships will be stronger if the role of the operator in creating telecommunication services is very good, and the lower the relationship if the role of the operator is not good in creating telecommunication services. Based on the framework below, which the investigators confirm is based on the research minds of (Deng's research, Zhaohua et al, 2009) Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China relationship between user experience, customer based Brand Equity and customer loyalty can be described in the following framework.

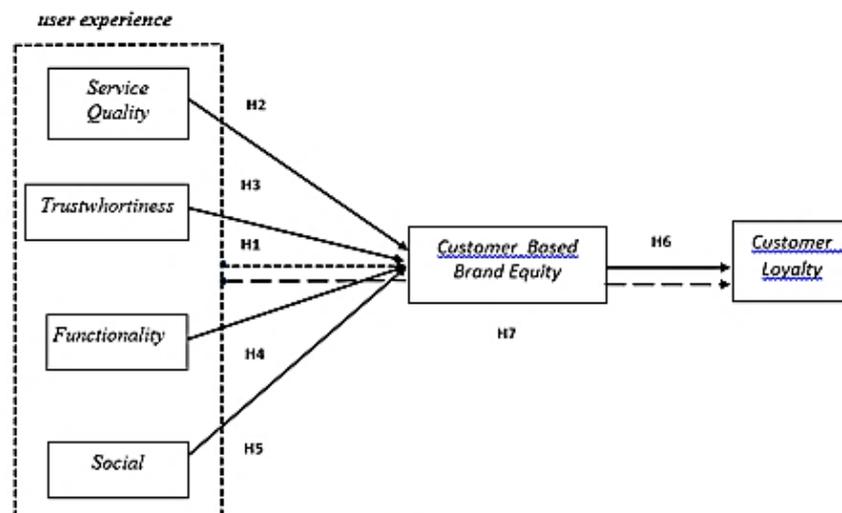


Fig. 1. Framework

## 5. Research Hypothesis

This study uses a Path Analysis which was considered quite comprehensively evaluating of the relationship between the variables of cause and effect. Thus in the relationship model among these variables there are independent variables in this case called exogenous variables and dependent variables called endogenous variables. Sugiyono, 2015). The path diagram model for drawing the objective of the influence of user experience on customer loyalty through customer-based brand equity

H1: There is a significant dimension simultaneously influence the user experience to a customer-based brand equity in the GSM operators in Indonesia.

H2: There is a significant Service Quality influence on customer-based brand equity in GSM operators in Indonesia.

H3: There is significant Trustworthiness influence on customer-based brand equity in GSM operators in Indonesia

H4: There is significant Functionality influence to customer base brand equity in GSM operator in Indonesia

H5: There is a significant Social impact on customer-based brand equity in GSM operators in Indonesia

H6: There is a significant customer based brand equity influence to customer loyalty in GSM operators in Indonesia

H7: There is significant of user experiencee influence dimension to customer loyalty through customer base brand equity in GSM operator in Indonesia

## 6. Data analysis Approach

This study to analyze how the influence of User Experience on Customer Loyalty through Customer Based Brand Equity, the author will use quantitative data. Because in this study test the theory, build facts, show the relationship between the variable User Experience, Customer Loyalty and Customer Based Brand Equity and provide a description, then the approach chosen is through the approach of quantitative methods. The research objectives used are causal. Data processing research will use inferential statistics And the analytical tool used is the path analyst. And This study uses cross section

This research sampling technique used for sampling is non probability sampling. Non-probability sampling technique used is convenience sampling. To determine the sample size with a large population, the researchers can use the Cochran formula (Sarwono, 2011).

$$n_0 = \frac{Z^2 (\alpha/2) pq}{\dots}$$

The proportion is assumed to be  $p = 0,5$  and confidence level of 95%, that the value of  $z = 1,96$ . Level of accuracy is 5%. It can be concluded that the minimum sample that should be taken 384 respondents, in this case 384 respondents is the total of respondents in 4 GSM mobile operators in Indonesia

Causal relationship between variables to be studied, the researchers used path analysis. (Sugiyono, 2015). Path analysis model for drawing the purpose of research influence the user experience on customer loyalty through customer-based brand equity, is:

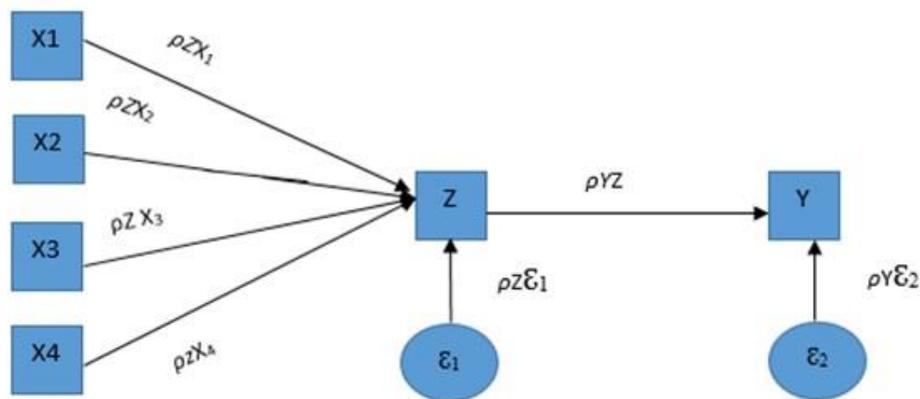


Figure 2 Path Analysis Model

The structural equation when each dependent variable or endogen is uniquely determined by a set of independent or exogenous variables. This equation  $Z = f(X_1, X_2, X_3, X_4)$  and  $Y = f$

(Z) is the path of structural equation because each equation. (Sanusi, 2011) describes the causal relationship of exogenous variables  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  to endogenous variable Z and variable Z to Y

The structural equations of path diagrams include:

$$Z = \rho ZX_1 + \rho ZX_2 + \rho ZX_3 + \rho ZX_4 + \rho Z\epsilon_1, \dots \text{Substructure 1}$$

$$Y = \rho yz + \rho Y\epsilon_2, \dots \text{Substructure 2}$$

## 7. Research and findings Result

Respondents in this Research are current users who use one GSM operator Telkomsel with Simpati Indosat with IM3 XL-Axiata with XL and Hutchinson 3 with Tri. The total number of respondents taken as a research is 384 users and overall users who become respondents have met the requirements of screening that is the customer or the user had used one of GSM operator Telkomsel with Simpatinya Indosat with its IM3 XL-Axiata with XL and Hutchinson 3 with Tri.

This Research Shows the gender of female respondents with a percentage of 52.6%, and men with a percentage of 47.4%. Next for Research of age between 10-20 years with percentage 13%, age 21-30 years with percentage 34.10%, age 31-40 years with percentage 23.70%, then age 41-50 years with percentage 21.40% and age > 50 years with Percentage of 7.80%. Next for Research of education Senior high school with a percentage of 34.60%, Bachelor degree With a percentage of 29.90%, postgraduate With a percentage of 15.4%, Doctor With a percentage of 2.90%, Junior High School With a percentage of 7.8%, and elementary School With a percentage 1.6%. Next for Research of profession college student With a percentage 36.50%, Civil servants with a percentage of 21.90%, Private employees with a percentage of 19%, Entrepreneurs with a percentage of 15.10%,

Housewives with a percentage of 68%. Next for Research of Domicile West indonesia region With percentage of 57.30%, Central indonesia with percentage 23.70%, east indonesia region with percentage of 19%. Next for Research of income Average income of respondents < 1 million with percentage 13.50%, Income from 1 million-2 million with percentage 30.50% Income from 2 million - 3 million with percentage 9.60%, Income from 3 million - 4 million with percentage of 20.80%, And income > 5 million with a percentage of 25.50%. %. Next for Research of Cellular operator used Operator of telkomsel with percentage of 37.20%, Indosat with a percentage of 25.80%, XL-Axiata with percentage of 20.60%, Hutchison 3 with a percentage of 16.40%.

Based calculation Table 1 F Test Value and Table 2 R Square Value , it can be seen that in column R square, there is a number of 0,365 indicating that how big is correlation of Service Quality, Functionality, Trustworthiness and Social variable to customer base brand equity in cellular operator in Indonesia simultaneously or simultaneously. The value of F value > F table is  $54.458 > 2.41$  then  $H_0$  rejected and  $H_1$  is accepted, it means that the user experience variable (Service Quality, Functionality, Trustworthiness and Social) to customer base brand equity in mobile operator in Indonesia simultaneously have significant influence To customer-based brand equity.

## A. Simultaneous Path Coefficient Testing

Table 1 F Test Value Output SPSS 23

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4171.292	4	1042.823	54.458	.000 <sup>b</sup>
	Residual	7257.518	379	19.149		
	Total	11428.810	383			

a. Dependent Variable: CBBE  
b. Predictors: (Constant), Social, Trustworthiness, Functionality, service\_quality

Table 2 R Square Value Output SPSS 23

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604 <sup>a</sup>	.365	.358	4.37597

a. Predictors: (Constant), Social, Trustworthiness, Functionality, service\_quality

Based on the calculation table 3 above that partially there is a significant influence on the dimensions of user experience that is Service Quality, and Social where  $t$  count  $>$   $t$  tabel. Whereas Functionality partially has no significant effect on customer based brand equity because it has sig value, equal to  $0.753 > 0.05$  and has a  $t$  value of  $0.314 < 1.96$  so  $H_0$  accepted and  $H_1$  is rejected, and Trustworthiness partially has no significant effect on Customer-based brand equity because it has a sig value of  $0.637 > 0.05$  and has a  $t$  value of  $0.473 < 1.96$  so that  $H_0$  accepted and  $H_1$  is rejected. Based on the partial path coefficient can illustrate the path diagram:

## B. Partial Path Coefficient Testing

Table 3 T Test Value Output SPSS 23

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	18.444	1.751		10.536	.000
	service_quality	.244	.105	.124	2.327	.020
	Trustworthiness	.070	.149	.021	.473	.637
	Functionality	.051	.162	.017	.314	.753
	Social	3.271	.243	.562	13.486	.000

a. Dependent Variable: CBBE

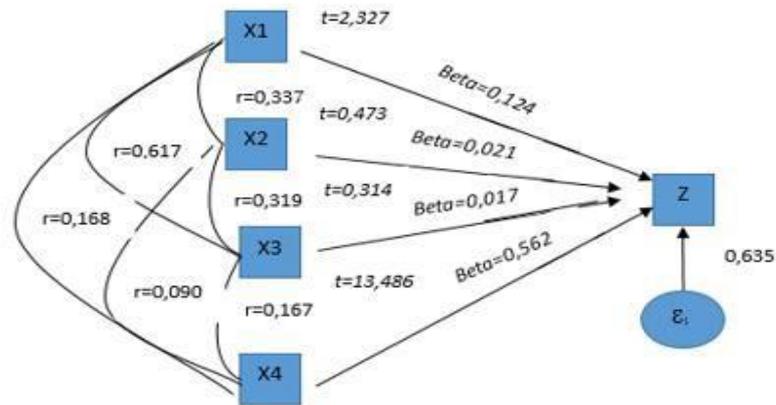


Figure 3 Path Analysis Model With the structural equation as follows:

The structural equation of 1 retest is formed

$$Z = 0,124 (X_1) + 0,021 (X_2) + 0,017 (X_3) + 0,562 (X_4) + \varepsilon_1 0,635$$

Here are the results The direct and indirect effects of the four variables against z are listed as follows:

Table 4 Results of path analysis of the regression model:

variabel	Pengaruh langsung	Pengaruh tidak langsung melalui variabel				Jumlah	Pengaruh Total
		X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>		
X <sub>1</sub>	0,124	-	0,007	0,010	0,094	0,235	0,029
X <sub>2</sub>	0,021	0,041	-	0,005	0,05	0,117	0,002
X <sub>3</sub>	0,017	0,076	0,006	-	0,09	0,172	0,002
X <sub>4</sub>	0,562	0,02	0,001	0,002	-	0,585	0,328
<b>R square</b>							<b>0,365</b>
<b>Residu</b>							<b>0,635</b>

From table 4 above It appears that the variables X<sub>1</sub>, X<sub>4</sub> have the greatest influence on Z. with each coefficient of 0.124 and 0.562 while the variables X<sub>2</sub> and X<sub>3</sub> have a small direct effect, that is equal to 0.021 and 0.017. Based on this information, if allowed to modify the causal relationship model through the selection of variables based on statistical considerations and if this is also allowed by the theory in the sense that the selection of variables X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub> does not violate the existing theory can be formulated the best regression equation by issuing variables X<sub>2</sub> and X<sub>3</sub>.

### C. Trimming model path coefficient test simultaneously.

Trimming path coefficient test simultaneously is done after eliminating Functionality and Trustworthiness dimension to rename the path analysis structure model.

Table 5 F test re-test results Output SPSS 23

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4164.132	2	2082.066	109.195	.000 <sup>b</sup>
	Residual	7264.679	381	19.067		
	Total	11428.810	383			

a. Dependent Variable: cbbe

b. Predictors: (Constant), social, service\_quality

Table 6 R-square Value test results Output SPSS 23

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.604 <sup>a</sup>	.364	.361	4.36662

a. Predictors: (Constant), social, service\_quality

Based on the above calculation shows that R square after Trimming is 0.364 shows that how big correlation of service quality and social variable to customer based brand equity in GSM mobile operator in Indonesia together or simultaneously. F value > F table is 109,195 > 3,04 then  $H_0$  rejected and  $H_1$  accepted, this means that user experience variable (service quality and social) to customer base brand equity on GSM operator seluler in Indonesia simultaneously have significant influence to customer base brand equity.

#### D. Trimming Path Model Coefficient Test Partially Substructure 1

Table 7 T Test Value Output SPSS 23

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.167	1.156		16.581	.000
	service_quality	.277	.082	.141	3.393	.001
	social	3.282	.241	.564	13.606	.000

a. Dependent Variable: cbbe

Based on the above calculation shows that service quality and social partially have a significant influence on customer-based brand equity where each dimension has increased value of service quality before trimming 2.327 after trimming 3.393 and social before trimming 13.486 and after trimming 13.606. Based on the partial path coefficient after trimming can illustrate the path diagram as follows:

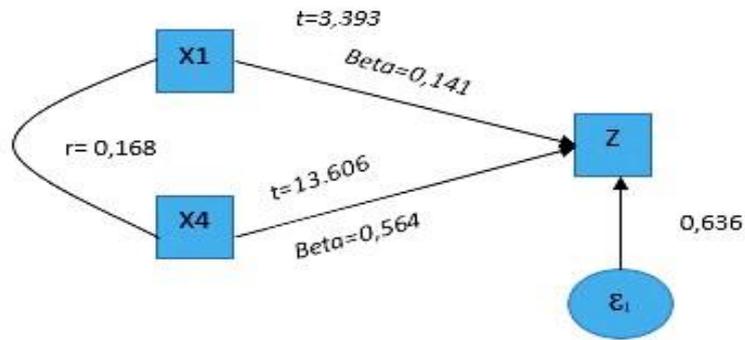


Figure 4 Trimming Path Analysis Model

Based on the partial path coefficient after trimming can be illustrated the path diagram as follows The structural equation of 1 retest is formed:

$$Z = 0,141 (X_1) + 0,564 (X_4) + \varepsilon_1 0,636$$

Here are the results The direct and indirect effects of the four variables against z are poured as shown in Table 8 below:

Table 8 Results of path analysis of the regression model

variabel	Pengaruh langsung	Pengaruh tidak langsung melalui variabel		Jumlah	Pengaruh Total
		X <sub>1</sub>	X <sub>4</sub>		
X <sub>1</sub>	0,141	-	0,0947	0,2357	0,033
X <sub>4</sub>	0,564	0,023	-	0,587	0,331
<b>R square</b>					0,364
<b>Residu</b>					0,636

From table 8 above It appears that the variables x1, x4 have the greatest effect on z. With each having coefficients of 0.141 and 0.564

### E. Testing of substructure model line coefficients 2

Table 9 The result of the coefficient of determination of sub-structure 2

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.265 <sup>a</sup>	.070	.068	1.730

a. Predictors: (Constant), CBBE

Based on table 9 It can be seen that the magnitude of R square (R2) is 0.070 used to see the magnitude of the effect of variable Z on Y by calculating the coefficient of determination (KD) by using the formula as follows:  $KD = R^2 \times 100\% = 0,070 \times 100\% = 7 \%$

Table 10 The result of partial effect of Z test against Y

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.898	.502		15.721	.000
	CBBE	.087	.016	.265	5.375	.000

a. Dependent Variable: customer\_loyalty

The influence of CBBE on Customer Loyalty (Y) variable can be seen in table 10 is 5.375 which is bigger than 1,960, it can be stated that  $H_0$  is rejected and  $H_1$  accepted, test of significance at output result of SPSS data calculation version 23 shows a significant result with a significance t (sig.t) of 0.0001 which this significance is greater than the level of significance Which is used is 0,05 thus can be concluded that CBBE (Customer Based brand equity) have a significant effect to Customer Loyalty. The following models on the two substructures that can be presented in Figure 5 as follows:

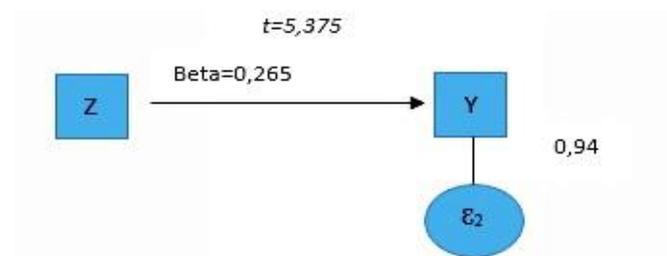


Figure 5 Trimming Path Analysis Model

In case based on Figure 5 it can be seen that the effect of Z on Y is 0,265 and residual Value 0,94. The following structural equation 2 of the retest is formed  $Y = 0.265 (Z) + \epsilon_2 0.94$

Thus the overall structure model as shown in Figure 6

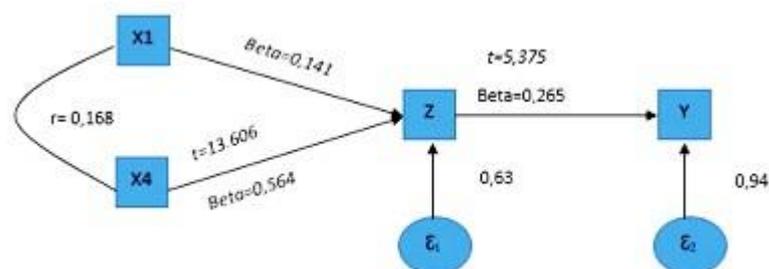


Figure 6 Model Path overall analysis

## 8. Analysis of direct, indirect and total influences

### Direct influence

The effect of  $X_1$ ,  $X_2$ ,  $X_3$ ,  $X_4$  on  $Z$  and From  $Z$  to  $Y$  or more simply can be presented as follows

$$\longrightarrow X_1 \quad Z = 0,141$$

$$\longrightarrow X_4 \quad Z = 0,564$$

$$\longrightarrow Z \quad Y = 0,265$$

### Indirect influence

While the indirect effect of  $X_1$  to  $Y$  through  $Z$ , from  $X_2$  to  $Y$  through  $Z$ , from  $X_3$  to  $Y$  through  $Z$ , and  $X_4$  to  $Y$  through  $Z$  or more simply can be presented as follows:

$$\longrightarrow X_1 \quad \longrightarrow Z \quad Y \quad 0,141 \times 0,265 = 0,037$$

$$\longrightarrow X_4 \quad \longrightarrow Z \quad Y \quad 0,564 \times 0,265 = 0,149$$

### Total influence

The total effect is the sum of the direct and indirect effects as follows:

$$PT_{11} = 0,141 + 0,037 = 0,178$$

$$PT_{14} = 0,564 + 0,149 = 0,713$$

## 9. Discussion and Findings

This research is to know the loyalty of user of cellular phone operator product, which will form the user perception about brand from cellular operator is superior to its competitor. (Aaker, 2014) When consumers are not satisfied and consumers like to look for brand variation then he will be more motivated to switch brands. But when the individual is satisfied and he does not like looking for brand variation, he is less motivated to switch brands (Assael, 1998). So the mobile operator is said to be low involvement, because the product is not too risky for the consumer, if Consumers are not satisfied with a product, consumers can easily switch brands because of low involvement and small risk. (Kotler, 2000). Therefore, the competitive conditions of the Telecommunication Industry make profit from certain operators will decrease, causing the customers to move from one operator to another operator. (Roesdione, 2016) This can cause a change in the rise and the churn rate.

With that in mind, then the operator user will make the initial purchase until the user finally repurchases. Through this research will be known whether the user experience associated with customer loyalty

Based on the results of research on the influence of User Experience on Customer Loyalty through Customer Based Brand Equity on GSM operators in Indonesia by using path analysis techniques on Trimming results, it can be drawn conclusions that are expected to provide answers to this research question, as follows:

There is a significant influence simultaneously User experience to Customer-based brand equity on GSM operators in Indonesia, where the relationship between user experience variables to customer-based brand equity of 36.4%. For residual or residual value on both sides of variable equal to 63,6% and for analysis partially there is significant influence that is service quality and social.

There is significant partial influence of customer-based brand equity to customer loyalty to GSM operators in Indonesia. Which the relationship between customer based brand equity variable to customer loyalty is 7% and for residual or residual value on both sides variable is 93%.

There is significant influence of user experience dimension to customer loyalty through customer base brand equity in GSM operator in Indonesia. The analysis The direct impact of service quality, social and customer-based brand equity are 0.141, 0.564 and 0.265, respectively. And for indirect or through influence of 0.037 and 0.149 and a total influence of 0.178 and 0.713.

## 10. Recommendation

The mobile operator industry must continue to maintain and enhance brand recognition in mobile operator products, by creating a new product or service or program differentiation as well as developing innovatively on the mobile operator's brand identity through advertising or promotion, so customers feel familiar with brands and brand recalls from mobile carrier products. Mobile carrier companies must improve in terms of service quality, convenience, affordable prices for customers, programs and services that attract customers loyal to the brand of the product. And also a positive impact in improving a value, brand equity and profitability for GSM mobile operators, namely Telkomsel with Simpati, Indosat with its im3, XL-Axita with its XL and Hutchinson 3 Indonesia with Tri.

Customer-based brand equity also need to be considered by mobile operator company, where this relationship user experience and customer loyalty will be stronger if customer-based customer service brand equity in telecommunication system is very good and very weak relationship if customer base brand equity service is not good, will create consumers who are loyal to GSM mobile operators.

Trustwho Trustwhortiness and Functionality variables do not have a significant effect on customer-based brand equity. For that, from a Functionality point of view, the cellular operator must be able to create a better integrated cellular operator function to meet the needs of every customer. Then from the point of view of Trustwhortiness, cellular operators must be able to also provide a sense of trust and security continuously to customers, from all of that, in order to create a loyal consumer on mobile operators operator seluler

## 11. Acknowledgments

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## BEHAVIORAL STUDY IN CHOOSING THE UNCERTAINTY (PRELIMINARY STUDY)

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**Abstract:** This preliminary study aimed to discover how people think the uncertainty if they face some situations. The respondents asked to choose between cash money (Risk Taker) or combination between cash money and health insurance (Risk Averse) if their company provide the early retirement. The methodology which used in this paper are Cumulative Prospect Theory (CPT) and descriptive analysis which involve 102 respondents. The results of this study indicate that the respondents will be the risk taker when they facing the negative situation such paying premium for the insurance health. This result also appropriates with Embrey and Fox (1997) which mention that men more risk taker than women.

**Keywords:** risk taker, risk averse, uncertainty, cumulative prospect theory

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### 1. Introduction

Many managers try to manage the company to be more efficient and increase their profit. One of the methods is by offer the workers the pension facilities. In U.S. many employees can choose their pension program by automatically or voluntary (Agnew, 2010). While in Indonesia, many of workers enroll the pension when they appointed to be the permanent employee in a company. But, in other policies, many companies will offer the contract employee the pension program by automatically or voluntary.

This study examines the people choice when they offered by their company the early retirement program with some benefit, such as money or combination of money and insurance health. The main literature review in this study is Kahneman and Tversky (1979) about prospect theory on probabilistic insurance sub chapter and Tversky and Kahneman (1992) about advanced prospect theory to value the Cumulative Prospect Theory on this study.

The analyses of this study consist of two methods which consist of descriptive analysis from survey and CPT model valuation from Tversky and Kahneman (1992) paper. In this survey, the respondents was asked 3 (three) questions about early retirement program to the respondents via online media, then, the result of survey compared with CPT model.

The organization of this study consist of the Section 2 explains about the literature review which used in his study. Section 3 is the data respondent, the question and assumption to restrict the study. Section 4 examine about the methodology which consists of descriptive analysis and CPT valuation. Section 5 examine about result and analysis, then Section 6 conclusions of this study.

## 2. Literature Review

The main main idea of this paper came from Daniel Kahneman and Amos Tversky's paper (1979) which examine about prospect theory. On this paper, Kahneman and Tversky examine about probabilistic insurance which they say that "people often prefer insurance programs that offer limited coverage with low or zero deductible over comparable policies that offer higher maximal coverage with higher deductibles". This statement support by an example about odd and even insurance which offer to the 95 Stanford University students, and examined that probabilistic insurance was the people's responses of insurance type which inconsistent with concavity hypothesis.

Other discussion on Kahneman and Tversky (1979) paper was about reflection effect which examine about the mirror image or negative preference between positive preferences. This discussion suggests that when people face the negative preference they will be riskier than they face the positive preferences.

On the study about union and nonunion of pension plan, Freeman (1985) examine "two faces" model of unionism to pension plans. On talking about unions, freeman has four basic finding, these are: unions alter the determinants of pension coverage, unions alter the provision for the pension and equalize all of the workers and alter the provision for the senior worker, union estimates the age earning profile of the worker, and finally, union pension shun the stock of nonunion firms. In the paper, he examined the union pension plans preference to the senior worker. Stewart uses a panel dataset from March CPSs from 1979 until 1980 and 1983 until 1984. He found that for union pension plan, the survivor probability drops from 30% to 15% between age 64 and 65. But for nonunion pension plans the drop can be from 27% to 22%.

Stewart (1997) support the hypothesis from Freeman (1985) and Parson (1983), he told about union and nonunion firm and employee behavior. From Parson's model, he shown that employee productivity will decrease along with the age's employee, so the union pension will encourage them to take early retirement.

On pension literature study, Borsch-Supan, Koke and Winter (2005) which they documented the population aging will affect to pension reform that it will change the saving behavior of the capital market. They examined that when 2015 and 2025, the saving behavior will increase because of population aging.

For the pension participant, the money that they will get must be managed carefully and right, Oehler and Werner (2008) examine the financial education in case Germany and UK which pension and old age provision can increase the financial literacy to the people who have education about financial. This paper shows that financial education such as advice and training can encourage financial behavior, especially targeting to pensions such Germany case.

The other study, Landerretche and Martinez (2013) documented the study about financial behavior in Chileans which the financial literacy affects to the financial behavior, it shows that people will save more when they know about pension system.

On the pension rule today, the pension benefit not only for the employees who had been work for a long time, but some company will offer the early retirement to the employee as compensation before the age for pension over. Sometime the problem comes when the employees manage the retirement money to continue their life and facing the uncertainty, or using it not only for safe their next life but also try to find the new source of money by investing in some sector.

Embrey and Fox (1997) used the Survey of Consumer Finances (SCF) on 1995 to find the behavioral between men and women to making an investment decision, they found that men are more risk taker than women.

Other study about financial decision based on gender came from Iqbal, Sweon and Baek (2006), the paper examine the financial decision between males and females executives on selling stock. The data taken from 2000 version of S&P ExecuCamp database with 20.622 executive, which consists of 905 female executives and 19.717 male executives, but the sample was 69.7667 per-year observation in which 67.004 was male executive's transactions and 2.763 was female executive's transactions. This study found that female executive not show higher risk aversion than male executive, which female executive selling the stock fewer than male in new stock option chance.

Nofsinger and Varma (2009) examined the gender differences in time and risk for financial planner. The sample was 108 financial planners which consist of 30 female and 78 male, they conclude that there was no risk aversion on professional planner, which female planner more likely to exhibit the prospect theory risk tendencies and they have more patient than male.

### 3. Data, Questions, and Assumptions

#### 3.1. Data

The data obtained from 102 people who has job and still working which spread randomly by using online media. The respondents asked about what will they choose if the company offers them the early retirement with benefit are cash money or combination between cash money and health insurance.

The data consist of 59 men or 58% and 43 women or 42%. It dominated by respondents between 26 until 30 years old as 56%. From education, it dominated by bachelor as 58%. The occupation of respondents dominated by private employee as 64% with working period 2 until 4 years as 25% and 4 until 6 year as 25%. And the salary of respondents dominated by IDR 2.500.001 until 5.000.000 as 32%.

**Table 1** Personal Data of Respondents

Variables	Men	Women	Total
Age (in year)			
20 – 25	11	14	25
26 – 30	32	25	57
31 – 35	10	4	14
36 – 40	4	0	4
41 – 45	1	0	1
>46	1	0	1
Education			
High School	2	0	2
Senior High School	12	3	15
Diploma	2	3	5
Bachelor	30	29	59
Magister	13	8	21
Doctor	0	0	0
Occupation			
Banking Employee	1	2	3
Private Own Enterprise Employee	4	8	12
Private Employee	42	23	65
Other	12	10	22
Working Period (in years)			

<b>Variables</b>	<b>Men</b>	<b>Women</b>	<b>Total</b>
0 – 2,0	14	9	23
2,1 – 4,0	9	17	26
4,1 – 6,0	14	12	26
6,1 – 8,0	9	4	13
8,1 – 10,0	5	1	6
>10,0	8	0	8
Salary (in IDR/month)			
<1.000.000	1	1	2
1.000.000 until 2.500.000	5	11	16
2.500.001 until 5.000.000	18	15	33
5.000.001 until 7.500.000	12	9	21
7.500.001 until 10.000.000	5	4	9
>10.000.001	18	3	21

Others question talking about the insurance profile which consists of insurance provision. On insurance provision in the company of each respondents, it dominated by there is insurance provision in the respondent's company as 52% and 48% no insurance provision. On insurance management, 39% of the respondents show that the insurance is covered by insurance company, than 28% of the respondent show that the is insurance is covered by the pension fund under the company, and 33% of them consist of the respondent do not know who manage their insurance and other insurance institution like DPLK on the bank or using government insurance such BPJS Tenaga Kerja.

On the participation of the respondents to the insurance, 64% answer "yes", they follow the insurance program that their company offer, 33% answer "no" and 3% answer "other", it caused by they do not whether the company followed them the insurance or not. And the last, the respondents asked about the type of participation. 61% of the respondents follow the company insurance automatically, 33% of respondents as voluntary, and 6% of them do not answer the question.

**Table 2** The Insurance Profile of Respondents

<b>Variables</b>	<b>Men</b>	<b>Women</b>	<b>Total</b>
Insurance Provision in The Company			
Yes	28	25	53
No	31	18	49
Insurance Management by			
Insurance Company	25	15	40
Pension Fund under the Company	12	16	28
Other	22	12	34
Participation of the Respondents			
Yes	35	30	65
No	23	11	34
Other	1	2	3
Type of Participation			
Automatically	32	30	62
Voluntary	24	10	34
Other	3	3	6

### 3.2. Questions

The question that asked the respondents consists of 3 (three) questions which every question consists of 2 (two) difference choice.

#### Question 1 :

- (a) Get retirement money IDR 600 million, but do not get health insurance care
- (b) Get retirement IDR 450 million, and still get health insurance care until 55 years

#### Question 2 :

- (a) Get retirement money IDR 600 million, but do not get health insurance care
- (b) Get retirement IDR 300 million, and still get health insurance care until 65 years

#### Question 3 :

- (a) Get retirement money IDR 600 million, but do not get health insurance care
- (b) Get retirement IDR 150 million, and still get health insurance care until death

The choices on every question have the same pattern that is on the first statement has the same statement (a), its mean by Risk Taker because of the respondents loss the chance to get the insurance health. Then, for statement (b1), (b2), and (b3) has the different statement or intended as Risk Averse because the respondents still have chance to get insurance health although with different probability. This framing of question intended to get the behavioral flow from the respondent.

### 3.3. Assumptions

To restrict the question, the respondents are given some assumption such :

- a) Company offers the Early Retirement
- b) The Productivity Age in the company until 55 years, and the participant today's age is 46 years
- c) Begin to work on 25 years or having 20 years working years
- d) The company has own Health Care Unit, with premium IDR 15 million/year for the worker (husband/wife) and 3 children
- e) The insurance coverage until IDR 300 million/year
- f) The assumption of every statement of the question consist of:

Table 3 Assumptions

For Statement (a)		
1%	(-) IDR 400 million	The respondent will expense IDR 100 million from insurance coverage if they use insurance health
1%	(-) IDR 200 million	The respondent will save IDR 100 million from insurance coverage if they use insurance health
8%	0	The respondent will save if they use insurance health
For Statement (b1), (b2), and (b3)		
100%	(-) IDR 300 million	The respondent will get insurance coverage, from premium that they pay

#### 4. Methodology

The methodology which used in this paper consists of two kind, these are Cumulative Prospect Theory (CPT) and Descriptive Analysis. CPT has come from Tversky and Kahneman (1992) which examine the scaling and the function form of prospect theory.

The two-part power function of the cumulative prospect theory is :

$$v(x) = \begin{cases} x^\alpha & \text{if } x \geq 0 \\ -\lambda(-x)^\beta & \text{if } x < 0. \end{cases} \quad (1)$$

The weighting function of the cumulative prospect theory which assume as linear value function is :

$$w^+(p) = \frac{p^\gamma}{(p^\gamma + (1-p)^\gamma)^{1/\gamma}}, \quad w^-(p) = \frac{p^\delta}{(p^\delta + (1-p)^\delta)^{1/\delta}}. \quad (2)$$

With scaling above, so the value function of cumulative prospect theory is :

$$\begin{aligned} V(f) &= V(f^+) + V(f^-), \\ V(f^+) &= \sum_{i=0}^n \pi_i^+ v(x_i), \quad V(f^-) = \sum_{i=-m}^0 \pi_i^- v(x_i), \end{aligned} \quad (3)$$

By using Tversky and Kahneman (1992) CPT model and with reference value from their paper such  $\delta=0.69$  ;  $\beta=0.88$  ;  $\lambda=2.25$  ;  $\gamma=0.6$  ;  $\alpha=0.89$ . the CPT for this survey behavioral finance result are :

- For Statement (a), the value function of CPT model is -51,162
- For Statement (b1), (b2), and (b3), the value function of CPT model is -64,871

From the CPT model, it shows that the respondents prefer statement (a) than statement (b1), (b2), and (b3), it is mean that they will choose to get retirement IDR 600 million and do not get insurance health than get money with insurance health.

Other methodology that used in this paper is descriptive analysis. This methodology used to know the real situation of the people to facing the uncertainty such as health. This methodology using the simple descriptive figure to show the comparison of many variables that used.

#### 5. Result and Analysis

The result of this paper combination between of Cumulative Prospect Theory (CPT) and Descriptive Analysis.

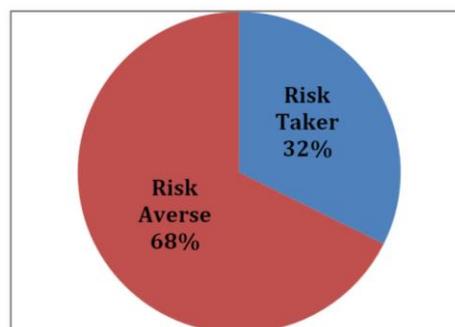


Fig. 1. Result for Question 1

From three questions that have been asked, it shows how respondent's behavior to face the uncertainty situation to be risk averse or risk taker. On Question 1, respondents offered to get early retirement money IDR 600 million without health insurance care (Risk Taker) or get IDR 450 million and still get health insurance care until the respondents 55 years old (Risk Averse).

The result shows that 68% of the respondents choose to get the insurance health until 55 years old, they avoid the uncertainty situation (health) and prefer to choose the certainty which is the health insurance care which covered the respondent health until 55 years.

Comparisons between the CPT model result and survey result on this Question 1 explain that the respondents prefer to get the insurance health (Risk Averse) than get money IDR 600 million without health insurance. This survey not suitable with CPT model because on CPT model the result is the respondent prefer to be Risk Taker chooses to get IDR 600 million without insurance health than IDR 450 million with insurance health care until 55 years old.

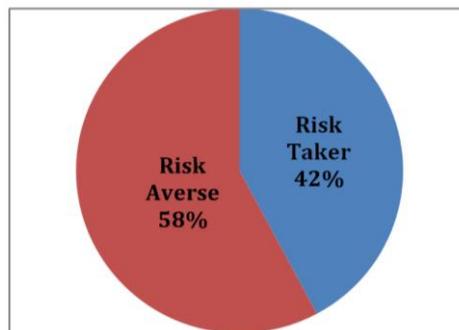


Fig. 2. Result for Question 2

The result of question 2 indicated on figure above. It show that although the probability of insurance premium decrease until 50% from IDR 600 million, the respondent still prefer to choose IDR 300 million and get insurance health until 65 years (Risk Averse) by 58% than get IDR 600 million and do not get insurance health (Risk Taker) by 42%.

This question reflects that respondent still thinking rationally by calculating his ratio of life. They choose to still get insurance health although the money decreases until 50% or they just get IDR 300 million. When the Question 2 compared with CPT model, the result examines that the respondents prefer to be Risk Taker than Risk Averse, so it not suitable the survey result, this result same with Question 1.

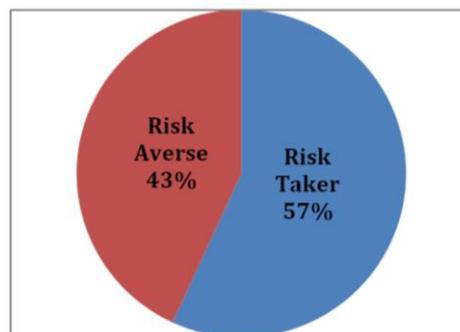


Fig. 3. Result for Question 3

The last survey result is reflected on Question 3 which show that the respondents prefer to get IDR 600 million and do not get insurance health (Risk Taker) by 57% than get IDR 150 million and get insurance health until death (Risk Averse).

The result from Question 3 is very different with Question 1 and 2. It is very interesting because it shows that the respondent will be irrational when they facing the amount of money that offered to them, they do not calculate their ratio of life and the probability of their healthy. This result appropriates with reflection effect on Kahneman and Tversky (1979) paper which examine that when people facing the negative outcome, they will be Risk Taker.

According to Kahneman and Tversky mention it reflect the behavior of people to facing the uncertainty. They prefer to not buy insurance program to protect them from the uncertainty such as health. This is appropriate with the government of Indonesia program which launching the BPJS Kesehatan on 2013 to aware the Indonesia people about how important insurance health. On this program, every single person could choose what insurance they want based on their ability.

According to the CPT model, the result matched with the survey, it means that the respondent will choose Risk Taker or prefer to get IDR 600 million without insurance health than get IDR 150 million with insurance health until death. They avoid the insurance health care and prefer to face the uncertainty.

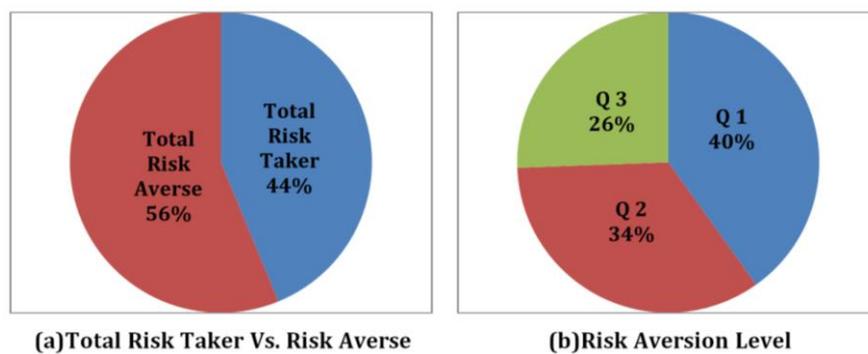


Fig. 4. Total Risk Taker vs. Risk Averse and Risk Aversion Level

The total respondents of this survey consist of 56% is Risk Averse and 44% is Risk Taker, it means that respondents prefer to safe their life by choosing the insurance health whatever the aversion level. The most aversion level of the respondents choice is statement (b1) on Question 1 which is the respondent prefer to get IDR 450 million and get insurance health until 55 years by 40%. Then, statement (b2) on Question 2 by 34%, and the last is statement (b3) on Question 3 which is the respondents will get IDR 150 million and health insurance until death by 26%.

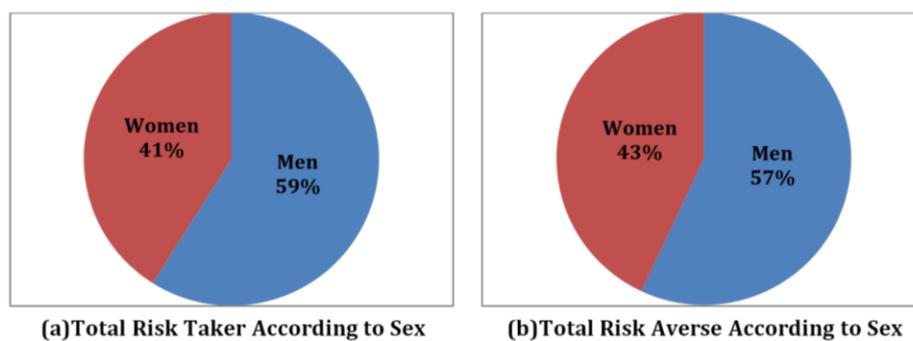


Fig. 5 : Total Risk Taker According to Sex and Total Risk Averse According to Sex

The comparison between risk behavior according to Sex indicated on figure above. which examines that between Risk Taker and Risk Averse, men is more dominance than women that

is 59% for Risk Taker and 57% for Risk Averse compared to women 41% for Risk Taker and 43% for Risk Averse. This result proof the previous study Embrey and Fox (1997) which mention that men more Risk Taker than women.

## 6. Conclusions

This preliminary study examines how the people choose an option to facing the uncertainty such as health. The respondents consist of 102 people which asked 3 questions with some assumption to restrict the situation.

On **Question 1** and **2** shows that the respondents save themselves from the uncertainty by choosing the insurance, but on **Question 3** the respondent will be riskier although the insurance will cover their health life time, it happen because the money that offered higher than if they get insurance health. From this survey result, the respondents will be more risk taker when they facing the negative situation such paying premium for the insurance health, it suitable with reflection effect on Kahneman and Tversky (1979) paper.

On CPT model by Tversky and Kahneman (1992) value the probability of the question situation. From statement (a) get -51,162 and statement (b)1, (b)2, and (b)3 get -64.871. It means that the respondents will choose statement (a) as Risk Taker than other statement (Risk Averse). This compared to survey analysis, and show that on Question 1 and 2 are not suitable with CPT model and just Question 3 which suitable with it.

Other conclusion is between Risk Taker and Risk Averse which dominated by Men, which for Risk Taker as 59% and Risk Averse as 57%, this result appropriate with Embrey and Fox (1997) and other study about gender behavior which mention that men more risk taker than women.

This result also reflect that there are Indonesian who do not care with insurance health although they very need it, so the program from the government of Indonesia which issue the BPJS Kesehatan is very suitable to aware them about the important of insurance health which cover the payment of hospital when they sick.

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## TEN CONSIDERATIONS REGARDING INFORMATION NEEDS FOR ACADEMIC STAFF

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**ABSTRACT:** The paper aims at the answer of the question - what should academic staff consider to fulfil their information need? In fact everyone needs information, including academic staff, i.e. teacher, lecturer, researcher. Information is data (useful statement or valuable description about fact) - which is by a mean/tool conveyed to other person. In accordance with information needs, academic staff should consider knowledge, skill, job, topic, function, culture, economy, interest, condition, and ideology. All of those "ten commandments" of considerations are grouped into the "trinity" of aspects, i.e. professional, social, and personal aspect. Professional aspect (the aspects concerning with professions or works) covers knowledge, skill, job/career, and topic. Social aspect (the aspects concerning with society or community) consists of function (role), culture, and economy. Personal aspect (the aspects concerning with a person or individual) includes interest, condition, and ideology. The considerations could be related to or based on the theory of information behaviour, for instance the knowledge consideration based on the cognitive authority theory, the relation between the skill consideration and the diffusion theory, and the cultural consideration related to the cultural model theory.

**Keywords:** *Information need, information behaviour, academic staff, lecturer*

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### 1. Introduction

The power of information should be seriously considered in the era global now, when information is still bombing society. There are very much information, many sources of information, and efficient-effective ways of seeking information. Information becomes powerful asset in economy, education, health, politics, and other life sectors. Those who got the powerful information are the winners in the competition of worldly life. In other word, information powerfully affects someone to be 'a champ'. Moreover, it is extremely said that without information people cannot live in the world.

In fact everyone needs information according to knowledge, skill, job, culture, role (function), interest, or ideology. Police needs information regarding criminal data, traffic regulation, traffic accidental data, and how to help people in fighting crime. Trader needs information regarding trading system, trade capital, economic growth, money exchanging, and quality of product. Farmer needs information regarding land, irrigation system, manure, crop, and plant seedling. Doctor needs information regarding medicine, disease, hospital, surgery, and medical record.

Accountant needs information regarding financial report, accounting system, banking system, money exchanging, and tax system. Librarian needs information regarding library collection, library regulation, cataloguing system, circulation system, and information source.

Abraham Maslow, a great psychologist, ranked needs into five (from beneath/low to top/high), i.e. physiological need, safety need, affiliation need, esteem need, and self-actualisation need (See details in McKenna, 2000:92-94). Regarding those ranked needs, information could be included in all needs. Physiological need (e.g. food, water, sex) needs the information of how to get or to cook it. Safety need (e.g. emotional security, physical security, job security) needs the information of how to deal with it. Affiliation need (e.g. love, friendship, brotherhood, social contact) needs the information of how to know and to realize it. Esteem need (e.g. self-confidence, self-respect, self-esteem, esteems from others) needs the information of how to understand and to practice it. Self-actualisation need (e.g. self-fulfilment, achievement, to be winner, to be champ) needs the information of how to understand, to make effort, and to realize it.

Information is also really needed by those who concern with education system such as student, teacher, lecturer, and researcher. Student needs information regarding the lesson material, works (homework) from their teacher, school regulation, school activities, and so on. Teacher needs information regarding curriculum, teaching-learning system, student characteristics, school regulation, school activities, etc. Lecturer at university needs information regarding curriculum, career, teaching-learning system, student characteristics, university regulation, research activities, and other things. Researcher needs information regarding methodology of research, place of research, data of research, and specific subject of research. What should they consider, in accordance with their information need?

## 2. Concept of Information

The word 'information' seems to be the most popular word in the modern era now days, as it can be undoubtedly found in every aspect of life such as economy, politics, education, health, religion, industry, defence, and so on. Information truly is all round us, i.e. in home, street, school, university, shop, market, hospital, library, bus station, and everywhere. In other word, information is an ingredient common to all areas of human life. Therefore, this word is not easily defined, for it could be viewed from various points. Information according to police may be different from doctor's opinion. Information according to teacher or lecturer may be not same as trader's view. The definition of information in library is different from that definition in bank. Moreover, information is variously perceived as fact, data, knowledge, and news.

Nevertheless, according to me, **information is commonly viewed as useful statement or valuable description about fact (material and/or immaterial) – to be data, either oral or written, either good or bad, either quantitative or qualitative form, which is by a mean/tool conveyed from person(s) to other one(s), from individual to group (institution) and vice-versa, or from individual to individual, or from group (institution) to group (institution).** Lester and Koehler (2003:16-17) collect some definitions of information, as follows :

1. Information is data that have been organized and communicated (according to Marc Porat).
2. Information is a record of resolved uncertainty (according to Richard Derr).
3. Information denotes any stimulus that alters cognitive structure in the receiver (according to William Paisley).
4. Information is a process that occurs that shapes our inward images (according to Allan Pratt).

Good quality of information represent to be accurate, useful, complete, relevant, up to date, clear, advance, reliable source, positive purpose, and to be more frequently represent. Andrew K. Shenton, et.al (2008) investigated children's attitudes to the word 'information'. In this investigation the questionnaires are given to 45 eight-to-ten-year-old Canadian children in order to understand the term 'information'. The investigation also compares between 'good information' (correct, appropriate, interest, making sense, can be retrieved, etc.) and 'bad information' (lacks accuracy, incomprehensible, irrelevant, insufficient, nothing new, etc.). The conclusion of this investigation is, as follow (2008:160):

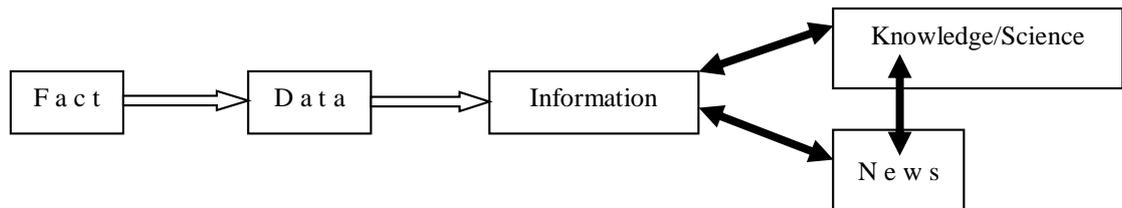
It is difficult to research the information need of children. Some of the limited work have been undertaken in this area. The Canadian study would appear to offer a strategy that allows the investigation of factors which children themselves consider to be requirements in the material they access. Here questions about good and bad information were posed within a questionnaire dealing with work for a particular school assignment but they could equally justifiably be asked in relation to children's overall experience in satisfying their information needs or in terms of any recently experienced leisure related information need.

With regard to the definition of information, in the book entitled *The Problem of Information: an Introduction to Information Science* (2003:4), Douglas Raber wrote:

Information is a sign that possesses a degree of relative autonomy from whatever language and culture sustains its use. The signifier *information* can be and is associated with a number of different signifiers, and some of them, although not entirely unrelated, are quite incompatible with one another. The ambiguity this condition creates makes it difficult to interpret the sign 'information', and subsequently causes problems of miscommunication and misunderstanding. By extension, when we speak of 'Information Science', we speak of a discourse that gives meaning to the sound image/word *information*.

Concerning with information and knowledge, William J. Martin in his old book (1988) entitled *The Information Society* (1988:8-9) stated that information was data processed into some useful forms, while knowledge was regarded as wider concept than information. Information was a flow of messages (a process), involving the act of telling or being told, while knowledge was a state or sense of knowing, an accumulated stock.

As mentioned above, information is variously perceived as fact, data, knowledge /science, and news. **Fact** is whatever we see, listen to, smell, feel, think, imagine, believe, either material thing or immaterial one. **Data** (datum – in singular) is fact which is systematically organized in order to be useful or valuable. **Information** is data (useful statement or valuable description about fact) - which is by a mean/tool conveyed to other person. **Knowledge/science** is the ('specific' – regarding discipline) information which is epistemologically arranged in order to fulfil the requirements of knowledge/science, i.e. it has object (formal and material), purpose (functional, practical, and conceptual), methodology (approach, strategy, method, and technique), theory – interrelated concepts (etymology, terminology, definition, and proposition – interrelated data), and it is as a system (having some united parts or even many integrated parts, those requirements are closely related to each other). Those requirements are epistemological aspects of science. **News** is actually also information but it had never heard before, is interesting, is wonderful, is strange, or is miraculous. Information, knowledge/science, and news are closely inter-related to each other. It means that information can be knowledge/science or news, or can be both together. News includes information and can be knowledge/science. Knowledge/science includes information and can be news. From those definitions, it can be drawn as **“the Flow from Fact to Science and News”** follows:



Chaim Zins (2007: 479–493) wrote a very good journal article on defining data, information, and knowledge, in which student and academic staff might be confused one another. This article documents 130 definitions of *data*, *information*, and *knowledge* formulated by 45 scholars, and it also maps the major conceptual approaches for defining these three key concepts. Here are some such definitions (2007:483-484):

1. According to H.M. Gladney:

**Data** are representations of facts about the world. **Information** is data organized according to an ontology that defines the relationships between some set of topics. Information can be communicated. **Knowledge** is a set of conceptual structures held in human brains and only imperfectly represented by information that can be communicated. Knowledge cannot be communicated by speech or any form of writing, but can only be hinted at.

2. According to Donald Hawkins:

**Data** are facts and statistics that can be quantified, measured, counted, and stored. **Information** is data that has been categorized, counted, and thus given meaning, relevance, or purpose. **Knowledge** is information that has been given meaning and taken to a higher level. Knowledge emerges from analysis, reflection upon, and synthesis of information. It is used to make a difference in an enterprise, learn a lesson, or solve a problem.

3. According to Raya Fidel:

**Data** are a string of symbols. **Information** is data that are communicated, have meaning, have an effect, have a goal. **Knowledge** is a personal/cognitive framework that makes it possible for humans to use information.

### 3. Information Need: Taken Into Account Of Consideration

#### 3.1 Knowledge Consideration

Knowledge consideration is the consideration which relates to a subject discipline of academic staff, such as Cultural Anthropology, Rural Sociology, Industrial Psychology, Education Informatics, Islamic Education, Economics, Mathematics, Physics, Chemistry, Geography, History, English, Arabic, Art, and so on. A lecturer having a subject on Islamic Education, for instance, needs the information regarding the concept of education according to Islam, the philosophy of Islam, and the source of teaching material about a good Islamic teacher. If someone seeks the information about information literacy, information sources, information management, information policy, information retrieval, and education informatics, it can be meant that he is a professor in Information Science.

This consideration also means that an academic staff, especially a lecturer, wants to continue his study either master or doctoral program. In this case, when he decides where and what he studies, he should consider his information need regarding his discipline. For example, if someone decides to study in the Department of Information Studies, it means that he should consider his subject, so that he needs information regarding his discipline in that department. Moreover, if someone makes the research on the influence of global financial crisis toward the

existence of medium and small retailer, it means that he is an economy expert who needs information regarding his subject.

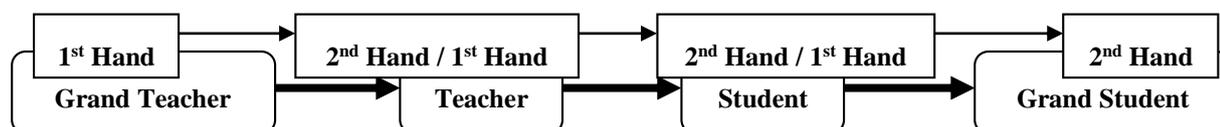
The knowledge consideration of information needs could be based on the cognitive authority theory of information behaviour. The theory is developed by Patrick Wilson (1983) from his book entitled *Second-hand Knowledge: an Inquiry into Cognitive Authority*. Soo Young Rich gave the brief description of such theory in Fisher's book entitled *Theories of Information Behavior* (2005:83-87), and he mentioned the fundamental concept, as follows (page 83):

The fundamental concept of Wilson's cognitive authority is that people construct knowledge in two ways; based on their first-hand experience or on what they have learned second-hand from others. What people learn first-hand depend on the stock of ideas they bring to the interpretation and understanding of their encounters with the world. People primarily depend on other for ideas as well as for information outside the range of direct experience. Much of what they think of the world is what they have gained second-hand. ...

Wilson makes several points about cognitive authority. First, it involves a relationship of at least two people. Second, cognitive authority is a matter of degree; a little or a lot of it can be possessed. Third, cognitive authority is relative to a sphere of interest. Fourth, cognitive authority clearly relates to credibility, that is, cognitive authorities are among those regarded as credible sources of information.

Academic staff, i.e. a teacher or a lecturer, should have the credibility – the authority of information sources concerning with his knowledge for students or other people. He has relatively an interest regarding his knowledge – (It will be more discussed in the next consideration i.e. interest consideration). As a matter of degree, of course, he has a lot of knowledge – or more knowledgeable than his students who has little knowledge. Concerning with the first point which is stated by Wilson, the job/career of academic staff undoubtedly involves the relationship between teacher/lecturer and student, or teacher and other teacher, or lecturer and other lecturer, or teacher/lecturer and society / professional organization - (It will be more discussed in the next consideration i.e. job/career consideration).

In relation to the concept of Wilson's cognitive authority, an academic staff can be considered as the first hand toward his students, and can be the second hand toward his (ex) teacher. In other word, when someone teaches a subject (knowledge or information) to his students he is considered as the first hand (so that the second hand is his students), but when he studies it he is considered as the second hand (so that the first hand is his teacher). It can be drawn as follows:



### 3.2 Skill Consideration

Skill consideration includes listening skill, reading skill, writing skill, retrieving skill, thinking (analysing) skill, and speaking (representing - communicating) skill. An academic staff should have the ability to listen precise information, to read (textually and contextually) appropriate information, and to write exactly needed information. Information retrieval system should also be mastered by academic staff, in other word, he should be able to retrieve effectively and efficiently information via technology. In addition, he should have thinking skill to analyse critically information. The main job of academic staff is to convey knowledge to other people (e.g. students); therefore speaking (representing) skill – the so-called communicating skill, is the essential skill for him to do his job, for example, he should be able to prepare teaching

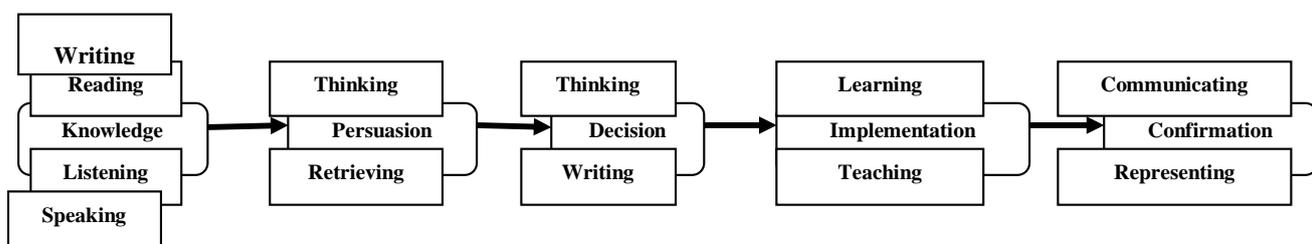
material in power point and then represent it in front of audience in class, seminar, or conference. So, an academic staff should not only formulate precisely, seek effectively, and find appropriately information, but also convey clearly it to other people.

The skill consideration of information needs, as well as the knowledge consideration one, could be connected to the diffusion theory of information behaviour which was first formally articulated by Everett M. Rogers in the early 1960s. The essence of the theory is **innovation** which becomes 'important key word', so that the theory is also called the diffusion of innovations theory of information behaviour. Areas of research based on this theory are agriculture, communication, health, marketing-management, and teaching-learning. Darian Lajoie-Paquette explores the diffusion theory of information behaviour in Fisher's book entitled *Theories of Information Behavior* (2005:118-122). He notes important points of the theory, as follows (page 118-120):

Diffusion is the process by which an innovation is communicated through channels over time among members of social system (Rogers, 2003). A social system, as defined by Rogers (2003), is a set of interrelated units engaged in joint problem solving to accomplish a common goal. The units of social system may be individuals, informal groups, organizations, or subsystems.

An innovation is an idea, practice, or object that is perceived as new by individual or other unit of adoption (Rogers, 2003). According to Rogers (2003), the perceived characteristics of innovations are relative advantage, compatibility, complexity, trial ability, and observability. In the innovation-decision process, an individual passes from *knowledge* (first knowledge of an innovation) to *persuasion* (formation of an attitude toward the innovation) to *decision* (the decision to adopt or reject) to *implementation* (actual use of the innovation) and finally to *confirmation* (commitment to adopt).

It is commonly known that innovation needs skill and creativity. There is no innovation without skill and creativity. If an academic staff should consider his skill in seeking the needed information, he should be innovative. A teacher/lecturer should be innovative and creative in teaching his students in the school/university as a social system. Since the representing - communicating skill is essential skill for academic staff - because they have to convey knowledge to students, the innovations must go on the social system of school/university. Such innovations could be the innovation of curriculum, teaching methodology, teaching media, teaching evaluation, and the innovation of teaching-learning communication. Listening skill, reading skill, writing skill, retrieving skill, thinking (analysing) skill, speaking (representing - communicating) skill, learning skill, and teaching skill are the processes supporting to an innovation. Such processes can be drawn as follows:



Based on Roger's (2003) opinion regarding the innovation-decision process which covers five steps, i.e. knowledge, persuasion, decision, implementation, and confirmation, the skill consideration of information needs could includes in each step. People seek knowledge by writing, reading, listening, speaking skill. People persuade knowledge (formulate an attitude toward knowledge) by thinking and retrieving skill. They decide whether or not knowledge be accepted by thinking and writing skill. People, especially teachers/lecturers implement it by

learning and teaching. The confirmation of whether or not knowledge to be accepted and implemented can be done by communicating and representing skill.

### 3.3 Job Consideration

Job consideration in this paper is also perceived as career consideration and professional consideration. It means the consideration concerning with job distribution, job description, job qualification or competence, and job evaluation. The jobs of academic staff are to teach, to guide students, to write a paper for journal, to represent a paper in seminar, to be active member of professional organisation, and so on. Considering job distribution, a teacher/lecturer should need information regarding the teaching timetable (e.g. where and when he teaches) and teaching materials (e.g. what he teaches). Relating to job description, he should need information regarding the teaching process (e.g. how he makes a teaching plan, how he applies discussion method of teaching, how he uses teaching media), guiding students (e.g. place, time, way/technique), and the journal article (e.g. how he find precise topic, how he writes effectively). In connection with job qualification, he should need information regarding educational background (e.g. graduate, master, or doctoral), required skill (e.g. language, information technology), and experience (e.g. in previous work, teaching, writing in journal). Considering job evaluation, he should need information regarding the evaluation system (e.g. scope, aspect, technique, following up).

An academic staff should be professional which indicates knowledge and skill in accordance with his job, i.e. teaching, guiding students, writing journal article, and making research. In other word, he should apply his knowledge in such jobs. For example, should be able to make a good plan of teaching process, whether long-time-plan (lecture contract for one academic year), medium-time plan (lecture contract for one semester), or short-time plan (lecture contract for once/twice teaching). In addition, he should choose suitable teaching method, in order to communicate accordingly with students and to get teaching purpose, as well as to decide reliable system of teaching-learning evaluation.

Therefore, beside with the cognitive authority theory, the job / professional consideration of information needs could be connected with the professions and occupational identities theory of information behaviour. Olof Sundin and Jenny Hedman explained the profession theory in Fisher's book entitled *Theories of Information Behavior* (2005:293-297). They mentioned important points, as follows (page 293-294):

Theory of profession focuses on the relation between occupational groups, theoretical knowledge, and the possibilities for practitioners to exclusively apply such knowledge within their occupational practice.

Professional practice should be conducted with a starting point in systematic theory. The intended occupational group is recognized as an authority within its domain. Society sanctions the enterprise in question. The practitioners work in accordance with ethical codes. The professional body controls its own training program.

### 3.4 Topic Consideration

Topic consideration means the consideration of information needs related to the topic of research or journal article, the title of book, or the topic of paper presented in a seminar, which is chosen by academic staff. An academic staff is also a researcher, since one of his jobs is to make a research concerning with his discipline (knowledge). Deciding research topic needs the information regarding knowledge (theory, concept) used in research, methodology of research, time and place of research, and research data. Deciding the topic of journal article needs the information regarding knowledge of journal content and methodology of writing an article in

journal. Deciding the title of book also needs the information regarding knowledge of book content and methodology of writing and publishing a book. Deciding the topic of paper presented in a seminar also needs the information regarding knowledge of the seminar theme and how to represent the paper.

The topic consideration relates to the cognitive authority theory of information behaviour. Concerning with Wilson's opinion (1983), i.e. cognitive authority is relative to a range of interest and it clearly relates to credibility, an academic staff has topic interest in accordance with his knowledge (discipline) and skill. For instance, the topic on "the influence of understanding Islamic philosophy toward the teaching skill of teacher on the subject of Islamic studies" shows that the discipline which should be accorded by a teacher is Islamic Education. In addition, an academic staff should be credible as a source of information (knowledge) for his students or other people. If he used a book, a journal, or other media as a source of information, this source is also credible.

### **3.5 Functional Consideration**

What is the function or social role of academic staff in school, faculty, university, professional organisation, or in society? In this case, the functional consideration concerns with that question. The functions or roles of academic staff are as educator, motivator, facilitator, coordinator, organiser, manager, or leader. An academic staff as educator means that he should educate people in order to get good value and to be more matured, so that he needs the information concerning with education system, education value, education policy, and education informatics. An academic staff as motivator means that he should motivates students or members of society in order to develop knowledge and skill, so that he needs the information concerning with theory of motivation, motivating techniques, and how to persuade people. An academic staff as facilitator means that he should provide suitable facility (tools, media, situation, environment) for students or other people in order to be successful to achieve their goal, so that he needs the information concerning with environment (natural, social, cultural), information technology as a tool, and mass media. An academic staff as coordinator means that he should coordinate one part or group to another one in a system (an organisation) in order to bring together in accomplishing goal, so that he needs the information concerning with communication, inter-personal skill, and organisation (system). An academic staff as organiser means that he should organise the structure of an organisation such as class, school, or university in order to be running well and integrative, so that he needs the information concerning with organisation (system), communication, and Sociology. An academic staff as manager means that he should manage an organisation (class, school, or university) and society in order to direct and guide it, so that he needs the information concerning with knowledge of management, how to make a good plan and apply it. An academic staff as leader means that he should lead and guide students (in class, school or university) and members of society in order to be successful, so that he needs the information concerning with leadership, communication, motivation, environment, and politics.

The function or social role consideration of information needs could be also connected with the professions and occupational identities theory of information behaviour. It is because the function or social role of academic staff in school, university, organization, or society is to apply their knowledge within their occupational practice. In addition, they work in accordance with ethical codes, which are controlled by the professional body, and they have an authority within their domain.

### 3.5 Cultural Consideration

Culture is defined as the whole complex system that includes idea (mind, deep heart) of human, activity (behaviour) of human, and things (tools) created by human, which all belonged to human being as member of society and achieved by learning. In that definition there are three manifestations of culture, i.e. idea (mind), activity (behaviour), and things (tools). Each of these three manifestations of culture includes many aspects of life such as language, knowledge (science), social organisation, economy, technology, and art.

Idea (mind, deep heart) of human being can be called as **cultural system** because idea (mind, deep heart) is the highest manifestation of culture and human being can be well valued because of his idea (mind, deep heart). Culture is essentially considered as idea (mind, deep heart) of human being. However, it is abstract, so that it needs to be more concrete, i.e. activity. Activity (behaviour) of human being can be called as **social system** because all activities of human being relate to or dedicate to other people, although personal activities like taking a bath. Therefore, activities of human being draw social interaction, social stratification, social value (norm), social habits, and social conflict. Things (tools) created by human being can be called as **material culture** because things (tools) is the most concrete manifestation, such as cloth, table, chair, glass, plate, cup, car, train, pen, book, bag, shoes, and so on. Those three manifestations of culture produce pattern of human idea (mind), pattern of human behaviour (activity), and pattern of human creation.

The cultural consideration of information needs is widely the consideration concerning with cultural system which focuses on pattern of human idea (mind), social system which focuses on pattern of human behaviour (activity), and material culture which focuses on pattern of human creation. In this wide range of vision, an academic staff need all of any kind and content of information such as knowledge, science, education, politics, economy, technology, social organisation, art, and any goods (tools) needed. However, information needs of academic staff are necessary to be limited in priority, availability, and importance, e.g. knowledge, science, education, library, book, and so on.

The cultural consideration of information needs is, of course, related to the cultural model theory of information behaviour, besides the other theory like the cognitive authority theory and the diffusion theory. Anita Komlodi described the cultural model theory in Fisher's book entitled *Theories of Information Behavior* (2005:108-112). She quoted two of the most popular models of culture, i.e. according to Hall (1959, 1966, 1976, 1984) and Hofstede (1980, 2001). She quoted that Hall provides five dimensions in the cultural model theory, as follows (page 109):

1. Level of context; high context and low context (It examines how much information is conveyed by the circumstance of a given situation).
2. Time context; polychromic time (a circular, renewable resource in which multiple happening can take place at the same time. Deadlines are less important) and monochromic (linear, in which usually one event happens at a time. Deadlines are important and time is not renewable).
3. Action chains (describe sequences of actions that need to be completed before a goal is accomplished).
4. Speed of message (describes the frequency and pace of messages members than others).
5. Information flow (addresses how long it takes a message to travel through an organization and produced the desired effect).

Anita also quoted that Hofstede provides five dimensions as well in the cultural model theory, as follows (page 110):

1. Power distance (describes perceptions of equality and inequality by members of various cultures).
2. Individualism/collectivism (ranks cultures based on the individual or collectivistic orientations of their members).
3. Uncertainty avoidance (describes the extent to which the members of a culture feel threatened by uncertain or unknown situation).
4. Feminine/masculine orientation of a culture (speaks to the value system of a culture).
5. Long/short-term orientation of societies (describes future- versus history-orientation of the society).

### **3.6 Economic Consideration**

Information needs of academic staff should consider the economic aspect, i.e. considering business (trade), salary, contract, supply, and demand. An academic staff may get information from someone (an information broker), for his research or writing a book or a journal article, then he pay him as agreement made before. The information belonged to an academic staff (e.g. in book, paper, journal article, or research report) can be sold to other people or organisation. This consideration also regards that information is cheap or expensive or even free. For example, information in journal article is expensive because it should be paid regularly, as well as it is current information. Information in a newspaper may be cheaper than in journal article, since it is easily found in public place and it is usually not more academic but more publically consumed. In digital era now days, information is more economically treated. In other word, information became commodity economy, for instance, mass media either printed or electronic. Information is costly retrieved via internet (online searching).

The economic consideration is also related to the cultural model theory. Economy in society concerns with all of three of cultural manifestations (idea, activity, tools), and with dimensions of culture according to Hofstede, i.e. individualism/collectivism, uncertainty avoidance, and long/short-term orientation of societies. Moreover, it is closely related to all dimensions of culture according to Hall, i.e. level of context, time context, action chains, speed of message, and information flow.

### **3.7 Interest Consideration**

Information needs of everyone have to consider interest, i.e. whatever we want or our hobbies which makes us happy. People's Interest may be different from each other. Interest is usually related to knowledge or discipline, hobby, entertainment, time, place, and common sense in society. The interest of an academic staff is normally related to his knowledge, hobby, or entertainment, for example reading hobby. What is kind of reading? It relates to his knowledge or entertainment, for instance reading computer book or education book or a novel.

The interest consideration of information needs could be also related to the cognitive authority theory of information behaviour. As mentioned by Wilson (1983) in that theory, cognitive authority is relative to a sphere of interest. It means that the various interests of academic staff have different cognitive authorities of them, for instance, the cognitive authority of a lecturer on computer is not same as that one on education. In addition, the high interest of a lecturer tends to be the high cognitive authority, because he would deeply learn his interest.

### **3.8 Conditional Consideration**

The conditional consideration means the consideration concerning with individual condition or situation, whether place situation (home, workplace), regional situation, or national even

international situation. The information needs of an academic staff in daily-life would be affected by this condition or situation. The global financial crisis now days, for instance, could make an academic staff to rethink to spend much money for buying many books or teaching media, so that he purposefully needs the information about that crisis. The pleasant or comfortable situation in home in which an academic staff spent much time for preparing his work (teaching) requires him to fulfil his information need regarding with “sweet home” or “paradise home”. Health condition of an academic staff could make him to be harder to seek information related to his interest. Very busy and hard academic staff may need “refreshing information” like humour books. The information need of a lecturer in the building of social science is not same as one in the building of natural science. Another example, a teacher in big city may incidentally get different information from one in small village which is far from city. Therefore, in this consideration, environment (natural, cultural, and social) has very important role in seeking daily-life information, although this seeking behaviour is flexible for those environments.

The conditional consideration of information needs could be closely connected with the ecological theory of information behaviour. Kirsty Williamson explained this theory in Fisher's book entitled *Theories of Information Behavior* (2005:128-132). She made some important points, as follows (page 128, 130, 131):

Williamson (1998) developed a mode of information seeking, which emerged from a large-scale study focusing on older people and everyday life information. This model emphasizes that, at least in the field of everyday life information, information is often incidentally acquired rather than purposefully sought. Williamson chose the term “incidental information acquisition”.

As Talja (1997) stated, if the focus is shifted to the study of knowledge formation, “it is equally important to study the socio-cultural aspect and the ideological nature of the information system, as it is to study the socio-cultural aspects of the users” (p.77). There is also a need to include information sources such as family, friends, and colleagues, who are not components of “information systems”, but who play a significant role in incidental information acquisition.

The key influence for this framework was work by Hummert, Nussbaum, and Wiemann (1992), who argued that research about people must be grounded in a view of nature as personal existence. This means that human beings should not be – conceptualized exclusively as either individual entities or socially constructed entities. Rather, they should be seen as self-creating, but within contexts that involve various kinds of biological and social circumstances and constraints.

### **3.9 Ideology Consideration**

The ideology consideration of information needs means that an academic staff could consider his religion, way of life, belief, or philosophical value (‘isms’). Religion could be Islam, Christian/Catholic, Buddhism, Hinduism, and Kong Hu Chu. Way of life could be individual habits. Philosophical value (‘isms’) is like materialism, capitalism, communism, liberalism, and rationalism.

The duty of a teacher or a lecturer is really not only to transfer of knowledge but also to transfer of human values. Indeed the students need both knowledge and human values. The function of human values is to guide or to lead the implementation of knowledge in daily life, in order to get the truth, justice, usefulness, happiness, benefit, peace, safety, and whatever of knowledge purpose. Without human values knowledge will be destructively applied in society, so that it becomes rubbish in human civilization. For example, the technology of gun is unfairly (not in a war) used to kill other people, the knowledge of food, water, or medicine is used to poison other people.

Academic staff must have and understand human values, as long as their work is to face human being. They could find the information about human values in their religion, way of life, belief, or philosophical value ('isms'). The teaching of truth, love, justice, peace, goodness, togetherness, respect other people, and help other people – they are all the teaching of religion, are the manifestation of human values. Therefore, they must consider their ideology in dealing with the information which regards their profession or work.

The ideology consideration of information needs is very closely related to the cultural model theory of information behaviour, besides the other theory like the diffusion theory and the ecological theory of information behaviour. Ideology concerns with the dimensions of culture provided by Hofstede (1980, 2001) such as individualism /collectivism, feminine/masculine orientation of a culture, and long/short-term orientation of societies. It also relates to the ecological theory, like Talja (1997:77) said, "it is equally important to study the socio-cultural aspect and the ideological nature of the information system, as it is to study the socio-cultural aspects of the users". In the diffusion theory, based on Roger's (2003) opinion regarding the innovation-decision process which covers five steps, i.e. knowledge, persuasion, decision, implementation, and confirmation, human values in the ideology can be adopted through those five steps.

All of those ten considerations are classified into three aspects, i.e. professional, social, and personal aspect.

1. **Professional aspect** (the aspects concerning with professions or works) covers the consideration of knowledge, skill, job/career, and topic.
2. **Social aspect** (the aspects concerning with society or community) consists of the consideration of function (role), culture, and economy.
3. **Personal aspect** (the aspects concerning with a person or individual) includes the consideration of interest, condition, and ideology.

In practical dimension of daily life, each of those aspects is not stand-alone, but they relates to each other, for example, knowledge as professional aspect should be applied in society which consider cultural value as social aspect, in spite of interest differences as personal aspect.

#### 4. Conclusion

Now day information becomes powerful asset in economy, education, health, politics, and other life sectors. Information is primary need for people living in this world, for it is firmly included in education and/or health, and even in all aspects of worldly life. In fact everyone needs information, including academic staff, i.e. teacher, lecturer, and researcher. Their information needs should consider knowledge, skill, job, topic, function (role), culture, economy, interest, condition, or ideology.

Those considerations could be related to or based on the theory of information behaviour, for example, the knowledge consideration based on the cognitive authority theory, the relation between the skill consideration and the diffusion theory, and the cultural consideration related to the cultural model theory. It is said that **information needs without information behaviour is like "water in a glass without drinking action"**, so it is not useful. Both of them are also like "two sides in one coin", they cannot be separated but can be differentiated. Information needs is first and information behaviour is then. Before drinking there is water, we consider water first and then we drink.

All of those ten considerations are grouped into the "trinity" of aspects, i.e. professional, social, and personal aspect. Professional aspect covers the consideration of knowledge, skill, job/career, and topic. Social aspect consists of the consideration of function (role), culture, and

economy. Personal aspect includes the consideration of interest, condition, and ideology. Each of those aspects is not stand-alone, but they relates to each other, for example, knowledge as professional aspect should be applied in society which consider cultural value as social aspect, in spite of interest differences as personal aspect.

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## WORK-RELATED SELF-DIRECTED LEARNING AS BASIS TOWARDS CULTIVATING THE FIVE DISCIPLINES OF LEARNING ORGANIZATION BY SENGE

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**Abstract:** This study aims to provide evidence on how work-related self-directed learning (WRSDL) practices among staffs and managers from various job fields proof as basis towards cultivation of the Five Disciplines of Learning Organization by Senge. This qualitative study was conducted in a prominent motorcycle-manufacturing company in Indonesia that intentionally set the organizational direction toward a learning organization. In this organization, improvement and innovation have always been the central issues and become a way of life ingrained among employees. A total of thirty staffs and managers who were prominent as self-directed learners were purposively interviewed using semi-structured interview technique. These participants were selected in order to get their experience in carrying out learning in the workplace context. The data gathered were analyzed using content analysis approach. This study provides evidences that cultivating WRSDL will strengthen the implementation of the five disciplines of learning organization. This study contributes insight of the importance of WRSDL to the body of knowledge, and suggested recommendation to practitioner as well as for future research which will be explained later.

**Keywords:** *Learning Organization; Organizational Learning; Self-Directed Learning; Work-Related Self-Directed Learning.*

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### 1. Background of the Study

In the global circumstances where tight competition and uncertain eco-sociopolitical circumstances become common, organizations have to be agile to align the way they run their business. Organizations need to learn continuously to remain relevant in the competitive business arena. These circumstances bring impact to the way the employees perform where uncertainty and changes become prevalent. The employees need to change their mindset about the way they build and develop their competencies in the workplace (Junaidah, 2008). Employees need to learn continually in order to improve their ability to get new knowledge and skills so that they become more critical in thinking and are able to produce creative and innovative products or services. The employees need to realize that organizations require people who are not just well aware of the importance of learning but they must have initiative

and willingness to take learning as their own responsibility (Garger, 1999). Even though individuals naturally have self-initiative to learn (Cross, 2006; Knowles 1975), some individuals prominently take initiative and carrying out their learnings, however some individuals are depending on other's direction to ask them to learn. Therefore, the self-directedness of the learners then became a significant factor that should not be ignored. A common label assigned to this approach of learning is self-directed learning (SDL) which is defined by Knowles (1975) as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. Each of employees needs to empower his/herself as self-directed learner in order to remain competitive in the rapidly changing business environment (Guglielmino & Guglielmino, 2006).

## **2. Statement of the Problem**

Many scholars tried to examine which characteristics that is prominent among self-directed learners in the workplace context. According to some scholars they have self-concept as independent and active learners (Knowles, 1975), demonstrate a greater awareness and motivation to take responsibility in making learnings meaningful (Garrison, 1997), perceive problems as challenges, openness toward change and enjoy learning (Taylor, 1995). Other characteristics such as curiosity, self-disciplined, goal-oriented, confidence, commit, and critical reflection (Brookfield, 1986; Candy, 1988) are also essential for self-directed learner. Many scholars highlight the importance of work-related self-directed learning (WRSDL) in the workplace which brings benefits for the employees and the organization. However there are very limited studies that examine how WRSDL improve the implementation of the five disciplines of learning organization that introduced by Senge (1990). Senge (1990) defined the learning organization as one "where people continuously expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together". A learning organization is more than just a collection of individuals who learn (Senge, 1990). Senge (1990) identified five important disciplines as important pillars in building a learning organization. The five disciplines are personal mastery, mental model, shared vision, team learning and system thinking. This study aims to get evidence that can show the importance of WRSDL in enhancing the implementation of five discipline of learning organization.

## **3. Methodology**

This study examined the social phenomenon about WRSDL practices as basis toward learning organization. This qualitative phenomenological study sought as the most appropriate approach to obtain answers to the research questions of this study. The interpretive approach was used due to the nature of this study that aims to get understanding, insight and discovery from the perspective of participants (Denzin & Lincoln, 2000; Merriam, Caffarella, & Baumgartner, 2007). This qualitative study was conducted in one of the biggest motorcycle manufacturing company in Indonesia where learning (which results on improvement and innovation) had always been the central issues and become the way of life ingrained among employees. Participants of this study were selected using purposive sampling technique with the criteria perceived as prominent self-directed learners. The characteristics are referring to the definition of self-directed learning by Knowles (1975); the one who initiate to take learning with or without others help or direction in diagnosing their learning needs, setting learning goals, identifying and searching the learning resources, strategies the learning methods and evaluating learning outcomes. They also need to fulfill the criteria which had minimal one year working experience so that their supervisor recognize them well, particularly their self-

directedness in learning. Thirty staffs and managers were interviewed semi-structured in order to get their experience in carrying out WRSDL. Data collected were analyzed using content analysis approach.

#### **4. Research Findings**

This study provides evidences that WRSDL is a natural learning that each of individual has the potential to be self-directed in his/her learning, however the degree is in one continuum moving from low to high. Some individuals has high degree of self-directedness (have self-initiative with or without others help or direction in diagnosing their learning needs, setting learning goals, identifying and searching the learning resources, strategies the learning methods and evaluating learning outcomes) and some are very low (depend on other's direction/help). This study found that those employees with high degree in self-directed learning are showing good performance in the five disciplines of learning organization. By practicing the five disciplines of learning organization, it would help the organization to response quickly and adjust their organizational behaviors appropriately. This study provides evidence that in order to be capable in implementing the five disciplines, the employee need to have a high degree of self-directed learning. These five disciplines of learning organization are further discussed next.

##### **4.1 Personal Mastery**

Senge (1990) explained that personal mastery is a discipline of individual growth by continuously inquiring and sharpening personal vision, perseverance in focusing energies, seeing reality objectively and strengthens the commitment to achieve the goal set. Personal mastery drives people to focus, expand their ability and use their resources toward achieving their goals. People who are high in personal mastery are continuously develop their abilities to achieve the goals they set. The characteristic of continuously inquiring and sharpening personal vision drive them to be always do self-improvement. If the organizational vision has ingrained as personal vision, then personal mastery will energies toward a learning organization.

In this study, personal mastery has been identified as one of the outstanding characteristics possessed by the self-directed learners. The participants showed awareness of their identity, their life purpose, vision, values and commitment. They also showed confident of taking steps towards continual development in achieving what they stated in their vision or objective. They strive to develop their competences in doing their task and try to work hard to achieve it. The participants perceived their workplace as a place to develop their competence as a whole. They set target in high standard which enforce them to do continuous learning and take the learning as interesting and important personally. Their learning objective is to acquire a thorough understanding of a particular topic or task. In general, the participants are more enthusiastic to explore, take initiative and perform tasks that will develop their competence in the field they want to master.

For example, a self-directed learner (P5), he is a manager in Planning and Production Inventory Control with a Master degree in Business Administration. He showed enthusiasm to improve his knowledge with the relevant or various sources of knowledge voluntarily by initiating in enrolling himself into some educational institution or attending some courses. He believes that this learning has increased his mastery level. He also hold the principle in learning that the knowledge he has is not just for himself but for himself to share to others by being a speaker in trainings, workshops or seminars that are organized within or outside of the company. Below are the examples of quotation stated by P5:

*“Actually, my educational background is not economic based, but I need to understand the relationship between economic with the automotive industry, thus, it encourages me to keep learning. I realized that I had to*

*learn accounting and finance until I finally decided to continue my study to the master's level in economic. After graduating my master, now I want to deepen my knowledge about macroeconomic. I registered at a private institution. For me, learning is for my life provision. If I had knowledge, it is not only beneficial for the company alone but I can share my knowledge to the community by become speaker in trainings held outside the office. For me, it is important to have a vision to be achieved, so that life is better planned (P5)."*

Another self-directed learner (P16), a Section Head in the Production Planning and Inventory Control Division showed strong evidence regarding his personal mastery. For example, he realizes that he is a man who rarely speaks and very quiet. However, based on his observation on his workplace, he found that everyone has to have the ability to communicate their ideas or opinions as a mandatory competence that workers must have. So, it drives him to learn how to improve his communication and presentation skills. So now he realizes that communication skill is not an issue for him in order to perform his work. In order mastering the knowledge related to his job, P16 stated:

*"Based on my observation in my workplace, I found that communication skill is indispensable. Meanwhile, I realized that my communication skill was quite weak. I decided for myself that I have to change, otherwise, I would not be able to go forward. From there I started to train myself in speaking, despite the difficulties but I continued to train myself hardly, until now for me communication is not a problem anymore (P16)."*

Another self-directed learner (P16) also stated that his passion toward job have encouraged him to explore deeper knowledge in his work-field. He loves to learn to master the 'ins' and 'outs' of everything related to his work. He liked to enrich himself with knowledge and he felt a sense of satisfaction once he mastered the knowledge he set out to master. As he stated:

*"When I got into this company, I realized that there was a lot of knowledge here. I could see that this is the place to learn. Therefore, from the beginning, I told my supervisor, "Sir, if it is possible, I want to learn a lot. Please give me ample opportunities to learn" Based on this request, my supervisor never forget to give me learning opportunity. Once I finished in one course or involving in one new project, I reported whatever I learned and whatever new skills that I get. After that I asked him whether I could learn another, so my supervisor gave me another chance. Indeed I want to learn many things here and this makes me feel become more experts in my field (P16)."*

#### **4.2 Mental Models**

Mental models are deeply ingrained assumptions, generations, or even pictures and images that influence how we understand the world and how we take action (Senge, 1990). Mental model is discipline in cultivating constant refining of thinking and development of awareness. It is needed to bring this mental model into the surface, so that one could see other's mental model and refine and develop one's thinking. Each individual in the organization need to balance between inquiry (questioning) and reflection where each of them can show to others their own thinking clearly and maintain their thinking to be open to the influence of others (Senge, 1990). Questions on individual implicitly and explicitly regarding their assumptions about the organization and the environment often create disagreement in the workplace. However this disagreement should bring toward the positive point of view.

The self-directed learners in this study indicated that they recognize the organizational assumption and they do constant refining of thinking to get clear ideas and refined assumptions,

and further they can see or predict the impact of their assumptions about whatever circumstances happen in the organization.

The important finding of this study showed support for the opinion of Senge (1990) that employees need to have the skills in bringing into surface and benchmarking their mental model when analyzing or solving their problems. It requires three important skills; reflection, inquiry, and discussion. As the example below shows how the mental model of a self-directed learner (P1) has developed towards the formation of his values that serve as guidance in carrying out both his work and personal life.

Why learning is important for me, it was based on my long experience. I met several great people. A few years ago, at the first year of my study in the university, I met one of the directors of Company X. He is a great man. I learn about the importance of values from him. I learn his values that guide him until he became successful. The second person I met was a great contractor. I salute him because he was an ordinary person, but he had a significant leap towards success. I learnt from what he did in his life to be a successful man. I am also amazed with Mr. A, my former supervisor. He has an incredible performance in his career. As a matter of learning, he bought two books every month budgeted from his monthly income. He is consistent in doing it until now. I learn the values that were held by several very successful people, the values that influence their success. One of the values which I hold as my value is always trying to bring positive impact to others or society and I apply this value into my work-life (P1).

As Participant 23 as Industrial Relation Section Head also mention the same thing:

*“For me, my paradigm is the one that influences me. Even so, I try to influence others especially those who are under my influence/power. For me, my paradigm is the one that shapes me (23).”*

### **4.3 Shared Vision**

Shared vision is a meaningful vision cultivated among all employees at all levels. A self-directed learner employee will very concern about the organizational and personal vision. Once they set a genuine vision the employees will strive to excel not because they are told to, but because they want to (Senge, 1990). Employees need a clear picture of what need to be achieved which will be embedded in their heads and hearts and it will create a sense of purpose and commitment to synergistically work in a whole system. Shared vision allows employees to stay on track and align their effort with the organizational vision (Kops, 1997). Organizational vision should be the one that can embrace personal visions where all members of the organization possess a strong sense of vision that create a focus and guidance that will make the employees able to take decision to plan, strategize, monitor and evaluate their learning toward achieving the objective.

Results from this study indicated the importance of building shared vision among all employees at all levels. They noticed that organizational vision needs to be cascaded into the all level and ensure that the employees buy-in the vision accordance with their respective roles in the organization. As Participant 5 stated:

*“Definitely it is necessary to make the employees aware of the company’s business, the vision, what lies ahead that need to be faced in future. Thus we make a metaphor, assume the workers as passengers of a ship. We could say that if they have a “worker mentality” where they are in a comfort zone, they will live at ease. However, if we change their mentality to become able to view their role as an entrepreneur they will try to survive because the future is uncertain. There’s no reason they wouldn’t improve their competencies, they wouldn’t survive later. This will trigger self-directedness*

*toward learning. So, management needs to start from the big scenario which employees have to see the big picture that is meaningful for them so they will inevitably do improvement in their work (P5)."*

It is relevant with Participant 18 as an Industrial Relation Officer

*"Create a common enemy, because if we have a common enemy somehow we will do learning. For example, our common enemy is our competitor. Well, we cultivate spirit among the workers how to beat our competitors. Definitely initiative to learn will increase (P18)."*

As well Participant 22 with the position as Safety Officer:

*"Usually at the beginning of the year, we are given the target, it is top down. We have to find ways to achieve the target. Well this is a kind of learning. We try to understand what was expected, how is the whole system, how to collaborate with other department. We plan and take action, so that we can achieve the target set by the organization which is our personal target actually (22)."*

#### **4.4 Team Learning**

According to Senge (1990), "unless teams can learn, the organization cannot learn". Team learning is a dynamic process to develop the capability of each team member to gain new knowledge where each of the team members are active in taking action, giving and receiving feedbacks, and/or even adjusting, improving, and changing their behaviors (Yang & Chen, 2005). In team learning, the team members must learn to suspend assumptions, respect others, build and sustain collaboration, and create an openness for dialog and discussion (Senge, 1990).

In this study, the self-directed learning recognized the importance and the benefit of team learning in their daily working life. Participants perceived that each member in their team work develop capabilities together which will be better than what is done individually. The idea is working harmoniously, complementary, supportive, and summative efforts with each other. Team learning will resulted greater than what would be achievable by the individuals independently. As Participant 8 as Senior Analyst Motor Sport Division stated:

*"I always think of what we can do together as a team in order to solve problems faster and develop product by collaborating with vendors (P8)."*

Participant 27, as the department head of medical services at the Human Resources Department stated:

*"I learn a lot from the Medical Staff Association. Although I am not a doctor, they accept me very well, they are very kind and smart people. They are the kind of people who are always hungry for development. When it comes to learning, they read a lot of books. They are very progressive, open mind yet never feel smart enough. I learn from them about open mindedness, positive thinking, all beyond the medical things, more to self-development. But I can ask for suggestion related to medical if I need it. For example, I ask them, what is your opinion if my employees take certain treatment? Sometimes they suggest "no need", and suggest another thing (P27)."*

#### **4.5 System Thinking**

Senge (1990) define system thinking as the ability to see the big picture, to see the interrelationships of a system, to move beyond a simple cause and effect approach to seeing

the continuous process. System thinking helps individuals to shift from seeing parts to understand the complex interactions of the parts as a whole.

In this study, the self-directed learners showed their system thinking where they can see themselves as part of a complex unity which every single action taken will bring impact to the larger systems. They seek the inter-connection between their works with others so that they can improve their own work that can facilitate other's works. This finding is relevant with Candy (1991) who mentioned that in order for self-directed learner to be effective; he/she must be able to think critically to question rules or norms of what he/she is doing. As Participant 7 as a section head at the Treasury stated:

*"I realized that I need to do searching and learning because I need to provide solution to user. Otherwise, the transaction cannot be done and the user will get into trouble. For example, the payment cannot get through, or production department cannot receive the delivered goods. So the next process will be hampered. Because I am in budget, user only can process after I open the budget in the system, if not, the error could occur. There are factors causing this to happen... so when user complains we already knew what the sources of problems are. We realize that we are part of a big whole; every part should contribute their part efficiently (P7)."*

In this study, the participants also show their ability to think critically to question rules or norm of the way the work being done. As Participant 12 as Business Process Analyst stated:

*"This is a kind of learning for me. First I have to understand the whole system, not only the technical part but I need to catch up quickly every single task belongs to which system and what is the relationship with other sub system, So I really study the SOP, differentiate this with others, every job title...what is the difference between one and another, so I can see that the access of each job title is different, between the one and the other. All of the projects in this company come to us and we need to analyze it one by one in detail (P12)"*

## **5. Discussion**

This study provide evidences that cultivating self-directed learning capacity will promote the practice and implementation of the five disciplines of learning organization introduced by Senge's (1990). Personal characteristics such as curiosity and willingness to try new things (Guglielmino & Guglielmino, 2002; Nursyamillah & Roziana, 2014); motivated and persistent, independent, self-disciplined, self-confident, goal-oriented, able to view problems as challenges, desire to change, and enjoy learning (Taylor, 1995); confidence, commitment, self direction, and critical reflection (Brookfield, 1993; Candy, 1988) is essential to be ready to pursue WRSDL. These characteristics are critically required to implement system thinking, mental model and personal mastery.

This study also support what previous scholars (Candy, 1991; Confessore & Bonner, 1997; Kops, 1997; Song & Hill, 2007) found that a positive learning environment excites employee's interest and drives their initiative to take learning by themselves. When the employees can feel and understand that learning is supported by their coworker, subordinate and supervisor and even making mistake is acceptable, they will be more willing to conduct experiment and try new things individually or in team. Besides that, a clear picture of what need to be achieved (shared vision) that embedded in their heads and hearts will create a sense of purpose and commitment to synergistically work in a whole system. Shared vision allows employees to stay focus and align their effort with the organizational vision (Kops, 1997) that enable them to take decision to plan, strategize, monitor and evaluate their learning toward achieving the objective. The use

of technology such as setting up intranet is one of the important facilities need to be provided to the employees to facilitate them to get knowledge required.

This study highlighted the important of supervisor's role in cultivating learning in the organization. It is critical for the supervisors to improve their skills in monitoring employee's learning progress, answering their inquiries, providing constructive suggestions, and continuously motivating the employees to become more self-directed and independent in learning. The supervisor needs to undertake strategies of encouraging intrinsic motivation by giving clear directions toward achieving organizational vision and objective (shared vision) and facilitating learners to be able to make independent choices. Management need to ensure that organizational vision has been captured by employees and translated as their personal vision so that commitment and synergy towards achieving the vision can be built. Therefore, both the management and the learner need to take their respective roles in cultivating WRSDL.

## 6. Conclusion

This study provide evidences that the five disciplines of learning organization introduced by Senge's (1990) is perceived as an essential factor in cultivating learning in organizations. Both factors included the individual characteristics and a supportive learning environment excites employees to increase their personal mastery level, refine mental model, enhance system thinking and create effective team learning. Meanwhile management need to ensure that organizational vision has been captured by employees and translated as their personal vision so that commitment and synergy towards achieving the vision can be built.

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## PERCEPTION ANALYSIS OF TELECOMMUNICATION CORPORATE RELATIONSHIP WITH SUPPLIER IN SUPPLY CHAIN

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**Abstract:** The current competition is no longer between companies but between business partners in a supply chain network instead. The rapidly evolving business environment changes have forced companies to have a strong business network to make it easily win the competition. PT. X wants to have a long-term relationship with its suppliers; however, it hasn't been known how is the relationship perception between the company and its suppliers. In this research, analysis of relationship perception between PT. X with its suppliers in the supply chain. This study is conducted to find out how the company's relationship with its suppliers in the supply chain to maintain its sustainability of a business. The data collection technique used in this study is questionnaire distributed through offline and online media to the employees of PT. X and to the suppliers of PT. X. The method used in this research is a quantitative method with data analysis technique and non-parametric Mann Whitney U test generated in BM SPSS 20 software. The results of data processing show that there was no significant difference between the relationship of PT. X with its suppliers both to sub-variables and overall sub-variables. In other words, the relationship between PT. X with its suppliers have almost the same effectiveness value, although there is little difference in the value of effectiveness. Therefore, with no difference in perception from both sides, it is expected that this partnership can be a long-term relationship.

**Keywords:** *Supply Chain Management, Telecommunication Industries, Mann Whitney, Buyer-Suppliers Relationship*

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### 1. Introduction

The strict competition triggered by globalization leads to a paradigm shift of competition; in which the current competition is no longer between companies but the competition between business partners in a supply chain network instead. The decision to make a partnership in a business relationship between one company and another is an important target for a different purpose from which the relationship will create values or benefits for both parties. Buyer-supplier relationship management is a core of success for supply chain management in companies [3]. Researchers have shown the successful management of these relationships contributes to corporate performance [7]. The existence of the relationship means that both parties perceive that they get the values from the relationship; and if the relationship is considered successful, they will tend to continue the relationship [1].

The process of value creation in the business network requires the improvement of support performance in Supply Chain Management. One thing to be considered in the concept of partnership is a relationship between the company and its suppliers which are commonly known as the concept of supply chain management (SCM). Formally, a supply chain can be defined as an integrated process in which raw materials are produced into a product that is ultimately distributed to consumers. Supply chain management is a way to integrate the supply chain from the supplier until the product reaches the customer.

PT X, one of the telecommunication companies in Indonesia, has been running CRM activities properly applied to corporate level by unit supply performance & development and supply system & integration under the financial directorate. PT. X is committed to moving forward with its suppliers in equal and mutually beneficial cooperation. PT. X also has close relationships between companies and suppliers. This is conducted by PT. X to establish a long-term relationship with its suppliers. However, the long-term relationship with suppliers is not easy. One of the obstacles is the difference in perception between the company and the supplier seen from the business activities they run. The question to ask is whether companies and suppliers consider their cooperation as a mutual beneficial or just one party which find it beneficial. Therefore, it can be seen whether or not the cooperation can be an effective long-term cooperative relationship.

## **2. Theoretical Framework**

### **A. Operations Management**

Operations management has been recognized as an important factor in the economy of the country since two centuries ago. The term of operations management has evolved since then, starting from the terms such as manufacturing management, production management, and the most recently we know, operations management. Along with technological advances, operations management has become one of the keys of advantages of competing in a company. Studying operations management will gain efficiency and excellence in the cost, quality, time and availability of goods or services[13]. The operations management is the way organizations produce or deliver goods or services as well as provide the reason of existence of the organization[9]. The operation can be considered as one of the functions within the organization. The function of the operation can be described as part of an organization devoted to the production process or the delivery of goods and services. This means that the whole organization takes part in the operations activity because each organization produces goods and/or services.

### **B. Supply Chain Management**

Supply chain management is the whole parties involved either directly or indirectly, to meet consumer demand [15]. The supply chain doesn't merely consist of companies and suppliers, but also warehouses, transportation, retailers, and even consumers themselves. One of the keys to optimizing supply chain is to create a full and effective moving information flow between supply chain networks, as well as an effective and efficient movement of goods in maximizing end-user satisfaction. One of many ways to improve the effectiveness and efficiency of the goods movement is to develop the concept of supplier relationship [6]. This concept assumes that good relationships created will lead to a supplier partnership, in which it is the key supplier for certain reliable materials and can ensure smooth movement of material in the supply chain.

### **C. Relationship between Company and Consumers in Supply Chain Management Scope**

The relationship between the company and the consumers referred to in this study is the relationship between the buyer company who act as consumers with the suppliers. It is especially for the long-term cooperative relationship. Some studies have proven that long-term relationships resulted in many advantages as well as more values than short-term relationships. This supports the assumption that it is cheaper to take care of existing customers than finding new customers. This cooperation relationship has advantages for both the company and the supplier. When the company consistently gives more values to the supplier in terms of quality, satisfaction, and other benefits, the supplier will continue the relationship of cooperation. Meanwhile, for the company, profits can be in the form of quality improvement. Other benefits come from a variety of sources including the increase of revenue from suppliers, as well as the increase of company profits without raising prices, even the long-term relationships can also lower costs. When establishing relationships with new suppliers, a lot of initial costs are needed such as tender fees, operating costs, and the time it takes to get to know the supplier. Usually, the cost will be greater than the benefits in the short-term relationships with suppliers [15].

### **D. Supplier Determinants of Success in Relationship between Company with Suppliers**

Six factors in determining the success of a relationship, namely: Trust, Commitment, Power, Communications, Performance, and Uncertainty [2]. These factors are taken from the two theories that determine the success of a relationship i.e. social exchange theory and transaction cost theory. Factors used in the transaction cost theory for this study are adaptation and uncertainty. Meanwhile, trust, commitment, power, and communication are derived from the social exchange theory. In this study, researchers will try to use the determinants of success, namely [2]:

#### **1. Trust**

Trust is often cited as a determinant recipe of relationship success. Trust is believed to reduce the risk and increase cooperation in the exchange relationship. Growth in customer confidence is particularly important when there are a risk and an uncertainty and is often the absence of contracts and guarantees in exchange relationships. Trust is a willingness of the individual to rely on other parties involved in the exchange because people have confidence and honesty to the other party [2]. When one party has confidence that the other parties involved in the exchange have the reliability and integrity, it can be said there is a belief [2]. Trust is also shown when there is a concern for the existing cooperation.

#### **2. Commitment**

Commitment is a motivation to maintain relationships and term of relationship. It is an exchange of partners to believe that sustainable relationships with others are essential to ensure maximum effort in maintaining relationships. It will arise when the relationship is important and there is a concern for the relationship. It does not only imply a loyalty but also involves the active role of the organization which provides power and responsibility to assist the organization in achieving success [12].

#### **3. Communication**

There is general agreement that communication among partners leads to an increase of trust and commitment. Morgan and Hunt stated that timely communication encourages trust and cooperation. Communication can be used as a tool to resolve

disputes. With complete and accurate communication, the potential conflict that damages cooperation can be minimized and even eliminated. The duration frequency and the content are some measures of communication between the partners involved in a relationship [8].

#### 4. Power

Power can be defined as an ability of a company (source) to influence the intentions and actions of other companies [2].

#### 5. Adaptation

Adaptation is an important factor in building collaborative relationships. Buyers and suppliers may modify the appropriate product, production process or services, and administrative procedures with their partners. Many adaptations between two partners lead their operations should be adjusted in which they are formally defined in a contract with a partner [8]. Adaptation or willingness to adjust provides evidence that the supplier is trustworthy, cares about this partnership, and is willing to cooperate and make sacrifices.

#### 6. Dependency

Dependency indicates the extent to which the company depends on their main supplier for service, product warranty, advertising, emergency order response, and new product development time. The dependency and partner interaction process are influenced by the atmosphere in which they operate and work together [8]. The dependency predicts the consequences of the company's impact on the success of a company in the present and future.

#### 7. Uncertainty

Uncertainty is defined as "the inability to predict the partner behavior or a change in the external environment" [4]. The behavior uncertainty emerges from the difficulties associated with the supervision of transaction partners performances [2].

#### 8. Performance

The success of a relationship is usually measured by the buyer's perception towards the supplier performance. Performance is the result of evaluation of the work that has been done which is compared with the criteria that have been set together. Performance measurements are carried out periodically based on the accuracy of an expectation, broken orders, productivity standards, predetermined criteria, and other aspects of the relationship [2].

### **E. Conceptual Framework**

This research analyzes the relationship between PT. X with its suppliers by assessing in terms of perceived relationship by PT. X and its suppliers. The effectiveness of this relationship is the relationship between supply chain management with the concept of supplier relationship.

In a previous study to test the success of a relationship, two paired samples were used, but for this study used two unpaired samples but used the same measurement criteria. This framework works in describing how the thinking in this study.

This research begins by collecting information on what variables are used to measure the success of the relationship (Eamonn Ambrose, et al., 2010). Then determine the criteria of the success of the relationship to the source residing in PT. X with regard to supplier relationship. Furthermore, after measuring the perception of both parties by

using non-parametric test of Mann-Whitney which is expected to measure the difference of perception of both so that will be known the effectiveness of relationship made by the company and its supplier. If you have a common perception between the two will improve the company's performance. If have a common perception between the two will improve the performance of the company.

Having obtained perceptions of the relationship between suppliers and companies, researchers try to find the effect on the success of the relationship which can be used as a consideration of the improvement of the relationship being intertwined. So obtained the frame of mind as shown below:

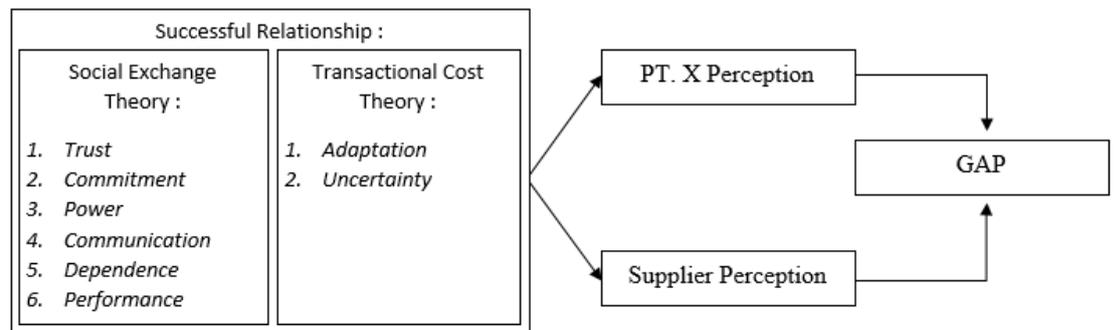


Figure 1. Conceptual Framework of Research

## F. Hypothesis

After discussing the variables for the research and studying the previous researches, we can determine the hypothesis. There is two hypothesis we will try to answer in this research, namely:

H0: There is no a different perception of a relationship between PT. X with its suppliers partially and simultaneously on the variables of commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and performance.

H1: There is a different perception of a relationship between PT. X with its suppliers partially on the variables of commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and performance.

H2: There is a different perception of a relationship between PT. X with its suppliers simultaneously on the variables of commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and performance.

## 3. Research Method

### A. Characteristics of The Research

Based on the research method, this research is quantitative research. Quantitative methods are called traditional methods because this method is long enough to use and already become a tradition. This method is called quantitative methods for research data and analysis using statistical figures.

Reference [5] stated that descriptive study is usually conducted when the researchers already know the factors or variables to measure an object or field of study but not yet know the relationship between factors or variables. This study only describes the factors or variables, disregard or test the relationship or influence between factors or variables. In descriptive research, this study only describes the characteristics or functions of a variable or several variables in a situation.

## B. Data Collection

The populations of research are PT. X and its suppliers which have ever cooperated with PT. X at the corporate level which meets the following requirements:

- a. Has centralization CAPEX (Capital Expenditures) and OPEX (Operating Expenses) projects in the last two years.
- b. Has a large contract value (0-500 billion) or is a big company that affects the supply of production tools of PT. X.
- c. Has communication with PT. X within the last 2 years.
- d. Has been through the administrative verification and has been included in the Client List of PT. X.

In this study, the authors use a sampling technique i.e. nonprobability sampling. The data are collected by distributing questionnaires to be filled in by the respondents. The scale of measurement used in this research is a Likert scale. In this study, the authors use four score levels, which are Strongly Agree, Agree, Disagree, and Strongly Disagree. The questionnaire adopted from Eamonn Ambrose, et al. (2010) consists of commitment, adaptation, communication, resource dependence, trust, uncertainty, power dan performance.

## C. Validity and Reliability

In this study, the authors measure the validity of the questionnaire items by using IBM SPSS software 20. Once they are measured, the value of  $r$  and  $r_{\text{table}}$  count every item questionnaire can be seen. This research uses a significance level of 5% ( $\alpha = 0,05$ ), the employee and supplier respondents are given a question with a similar number of items, the employee respondents are 43 persons and the value of  $r_{\text{table}}$  is 0.301 and the supplier respondents are 47 persons and the value of  $r_{\text{table}}$  is 0.288. If the value of  $r$  is bigger than  $r_{\text{table}}$ , the questionnaire items are valid, and if the value of  $r_{\text{count}}$  is smaller than  $r_{\text{table}}$ , the questionnaire items are not valid. There are 34 questions which then reduce to 30 because one item is not valid (item 12 of communication and item 35 of uncertainty). Using SPSS 20, we found the questionnaire for the all variables have a high score of Cronbach Alpha higher than 0.7. Reference [11] stated that if the result of Cronbach's Alpha is less than 0.60, it is considered bad, reliability in the range of 0.70 is acceptable, and more than 0.80 is good. There are only two questions in which we should drop from the questionnaire (items number 12 and 35 of performance).

## 5. Result And Discussion

### A. Descriptive analysis

Descriptive statistics are statistics used to analyze data by way of describing or describing data that has been collected as is without the intention of making conclusions that apply to the public or generalization [14]. From the answers to the questionnaire, then the criteria for each item questionnaire were prepared based on percentages with the following steps [14]:

- 1) The cumulative value is the sum of the values of each question which is the answer of each respondent. The number of respondents that have been determined by researchers is 43 respondents for employee PT. X and 47 respondents for suppliers.
- 2) Calculating percentages:

$$\text{Percentages} = \frac{\text{Cumulative value of item}}{\text{Frequency Value}} \times 100\%$$

- 3) Range scale for respondents employee PT. X  
Smallest percentage value =  $43/172 \times 100\% = 25\%$

The largest percentage value =  $172/172 \times 100\% = 100\%$

So, Range Value =  $\frac{100\% - 25\%}{4} = 18.75\%$

4) Range scale for respondents supplier

Smallest percentage value =  $47/188 \times 100\% = 25\%$

The largest percentage value =  $188/188 \times 100\% = 100\%$

So, Range Value =  $\frac{100\% - 25\%}{4} = 18.75\%$

5) Based on the calculation then got the value of score interpretation criteria that can be seen in the table below:

Tabel 1. Value of Interpretation Criteria

No.	Percentage	Assessment Category
1	25% < score ≤ 43.75%	Very Bad
2	43.75% < score ≤ 62.5%	Bad
3	62.5% < score ≤ 81.25%	Good
4	81.25% < score ≤ 100%	Very Good

To see the result of the total value of each variable, it can be seen on the continuum line below:



Figure 2. Continuum Line

In the variable of relationship, there are eight sub-variables, namely: Trust, Communication, Commitment, Adaptation, Power, Resource Dependence, Uncertainty, and Performance which consists of 34 valid questions. The data of questionnaires of each variable on both employee and supplier respondents. The table below shows the detail result:

Table 2. Employee PT. X Response Against the Whole Variable

Variable	Average Percentage Score	Criteria
Trust	76.99%	Effective
Communication	77.25%	Effective
Commitment	78.85%	Effective
Adaptation	76.94%	Effective
Power	78.68%	Effective
Resource Dependence	75%	Effective
Uncertainty	68.60%	Effective
Performance	80.81%	Effective

The result showed that level of Trust of employees at PT. X was 76.99% and considered as effective. Not to mention, the communication, commitment, adaptation, power resource dependence, uncertainty, and performance variables are considered as effective. It can be concluded that:

a. PT. X and suppliers are able to make PT. X employees trust with their suppliers,

- b. PT. X and suppliers are able to make PT. X employees communicate effectively with the suppliers,
- c. PT. X and suppliers are able to make PT. X employees put commitment to the suppliers,
- d. PT. X and suppliers are able to make PT. X employees adapt to the suppliers,
- e. PT. X and suppliers are able to make PT. X employees give influence on the suppliers,
- f. PT. X and supplier are able to make PT. X employees have dependence of influence for the supplier,
- g. PT. X and the supplier are able to make PT. X employee can predict the circumstances of supplier, and
- h. PT. X and supplier are able to make PT. X employees have an effective performance for its suppliers.

Table 3. Suppliers PT. X Response Against the Whole Variable

<b>Variable</b>	<b>Average Percentage Score</b>	<b>Criteria</b>
Trust	83.51%	Very Effective
Communication	83.11%	Very Effective
Commitment	86.38%	Very Effective
Adaptation	77.84%	Effective
Power	82.62%	Very Effective
Resource Dependence	78.90%	Effective
Uncertainty	81.12%	Effective
Performance	81.03%	Effective

The results showed that the level of Trust of the supplier at PT. X is 83.51% and considered as very effective. Not to mention, communication, commitment, and power variables are considered as very effective. However, the variables of adaptation, resource dependence, uncertainty, and performance are considered as effective. It can be concluded that:

- a. PT. X and suppliers are able to make suppliers trust to the employees of PT. X,
- b. PT. X and suppliers are able to make suppliers communicate effectively with the employees of PT. X,
- c. PT. X and suppliers are able to make suppliers put commitment to the employees of PT. X,
- d. PT. X and suppliers are able to make supplier adapt to the employees of PT. X,
- e. PT. X and suppliers are able to make suppliers give influence on PT. X,
- f. PT. X and suppliers are able to make suppliers have a dependence of influence on the employees of PT. X,
- g. PT. X and suppliers are able to predict the circumstances of PT. X, and
- h. PT. X and suppliers capable of making suppliers have a good performance for PT. X

## B. Normality Test

Tests of Normality

RESPONDENT		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
SCORE	PT.X	,160	34	,028	,906	34	,007
	SUPPLIER	,176	34	,009	,875	34	,001

Lilliefors Significance Correction

Figure 3. Test of Normality

Data normality test was conducted through SPSS version 20.0 using normal probability plots and the Kolmogorov-Smirnov table. Data normality test was conducted through SPSS version 20.0 using normal probability plots and the Kolmogorov-Smirnov table. Based on the picture above, it can be seen that the dots followed the diagonal line so that the data have a normal distribution; it can be also seen from the value of sig. The table of Kolmogorov-Smirnov showed 0.028 = 2.8% and 0.009 = 0.9%, it can be concluded that it didn't meet the normal distributed data requirement, i.e. 0.05 = 5%. Therefore, the curve was like the data normally distributed. However, the data were not normally distributed; the statement was reinforced by the following results:

If the value of Sig. in the table of Kolmogorov-Smirnov output;

Sig > 5% (or 0.05), the data are normally distributed.

Sig < 5%, the data are not normally distributed.

In this study, the value of sig = 0.028 (2.8%) < 0.05 (5%) and the value of sig = 0.009 (0.9%) < 0.05 (5%). Thus, it can be concluded that the data is not normally distributed.

## C. Homogeneity Test

Homogeneity test was used to see whether or not the observed residual has constant variables. The tests are conducted through SPSS version 20 to view a table of independent sample test as can be seen in Figure 4 below:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SCORE	Equal variances assumed	2,660	,108	-1,525	66	,132	-,20505	,13448	-,47355	,06344
	Equal variances not assumed			-1,525	63,274	,132	-,20505	,13448	-,47377	,06366

Figure 4. Independent Samples Test

Here is the form of homogeneity test hypothesis,

$$H_0: \sigma_1^2 = \sigma_2^2 \text{ (variance of homogeneous data)}$$

$$H_1: \sigma_1^2 \neq \sigma_2^2 \text{ (data variances are not homogeneous)}$$

The output shown in Figure 4, showed that independent sample test in the F distribution is to test the homogeneity. For acceptance or rejection of the null hypothesis, it can be seen in the value of sig in the 3rd column, i.e. 0.108 (10.8%) > 5%. Therefore, it can be concluded that H0 is accepted, meaning that both groups have the same variant/homogeneous data variance.

#### D. Mann Whitney Test

Because the terms and requirements of the test are met. The data consisting of two samples are not interrelated or dependent, which is not the data affected by the value before and after the treatment, and the distributed data is not normal and homogeneous. The steps of Mann Whitney test work in this research refers to Santoso (2015:392-396), operated using SPSS 20.0. Experiment to test different perception of the relationship with the supplier using Mann Whitney on each variable to answer the research question. Here are the results of data that can be analyzed :

	EFFECTIVITY
Mann-Whitney U	432,000
Wilcoxon W	1027,000
Z	-1,793
Asymp. Sig. (2-tailed)	,073

	RESPONDENT	N	Mean Rank	Sum of Ranks
EFFECTIVITY	EMPLOYEE	34	30,21	1027,00
	SUPPLIER	34	38,79	1319,00
	Total	68		

a. Grouping Variable: RESPONDENT

Figure 5. Mann- Whitney Test

In this research note that the testing performed on eight sub variables, so it shows the value of the effectiveness of the relationship PT.X employee and its suppliers with reference to the output of statistical tables, with following value of significance Asymp. Sig. (2-tailed) 0.073 (7.3%) > 0.05 (5%). Thus it can be concluded that there is no difference of perception of effectiveness significantly to sub variable of the entire research.

The results showed no significant differences in perception between the relationship of PT. X with suppliers both against per variable used as well as from the whole variable. If viewed from the overall research results, respondents feel the relationship exists between PT. X with its suppliers have almost the same effectiveness value, although there is little difference in the value of effectiveness.

The results of previous research prove that the variable commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and performance are effective in determining the success of the relationship (Eamonn Ambrose, et al.,2010). In this study also proved that the eight variables used, proved effective in the success of the relationship between PT. X with its suppliers.

## 6. Conclusion

Based on research, perception analysis of the company on the relationship with its suppliers on sub-variables commitment, adaptation, communication, resource dependence, trust,

uncertainty, power, and performance are effective categories which can be concluded that there is no perceived bad perception company with its suppliers.

Based on research, perception analysis of the PT. X suppliers on the relationship with PT. X on sub-variables commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and performance, are effective and very effective categories which can be concluded that there are no perceived bad perception suppliers with PT. X.

Based on the results of the analysis using the non parametric test Mann-Whitney, it can be concluded there is no difference perception of the effectiveness of the relationship between the company and supplier significantly to sub variable commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and performance. Also the result of variable analysis as a whole there is no difference perception of the effectiveness of the relationship between company and supplier significantly. This result shows that there is no difference in the perception of the relationship between the company and the suppliers.

This study only describes how the relationship exists between the company and suppliers, whether the relationship can be a long-term relationship or not. This research does not illustrate how the effectiveness of the relationship felt by both parties from the cooperation that has been done. Suggestion for PT. X that is company have to put people who have skill in communicating, that is to have ease of communicate and able to talk to the various class. This is seen from the questionnaire of suppliers who handle PT. X is mostly handled by people who have positions as managers and directors. In terms of the overall research results show that all the variables used as the criteria for success of the relationship are in the category effective and very effective. And the results of different tests show there is no difference in perception between the company with suppliers for the cooperation that is expected to be PT. X can continue this cooperation into long-term cooperation, provided that PT. X makes the supplier as a supplier that has an influence for the company.

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## THE EFFECTIVENESS OF RFID ATTENDANCE MONITORING TOWARD EMPLOYEES' WORK DISCIPLINE AT TELKOM UNIVERSITY BANDUNG

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**Abstract:** Human resources are one of important factor in a company. In addition, the performance of employees is also important in the company's development. To improve the employees' performance, one thing that can be done is supervising the employees' discipline.

This study aims to determine the effectiveness of the RFID attendance monitoring on the employees' discipline at Telkom University. The implementation of RFID attendance monitoring is an independent variable and employees' work discipline is the dependent variable. In this case, the researchers used quantitative methods and questionnaires to collect data that was distributed to 175 respondents. Sampling technique used in this study is simple random sampling. This study is also a descriptive and causal research. The research shows that the effectiveness of the RFID attendance application is partially positive and significantly impacts the employees' discipline of 23.3%. Therefore, the RFID attendance monitoring is effectively used in improving the employees' discipline at Telkom University Bandung.

**Keywords:** *Effectiveness, RFID Attendance, Work discipline*

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### 1. Introduction

In any organization, employee management is very important. It is an aspect widely practiced in all workplaces (Chiwa, 2014). Employee management can be done by organizing and disciplining the workforce to improve employees' performance in order to achieve a good company or organization. One of the performances can be seen from the employees' discipline. This is of course cannot be separated from the supervision of the leader of a company. Supervision of employees can be judged by the actions of employees who always come to the office and go home, whether they follow the rules of working hours in a company or not.

Nowadays, many companies have implemented various ways to monitor employees, one of the ways that can be used is by utilizing the latest technological advances. For this purpose, the employees' necessary information such as name, sex, ID number, and perhaps fingerprints are compiled and stored in the Database (Chiwa, 2014). Suganthi et.al (2017) mentioned that RFID systems can be used to monitor the attendance. The RFID can perform automatic control for many things, one of them is absenteeism. Although some companies have not implemented

this RFID technology system, but this technology is very helpful to improve employees' discipline. Previously, the manual attendance list was used by the company, but unfortunately it was not effective to see the level of employees' discipline. It was because there is no information about the time when the employee came to the office and went home. The employees can leave their presence to their friends or manipulate the presence so that it was difficult for superiors to give sanctions. In the previous research conducted by Saparkhojayev et al (2012) in Suganthi (2017) in Kazakhstan, about monitoring students' attendance is one of the important issues in various universities. Therefore, he created and implemented the attendance control system in Suleyman Demirel University Kazakhstan in which the system is based on RFID technology. This system is also implemented in Telkom University.

In this research, the effectiveness of RFID attendance monitoring at Telkom University has been good, but it is still not so effectively used in improving employees' discipline because employees' achievement is still below target. The application of the RFID is supposed to be effective, because the use of the RFID is very easy and the employees' presence cannot be manipulated. Unfortunately, based on the preliminary research conducted by the researcher by doing the interview with some employees, the RFID was still used inappropriately, for example the employee can ask his/ her friend to tap his/ her RFID card. Therefore, the effectiveness of RFID attendance monitoring at Telkom University is interesting to be studied.

## **1.2 Research Objectives**

To find out how the effectiveness of RFID attendance application for employees, to know employees' work discipline, and to know how is the influence of effectiveness of RFID attendance application on employees' work discipline at Telkom University.

## **2. Literature Review**

### **2.1 Human Resource Management**

According to Hasibuan (2012), human resource management is the science and art of managing relationships and the role of employees in order to effectively and efficiently help the realization of the company's, employees', and society's objectives. Meanwhile, Mangkunegara (2013) stated that human resources management is a management and utilization of existing resources in individuals. Management and utilization is developed maximally at work to achieve organizational goals and development of individual employees.

According to Hasibuan (2012), human resources management functions include planning, organizing, directing, controlling, procurement, development, compensation, integration, maintenance, discipline, and dismissal. Based on the two opinions above, it can be concluded that the human resources management in an effective and efficient company can help the realization of company's goals.

### **2.2 Work Discipline**

According to Hasibuan in Asmira (2016), discipline is an attitude of willingness of a person to obey the norms of regulations that apply around it. While, Davis in Mangkunegara (2013) said that the discipline of work can be interpreted as the implementation of management to strengthen the guidelines of the organization. So, it can be concluded that discipline is the willingness of a person to comply and obey the norms of regulations that apply as the implementation of management to strengthen the guidelines of the organization.

The main purpose of work discipline is to ensure employee behavior is consistent with company's rules. Rules are made for further organizational purposes. If a rule is violated then

the effectiveness of the organization will be reduced to some extent, depending on the severity of the offense.

In order to measure the employees' discipline, Hasibuan (2012) suggests some indicators i.e. objectives and abilities, leadership role, remuneration, fairness, sanction, firmness, and humanitarian relation.

### 2.3 RFID Attendance Monitoring

According to Heriawanto in Asmira (2016) the implementation of filling the attendance manually (only in the book list) will make an obstacle for the organization to monitor employees' discipline in terms of the timeliness of arrival and return home of employees every day. Therefore, it is required an attendance system to monitor the employees' activities at the office.

The RFID attendance monitoring is a technology to identify something by using radio frequency. This RFID technology uses a method similar to barcode identification techniques. The benefits and usefulness of the technology are used to provide accurate information automatically which will save time and cost significantly (<http://www.stealth.co.id/>).

### 2.4 Effectiveness

Mahsun in Asmira (2016) suggests that effectiveness is the relationship between output with goals or targets to be achieved. Understanding the effectiveness associated with the achievement of goals or policy targets (spending wisely). Meanwhile, according to Hidayat in Sumarina (2013), effectiveness is a measure that states how far the target (quantity, quality and time) has been achieved. Where, the greater the percentage of targets achieved, the higher the effectiveness.

According to Tangkilisan in Asmira (2016) the meaning of effectiveness is the degree to which a social system reaches its goal. Effectiveness must be distinguished from efficiency because efficiency implies a comparison between cost and outcome while effectiveness is directly linked to a goal achievement. According to Gibson in Asmira (2016), there are several indicators to measure the effectiveness i.e. target achievement, adaptability, job satisfaction, responsibility.

### 2.5 Theoretical Framework

Here is the theoretical framework of the research.

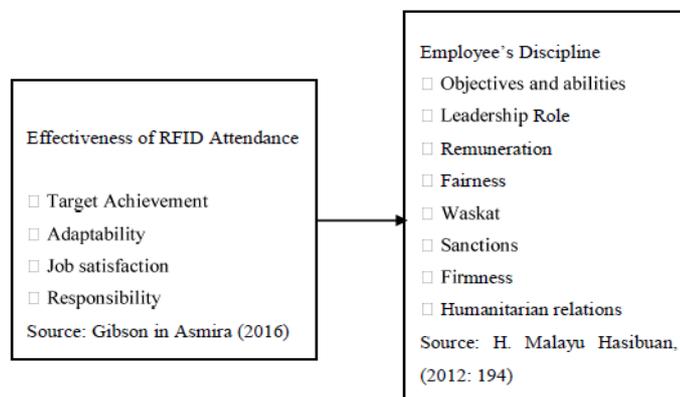


Fig. 1 Theoretical Framework

### 3. Research Methods

In this case the researchers used quantitative methods and questionnaires as a means of data collection spread to 175 respondents. Sample technique used in this research is simple random sampling. This research is also a descriptive and causal research. Data analysis used is descriptive analysis, simple linear analysis.

### 4. Discussion

Based on the data collected from the questionnaires, it can be seen that the regression equation as follows:

$$Y = 1.866 + 0.422X + \epsilon_i$$

The regression equation above shows that the independent variable of effectiveness of RFID Attendance Monitoring (X) is positive, indicating a direct relationship between the effectiveness of RFID Attendance Monitoring (X) with Employees' Work Discipline (Y). Thus the effectiveness regression coefficient of 0.422 has a meaning for each increase in the effectiveness of one unit will lead to increase employees' work discipline of 0.422.

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.866	.190		9.830	.000		
X	.422	.058	.483	7.246	.000	1.000	1.000

a. Dependent Variable: Y

**Table 1. Simple Regression**

Output in the table above shows that the value of R (correlation) produced is 0.483, it can be said that the effectiveness and discipline of employees' work discipline positively correlated by 48.3%. Coefficient of determination R<sup>2</sup> (R Square) is 0,2333 which means the ability of effectiveness variable in influencing employees' work discipline of Telkom Bandung University equals to 23.33% while 76,67% is influenced from other factors not observed in this research. It means that the use of RFID attendance monitoring is effective but it can be improved.

As the preliminary research mentioned before that some employees used this RFID technology inappropriately such as asking other people to tap their RFID card. Even though, the system records that the employees come or leave the office on time based on office hour but in reality it is not sometimes like that. Therefore, it is important that the human resource department finds other way to use a better technology for example RFaceID or fingerprints. Based on the research of Suganthi et. al (2017), they mentioned that "to the best knowledge, RfaceID performs better and with lower resolution face images than the other approaches in the literature integrating RFID tags and Biometric authentication." Meanwhile, even though that fingerprints identification is the oldest method, it has been successfully utilized in several applications (Sayed & Jradi, 2014). Therefore, there will be no violation or manipulated data conducted by the employees regarding attendance. The regulation can be done thoroughly and accurately.

## **5. Conclusions and Suggestions**

### **5.1 Conclusions**

We can draw conclusions as follows that based on the results of statistical calculations on descriptive analysis obtained that the effectiveness of the application of absence of RFID (X) is included in the very high category of 82.28%. The analysis of statistical calculations on descriptive analysis obtained that employee discipline variable (Y) at Telkom University included in the very high category of 81.27%. and the analysis of statistical calculations on partial hypothesis testing, it is found that the effectiveness of RFID absence (X) has a positive and significant effect on employees' work discipline (Y) that is 0.233%. Therefore, the conclusion is the effectiveness of ability variable to influence employees' work discipline at Telkom University Bandung is 23.3% while 76.7% is the influence of other factors that are not observed in this study.

### **5.2 Suggestions**

#### **5.2.1 Suggestion for Telkom University**

There are some suggestions that can be addressed such as:

1. Based on the results of research from the responses of respondents, effectiveness variables included in the category is very high, but in these variables there are some sub variables that still need to be improved as external self-adaptation of the institution itself. We recommend that Telkom University especially Human Resource Department can provide a good way to socialize how to use RFID attendance because there are still some employees who do not get socialization.
2. Based on the results of research from the responses of respondents, employee discipline variable included in the category is very high, but also in these variables there are some sub variables that still need to be improved such as remuneration, fairness, and sanctions. Not only providing salary and compensation that is suitable with the assignment, but also rewarding the disciplined employees. In addition, Telkom University should preferably give equal treatment to all employees regardless of position because it is viewed by researchers based on respondents' answers in several statements.
3. Telkom University should also provide strict supervision and sanctions to employees who strictly enforce regulations. Because if not, the employee who commits a violation will not be deterred to repeat his/ her mistake. In this case, the employee who came and went home did not meet the hours specified by Telkom University for no apparent reason.
4. Telkom University could use other better technology adaptation for monitoring attendance such as RFaceID or fingerprints application.

#### **5.2.2 Suggestions for Further Research**

There are some suggestions for further research:

1. Further research is expected to use other variables that can relate with the work discipline of Telkom University's employees, because the effect of effectiveness on the work discipline is only 25.4% and 75.6% is influenced by other variables outside the effectiveness variable of RFID Attendance implementation. Other variables are time, task, or work environment.
2. Further research is expected to conduct research that includes a broader object of research such as covering other permanent employees such as lecturers at Telkom University. Because in this study, researchers only conduct research on permanent employees at Telkom University

3. Improving better technology adaptation for monitoring employees' attendance such as RFaceID or fingerprints application that can be the collaboration between Faculty of Engineering and Faculty of Economics and Business of Telkom University.

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## THE EFFECT OF PERCEIVED USABILITY, SATISFACTION AND TRUST ON WEBSITE LOYALTY (STUDY ON BLIBLI.COM CONSUMER)

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**Abstract:** The growing number of internet users in Indonesia has made business opportunities in the e-commerce industry more promising. This is supported by the growing sales data through e-commerce as well. Blibli.com as one of the B2C e-commerce platforms competing in the industry by always try to provide the best shopping experience to customers through perceived usability, trust, satisfaction to return customers shopping. This study was conducted to measure customer ratings of perceived usability, trust, satisfaction with website loyalty. Data collection method uses primary data in the form of questionnaires distributed online to respondents who are customers of Blibli.com. The method used in this study is a quantitative method with a sample of 385 respondents. Data analysis techniques and hypothesis testing using Structural Equation Model (SEM) with AMOS 24 software. Responses of the respondent to perceived usability, trust, satisfaction, and loyalty website provided by Blibli.com considered good. It shows that the Blibli.com website can be used by customers to achieve certain goals, Blibli.com is good at building trust by adjusting expectations and expectations given to customers, providing satisfaction on goods or services obtained and used to customers, and maintaining loyalty to make customers shop again. Based on the results of data processing in this study showed an effect that the relationship between perceived usability to trust, perceived usability to satisfaction, satisfaction with the trust and satisfaction of website loyalty. However, the relationship between perceived usability to website loyalty shows no effect.

**Keywords:** *Usability, Trust, Satisfaction, Website Loyalty.*

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### 1. Introduction

Currently, sales growth through e-commerce from year to year is always increasing. Sales through e-commerce in 2016 reached 22.4% [18]. Type of B2C e-commerce business (Business to Customer) became the most platform in Indonesia, one of which is Blibli.com. Analysis results from similiarweb.com, the average duration of visitors Blibli.com is only 2:00

minutes. This means that from 25.8 million average visitors only spend approximately 2:00 minutes on the website Blibli.com with an average of 3.06 pages per visit [15].

The competitive situation e-commerce industry that is quite strict, Blibli.com should improve the service to what extent the website can be used to achieve user goals. Flavian *et al.* (2006) stated that perceived usability has a direct and positive relationship to the level of consumer confidence and satisfaction. Usability is tied to the strong attitudes and mentality of the users so it can be inferred that user loyalty can arise when the user is easy to use a particular product [13]. The direct influence of consumer satisfaction with consumer confidence in consumer loyalty [6]. Based on data from similarweb.com, Blibli.com's visitor data dropped by 3.00% in May 2017, the duration of website visitors, the average of the visited pages and the bounce rate is still below the main competitors on the same platform, Lazada and Elevenia, Blibli.com needs improving performance in maintaining customer loyalty. This study was conducted to measure customer ratings of perceived usability, trust, satisfaction with website loyalty.

## **2. Theoretical Background**

### **A. Perceived Usability**

Perceived website usability is a very important part of store image and can affect shopping behavior similar to traditional aspects. In fact, usability has proven to be a key factor when an organization's services use the internet [3].

Flavian *et al.* (2006) stated that there are several factors in perceived usability:

- a. Ease of understanding the structure in the system, function, interface, and content observed by the user.
- b. The simplicity of using the website in the early stages.
- c. The speed at which the user can find the item sought.
- d. Ease of site navigation in terms of time required and action required to get the desired results.
- e. The ability of users to control what is done at any given moment.

### **B. Satisfaction**

Satisfaction is the feeling of pleasure or disappointment of someone who emerged after comparing the performance (result) of thought products to the expected performance (or outcome). If performance is below expectations then the customer is not satisfied. If the performance meets expectations then the customer is satisfied. If performance exceeds expectations then the customer is very satisfied or happy [8].

Flavian *et al.* (2006) stated indicators of customer satisfaction are as follows.

- A. The correct decision in choosing a website.
- B. Experience shopping with customer satisfaction.
- C. Satisfied in making transactions.
- D. Satisfied with the service provided.

### **C. Trust**

Trust as an assessment of one's relationship with others who will perform certain transactions in accordance with expectations in an environment full of uncertainty [1].

Flavian *et al.* (2006) stated that there are several factors in trust:

- a. Honesty relates to how the behavior or habits of the seller in running his business. The information given to the consumer is true to the facts or not. The quality of the product sold is reliable or not.
- b. Benevolence is the willingness of the seller in providing mutual satisfaction between himself and the consumer. Profit obtained by the seller can be maximized, but customer satisfaction is also high. Sellers are not merely pursuing the maximum profit alone, but also have a great attention in realizing customer satisfaction.
- c. Competence refers to perceptions of knowledge, an ability to solve problems, and an ability to meet the needs of others owned by a party.

#### D. Loyalty

Consumer loyalty is defined as a commitment that is closely held by the customer in a repurchase or choice of products or services consistently in the future, causing repeat purchases on the same brand or set of brands Although situational influences and marketing efforts have the potential to lead to switching behaviour (change of purchase on different brands) [8].

Flavian *et al.* (2006) stated that indicators of customer loyalty are as follows:

- a. Often visited on one website in the same category.
- b. Buy most products and services in the same category.
- c. A site becomes a favorite site to buy products and services in the same category.
- d. Do not buy products and services from the same category from other sites.

O'Cass *et al.* (2012) stated that indicators of customer loyalty are as follows:

- a. Rarely consider switching to other trading sites.
- b. Will buy again at the site in the future.

### 3. Conceptual Framework

All the variables in this study were adopted from the research titled "The Role Played By Perceived Usability, Satisfaction And Consumer Trust On Website Loyalty" written by Carlos Flavian, Miguel Guinaliu and Raquel Gurrea in 2006. Thus the framework of this research can be seen in Figure 1 below.

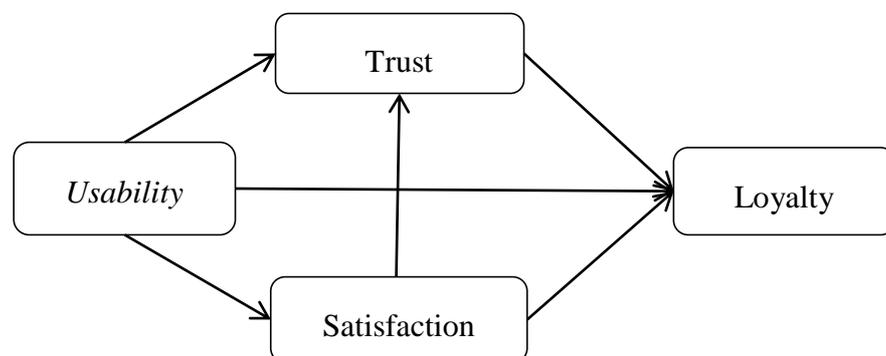


Figure 1. Conceptual Framework [3]

Based on the framework that has been described, the hypothesis of this research is as follows.

- H1: Perceived usability has a significant effect on trust.
- H2: Perceived usability has a significant effect on satisfaction.
- H3: Perceived usability has a significant effect on website loyalty.
- H4: Satisfaction has a significant effect on trust.
- H5: Trust has a significant effect on website loyalty.
- H6: Satisfaction has a significant effect on website loyalty.

## **4. Research Method**

### **A. Characteristics of The Research**

The method used in this research is a quantitative method. In terms of the purpose of this study included into the study of causality. While in terms of investigation pertained into correlational research. Researchers did not intervene data in the study. Based on the research setting, this study included noncontrived setting. Based on implementation time, this research is cross sectional research.

### **B. Data Collection**

Data collection method uses primary data in the form of questionnaires distributed online to respondents who are customers of Blibli.com. The number of consumer population from Blibli.com is not known, then the sample in this study using the Bernoulli formula is the formula to calculate the number of samples required for a study whose population number is not known with certainty with the level of accuracy ( $\alpha$ ) used by 5%, the level of trust for 95% to obtain the value  $Z = 1.96$  and error rate ( $e$ ) is set at 5%. Meanwhile, the probability of a correct (acceptable) or false (rejected) questionnaire is 0.5. Therefore the results obtained by the sample of 385 respondents.

The sampling technique used in this research is nonprobability sampling. Type of nonprobability sampling in this study is purposive sampling. The scale of measurement used in this research is a Likert scale.

In this study, the authors use four score levels, which are Strongly Disagree, Disagree, Agree, and Strongly Agree. In this study, eliminates neutral points. Quoted from Dumais in Bucci (2003) that by issuing point 3 (neutral) in measuring attitude will give more reliable results.

Loyalty shows the condition of a certain time duration and requires that the purchase action occurs no less than twice [4]. Therefore, the criteria specified for the sample in this research is the respondents who had been shopping through Blibli.com e-commerce site at least twice.

### **C. Validity and Reliability**

In this study, the authors measure the validity and reliability of the questionnaire items by using IBM SPSS 20. Variable perceived usability, trust, satisfaction and loyalty of the website amounted to 32 statements declared valid because all statement items meet  $r$  count  $>$   $r$  table value. With the level of significance ( $\alpha$ ) of 5%, and  $n = 40$  then obtained  $r$  table value of 0.312.

All statement items used in this study are reliable because the calculation result is more than 0.80. The results of the reliability test of the statement in this study can be seen in table 1.

Table 1. Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.949	32

Based on Table 1, it can be seen that the statement items in this study are reliable with the result obtained 0.949. Sekaran (2014) stated that if the result of Cronbach's Alpha is less than 0.60, it is considered bad, reliability in the range of 0.70 is acceptable, and more than 0.80 is good.

## 5. Result & Discussions

### A. Descriptive Analysis

Descriptive statistics are statistics used to analyze data by way of describing or describing data that has been collected as is without the intention of making conclusions that apply to the public or generalization [16].

From the answers to the questionnaire, then the criteria for each item questionnaire were prepared based on percentages with the following steps (Riduwan and Kuncoro, 2012: 28):

- 1) The cumulative value is the sum of the values of each question which is the answer of each respondent. The number of respondents that have been determined by researchers is 385 people.
- 2) Calculating percentages:  
Percentages =  $\frac{\text{Cumulative value of item}}{\text{Frequency Value}} \times 100\%$  (1)
- 3) Calculates the largest and smallest cumulative number. The number of respondents is 385 people and the largest scale is 4 while the smallest scale is 1.

So obtained the calculation as follows.

The largest cumulative sum:  $385 \times 4 = 1540$

Smallest cumulative sum:  $385 \times 1 = 385$

- 4) Calculates the largest and smallest percentage values.

Smallest percentage value =  $385/1540 \times 100\% = 25\%$

The largest percentage value =  $1540/1540 \times 100\% = 100\%$

- 5) Calculates the range value:

$$\text{Range Value} = \frac{\text{Largest percentage value} - \text{Smallest percentage value}}{\text{Number of Scale Points}} \quad (2)$$

Then the calculation is as follows.

$$\text{Range Value} = \frac{100\% - 25\%}{4} = 18.75\%$$

- 6) Based on the calculation then got the value of score interpretation criteria that can be seen in the table below:

Tabel 2. Value of Interpretation Criteria

No.	Percentage	Assessment Category
1	25% < skor ≤ 43.75%	Very Bad
2	43.75% < skor ≤ 62.5%	Bad
3	62.5% < skor ≤ 81.25%	Good
4	81.25% < skor ≤ 100%	Very Good

To see the result of the total value of each variable, it can be seen on the continuum line below:

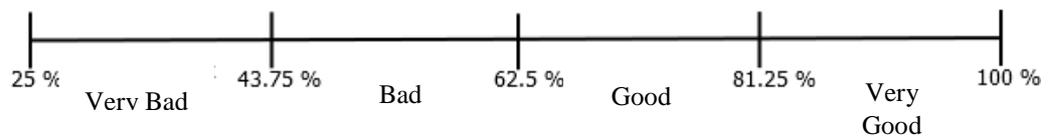


Figure 2. Continuum Line

The results of respondents' perceptions of each measured variable are described in Table 1 as follows:

Table 3. Score

Variable	Score %	Category
<i>Perceived Usability</i>	73.65%	Good
Trust	70.58%	Good
Satisfaction	72.98%	Good
<i>Website Loyalty</i>	66.64%	Good

Based on Table 1, we know that respondents gave ratings "good" on *perceived usability* (73.65%), trust (70.58%), satisfaction (72.98%), and *website loyalty* (66.64%).

## B. Structural Model Test

Here is the result of research using structural equation modeling technique.

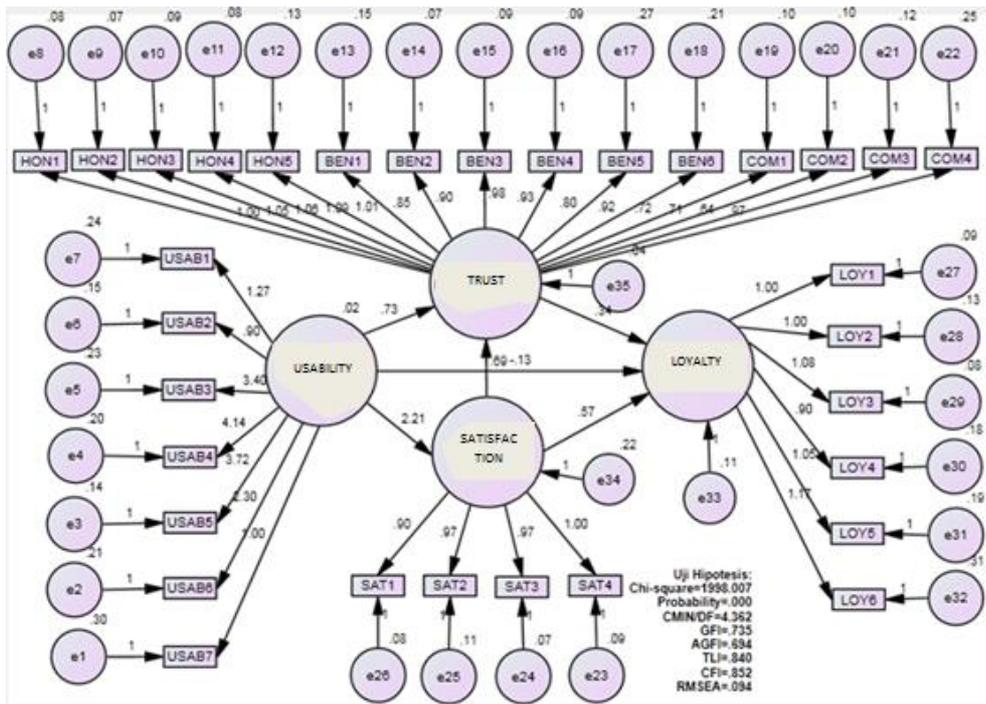


Figure 3. The result of structural equation model test

Based on the structural model test in Figure 3, the overall hypothesis shows the value of chi-square = 1998,007, degrees of freedom = 458, and the value of probability level = 0,000.

Table 4. The result of structural model test

ABSOLUTE FIT	INCREMENTAL FIT	PARSIMONY FIT
RMSEA = 0.094; GFI = 0.735; AGFI = 0.694	NFI = 0.817; RFI = 0.801, IFI = 0.853; TLI = 0.840; CFI = 0.852	PRATIO = 0.923, PNFI = 0.754; PCFI = 0.787

The structural result of the test model in Table 2 shows that the research model in Figure 3 can be considered fit. In table 5 is the output of AMOS 24 from figure model 3.

Table 5. Regression Weights

		Estimate	S.E.	C.R.	P
SATISFACTION	<--- USABILITY	2,210	,588	3,758	***
TRUST	<--- SATISFACTION	,689	,040	17,085	***
TRUST	<--- USABILITY	,730	,226	3,233	,001
LOYALTY	<--- USABILITY	-,126	,221	-,572	,567
LOYALTY	<--- SATISFACTION	,575	,094	6,137	***
LOYALTY	<--- TRUST	,337	,112	3,013	,003
HON1	<--- TRUST	1,000			
HON2	<--- TRUST	1,054	,043	24,508	***
HON3	<--- TRUST	1,058	,045	23,315	***
KEP4	<--- SATISFACTION	1,000			
KEP3	<--- SATISFACTION	,966	,039	24,991	***
KEP2	<--- SATISFACTION	,973	,044	22,350	***

			<b>Estimate</b>	<b>S.E.</b>	<b>C.R.</b>	<b>P</b>
KEP1	<---	SATISFACTION	,900	,039	23,312	***
LOY1	<---	LOYALTY	1,000			
LOY2	<---	LOYALTY	1,002	,044	22,815	***
HON4	<---	TRUST	1,093	,045	24,307	***
HON5	<---	TRUST	1,010	,049	20,565	***
BEN1	<---	TRUST	,850	,049	17,335	***
BEN2	<---	TRUST	,896	,039	22,976	***
BEN3	<---	TRUST	,981	,044	22,340	***
BEN4	<---	TRUST	,928	,042	21,852	***
BEN5	<---	TRUST	,799	,062	12,979	***
BEN6	<---	TRUST	,922	,057	16,283	***
COM1	<---	TRUST	,719	,041	17,701	***
COM2	<---	TRUST	,706	,040	17,535	***
COM3	<---	TRUST	,643	,042	15,221	***
COM4	<---	TRUST	,969	,062	15,708	***
LOY3	<---	LOYALTY	1,075	,041	26,380	***
LOY4	<---	LOYALTY	,898	,047	19,095	***
LOY5	<---	LOYALTY	1,048	,050	20,858	***
LOY6	<---	LOYALTY	1,169	,061	19,004	***
USAB7	<---	USABILITY	1,000			
USAB6	<---	USABILITY	2,297	,599	3,835	***
USAB5	<---	USABILITY	3,719	,928	4,006	***
USAB4	<---	USABILITY	4,137	1,035	3,997	***
USAB3	<---	USABILITY	3,402	,861	3,953	***
USAB2	<---	USABILITY	,900	,279	3,224	,001
USAB1	<---	USABILITY	1,268	,379	3,344	***

Based on Table 5, it can be seen that the dimensions of the construct are entirely significant because they have C.R. (Critical Ratio) > 1.96 or probability (P) < 0.05. The indicator is not significant because it has a value of C.R < 1.96 or probability (P) > 0.05 is usability to loyalty.

Table 6. *Standardized Regression Weights*

		<b>Estimate</b>		<b>Estimate</b>
SATIS	<---	,508	BEN3	<---
USAB			TRUST	
		,788		,846
TRUST	<---	,192	BEN4	<---
SATIS			TRUST	
		-,028		,836
TRUST	<---	,561	BEN5	<---
USAB			TRUST	
		,287		,591
LOY	<---		BEN6	<---
USAB			TRUST	
				,698
				,737
				,733

	Estimate		Estimate
LOY <--- SATIS	,862	COM1 <--- TRUST	,665
LOY <--- TRUST	,887	COM2 <--- TRUST	,680
HON1 <--- TRUST	,865	COM3 <--- TRUST	,766
HON2 <--- TRUST	,872	COM4 <--- TRUST	,764
HON3 <--- TRUST	,848	LOY3 <--- LOY	,224
SAT4 <--- SATIS	,887	LOY4 <--- LOY	,533
SAT3 <--- SATIS	,844	LOY5 <--- LOY	,783
SAT2 <--- SATIS	,884	LOY6 <--- LOY	,757
SAT1 <--- SATIS	,808	USAB7 <--- USAB	,670
LOY1 <--- TRUST	,727	USAB6 <--- USAB	,282
LOY2 <--- LOY	,859	USAB5 <--- USAB	,311
HON4 <--- TRUST		USAB4 <--- USAB	
HON5 <--- TRUST		USAB3 <--- USAB	
BEN1 <--- TRUST		USAB2 <--- USAB	
BEN2 <--- TRUST		USAB1 <--- USAB	

In Table 6, shows the number factor loading in the structural model as follows.

- Between the perceived usability and trust variables show a value of 0.192 which means below 0.5. This suggests that perceived usability can not explain trust.
- Between perceived usability and website loyalty variables show a value of -0.028 which means below 0.5. This shows that the influence between perceived usability and website loyalty is not unidirectional or inversely proportional.

- c. Between trust and loyalty variables of the website shows a value of 0.287 which means below 0.5. This shows that trust can not explain website loyalty.
- d. Between perceived usability and USAB2 variables show a value of 0.282 which means below 0.5. This indicates that perceived usability can not explain the USAB2 manifest variable.
- e. The relationship between variables that show a value above 0.5 then the indicator can explain the existing constructs.

## **6. Discussions**

### **a. The Effect of Perceived Usability on Trust**

Based on the results of the research note that perceived usability has a significant positive effect on trust. The probability value between perceived usability and trust value of 0,000 means probability value (P) <0.05, then in a test of estimated value between perceived usability and trust variables indicate the influence. The effect between these variables is 0.192.

Effect between variable perceived usability to trust shows that website Blibli.com more easily used by the user then the level of customer trust to the site Blibli.com will increase as well. This is because users feel safe in shopping at Blibli.com site. This is supported by research conducted by Casalo et al. (2010) which states that usability has a positive effect on trust.

### **b. The Effect of Perceived Usability on Satisfaction**

Based on the results of the research note that perceived usability has a significant positive effect on satisfaction. The probability value between the perceived usability and satisfaction variables has a value of 0,000 meaning probability (P) <0.05, then on testing the estimated value between perceived usability variables and satisfaction indicates an influence. The effect between these variables is 0.508.

Effect between variable perceived usability to satisfaction indicates that if the website Blibli.com more easily used by users then directly proportional to the increase in user satisfaction. This is because users will feel more satisfied if the use of website Blibli.com easy to use and easy to understand. This is supported by Flavian et al. (2006) which states that perceived usability has a direct and positive relationship on the level of consumer confidence and satisfaction.

### **c. The Effect of Perceived Usability on Website Loyalty**

Based on the results of the research note that perceived usability has no influence on loyalty website Blibli.com. The probability value between perceived usability and website loyalty of 0,567 means probability value (P) > 0.05, then in the test of estimated value between perceived usability and website loyalty shows no effect.

In the absence of influence between variable perceived usability to website loyalty indicates that if website Blibli.com more easy to use by a user, hence no effect on website loyalty. However, the results of research conducted by Flavian et al. (2006) state that the effect of perceived usability on website loyalty is conditioned by consumer confidence and satisfaction. Or in other words, perceived usability will affect the loyalty of the website if customer satisfaction and trust have been built.

#### **d. The Effect of Satisfaction on Trust**

Based on the results of the research note that satisfaction has a significant positive effect on trust. The probability value between the variables of satisfaction to trust has a value of 0,000 means probability value (P) <0.05, then in the test of estimated value between the satisfaction and trust variables indicates the influence. The effect between these variables is 0.788.

Effect between variable satisfaction to trust indicates that if the customer is satisfied then the customer will believe in a website. This is supported by the results of research conducted by Flavian et al. (2006) which state that consumers will feel satisfied if they feel the fulfillment of honesty level, benevolence, and competence in a website. Where the level of honesty (honesty), benevolence (benevolence) and competence (competence) is a variable that explains trust.

#### **e. The Effect of Trust on Website Loyalty**

Based on the results of the research note that trust has a significant positive effect on loyalty website Blibli.com. The probability value between trust variables to website loyalty has value 0,000 means probability value (P) <0.05, then in the test of estimated value between trust and loyalty variable shows the influence. The effect between these variables is 0.287.

Effect between variable trust to website loyalty indicates that if the customer believes the customer will visit the website repeatedly. This is supported by the results of research conducted by Ishak et al. (2011) which state that there is a direct influence on consumer satisfaction with consumer confidence in consumer loyalty.

#### **f. The Effect of Satisfaction on Website Loyalty**

Based on the results of the research note that satisfaction has a significant positive effect on loyalty website Blibli.com. The probability value between the satisfaction variable to the loyalty has a value of 0,000 means probability value (P) <0.05, then in the test of estimated value between the satisfaction and loyalty variable indicates the influence. The effect between these variables is 0.561.

Effect between variable satisfaction to website loyalty indicates that if the customer is satisfied then the customer will visit the website repeatedly. This is supported by the results of research conducted by Flavian et al. (2006) which state that high consumer satisfaction will increase individual loyalty.

### **7. Conclusions and Suggestion**

#### **A. Conclusions**

1. Responses of the respondent to perceived usability, trust, satisfaction, and loyalty website provided by Blibli.com considered good. It shows that the Blibli.com website can be used by customers to achieve certain goals, Blibli.com is good at building trust by adjusting expectations and expectations given to customers, providing satisfaction on goods or services obtained and used to customers, and maintaining loyalty to make customers shop again.
2. Perceived Usability has an effect on trust shows the website Blibli.com increasingly easy to use by the user then the level of customer confidence to the site Blibli.com will increase as well.

3. Perceived Usability has an effect on satisfaction shows that if the website Blibli.com increasingly easy to use by the user then directly proportional to the increase in user satisfaction.
4. Perceived Usability is not biased towards website loyalty with a value of path coefficient - 0.028, it shows no effect between perceived usability variable and website loyalty. This shows that if the website Blibli.com more easily used by users, it does not affect the loyalty of the website.
5. Satisfaction has an effect on trust shows that if the customer is satisfied then the customer will believe in a website.
6. Trust has an effect on website loyalty shows that if the customer believes the customer will visit the website repeatedly.
7. Satisfaction has an effect on website loyalty indicates that if the customer is satisfied then the customer will visit the website repeatedly.

## B. Suggestions

1. The results showed the effect between satisfaction to website loyalty and the effect of trust to website loyalty significantly, therefore Blibli.com is expected to increase the influence of perceived usability to satisfaction and trust for the loyalty of Blibli.com customer website increases. By improving the look of the structure and content available on the Blibli.com website such as feature changes and search feature improvements on the Blibli.com website.
2. The results showed the effect between satisfaction to website loyalty is large enough to other variables studied. Therefore, Blibli.com is expected to improve the satisfying shopping experience for customers, increase transaction satisfaction, and improve the services provided to customers.
3. The results show the effect between satisfaction and trust are the greatest. Therefore, Blibli.com is expected according to the wishes and needs to be offered through the design on the site Blibli.com and can offer products and services be adapted to the needs of users.

## 8. Limitations and Future Directions

This study focuses on one e-commerce customer (Blibli.com). The time of this study is very short so it only involves a sample of 385 respondents. In addition from the results of research indicates the existence of perceived usefulness does not affect the loyalty of the website.

Suggestion for further research by using other variables of information quality and interaction quality. Because the quality of information and the quality of the interaction is a component of the website quality. Or be able to do research to e-commerce customer of Indonesia in other e-commerce platform type like customer to customer platform (C2C).

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## THE INFLUENCE OF EMPLOYEE ENGAGEMENT FACTORS ON EMPLOYEE PERFORMANCE IN TELKOMCEL TIMOR LESTE.

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**Abstract** : Symptoms – Employee performance is one of the important factors to the success of a company. There are several factors that affect the performance improvement of employees, one of them is employee engagement. In 2016 Telkomcel have a significant performance growth in terms of revenue and EBITDA, which is in line with the increase of employee engagement, is seen by a decrease in absent and decreased employee turnover. So it must be sought interrelationship between employee engagement and employee performance in Telkomcel Timor Leste to increase company performance.

**Purpose** – The purpose of this research is to describe about employee engagement and employee performance in Telkomcel Timor Leste and to analyze the influence of employee engagement that consist of leadership, achievement, camaraderie and equity simultaneously and partially on employee performance in Telkomcel Timor Leste.

**Methodology** – Questionnaire consisting of 34 items was distributed to 80 employees at the Telkomcel Timor Leste, and the total of 80 employees returned the questionnaire. The statistical technique of path analysis was used to test the hypotheses of this research.

**Findings** – The result of hypothesis test proved that employee engagement contributed a significant effect on the employee performance. Partial test showed that leadership, achievement, equity had significant influence on the employee performance, while camaraderie did not have significant effect on the employee performance.

**Implications** – This research is necessary because Telkomcel needs to maintain the momentum of revenue growth and EBITDA caused by the increase in employee performance. Employee engagement is one of factors that can improve employee performance. With this research, Telkomcel can find out what employee engagement factors can improve the employee performance.

**Keywords:** *employee engagement, employee performance*

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## 1. Introduction

Telkomcel is one of the telecommunication company in Timor Leste organized by Telkom Indonesia International (TL). S.A. (Telin) Timor Leste, which is one of the subsidiaries of PT Telin and part of PT, Telekomunikasi Indonesia Tbk. Group. In the first year, Telkomcel service has been able to reach 92.46% of the entire territory of East Timor. In the telecommunications industry Telkomcel manage and grow a business focusing on Mobile, Wholesale & International and Corporate portfolio.

By 2016 there has been an increase in the large number of users on telecommunication and internet services in Timor-Leste, this has affected the lifestyle of people in Timor-Leste towards an internet-dependent digital lifestyle that has driven Telkomcel's increasing business as a telecommunication company. With the increasingly widespread Internet users cause the popularity of social networking sites like Facebook, Twitter, Path, Youtube other instant messaging applications in Timor Leste is also increasing.

Market demand for telecom industry especially internet requires Telkomcel to continue to grow by implementing the latest technology so that customers can enjoy the best telecommunication services. This market demand is a big challenge for Telkomcel to maintain its existence as the largest broadband company in Timor Leste. Telkomcel as a service provider company should prioritize the quality of service excellence so heavily relying on the quality of human resources (HR) as a competitive advantage. In the event of "CEO End Year Closing 2016" at December 22, 2016, Mr. Dedi Suherman as CEO of Telkomcel said that "Telkomcel Timor Leste relies on the creativity of employees in maintaining the success of the company, it is related to the maintenance of telecommunication equipment, the promotional materials, new product and employee creativity in marketing event from Telkomcel Timor Leste ". This is in line with Imawati & Amalia's research (2011: 37) says: "The success of the organization is strongly supported by the state and quality of human resources it has. One indicator of the problem is performance ". Therefore, human resources must be managed well to improve the effectiveness and efficiency of the organization.

Based on the performance report of Telkomcel Timor Leste period 2016, there was a significant change for revenue and EBITDA in the second semester of 2016, which began in May 2016 Telkomcel Timor Leste for the first time recorded positive EBITDA (profit) and continued until December of 2016, this indicates that there is a very high increase in employee performance. The performance improvement can be seen from the graph of Revenue & EBITDA performance during 2015 and 2016.

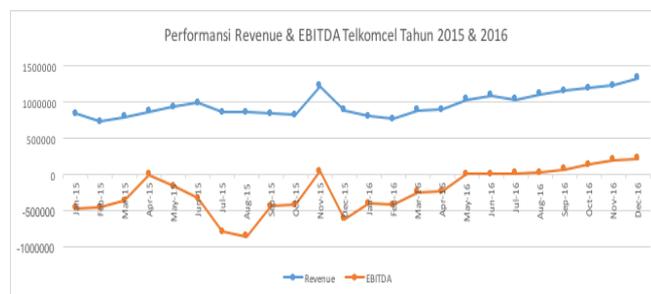


Figure 1. Revenue & EBITDA performance Telkomcel period 2015 & 2016

On the figure 1, can be seen that a significant increase occurred in May 2016 and continues until December 2016, this is a momentum for Telkomcel which annually always recorded losses on each month.

According to Kourdi (2009: 159), Sirota Consulting is a research institute in New York that measure the level of employee engagement which has done research in 237 organizations around the world from various industries about what employees want in the company for employees engage against their company. In Sirota & Louis (2005: 11-18) mentioned that the achievement, camaraderie, and equity is the main key target desired by employees of the company where they work. Therefore, to measure the level of employee engagement, Sirota Consulting LLC sees two aspects as employee engagement factors that can affect performance, there is what the employee wants for the company and its work (achievement, camaraderie, and equity), and the leadership aspect from leader in the company or their team.

As Albrecht (2010: 180) puts it: "Engaged employees would be more likely to display organizational citizenship behaviors, be more productive, and indicate low turnover and absence rates than non-engaged employees." Engaged employees are characterized by low turnover and attendance rates compared to non-engage employees. Based on interviews with Human Resource Manager of Telkomcel Timor Leste on January 18<sup>th</sup>, 2017 obtained information that Telkomcel employees in 2016 seen a decrease of absence and turnover. There is a comparison of attendance rate data based on attendance type of all employees in one year compared to total of all Telkomcel employee presences in one year and employee turnover data in 2015 and 2016.

Table 1. Presences Data of Telkomcel Period 2015-2016

<b>PERSENTASE PRESENSI TELKOMCEL</b>		
<b>Tipe Kehadiran</b>	<b>2015</b>	<b>2016</b>
<b>Tidak Hadir / Tidak Absensi</b>	1,56%	0,93%
<b>Terlambat</b>	34,06%	15,32%
<b>Tepat Waktu</b>	64,39%	83,75%
<b>Total</b>	100,00%	100,00 %

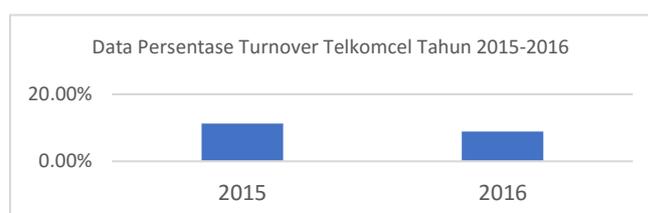


Figure 2. Turnover Data of Telkomcel Tahun 2015-2016

From the absence data, the percentage of absenteeism of Telkomcel Timor Leste employees changes every year. By 2015 the percentage of late is 34.06%, while the year 2016 decreased dramatically to 15,32%. For the average absence rate in 2015 is 1.56% while for the year 2016 is 0.93%. It can be indicated that the absence of Telkomcel Timor Leste employees is low. Whereas seen from the turnover rate of Telkomcel Timor Leste employee in Figure that the data shows a decrease in the number of employee turnover. Employee turnover rate illustrates the high level of job satisfaction and commitment felt by employees to the company.

## 2. Research Problem and Questions

The phenomenon that indicates the high performance described by the achievement of revenue and EBITDA of Telkomcel Timor Leste in the second half of 2016 and employee engagement described by the low absenteeism and employee turnover, indicates that it is very high related between employee engagement with employee performance in Telkomcel Timor Leste.

Based on the background and the research problem stated earlier, the questions to be answered in this research are as follows:

1. How value of employee engagement consists of leadership, achievement, camaraderie, equity in Telkomcel Timor Leste?
2. How value of employee performance in Telkomcel Timor Leste?
3. Does employee engagement consisting of leadership, achievement, camaraderie, equity as a whole have a significant influence on the employee performance at Telkomcel Timor Leste?
4. Does each factors of employee engagement consisting of leadership, achievement, camaraderie, equity has a significant influence on the employee performance at Telkomcel Timor Leste?

## 3. Literature Review And Framework

### 3.1 Employee Performance

Performance is a result of work produced to achieve the expected goal. According to Simamora (2003: 45) Performance is a measure of organizational success in achieving its mission. While Wahyudi Kumorotomo (1996) provides limits on the concept of organizational performance at least closely related to efficiency, effectiveness, fairness and responsiveness.

Management of employee performance must be done in order to get better results for the company and the individual concerned in order to fit the targets that have been set. Dharma (2013: 2) explains that performance management helps integrate organizational, group and individual objectives, particularly in communicating goals and prioritizing organizational values. Similar to those by Rivai and Basri, 2005: 50 that performance is the result or success rate of a person as a whole over a certain period in carrying out the tasks compared to various possibilities, such as predefined work standards, targets or targets or criteria already agreed together.

This is a dimension of performance appraisal by Gomes (2003: 142) :

1. Quantity of work. The quantity of work performed within a specified time period.
2. Quality of work. The quality of work achieved is based on the terms of conformity and readiness
3. Job knowledge. Extensive knowledge of work and skills.
4. Creativeness. The authenticity of the ideas raised and the actions to resolve the problems.
5. Cooperation. Willingness to cooperate with other members of the organization.
6. Dependability. Awareness and trustworthiness in terms of attendance and work completion.
7. Initiative. The spirit to perform new tasks and in enlarging their responsibilities;
8. Personal qualities. Concerning personality, leadership, hospitality, and personal integrity.

### 3.2 Employee Engagement

Employee engagement is important in a company because it can have a positive impact on the company's success in achieving its goals. Employee Engagement is the idea of organizational behavior that has become an attraction in recent years, this attraction arises because employee engagement affects the overall performance of the company. Schieman (2011: 211) explains that the employee engagement index as a combination of job satisfaction, commitment, and advocacy efforts. These three elements are part of a unified series of entities.

Sirota Consulting LLC is a research institute in New York that measure employee engagement levels to improve the performance of organizations as their clients. According to Kourdi (2009: 159), the company Sirota Consulting has been doing research as 237 organizations around the world from various industries about what employees want in the company for employees engage against his company. In Sirota & Louis (2005: 11-18), the reason for choosing these two aspects is, as follows:

1. Achievement, camaraderie, and equity are key targets desired by employees of the companies in which they work.
2. According to the results of Sirota Consulting LLC's survey, the employee's target never changes, whether viewed from time to time or cultural exchange.
3. Understanding those employee targets, and building organizational policies and practices that are aligned with their abilities, are key to high employee performance. There is no conflict between the target of almost all employees within the company and the desired needs of their organization / company.

Therefore, to measure the level of employee engagement, Sirota Consulting LLC sees two aspects as employee engagement factors that can affect performance, ie what the employee wants for the company and its work (achievement, camaraderie, and equity), and the leadership aspect leader in company.

### 3.3 Framework

This research is designed to examine the influence of the factors of employee engagement formulated by Sirota & Louis (2005: 11-18) on employee performance formulated by Gomes (2003 :142). So, the model used in this research is as follows.

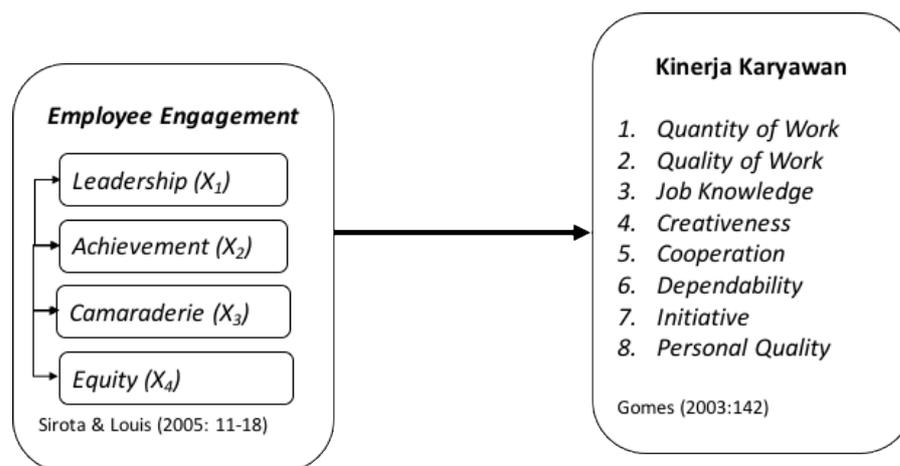


Figure 3. Framework

Type of research in this research is descriptive research, verifikatif, and causal. Descriptive research is conducted to answer the formulation of the first and second problem is to know the description of employee engagement and employee performance in Telkomcel Timor Leste.

Verifikatif research in this study was conducted to test the hypothesis by using statistical calculation that is path analysis (path analysis). The causal research on this research was conducted to answer the formulation of the third problem that is to know the influence of employee engagement on the performance of Telkomcel Timor Leste employee.

To find descriptive description of employee engagement and employee performance, descriptive description of employee engagement influence on employee performance, survey method was conducted by distributing questionnaire containing 34 statements related to employee engagement and employee performance to the sample that is all Telkomcel employees of Timor Leste who have obtained open contract with Number 80 people.

### **3.4 Hypothesis**

Based on the research model as visualized in Figure 3, the hypotheses to be tested in this research are as follows.

Hypothesis 1: Employee Engagement (X) contains Leadership, Achievement, Camaraderie, Equity Simultans has significant influence on employee performance.

Hypothesis 2: Leadership (X1) has significant influence on employee performance.

Hypothesis 3: Achievement (X2) has significant influence on employee performance

Hypothesis 4: Camaraderie (X3) has significant influence on employee performance

Hypothesis 5: Equity (X4) has significant influence on employee performance

## **4. Research Methodology**

The population of this research consisted of all employees at Telkomcel Timor Leste who having open contract with the total of 80 employees. All population are sampled and the total of 80 employees returned the questionnaire. This survey question were designed to assess employee engagement and employee performance according to respondent's opinions and perceptions, and than this survey questions use Likert-type scale. The validity and reliability of data were tested by using a Statistical Program for Social Sciences (SPSS) software with reference to product moment technicque.

Hypothesis testing for simultaneous and partial effect of this research also using Statistical Program for Social Sciences (SPSS) 23, by looking at ANOVA table to test hypothesis, Summary Model table to know the effect of independent variable to dependent variable simultaneously, and table coefficients to test the hypothesis and determine the magnitude of the influence of independent variables to the dependent variable partially.

### **4.1 Operationalization of Variables**

The factors under study are classified into two main categories: independent and dependent variables. For each variable, dimensions of existence in the work environment, which were extracted from the literature, will serve as the base for measuring its existence (Table 1).

Table 2. Operationalization of Variables

Variables type	Variables	Dimensions
Independent	Leadership	Kepemimpinan Transformasional
		Kepemimpinan Transaksional
Independent	Achievement	Kepuasan Karir
		Peningkatan kemampuan individu
		Hubungan dengan rekan kerja
Independent	Camaraderie	Kerjasama
		Ekonomi
Independent	Equity	Psikologis
		Quantity of Work
Dependent	Kinerja Karyawan (Y)	Quality of Work
		Job knowledge
		Creativeness
		Cooperation
		Dependability
		Initiative
		Personal Qualities

#### 4.2 Research Question Credibility

Validity test shows that the value of  $r_{\text{count}}$  for each item is greater than the value of  $r_{\text{table}}$  (the value of  $r_{\text{table}}$  is 0.2199 for  $n = 80$  and  $\alpha = 0.05$ ). This means that all items are concluded as valid. The reliability test indicates that the value of Cronbach's Alpha is greater than 0.7. An instrument is considered reliable if the value of Cronbach's Alpha is greater than 0.7. The results of validity test and reliability test indicate that the data can be used for further statistical analysis. The hypotheses stated earlier are tested by using a path analysis statistical technique.

### 5. Findings And Discussions

#### 5.1 Findings

The simultaneous test indicates that the value of  $F_{\text{count}}$  ( $= 20.382$ ) is greater than the value of  $F_{\text{table}}$  ( $= 2.49$ ). This signifies that employee engagement overall has a significant influence of the employee performance. The result of F test is shown in Table 3.

Table 3. Result of F Test

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	603.118	4	150.779	20.382	.000 <sup>b</sup>
	Residual	554.832	75	7.398		
	Total	1157.950	79			

a. Dependent Variable: Kinerja Karyawan

b. Predictors: (Constant), Equity, Camaraderie, Leadership, Achievement

Based on F test as presented in Table 4, the value of R square (coefficient of determination) is 0.521, and adjusted R square is 0.495 (see Table 3).

Tabel 4. The Value of R Square Based on F Test

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.722 <sup>a</sup>	.521	.495	2.71988

a. Predictors: (Constant), Equity, Camaraderie, Leadership, Achievement

This means that the magnitude of the influence of employee engagement variables consisting of leadership, achievement, camaraderie, equity on the performance of Telkomcel Timor Leste employees is 52.10%.

Tabel 5. The Value of t Test for Employee Engagement

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.748	4.290		3.671	.000
	Leadership	.737	.246	.284	2.990	.004
	Achievement	1.220	.378	.312	3.224	.002
	Camaraderie	.240	.207	.107	1.158	.250
	Equity	.601	.198	.266	3.039	.003

a. Dependent Variable: Kinerja Karyawan

In this study, the value of  $t_{table}$  is 1.99 ( $\alpha = 5\%$  or 0.05;  $df = 76$ ). The partial test for all variables shows that one independent variables ( $X_3$ : camaraderie) have the values of  $t_{count}$  less than the value of  $t_{table}$ , which means that the camaraderie variables do not have significant influence on employee performance.

Based on the principle of path analysis, trimming theory has to be conducted by eliminating insignificant variables one by one. The result of trimming theory shows that three of the four independent variables have significant influences on employee performance. The result is presented in the Table 6 below.

Tabel 6. Result of Trimming Test

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.985	4.164		4.079	.000
	Leadership	.791	.242	.305	3.266	.002
	Achievement	1.351	.362	.346	3.733	.000
	Equity	.633	.196	.281	3.229	.002

a. Dependent Variable: Kinerja Karyawan

From Table 6 above, variables  $X_1$ ,  $X_2$ , and  $X_4$  (respectively: Leadership, Achievement, Equity) have positive influences on the employee performance.

## 5.2 Discussion

Descriptive analysis results show that employee engagement consisting of leadership ( $X_1$ ), achievement ( $X_2$ ), camaraderie ( $X_3$ ), equity ( $X_4$ ) are in high and very high category. The percentage of leadership variable is 80.69%, achievement variable is 80.52%, camaraderie variable is 82.06%, and equity is 86.31%. The result of the percentage value from each variable, obtained the percentage of employee engagement as a whole is 82.40%. The percentage of employee performance variable ( $Y$ ) consisting of eight sub variables also included in high category with percentage value 83,28%.

The simultaneous test results show that employee engagement consisting of leadership, achievement, camaraderie, equity simultaneously has significant effect on employee performance in Telkomcel Timor Leste. However, there is one independent variable (camaraderie) that has no significant effect on employee performance in Telkomcel Timor Leste. So, the camaraderie variable is removed from the structural model (trimming). The result of simultaneous retesting by trimming camaraderie variable resulted in  $F_{count} (26,609) > F_{table} (2,72)$ . This means that employee engagement consisting of leadership, achievement, and equity has simultaneous significant effect on employee performance in Telkomcel Timor Leste. The influence of employee engagement which consist of leadership, achievement, and equity simultaneously on employee performance in Telkomcel Timor Leste is 51,27%.

The last structural model obtained after trimming is as follows

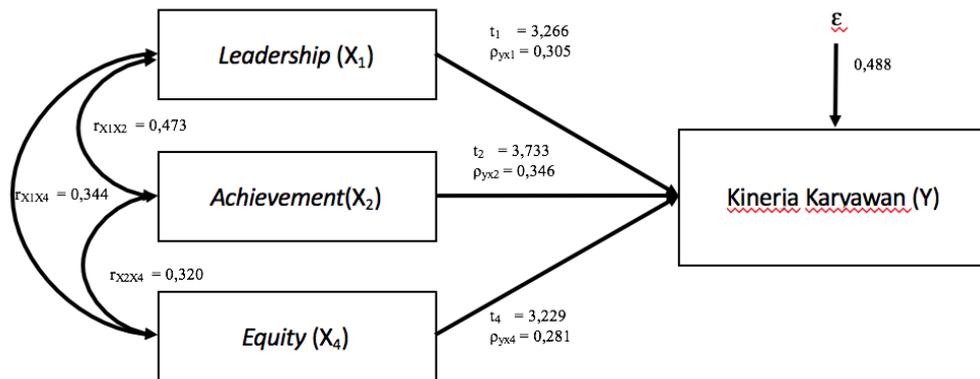


Figure 4. Structural Model Effect of Leadership ( $X_1$ ), Achievement ( $X_2$ ) and Equity ( $X_4$ ) Against Employee Performance ( $Y$ )

The direct and indirect influence of employee engagement consisting of leadership variable ( $X_1$ ), achievement ( $X_2$ ), equity ( $X_4$ ) on employee performance variable ( $Y$ ) can be seen in Table 2 below.

Table 7. Direct and Indirect Influence Leadership ( $X_1$ ), Achievement ( $X_2$ ) and Equity ( $X_4$ ) to Employee Performance ( $Y$ )

Variabel	Direct Influence	Indirect Influence			Total Influence
		X1	X3	X4	
X1	9,30%	0,00%	4,99%	2,95 %	17,24%
X2	11,97%	4,99%	0,00%	3,11 %	20,07%

Variabel	Direct Influence	Indirect Influence			Total Influence
		X1	X3	X4	
X4	7,90%	2,95%	3,11%	0,00 %	13,96%
Total Influence X1, X2, X4 terhadap Y					51,27%
Others variabel outside the research					48,73%

## 6. Conclusions and Recommendations

### 6.1 Conclusions

Many research results (including the result of this research) have proved that employee engagement significantly affect the employee performance. But, in this research, statistical test on the influence of the factors of employee engagement proved that one factors (camaraderie) did not have significant influence on employee performance.

### 6.2 Recommendations

Based on the result of research, analysis, and conclusion in this research, some suggestion that can be submitted for Telkomcel Timor Leste is seen from path analysis that leadership variable (X<sub>1</sub>), achievement (X<sub>2</sub>), equity (X<sub>4</sub>) have positive and significant effect to employee performance. The variable with the highest influence is the Achievement (X<sub>2</sub>) with level 20.07% of influence. In the Achievement, subvariable Increased Individual Ability has the lowest descriptive percentage, so needs to be improvement for training especially for manage service and leadership training.

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## SUPPLY CHAIN RISK ANALYSIS USING HOUSE OF RISK METHOD IN OIL AND GAS COMPANY

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**Abstract:** The purpose of this paper is to implement set of proactive actions deemed cost-effective approach for managing risks in supply chains in Oil and Gas Company. Building on Pujawan et al.'s House of risk: a model for proactive supply chain risk management (HOR), This paper develops a structured and ready-to-use approach to assess and manage risks in supply chains. PT. X is an energy company which engages in a broad range of petroleum and natural gas-related activities. In general, the products of this company there are two types, namely: crude oil and natural gas. Currently PT. X does not have a structured risk management to identify and mitigate risks that occur primarily in the supply chain function. From the analysis identified 21 risk events that occur during the process of the supply chain, and there are 18 risk agents which triggers risks. Nine of them belong to the category of priority risk agents which showed that the risk of the agent has a share of 78.39% of the overall risks that may be experienced by the company. To overcome these priority risk agents found seven risk mitigation actions that the company can do to minimize the impact to the company. Highest to lowest in sequence based on ETD values, ie Layered Approval (PA1), Availability of Variety Fishing Equipment (PA6), Provide Permit Tracking System (PA5), Using Integrated Supplier Database (PA7), Procurement Procedures Training and Certification (PA4), Optimalization Monitoring System (PA2), Updating Catalogues once a Year (PA3). The paper provides guidance for supply chain managers dealing with critical risks located in oil and gas supply chain environments. This may be achieved by closer observation with filed activities and risk reports through the creation of a cost-effective supply chain.

**Keywords :** *ARP; HOR; Mitigation Strategy; Oil and Gas; Risk Mitigation; Supply Chain*

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### 1. Introduction

A company generally runs on the various things that can happen from various sectors. Maintenance in an industry or company is a very important factor in supporting the production process that has market competitiveness (Creswell, 2014). SCRM pays attention to the supply chain through coordination and collaboration among supply chain partners to ensure profitability and continuity (Dewi et al., 2007). In the supply chain of Oil and Gas, have an enormous influence for each process. The risk of supply chain of oil and gas industry is a very

significant risk to the micro and macro economy (Fahmi, 2010), because the assets of production equipment and its maintenance is not cheap and considering the price of oil which tend to be unstable and decreasing since early 2014 (Fernandes et al., 2010). Then gave big impacts such as got lower revenues and put pressure on suppliers to reduce costs (Gustavo, 2013). All the existing stages have a very high linkage with the quality of the next stage, as the oil and gas supply chains play an increasingly important role from steel to drill bit, until transportation and catering. This is necessary to meet the demand for oil and gas production worldwide (Gupta, 2009). So if there is a problem at one stage, it will happen as a whole stage, even affecting the petroleum stock. Therefore, risk management in the oil and gas industry must be improved and implemented as well as possible for the realization of good corporate stability in the current low oil prices (SKK MIGAS, 2015).

PT. X, one of the oil and gas companies in Indonesia, has been running lot operation activities such as exploration and exploitation. One thing to be considered in the concept of managing good operations is a well planned risk management which is commonly known oil and gas was one of the high risks industry, especially in supply chain area. Currently PT. X does not have a structured risk management to identify and mitigate risks in the supply chain. Therefore it is necessary to conduct research to identify, analyze the risks that may arise in the supply chain PT. X as well as to mitigate these risks by applying the House Of Risk method. This research focused on managing risks in supply chain of oil and gas company and conducted to analyse to get better action in mitigating identified risks. Based on previous research, various companies with various industries has been analysed using house of risk method, such as Syahidan Hidayat and Imam Baihaqi (2013) on animal cultivation industry, Tampubolon, et al. (2015) on manufacture industry, and Maria Ulfah, et al. on agriculture industry. With those information, none of them analysing oil and gas industry and this research want to implement house of risk method in one of oil and gas company.

## **2. Theoretical Framework**

### **2.1 Operations Management**

Operations management is a series of activities that generate value in the form of goods and services by converting inputs into outputs. In organizations that do not produce products in physical form, the production function may not be visible due to activities performed in the form of services (Heizer, 2005). There are four reasons for studying organizational operations management (Heizer, 2005), such as:

1. Operations management is one of the three main functions of each organization and is associated with all other business functions. So it can be understood how people organize themselves for productive companies.
2. Can know how goods and services are produced.
3. Understand what the operations manager is doing.
4. A large number of corporate expenditures are used for the operations management function so it is necessary to understand the operations management of the company in order to make the expenditure more efficient.

According to Babbage (1792-1871), a Professor of Mathematics from England, he devoted all his attention to the principle of management. Babbage has the principle of division of labor (division of labor), this principle has the advantage (Nathan, 1997), those are:

1. Time needs to learn from new experiences.
2. The amount of time wasted if a person moves from one job to another will hinder the progress and skills of the worker because the specialization is required in his work.
3. A person's skills and skills increase as a worker works continuously in his work.

4. There is attention to the work so that it can permeate the tool because of its attention to it-that's all.

## **2.2 Risk Management**

Risk management is a logical and systematic process of identifying, analyzing, evaluating, controlling, supervising and communicating risks associated with all activities, functions with the objective of a company capable of minimizing losses and maximizing opportunities (Heizer, 2005). Risk management is a field of science that discusses how an organization applies sizes in mapping existing problems by placing comprehensive and systematic management approaches (Magnus, 2015).

## **2.3 Supply Chain Management**

Supply Chain Management (SCM) is an integrated co-ordination starting from the material, information, and financial flow of an organization network consisting of suppliers, manufacturers and distributors with the aim of producing goods or services to consumers (Heizer, 2005). There are several functions associated with the SCM activity that are demand estimates (Muhtadi, 2009). Basically SCM is the chain of producers to consumers, then consumer demand becomes a reference to the process up to the manufacturer. So consumer demand must be known. One of SCM's uncertainties is an error in forecasting.

## **2.4 House Of Risk (HOR)**

House of Risk is an innovative and proactive supply chain risk model (Pujawan, 2009). This method is the result of modification of the FMEA model and adopts the HOQ model to prioritize which risks should take precedence and select effective action in reducing potential risks that are affected by risk agents (Pujawan, 2009). In the early stages, the supply chain process is identified first using SCOR. The identification stage describes all risks and possible impacts on the supply chain process of the company (Pujawan, 2009).

## **2.5 Conceptual Framework**

This research begins with collecting information on SCRM which consider to SCM and Risk Management. In analyzing supply chain risk management, this paper are using SCOR to analyze SCM and for analyzing Risk Management using FMEA method also assisted with QFD with HOQ model which when the three models are used simultaneously will form HOR method which is expected to analyze supply chain risk in the most effective way on the basis to reduce the potential risk Posed by risk agents (Lutfi, 2011). The framework of thought can be seen in figure 1 (Lutfi, 2011):

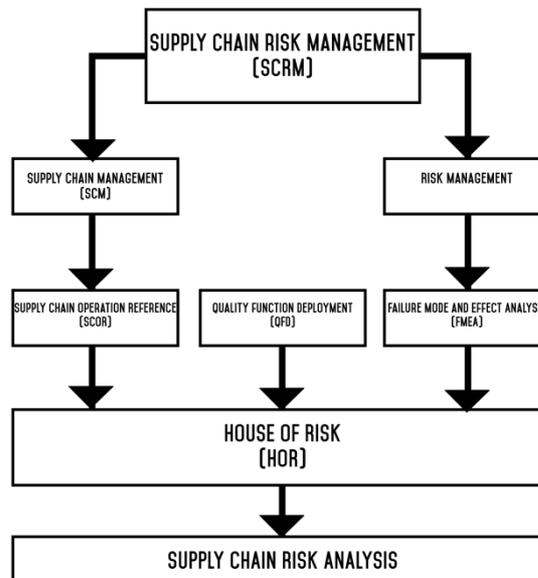


Fig. 1. Conceptual Framework

### 3. Acknowledgments

#### 3.1 Characteristics of The Research

Based on the method, this research uses qualitative method. Qualitative method is a research method that relies on text and image data which has a unique step in analyzing data (Creswell, 2014). Qualitative method is also often referred to as a constructive method, because with the data scattered, then constructed in a theme that leaked bermakana and easy to understand (Sugiyono, 2012). The purpose of this study is descriptive, where this research is a study that describes a phenomenon, Events, symptoms, using both quantitative and qualitative data (Sugiyono, 2012). Research can be distinguished based on the level of involvement of researchers in manipulating the data according to the purpose of his research (Indirawati, 2003). There are studies that involve researchers manipulating (intervening) data and research tones that researchers do not do any manipulation (intervention). In this study the level of involvement of researchers is not to manipulate or interfere with data.

#### 3.2 Data Collection

The population in this study is the entire range of employees in the Materials Department PT.X which is related in the SCM activities of the company. At PT.X, SCM handling is divided into two departments separated between goods and services. SCM goods are handled by the Materials Department and SCM services handled by the Business Support Department, but the entire tender process is handled entirely by the Materials Department. The sample are employees who match this specific requirement:

- Employees who have important positions.
- Employee with more than 10 years of working experience in PT.X supply chain.

Sampling technique in this research use purposive sampling. Purposive sampling is a technique of sampling data sources with certain considerations, such as the person is considered most know about what we expect, or maybe the person as a ruler so that it will be easier to explore the object under study (Sugiyono, 2008). Those sample also as the assessor for risk events severity and relations between risk event and risk agent.

### 3.3 Validity and Reliability

In this study, the validity test using member check technique, where this technique is the process of checking the data obtained by researchers to the data giver. The purpose of member check is to know how far the data obtained in accordance with what is given by the data giver then the contents of the data is declared valid. Then the reliability test is performed by conducting a thorough audit on each research process. The audit process is conducted by an independent auditor or supervisor to audit the entire process of research activity.

## 4. Result and Discussion

### 4.1 Application of HOR Model

#### 4.1.1 HOR First Phase

- Stage 1

*Identification of business process / supply chain activities based on SCOR model obtained through interviews and Scope of Work and Responsibility Materials Department documents.*

PLAN	SOURCE	MAKE	DELIVER	RETURN
DEMAND FORECASTING	PROCUREMENT PROCESS	PRODUCTION	PROCESS MONITORING	RETURN REJECT ITEMS

Fig. 2. Supply Chain Operation Reference Stage 1 PT.X

In the Plan section demand forecasting activities that contain about the demand assessment in accordance with the project to be run, in Source section procurement process activities that contain procurement procedures in accordance with the rules that exist until the publication of purchase order, in Make section the process of selecting suppliers to produce goods ordered by the company, in Deliver section monitoring process undertaken by the company in controlling the expedition of goods orders to arrive at the field, in Return section there is activity reject items that done if there is discrepancy or mismatch between orders and goods arrived in the field.

- Stage 2

Identification of risk events (E<sub>i</sub>) for each business process that has been identified with the SCOR model obtained through interviews and documents Scope of Work and Responsibility Materials Departments. This research succeeded in identifying eight Sub-processes of five Major Processes. There are twenty-one Risk Events identified in which three Risk events are present in the Major Processes Plan, Nine Risk events are present on the Major Processes Source, the five Risk events are present in the Major Processes Make, and on the Major Processes Deliver and Return there are two Risk Events.

- Stage 3

Measuring the level of impact or Severity (S<sub>i</sub>) of an event risk to a company's business processes based on a questionnaire filled directly by the main respondent on the business process according to the capabilities of the resource by using a scale of 1-10 where 10 is a very severe or terrible impact. The framework of risk severity on major processes can be seen in figure 3.

- Stage 4

Identify risk-causing agents (A<sub>j</sub>) based on interviews and data analysis results. There are eighteen Risk Agents that have been identified. Risk agents are diverse, ranging from planning, field technical, procedures, to the weather. Each Risk Agents is assigned a code with A prefix and serial number to make data processing easier. Which are The project goals is too high(A1), Master plan hasn been Revised(A2),

Input wrong data(A3), Improvement issue(A4), Short period of time tender registration(A5), Unclear item specification(A6), Using outdated price list(A7), Product catalogue is not attached(A8), High demand of item or price(A9), Item development(A10), Bureaucracy(A11), Incompetent Supplier(A12), Quality control problem(A13), Permit Matter(A14), Hard surface object(A15), No report by supplier or vendor(A16), Weather problem(A17), and Difficult Terrain(A18).

- *Stage 5,6, and 7*

These three stages are combined together, as they are interrelated in building the final result of Phase 1 HOR, where stage 5 is the calculation of the frequency of occurrence of the risk agent, stage 6 is the measurement of the correlation rate of one risk event with some risk agents, and stage 7 is the calculation of the ARP value. Here's how to get values from those stages:

- Stage 5 calculation is obtained from total occurrence of one risk agent from all risk events. As in A1 has an Oj value of 2, since A1 relates 2 times with E1 and E17.
- Stage 6 calculation is derived from the degree of relationship between the risk agent and the risk event, where the value 1 represents a weak relationship, 2 draws a strong enough relation, and 9 represents a very strong relation. As in A3 which has a very strong relation to E3 with a value of 9 and a weak relation to E6 with a value of 1.

Major Processes	Sub-processes	Risk Events	Severity (no impact to hazardous impact)										Risk Code				
			1	2	3	4	5	6	7	8	9	10					
Plan	Materials and forecasting for drilling and project/production activities	over forecast													V	E1	
		sudden changes in production plans														V	E2
Source	Monitoring materials inventory system (restock plan)	Discrepancy between recorded and available stocks						V								E3	
		Regulatory changes									V					E4	
Make	Supplier development	Less than bidders attend technical meeting			V											E5	
		inaccurate owner estimate (too low/high)					V									E6	
		End-user late in preparing supporting documents										V				E7	
		materials price 10% over DE					V									E8	
		item code changes					V									E9	
		outdated product					V									E10	
		Late in master list approval										V				E11	
		Supplier reach contract agreement														V	E12
		Low durability equipment/materials														V	E13
		Out of timeline														V	E14
		drill bit fell														V	E15
		idle rig														V	E16
Deliver	Delivery process by supplier/vendor	out of tracking system											V			E18	
		late arrival										V				E19	
Return	Return rejected items to supplier	Late pick-up by supplier												V		E20	
		Slow or unresponsive supplier												V		E21	

Fig. 3. Risk Events Severity

SCOR	Risk Events																					Si
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18				
Plan	E1	9	3																9		10	
	E2		9			1			3												10	
Source	E3			9		3															6	
	E4				9					3											7	
	E5					3	9		3												2	
	E6			1			3	1													5	
	E7							9		3											8	
	E8								9												5	
	E9				3					9											5	
	E10					3					9										5	
Make	E11									9											9	
	E12										9										10	
	E13											3			3						10	
	E14												3		3						10	
	E15													9	3						10	
	E16															9					10	
	E17	9	9											9						1	10	
Deliver	E18												9			9					10	
	E19													9			9				8	
	E20																9				7	
Return	E20																9				2	
	E21																	3			2	
Oj	2	3	2	3	2	2	2	2	3	2	3	4	3	3	4	2	2	3			3	
ARPj	360	630	136	279	32	72	120	154	243	180	378	420	369	783	720	204	270	111			111	
Pj	12	16	5	11	1	2	4	6	9	7	14	15	13	18	17	8	10	3			3	

Fig. 4. HOR First Phase Framework  
The framework consist of all stage in HOR First Phase calculations

Code	Risk Agents Description	Procurement					Using Integrated Supplier Database	
		Layered Approval PA1	Optimization Monitoring System PA2	Updating Catalogues once a Year PA3	Procurement Procedures Training and Certification PA4	Provide Permit Tracking System PA5	Availability of Variety Fishing Equipment PA6	ARP
A14	permit matter hard surface	1	3	9	9	783		
A15	object				9	720		
A2	master plan has revised incompetent	9				630		
A12	supplier				9	420		
A11	bureaucracy		3		3	378		
A13	quality control problem		9			369		
A1	the project goals is too high	9				360		
A4	improvement issue			9		279		
A9	high demand of item (price)			9	3	243		
TEK		8910	5238	2187	5589	8181	5616	
Dk		4	5	3	5	4	4	
ETDK		2227.5	1047.6	729	1117.8	2045.25	1404	
Rk		1	6	7	5	3	4	
						6480	2160	
						3	2	

Fig. 5 HOR Second Phase Framework

The framework consist of all stage in HOR Second Phase calculations

- The calculation of stage 7 is obtained from the following ARP formula processing,

$$ARP_j = O_j \sum S_i R_{ij} \quad (1)$$

$O_j$  : The Frequency of Risk Agent Occurance,  $S_i$ : Severity Score of Risk Event,  $R_{ij}$  : Relation Score between Risk Agent and Risk Event.

For example, the ARP value at A18 is 111 derived from  $3x((1x10)+(3x7)+(3x2))$ .

How the acquisition of these values is the same for all agents and the risk of occurrence of existing risks.

#### 4.1.2 HOR Second Phase

- Stage 1

Selecting risk agents from the highest to lowest ARP values using the Pareto Chart. For illustrative purposes, we selected a risk agent that contributed 75% of the total ARP<sup>[7]</sup>. PUJAWAN CITATION

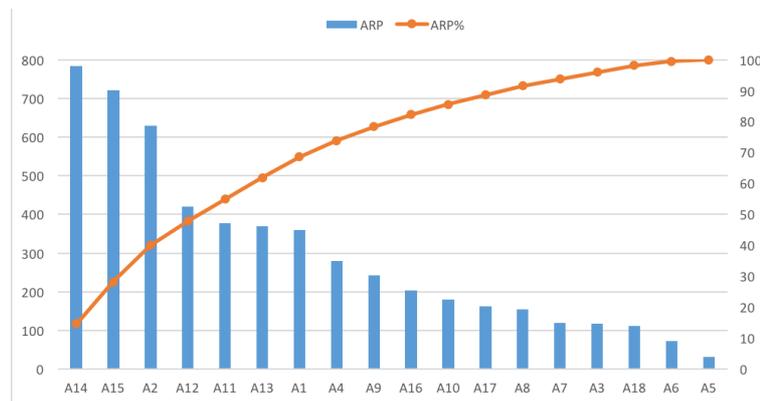


Fig. 6. Risk Events ARP in Pareto Chart

Visualization of the visual ARP distribution, which uses the Pareto Chart in accordance with that proposed by Pujawan (2009), as the compiler of the HOR model.

- Stage 2  
Identify relevant action actions (PAk) against existing risk agents. Action handling is obtained through discussions and interviews, with a total of 7 actions. The seven actions are given encoding with the prefix P and serial number. These actions are : Layered Approval(P1), Optimization Monitoring System(P2), Updating Catalogues once a Year(P3), Procurement Procedures Training and Certification(P4), Provide Permit Tracking System(P5), Availability of Variety Fishing Equipment(P6), and Using Integrated Supplier Database(P7) those are the result of the research by concluding from interview sessions, observations, and field discussions. In all these actions, not all have been done, some have been done (P1, P2, P4, P6, P7) and some are not (P2, P5).
- Stage 3,4,5, and 6  
These five stages are combined together, because they are interrelated in building the final result of Phase 2 HOR, where stage 3 is the identification of a single agent's

correlation with multiple actions; stage 4 is the total effectiveness count (TEK) of each risk agent, stage 5 measures the difficulty level (Dk) in the application of mitigation action, and stage 6 calculates the total effectiveness of mitigation action implementation (ETDk) as outlined in the HOR Phase 2 framework in Figure 10. Here is how to obtain values from those stages:

- Stage 3 calculation is derived from the level of relationship between risk agents and precautions, where 1 represents a weak relationship, 2 represents a strong enough relation, and 9 represents a very strong relationship. As in A14 which has a very strong relation to PA5 with a value of 9, the relation is strong enough against PA4 with value 3, and a weak relation to PA2 with value 1.
- The stage 4 calculation is obtained from the processing of the following TEK formulas,

$$TE_k = \sum ARP_j E_{jk} \quad \forall k \quad (2)$$

$ARP_j$  : Value of Aggregate Risk Priority from Risk Event,  $E_{jk}$  : Relationship between Risk Agent and Risk Mitigation,  $\forall k$ : A calculation is performed for all risk agents.

For example, the value of TEK in PA2 is 5238 obtained from  $((1 \times 783) + (3 \times 378) + (9 \times 369))$ .

Assessment stage 5 is derived from the value of the scale of difficulty (Dk) based on the things needed to implement the preventive action, Very Low valued 1, Low valued 2, Medium valued 3, High valued 4 and Very High valued 5. Then the second phase of HOR frame work now is fully completed as shown in figure 5.

- *Stage 7*

It is the determination of the priority value of mitigation action. PA1 is the highest priority of all existing mitigation actions, with ETDk 2227.5 with medium difficulty scale, followed by PA6 with ETDk 2160 with a difficulty low scale. The largest ETDk distance distance is between PA5 in the 3rd priority position with PA7 in the 4th priority position of 641.5. Overall, there are 3 medium difficulty scales, and 2 each on the other (low and high) scale.

Rank	Code	Description	Difficulty	ETDk
1	PA1	Layered Approval	High	2227.5
2	PA6	Availability of Variety Fishing Equipment	Medium	2160
3	PA5	Provide Permit Tracking System	High	2045.25
4	PA7	Using Integrated Supplier Database	High	1404
5	PA4	Procurement Procedures Training and Certification	Very High	1117.8
6	PA2	Optimalization Monitoring System	Very High	1047.6
7	PA3	Updating Catalogues once a Year	Medium	729

Fig. 7. Preventive action rank

In this research note that the testing performed on house of risk method with 2 phase and its stage, so it is shows that PT.X as oil and gas company successfully analyzed with no ambiguous content that can be ruptured the result. Thus it can be concluded that there is no problem in implementing house of risk method in oil and gas industry.

The results of previous research prove that the coordination is the preventive action with gain the highest ETD value (Tampubolon, et al.,2013). In this study also proved that layered approval had the highest ETD value which is have similar characteristics with coordination, proved the most important and effective mitigation action is about coordination.

## 5. Conclusion

Based on research, oil and gas industry can implement house of risk method for analyze, identify, and mitigate supply chain risk and this method should be implement too in other high risk industries. This paper ignored the dependence between risk events, so the next research should consider the dependence for bear better method.

Based on the results of supply chain risk analysis using HOR model, can be decided some conclusions there are 21 risk events obtained through the identification of business processes with the SCOR model. The risk event consists of three risk events on the major process Plan, nine risk events on the major processes Source, five risk events in the major processes Make, two risk events on the major processes Deliver, and two risk events on the major processes Return. There are 18 risk agents identified through interviews and analytical results, of which nine risk agents are priority risk agency agents with a total ARP accumulation of 78.39%. So the risk agents included in the priority category require serious handling. There are 7 relevant action actions identified successfully through discussions and interviews with different handling difficulty and effectiveness levels. The implementation of mitigation is based on the highest and lowest successive ETD values in sequence, ie: Layered Approval (PA1), Availability of Variety Fishing Equipment (PA6), Provide Permit Tracking System (PA5), Using Integrated Supplier Database (PA7), Procurement Procedures Training and Certification (PA4), Optimization Monitoring System (PA2), Updating Catalogues once a Year (PA3).

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## FACING DIGITAL TERRESTRIAL TELEVISION BROADCASTING (DTTB) IN INDONESIA

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**Abstract:** Geneva Agreement 2006 (GE06) that being agreed by countries around the world exposes on the new digital era especially for broadcasting. Countries have prepared for Analog Switch-off (ASO) for radio and television in Indonesia in the process of preparation. Digital Switchover (DSO) of broadcasting will have an impact on changing the broadcasting business model in Indonesia.

This research focuses on the Digital Terrestrial Television Broadcasting (DTTB) influence on the economic, social and political in Indonesia. The result of the study are expected stakeholders have readiness, and can estimate costs and benefits of their transition from Analog Television (ATV) to Digital Television (DTV).

One of the impact of migration to digital television to the economy is the business model. Initially on Analog Television (ATV) the whole process of broadcasting is done by the broadcasters themselves. But will differ on the Digital Television (DTV). This happens because of the different distribution of the broadcast technically.

The purpose of this study is to create the right formula for calculating rental tariff of multiplexers. The methodology used to find tariff formula are literature studies and discussions with stakeholders i.e. television broadcasters, government and consultant.

The development of broadcasting technology will have impacts on the business model, while in the analogue broadcasting provider of both content provider and network provider implemented by the broadcaster. But in the digital television will be divided into three providers: multiplexer provider, content provider and network provider. Another impact is the entry of new broadcasters and the high cost both of broadcasters and the viewers for migration.

**Keywords:** ASO; ATV; DSO; DTTB; DTV.

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## 1. Introduction

Broadcasting as a channel of information and formers of public opinion, its role is increasingly very strategic, especially in developing the nature of democracy in our country. Broadcasting has become one of the means of communicating for the public, for broadcasters, the business world, and government. According to Law Number 32 Year 2002 broadcasting institution can be distinguished on Television and Radio as shown in the following diagram:

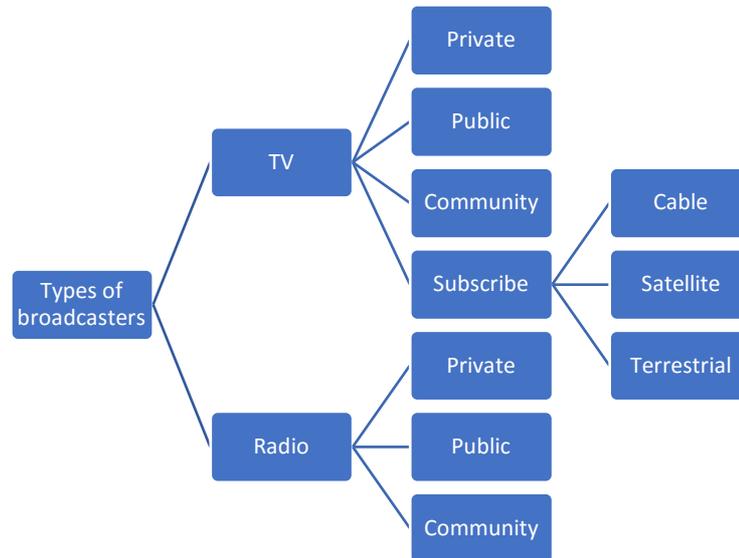


Fig. 6 Type of Broadcasting Institution in Indonesia

Broadcasting generally consists of two types, i.e. television and radio. Based on the management of television can be differentiated into private, public, community and subscribe (pay television). Which the subscribe television based on broadcast distribution can be differentiated into cable, satellite and terrestrial. While the radio based on the management can be distinguished into private, public and community.

Table 1 explain about the allocation of analog terrestrial broadcast frequencies in Indonesia (*Allocation Frequency Policy and Indonesia Spectrum Planning*, 44). The frequency allocation shown by the table are radio and television. Radio broadcasts operating in Indonesia are AM and FM, with more FM radio broadcasters than AM radio. Most AM radio using High Frequency (HF), then FM radio using 87,6 -108 MHz band. While television using 174 -230 MHz (Band III/VHF) and 470 -806 MHz (Band IV&V/UHF).

Table 8 Frequency Allocation for Analogue Terrestrial Broadcasting

Service	Band (MHz)	Bandwidth (kHz)
AM Radio Broadcast (MW)	0,5625 -1,6065	9
AM Radio Broadcast (SW) HF Broadcasting	5,95 -6,20	9
	7,1 -7,3	9
	9,5 -9,9	9
	11,65 – 12,0	9
	15,1 -15,8	9

Service	Band (MHz)	Bandwidth (kHz)
FM Radio Broadcast	87,6 -108	300
VHF Television	174 -230	7000
UHF Television	470 -806	8000

Mostly Indonesian analogue television broadcasters operating in Band IV&V/ UHF (470-806 MHz). The whole bandwidth divided into 8 MHz for each channel. Band IV consist of 16 channels i.e. 21 to 36. Then Band V consist of 26 channels from 37 until 62. As shown in the Table 2, the master plan of frequency analog television for UHF (*Allocation Frequency Policy and Indonesia Spectrum Planning Allocation Frequency Policy and Indonesia Spectrum Planning*, 47):

Table 9 Frequency Allocation for Band IV

BAND	CHANNEL	FREQUENCY RANGE (MHz)	
UHF	IV	21	470 -478
		22	478 – 486
		23	486 – 494
		24	494 – 502
		25	502 – 510
		26	510 – 518
		27	518 – 526
		28	526 – 534
		29	534 – 542
		30	542 – 550
		31	550 – 558
		32	558 – 566
		33	566 – 574
		34	574 582
		35	582 590
		36	590 -598

Table 10 Frequency Allocation for Band V

BAND	CHANNEL	FREQUENCY RANGE (MHz)	
UHF	V	37	598 – 606
		38	606 – 614
		39	614 – 622
		40	622 – 630
		41	630 – 638
		42	638 – 646
		43	646 – 654
		44	654 – 662

BAND	CHANNEL	FREQUENCY RANGE (MHz)
	45	662 – 670
	46	670 – 678
	47	678 – 686
	48	686 – 694
	49	694 – 702
	50	702 – 710
	51	710 – 718
	52	718 – 726
	53	726 – 734
	54	734 – 742
	55	742 – 750
	56	750 – 758
	57	758 – 766
	58	766 – 774
	59	774 – 782
	60	782 – 790
	61	790 – 798
	62	798 -806

The purpose of Digital Switchover (DSO) or Analogue Switch off (ASO) is the arrangement of spectrum frequency. This can be obtained because in the Analog Television (ATV) one channel (8 MHz) only can carry one broadcast program, but in the Digital Television (DTV) one channel can carry 10 program per mux for DVB-T2 with Standard Definition Television (SDTV) quality. As described in Table 4, (*Exploiting the digital dividend - a European approach*, 13):

Table 11 Television Programming Channel per Multiplex for DTTB

	DVB-T		DVB-T2	
	SD Channel	HD Channel	SD Channel	HD Channel
MPEG-2	8	1	10	2
H.264/MPEG-4 AVC	16	3	20	4

With the migration from analogue television (ATV) to Digital Television (DTV) will provide spectrum efficiency in Band IV&V/UHF use. The unused spectrum is called Digital Dividend, as illustrating in the following figure:

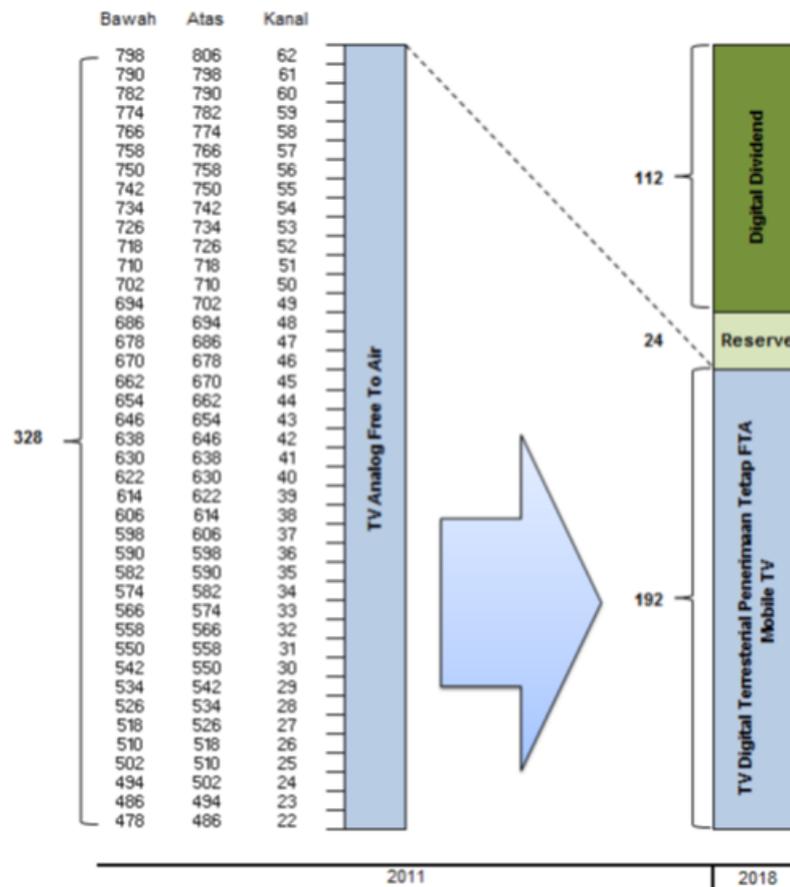


Fig. 7 Digital Television Frequency Allocation

Migration from analog to digital television aims to get a digital dividend (112 MHz). This happens because digital television spectrum need will be less than analog television. Analog television need bandwidth 328 MHz than the digital television need 192 MHz and the residual frequency 24 MHz will use for Reserve. So that the digital dividend that will earn as a result of migration can be used for another technology i.e. International Mobile Telecommunication (IMT).

## 2. The Difference between Analog Television (ATV) and Digital Television (DTV)

### 2.1 Analog Television Broadcasting

Analog television broadcasting configurations are described in the following figure, each broadcaster as well as organizing program content of analog television. Broadcaster are distributed the analog signal directly to the antenna receiver in households. The bandwidth channel that used is 8 MHz carried one program.

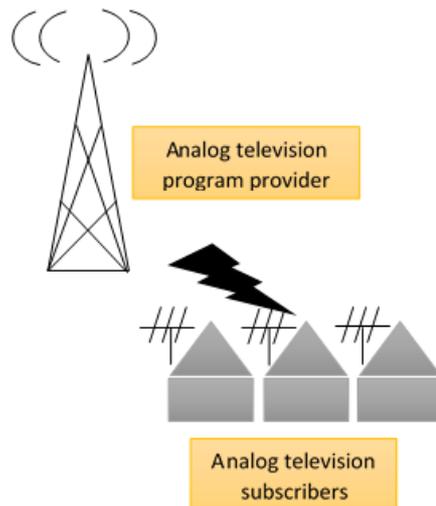


Fig. 8 Configuration Analog Television (ATV)

## 2.2 Digital Television Broadcasting

The fundamental difference between analog television and digital television is distributing program content centered on the multiplexer. The signal was distributed in the digital form, hence in 1 channel (bandwidth 8 MHz) can consist of some programs depend on the quality for example Standard Definition Television (SDTV) and High Definition Television (HDTV) formats.

The multiplexer be in charge to organize the program content from several broadcasters. While distributed the digital signal to the viewer's antenna receiver. Then the receiver must support the digital format so they need the *set top box* (STB). The multiplexer can distribute program content with two form Single Frequency Network (SFN) and Multi Frequency Network (MFN).

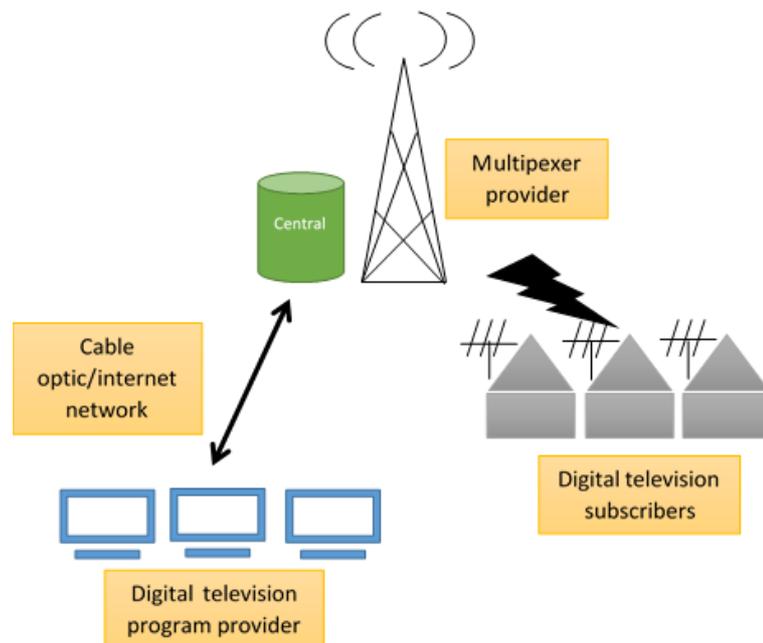


Fig. 9 Configuration Digital Television (DTV)

## 2.3 Basic Licensing Model

Based on the *Guidelines for the Transition from Analogue to Digital Broadcasting*, 30-31, described that two basic licensing model can be distinguished for Digital Terrestrial Television Broadcasting (DTTB) and Mobile Television (MTV) services:

- *Model A*: the spectrum rights are assigned to the multiplex operator and this entity can decide the allocation of the available capacity to the various services. In this model the frequency license holder is allowed to use the defined spectrum and can decide the loading of the multiplex, e.g. which broadcasters can get access to the platform. The function of multiplex operator and service provider can be aggregated into one entity/organization. In turn, this organization can outsource the technical operations to a specialized content distributor (i.e. a broadcast network operator). In this model, it can still be required for the individual broadcaster or service provider to get a general broadcast authorization (e.g. by a media authority) for broadcasting television content (very often not defined for a specific platform). This model was applied in countries like the Netherlands (for DTTB and MTV), Belgium (for DTTB and MTV) and the UK (for DTTB and MTV); and
- *Model B*: the spectrum rights are assigned to the content distributor and this entity cannot decide the allocation of the available capacity. In this model the frequency license holder is only allowed to use the defined spectrum. The regulator decides the loading of the multiplexes by assigning broadcast licenses/rights for the DTTB/MTV platform to individual broadcasters and/or service providers (bundling the various broadcast channels into one or several packages, in a separate assignment procedure (very often a public tender/beauty parade). In this model the regulator is the actual multiplex operator, or in other words the functional bandwidth manager. In this model the service provider can be a separate entity from the content distributor (i.e. broadcast network operator). This model was applied in countries like Germany (for MTV) and Sweden (for DTTB).

Asia Pacific countries choose the model by adjusting with their broadcasting condition. Model selection in Asia Pacific countries shown in the following table:

Table 12 Licensing Model

Country	Model
Angola	Model B
Ethiopia	Model B
Indonesia	Modified model B to model B1
Maldives	Model B
Sri Lanka	Model B

The explanation about the modification of model B become model B1 that chosen by Indonesia is:

“*Model B1*: The spectrum rights are assigned to the multiplex operator responsible for content distribution and this entity can decide the allocation of the available capacity to individual broadcasters. In this model, the multiplex operator is selected from current terrestrial free-to-air (FTA) television broadcasters in a separate assignment procedure, by means of a “beauty contest” approach. The private multiplex operator is permitted to carry one and an additional two programs from its own group, i.e. total three programs including programs from the same multiplex. The remaining multiplex capacity must carry existing analogue content in digital format from the commercial terrestrial FTA television broadcasters and/or new content provider subject to approval from the regulator”. (*Roadmap for the Transition from Analogue to Digital Terrestrial Television in the Republic of Indonesia*, IV).

## 2.4 Single Frequency Network (SFN) and Multi Frequency Network (MFN)

The GE06 Agreement gives the definitions of Single Frequency Network (SFN) and Multi Frequency Network (MFN), (*Guidelines for the Transition from Analogue to Digital Broadcasting*, 221):

- Single Frequency Network (SFN) is a network of synchronized transmitting stations radiating identical signals in the same Radio Frequency (RF) channel.
- Multi Frequency Network (MFN) is a network of transmitting stations using several Radio Frequency (RF) channels;

A combination between Single Frequency Network (SFN) and Multi Frequency Network (MFN) is also possible, it's called a hybrid network. Two possible combination are:

- Main transmitters in Single Frequency Network (SFN) and main transmitter and related fill-in transmitters in Multi Frequency Network (MFN) mode; and
- Main transmitters in Multi Frequency Network (MFN) and main transmitter and related fill-in transmitters in Single Frequency Network (SFN) mode.

The relative advantages and disadvantages of SFN are indicated in the following table:

Table 13 Comparison of SFN and MFNs

Advantages of SFN compared to MFN	Disadvantages of SFN compared to MFN
Spectrum efficient due to power distribution	No option for local windows in programming
Network gain because of simultaneous reception of multiple useful signals	Reduced bit rate due to long guard interval
No need to retune when travelling through an area	More complicated frequency planning and operation

An explanation of the single frequency network (SFN) configuration can be seen in the following figure. Single frequency network (SFN) requires a single frequency in signal distribution.

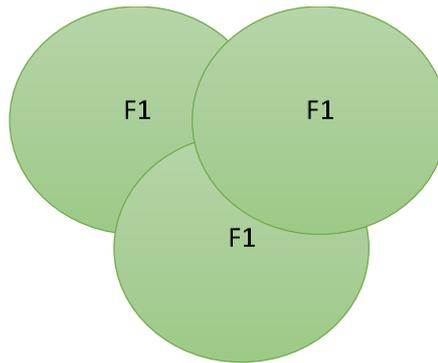


Fig. 10 Single Frequency Network (SFN) Configuration

While an explanation of the Multi Frequency Network (MFN) configuration can be seen in the figure below. Multi frequency network can be implemented in multi frequency signal distribution. Both Single Frequency Network (SFN) and Multi Frequency Network (MFN) have their advantages and disadvantages in their implementation. Single Frequency Network (SFN) more spectrum efficient than Multi Frequency Network (MFN). But Single Frequency Network (SFN) need more cost than Multi Frequency Network (MFN). This happens because in Single Frequency Network (SFN) to overcome self-interference (see Fig. 7) requires sophisticated antenna.

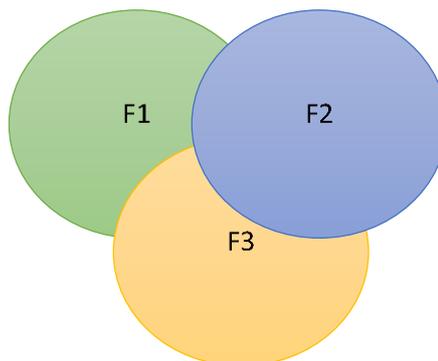


Fig. 11 Multi Frequency Network (MFN) Configuration

One of the disadvantages of a single frequency network is the self-interference network problem. This happens when two transmitters that transmitted the same frequency are close, can be seen in the following figure:

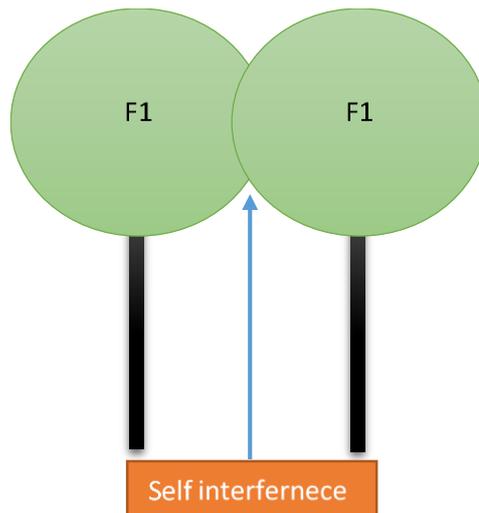


Fig. 12 Self Interference in Single Frequency Network (SFN)

Description about the use of Single Frequency Network (SFN) and Multi Frequency Network (MFN) on Indonesian broadcasting networks as follows:

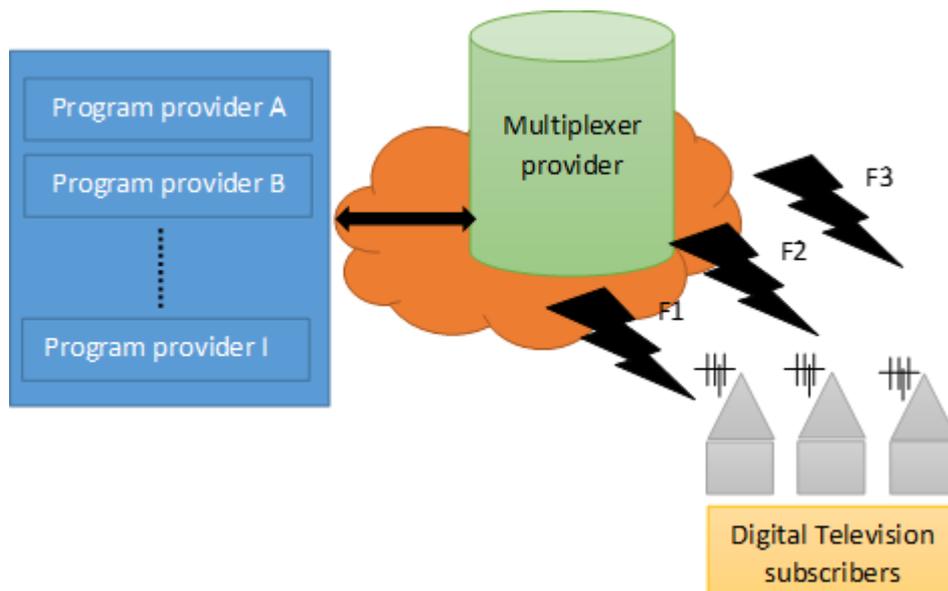


Fig. 13 Multi Frequency Network (MFN) for DTTB

Multiplexer provider served to carry the programs that provided by program providers. One multiplexer can carry 10 programs with Standard Definition Television (SDTV) quality or 2 programs with High Definition Television. Then the multiplexer distributed the programs to the subscribers. The distribution can be done either Single Frequency Network (SFN) or Multi Frequency Network (MFN). Difference between Single Frequency Network (SFN) and Multi Frequency Network (MFN) on the use of frequency distribution. On the Single Frequency Network (SFN) only use one frequency distribution while on Multi Frequency Network (MFN) use more than one frequency distribution.

## 2.5 Benchmark of Digital Terrestrial Television Broadcasting (DTTB)

The roadmap Analog Switch off (ASO) generally done in two term, short term and long term. Short term are activities performed within 1 year after Analog Switch off (ASO) then long term are activities performed within 5 to 10 years after Analog Switch off (ASO).

According to *Roadmap for the Transition from Analogue to Digital Terrestrial Television in the Republic of Indonesia*, III, the Indonesian Digital Switchover (DSO) objectives for short term are issuing the licenses for Digital Terrestrial Television Broadcasting (DTTB) based on condition of frequency spectrum and market study, and improve the quality of broadcast programs into High Definition Television (HDTV) standard. As long term objective is improving the quality of broadcast programs into 3D television based on market condition.

As a comparison the following are descriptions about the Analog Switch off (ASO) situation in Australia and Cambodia:

- Australia

The Australian broadcasters planning is using the DVB-T standard with transmission parameters of 8k, 64QAM, 2/3 forward error correction (FEC) and 1/16 guard interval. (*Digital Terrestrial Television Broadcasting In Australia*, 9). While the Analog Switch off (ASO) timetable start from Mildura/Sunraysia at Victoria on June 30th 2010. South Australia on 15th December 2010. Gippsland, North Central Victoria, South West Victoria, Goulbum Valley/Upper Murray at Victoria on May 5th 2011. Queensland on December 6th 2011. New South Wales area on June 5th 2012 and on November 27th 2012, Metro and Remote area from April to December 2013. Australia takes about 3 years to complete Digital switchover (DSO).

- Cambodia

Cambodia have thirteen analogue television service provided by eleven broadcaster. Mostly they operating in Phnom Penh and few in other area. Otherwise sixty digital terrestrial television service provided by Phnom Penh Cable Television Company (PPCTV).

Cambodian Digital Switchover (DSO) objectives divided into short term and long term. The short term objectives such as whole analogue service migrated to digital with same coverage areas, simulcasting in the phasing and test area, allow new digital broadcasters, the video quality is Standard Definition Television (SDTV), minimize viewer transition cost with STB and installation. While the long term objectives such as allow new digital broadcaster, using the same services, the video quality is High Standard Television (HDTV) based on market.

## 2.6 Feasibility of Broadcasting in Indonesia

The number of digital television subscribers in Indonesia is equal to analog television subscribers. The subscribers growth from year to year is not high comparable with the population growth of Indonesia about 1%. What will happen to the broadcasting business condition if the government continuous to issue permits for new broadcaster? To overcome these problems government with its policy must pay attention to the several factors to measure the feasibility of broadcasting in an area before issue issuing permission.

From the result of study literature and discussion with stakeholders, concluded that there are several parameters affecting this feasibility i.e.:

- Regulation;
- Frequency availability;
- Economic potential; and
- Local content.

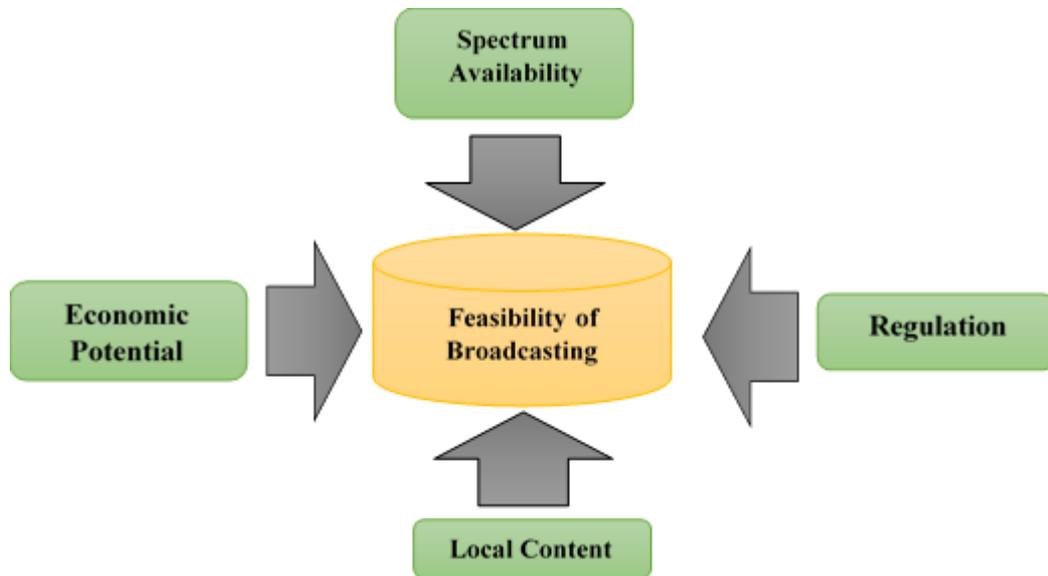


Fig. 14 Parameters affecting the feasibility of Broadcasting in Indonesia

The following explanation about four parameters of broadcasting feasibility:

- Regulation: government regulations related to the opening of new Analog Television (ATV) licenses will have an impact on the opening of Digital Television (DTV) licenses in the future. The laws in Indonesia governing digital television are still undergoing many changes and have not yet been established the fixed form.
- Spectrum availability: the frequency spectrum is a limited resource, so it should be used wisely. The new broadcaster will use unused spectrum, so it needs to know full or not full of digital television spectrum
- Economic potential: economic potential is meant to measure viewer's purchasing capability. To measure it can be through Gross Domestic Product (GDBP) or income per capita.
- Local content: local content describes about the socio-cultural conditions of a region, for example: viewers in Jakarta different with viewers in Bandung. This happens because of differences in local habits of society. This affects the selection of broadcast television programs.

These four factors vary according the condition of each city and province. So to determine the exact number of broadcasters in an area should consider it. The economic potential of the broadcaster can be calculate from the distribution of advertising revenue on a city, then the local content that available on a city.

## 2.7 Analysis Impact of Digital Switchover (DSO)

The Digital switchover (DSO) will impact to the broadcasting business model, in the current situation broadcasting as well as program content provider and network provider. Than

broadcaster will face the situation that multiplexer provider, program provider and network provider will run by different companies.

The digital switchover plan will do start from 2018 until 2020, therefore the transition description show in the following figure. The Indonesian broadcaster must be prepared with change of broadcasting technology.

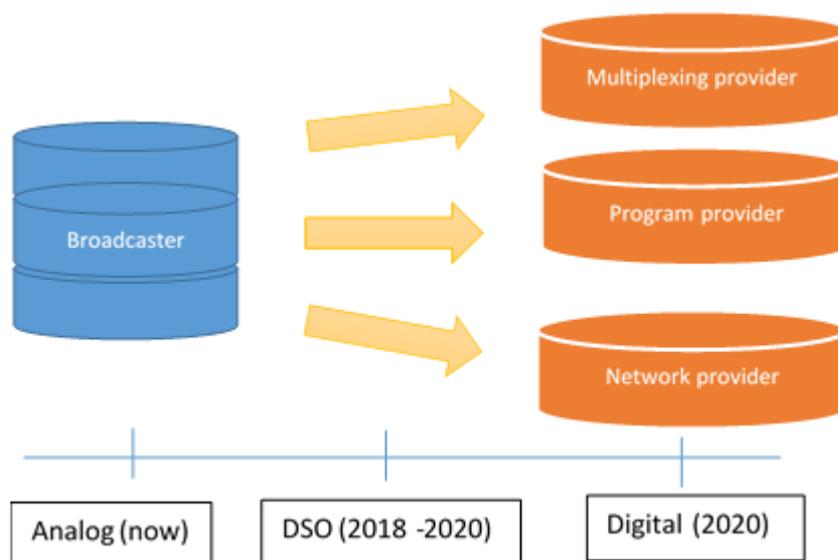


Fig. 15 The Impact of Digital Switchover (DSO)

Some economic problems that still need to be taken into account related to analog to digital migration, especially the cost issues are the cost to be spent by each broadcaster, compensation calculation provided by the government and the costs the in-house viewers have to set top box/receiver (STB) purchase.

The expenses incurred by the broadcaster include the cost of digital infrastructure for the examples are antenna transmitter, frequency license and multiplexing lease. Besides that the government should provide compensation for the analogue infrastructure that is not used.

On the viewer's side, the analogue migration charge that needs to be issued is not a small amount, for the examples for the purchase of receiving antennas, television sets or set top boxes (STB). It is expected that government can provide the set top box for free.

### 3. Conclusions

To be able to create tariff formula of multiplexer needs to know about the network configuration that will be used to distribute the broadcast program. One of the problem is the government has not determined the program distribution that will use Single Frequency Network (SFN) or Multi Frequency Network (MFN) or hybrid. Another problem is not yet decided the quality of program that will carry in the multiplexer, Standard Definition Television (SDTV) or High Definition Television (HDTV) or both.

From literature study found a parameter can be used as input data in the multiplexer tariff calculation is antenna purchase cost for Digital Terrestrial Television Broadcasting (DTTB). Migration from analog to digital requires transmitter and receiver antenna change which is compatible with Digital Television (DTV). More over the existing network can be used to reduce migration costs.

In other hand, the compensation provided by government to the industries for analog infrastructures that cannot be used can be in the form of discounts in multiplex rentals. And other parameters for calculating multiplexer tariff still require further research.

#### 4. Acknowledgments

The author thank first to Allah SWT and Muhammad SAW, second to my family and my friend for the prayer and the support.

The research dedicate to the Lecturers, Indonesian Broadcasters, Government, Students and Academics Community.

Critics and suggestions will perfect the research.

Further research is suggested to perform cost calculation by broadcasters that will issue for their migration to Digital Television (DTV). The government needs to formulate the cost of frequency usage, mux rental fees, and the compensation expenses provided to the publics and the broadcasters. Other than that, the author expected to do the same research for Digital Audio Broadcasting (DAB) for digital radio technology.

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## OPTIMIZING CREATIVE HUB TO ADDRESS THE LACK OF INDONESIA'S CREATIVE ECONOMY SUPPORTIVE FACTORS

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**Abstract:** Creative industries are expected to provide a significant contribution to Indonesia's economic growth. On the other hand, a government study reported the lack of Indonesia's creative economy supportive factors. There are two creative hubs built by the government in two big cities in Indonesia early this year. By using narrative literature review, this study explores the roles of the creative hub in coordinating creative industries' actors and resolving the lack of creative economy supportive factors. This study proposes several actions can be taken in optimizing creative hub and found several requirements to be fulfilled before building a creative hub. The creative hub is not only coordinating creative SMEs but also other actors incorporated in a quadruple helix. Unfortunately, there are only found solutions for five creative economy supportive factors explicitly.

**Keywords:** *creative hub, creative industries, creative economy, quadruple helix*

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### 1. Introduction

National economic growth was weakened up until late 2015. All this time, Indonesia has been very dependent on natural resources like oil, gas, coal, minerals, and wood. President of Indonesia defined creative economy development as one of the strategies to increase economic growth by declaring Presidential Decree number 2 in 2015 about National Medium-term Development Plan 2015-2019. Several factors are considered as the creative economy development opportunities. These opportunities are demographic bonus in 2030, digital lifestyle trend, increasing number of medium economic class, increasing number of creative product demand, and natural and cultural wealth potential (Hamdan, 2016).

As newly developed industry, creative industries show encouraging progress. Several data confirm the rise of creative industries in Indonesia. Creative economy contribution to Indonesian national economic in 2015 was recorded 7.66 percent with domination by culinary, fashion, and craft sub-sectors (Rachman, 2016). This was dominated by Small and Medium Enterprises (Wiryo et al., 2014; Ministry Coordinator for the Economy, 2015). Indonesia's creative industries experienced a significant increase of export rank from 85th position in 2013 to 25th position in 2014 (Desain Grafis Indonesia, 2015). Its export value also grew from USD 18.16 million in 2014 to USD 19.36 million in 2015 (Rachman, 2016).

The government expects to increase the creative economy's contribution to GDP to 12 percent and gross export contribution to 10% in 2019. The contribution to GDP in 2014 was recorded IDR 693.1 trillion (President of Republic Indonesia, 2015a) and became IDR 852.24 trillion in 2015 or increased 10.14 percent per year from 2010. The number of creative economy workforce grew 2.15% became 15.9 million people in 2015 (Statistics Indonesia, 2016).

"Those industries which have their origin in individual creativity, skill, and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" is the definition of creative industries (DCMS, 2001). This definition was launched when the UK Department for Digital, Culture, Media & Sport (DCMS) firstly published the Creative Industries Mapping document. Creative industries in Indonesia consist of 16 sub-sectors namely application and game developer; architecture; interior design; visual communication design; product design; fashion; film, animation and video; photography; craft; culinary; music; publishing, advertising, performance art, fine art, and television and radio (President of Republic Indonesia, 2015b).

Regarding creative industries development, the Indonesian government has launched many programs. One of the most recent programs is the creative hub initiative. There are two creative hubs currently developed in Jakarta and Bandung, Jakarta Creative Hub and Bandung Creative Hub. Jakarta Creative Hub is a government-run co-working space with several facilities such as 3D printers, laser cutters, and fashion grading machines to be rented at a low price. It also provides maker space and classrooms. Tenant's selection process is held due to space limitations on an annual basis. From its launching in March 2017, the management is still working to set the Standard Operational Procedure (Rahmiasri, 2017a). It has three main functions namely serving workshops, co-offices, and coworking space in 1,500 square meter space. It facilitates Research and Development (R&D) as well as start-up communities' incubation. The tenants' encouragement to create a product first and network later is the uniqueness of this place. Jakarta Creative Hub will also organize training, meetings, and conferences (Rahmiasri, 2017b).

The other one in Bandung is named Bandung Creative Hub. Bandung City Council builds Bandung Creative Hub as a place for youth to create creative products. There will be fashion studio, design studio, ICT studio, TV/Photo studio, music studio, ceramic studio, and innovation studio equipped with 3D printers, laser cuttings, and textile printers. Design museum, design store, design/art library, cinema, classroom, café/restaurant, co-working space and 24 hours hang-out space will also be provided in this building (Rosadi, 2016). At a cost of IDR 45 billion, this building will facilitate young generation to accelerate and solve the expensive of equipment rental cost (Ramadhan, 2017).

Moreover, the discourse regarding the creative hub and similar policies are also discussed around the world. In achieving the goal to make Britain as the world's creative hub, the UK Creative Industries Minister James Purnell focused on the source of creativity and strategy to turn creativity into industrial success (M2 Presswire, 2005). From the Middle East area, Dubai Creative Cluster Authority planned to invest GBP 957 million to build the Creative Community and Innovation Hub (Gulf News, 2015).

MaryAnne (2012) explained that local technology and innovation hubs contributed to the rapid growth of innovators in several low and middle-income countries. The importance of particular places like knowledge-intensive industrial districts and science parks is recognized by most governments as innovation engines (Dvir and Pasher, 2004). Several innovation engines had been built in Barcelona, Melbourne, and Delft. Leon (2008) added that in 2007 Barcelona City Government transformed almost 200 hectares into an innovation district. Headrick (2016) recorded inner-city creative tech and business hubs have emerged in London, Berlin, Medellin, Stockholm, Barcelona, Montreal, Seoul, Copenhagen, and Toronto. Several

areas in Brooklyn, Cambridge, Portland, Atlanta, Philadelphia, Detroit, Pittsburgh, Boston, Seattle, San Francisco, St. Louis, and Chicago were also change. Previously these areas were industrial and warehouse districts close to rail lines, waterfronts, and mixed-use downtown. They have been modified to support entrepreneurship. Business incubators, offices and labs for creative collaborations were built. They also promoted to accelerate research for big institutions as well as start-ups.

On the other hand in Indonesian context, national creative economy competitiveness is still weak. It is shown by low scores of seven creative economy supportive factors. In a scale from 0 to 10, the highest score (5.3) is recorded by industrial development factor while the funding factor has the lowest score (3.5). Other scores and factors are 4.2 for institutional factor, 4.3 for creative human resources, 4.4 for infrastructure and technology, and 4.5 for both marketing and material factors (Akhmad, 2014). Comparing to the context in the UK, problems faced by each creative industries sub-sector are similar, such as lack of skills and intellectual property rights (M2 Presswire, 2008).

However, the Indonesia government have already set several policies to solve the creative industries problems. Regarding the funding problem, the government had launched a particular program to assist the creative industry start-up (Chairman of Indonesian Agency for Creative Economy, 2016). There is also mentioned in the government development plan document (Bandung City Government, 2014; Ministry of Tourism and Creative Economy, 2014) that communities are included as part of quadruple helix concept who develop creative industries. Quadruple helix approach synergizes academics, business actors/entrepreneurs, communities and government agencies. Irawati (2011), Fahmi (2014) and Peltoniemi (2015) mention their roles as well.

In the case of Bandung, this city has a great potential for creative economy (Setiadi et al., 2012). It hosts many higher education institutions, several high-tech and ICT industries, galleries and creative studios as well as its positions as „service city“ and its conducive urban elements developed such as public places (Soemardi and Radjawali, 2004).

Research Aim:

This study proposes several actions can be taken in optimizing creative hub. Research Questions:

1. What are the roles of the creative hub in coordinating the creative industries“ actors?
2. What are the roles of the creative hub in resolving the lack of creative economy supportive factors?

## **2. Research Methods**

This work utilized narrative literature reviews. A broad perspective on a topic will be delivered by using this method. This method will also present the history or development (Green et al., 2006). This study chose proquest.com as the electronic database for literature searching. On the second step, author defined the search terms and made several limitations. „Creative Hub“ was the only keyword searched in the database. „Creative Hub“ was searched in „Anywhere“ from the title, abstract and the full text of the result. The results were limited to the full text and peer-reviewed works.

There was also a limitation for the time of publication. This study searched for works which were published from 2001 until 2017. 2001 was the year when creative industries mapping as well as the definition firstly published by the UK DCMS. Another filter used was the publication title. In this step, author separated between the relevant and irrelevant journals. The relevant publication titles chosen were The Journal of Economic History; Journal of Marketing (pre-

1986); Journal of Knowledge Management; MIT Sloan Management Review; Technology Innovation Management Review; The Journal of Business Strategy; Innovation : Management, Policy & Practice; Management Decision; Knowledge Quest; Research Technology Management; European Journal of Marketing; Journal of the Knowledge Economy; Business History Review; California Management Review; Journal of Industrial Engineering and Management; Small Business Economics; Southern Quarterly; Technology and Culture; New England Quarterly; TechTrends; International Journal of Entrepreneurial Behaviour & Research; Journal of Marketing; Strategic Direction; The Journal of Business & Industrial Marketing; The Journal of Management Development; BT Technology Journal; European Journal of Innovation Management; Journal of Fashion Marketing and Management; Journal of International Business Studies; Journal of Small Business and Enterprise Development; The Journal of Asian Studies; Triple Helix; and Journal of Economic Issues.

The irrelevant publication titles chosen were Journal of Business Ethics; The Town Planning Review; Teacher Librarian; Foreign Policy Bulletin; GeoJournal; Place Branding and Public Diplomacy; Progress in Human Geography; Planning for Higher Education; BMC Health Services Research; European Transport Research Review; Foreign Policy; New Library World; Economic Geography; African Journal of Biotechnology; Future Internet; International Review of Social History; Journal of Digital Asset Management; Journal of Technology Transfer; Library Hi Tech; Supply Chain Management; The Futurist; The International Journal of Educational Management; Journal of Educational Technology & Society; Library Management; World Literature Today; School Libraries Worldwide; Strategy & Leadership; The Annals of Regional Science; Ambio; Architecture Plus Design; Books Abroad; European Journal of Futures Research; Religious Education; Higher Education; International Journal of Operations & Production Management; Real Estate Issues; Higher Education Policy; Journal of Brand Management; Journal of Documentation; On the Horizon; Agriculture and Human Values; American Planning Association. Journal of the American Planning Association; Childhood Education; Climatic Change; Journal of Place Management and Development; Journalism Quarterly; Library Trends; Publishing Research Quarterly; Qualitative Market Research; Social Indicators Research; Studies in Art Education; Symphonia; Systemic Practice and Action Research; The American Behavioral Scientist; American Journal of Public Health; Art Education; Australian Library Journal; Catholic Historical Review; Education & Training; Educational Theatre Journal; English Journal; Facilities; Foresight: the Journal of Futures Studies, Strategic Thinking and Policy; Health Affairs; International Review of Research in Open and Distance Learning; Investigaciones Regionales; and Journal of Intellectual Capital. It can be seen that the chosen publications are economic and management field journal.

Another filter picked was the database. The selected databases were Business Premium Collection; ABI/INFORM Collection; ABI/INFORM Global; Entrepreneurship Database; Asian & European Business Collection; ABI/INFORM Trade & Industry; and Periodicals Archive Online. The unselected databases were Education Database; and Accounting, Tax & Banking Collection. After applying all these filters, there were 333 results generated. The final step was the manual screening. Manual screening was conducted to the title and abstract of retrieved results. This process examined the most relevant and the closest relation papers to „Creative Hub” topic. Finally, 19 papers were chosen from 333 results.

### **3. Results**

#### **3.1 Requirement for a Region to Develop Creative Hub**

Before a region decides to develop its creative hub, there are several requirements to fulfill by creative industries stakeholders, more specifically by the regional government or authority. First, according to Caroline et al. (2006), there should be a government acknowledgment regarding the need for conduciveness to innovation, new discoveries, and new knowledge

creation. The strong local culture is the advantage for advancing the creative industries. Singapore, for instance, was still driven by the state in promoting the ideas and knowledge to add value in the new economy. There is a need to allow creativity to happen organically.

Another argument comes from Dvir and Pasher (2004). They emphasized that the creative hub could not be built if there is no innovation climate in the region. The government should create this condition first which can be called as innovation ecology, a work environment or a setting that can allow, boost, increase, and catalyze the idea generation.

Penco (2015) explained that a successful city in the knowledge era is assumed has the roles of a knowledge hub and consumer hub. Host for higher education and research institutions, high-tech industries, knowledge-intensive business services such as financial services and legal services, consulting, and multinational companies headquarters is the role of knowledge hub. As a consumer hub, a city generates consumption primarily from intangible fields such as culture, services, entertainment, as well as products that contain culture and knowledge, for instance, design products and fashion. A city government should notice that knowledge workers are also intangible services and goods consumers. They have higher economic and cultural value. He also gave one example, Barcelona city. Barcelona is a host for a scientific park, many R&D and technology centers, and eight universities. The government launched “Barcelona Knowledge City” as the city brand. Two roles previously mentioned are also owned by Espoo city in Finland. The city was proven as the pioneer in regional area modeling and multichannel services in the EU (Tukiainen et al., 2015).

By using the creative class analysis, another requirement for a city to build its creative hub can be grabbed from Florida (2002). He asserted that the location choices by the creative class are the driver for a city development. They prefer different places, open and tolerant to new ideas. The creative class was a main economic development’s locomotive in the United States for post-industrial cities.

### ***3.2 Addressing the Lack of Indonesia’s Creative Economy Supportive Factors***

In this part, the author wants to deliver the findings from several selected literature that have relation or can be utilized to address the lack of Indonesia’s creative economy supportive factors. The analysis was arranged from the lowest to the highest score factors. As the starting point, this part is started from the funding factor. In the UK, M2 Presswire (2008) reported that the funding issues are not only addressed for business activities of creative industries SMEs but for research and development activities as well. Macgregor et al. (2010) indicated established company financed R&D process and government funded labs. Dvir and Pasher (2004) considered one stakeholder who should be actively involved in interaction in an innovation engine like a creative hub. This stakeholder is the financial fund professional.

The next factor to be analyzed is the institutional factor. In Kendall Square in MIT campus, Cambridge, Massachusetts, some technology start-ups shared space with research laboratories of established companies, university, and government offices. Companies experienced the intellectual atmosphere and were easy to recruit scientific personnel due to the location. Numbers of technology firms made the British Government to place its Consulate General there. The tenants met and discussed frequently to discover new opportunities. Kendall Square was also functioned as an incubator for SMEs (Gwynne, 2012).

In a quadruple helix, innovation actors sufficiently connect with the civil society. From the observation in Norway, Scotland, and Sweden, three main functions of innovation system namely strategic, facilitation, and performance were established. Strategic and generic tools are some innovation policies such as local plans and strategies which contain (Macgregor et al., 2010):

- Specific agencies and devices. The creative hub can be included as this point's strategy.
- The strategy is primarily about the effort to push quadruple helix collaboration such as partnerships formalization, local innovation ecosystems development, private sector engagement, and proactive strategies with universities.
- There should be monitoring and evaluation mechanism for innovation policies created.

Involvement of university in the creative hub can be used as a means toward the entrepreneurial university. Participation of a university in its regional innovation environment is the third stage of university entrepreneurial transformation process (Almeida et al., 2016). It is also mentioned in Salvador et al. (2013) that the importance of cooperation and strong relationships between university and industry was emphasized in the EU. Regional contributions by universities had been defined by The European Union's Smart Specialisation Platform into four areas namely business innovation, human capital development, community development, and institutional capacity of the region. Business innovation is related to the research function of the university. Human capital development is linked to the teaching function. Community development is linked to the public service function while the fourth area is the engagement of its management and members in the local civil society (Markkula and Kune, 2015).

Government policies toward knowledge city as the development plan should be decided and declared. Some examples of these policies are city branding, centers of knowledge creation plan, international creative and cultural events, and digital services (Penco, 2015). The policy to create such a virtual location like innovation cluster will complement the creative hub as a physical building (Salvador et al., 2013).

For the internal benefit, the creative hub organizational arrangement should be flat structure and low emphasis on hierarchy. This organization type can cut bureaucracy and enhance the generation, flow, and leverage of ideas. Tenant's accompaniment is formed by completing the tenant's organization structure into a multi-disciplinary team. Since creative hub could be categorized as an innovation engine, it needs intensive and rich interactions between many stakeholders. They are government, corporations, education, research institutes, financial funds professionals, as well as local business people (Dvir and Pasher, 2004).

Leon (2008) discussed the policy regarding Business to Business (B2B) to get more engagement between creative hub tenants. Some effective networking programs such as matchmaking and business breakfast were the suggested examples for the innovation district in Barcelona. Knowledge actors' participation in networks is also emphasized in Tan et al. (2008) to fulfill the human and social development purpose of knowledge-based urban development.

The third factor to be analyzed is the creative human resources factor. Together with community networks as well as education and training providers, the established companies could increase the people's skills, set up their business, and give access to advance learning opportunities including apprenticeships (Carter, 2013). In the UK, they enrolled live events and promotions, the music business, technical theater skills, costume and wardrobe, running cultural venues and community arts schemes. There was also an outward-looking concept for the creative hub to provide intensive support for young people to gain creative skills. This could be done together with universities and schools (M2 Presswire, 2008). Collaboration with other actors from other cities or even from foreign countries should be facilitated. Since current technology allows this happen, creative hub tenants could exchange and create their knowledge with other actors. This facility is called virtual space (Dvir and Pasher, 2004).

It was also a discussion about business support tools such as crisis management support, sector-specific programs, and training by using specialized software. A program related to the

established corporate social responsibility could be held as well. There could be showcases, topic workshops, and social programs (Macgregor et al., 2010).

From this point forward, the analysis is about the infrastructure and technology factor. It was assumed that the city where creative hub built must put ICT as the key instrument to develop creative industries (Caroline et al., 2006; Leon, 2008). As the internet is believed as one of the most influential factors for creative industries (M2 Presswire, 2008), the creative hub should be prepared by the reliable and fast internet connection as well. There should be shared R&D infrastructure built, shared-cost R&D programs implemented, and technical products and services supplied in a creative hub. Tools for diffusing and adopting the technology, especially ICT related, must be promoted among tenants (Macgregor et al., 2010). A playful design space will encourage tenants to think out of the box. It should be inspiring and amusing as well (Dvir and Pasher, 2004).

Furthermore, another factor to be analyzed is the industrial development. Macgregor et al. (2010) explained that co-opetition concept should be encouraged, especially between and within the academia and industry. They can cooperate but compete at the same time in the particular field such as R&D. The roles of the mixed organization from quadruple helix entities are needed. This organization is privately managed and reflects the degree of specialization in the ecosystem. This organization could be mixed center between industry and university. The co-opetition concept is similar with co-creation in Markkula and Kune (2015). It is a collaborative process between universities, industry, public authorities, and citizens in producing regional services. Creative hub tenants management should follow Niemi et al. (2015) who emphasized user of urban spaces to collaborate, co-create, and impact their environments.

Lastly, the creative hub can play a role as urban innovation engine which comprises people, relationships, values, process, tools and technology, and physical and financial structure in a complex system. It can trigger, generate, foster, and catalyze innovation in the city (Dvir and Pasher, 2004). The dynamic restructuring processes of economic and spatial within the frame of the new knowledge economy radically modify the advanced economies. This should be noticed by every region government, not only by the ones who want to increase their creative economy. The government should not focus only to the recent most favorite sub-sector but must focus to all sub-sectors. Multi-discipline expertises are needed nowadays. Two themes of new knowledge precinct development namely learning and playing as well as connectivity explored by Tan et al. (2008) are relevant to the existence of creative hub. The learning and playing theme provides the interactive environment, living laboratory, and place experience. It gives learning and experimental value. This theme involves universities and R&D centers. The connectivity theme provides social networking, interaction, and face to face contact. Social value is given by this theme.

#### **4. Discussion**

Discussion regarding the requirement for the region to develop its creative hub can be observed as follows. Since there is suggested an organic growth of creativity instead of being driven by the state like what happens in Singapore (Caroline et al., 2006), the existence of communities is an advantage in the creative industries development (Peltoniemi, 2015). The roles of communities are already experienced and proven in the context of Indonesia (Irawati, 2011; Fahmi, 2014; Bandung City Government, 2014; Ministry of Tourism and Creative Economy, 2014).

The roles of knowledge hub and consumer hub are required to be a successful city in the knowledge era (Penco, 2015). The conduciveness for creativity (Florida, 2002; Dvir and Pasher, 2004) is the key requirement as well. By capturing Bandung as an example, facilities for acting these roles are readily available in this city (Soemardi and Radjawali, 2004). Bandung also

hosts for Textile R&D center, Ceramic R&D center, and ICT R&D center. These facilities should collaborate as Macgregor et al. (2010) emphasized.

In funding factor, the government program to assist creative start-up funding (Chairman of Indonesian Agency for Creative Economy, 2016) should be offset by R&D funding (M2 Presswire, 2008; Macgregor et al., 2010). Financial funds professionals are required to involve in the creative hub (Dvir and Pasher, 2004).

In institutional factor, it can be seen that Macgregor et al. (2010) and Gwynne (2012) emphasized the importance of quadruple helix but did not disclose communities or civil society as the example of the fourth helix. More specifically, the roles of academics are highlighted (Gwynne, 2012; Salvador et al., 2013; Markkula and Kune, 2015; Almeida et al., 2016). A creative hub cannot be built alone, it needs holistic government policies (Penco, 2015; Salvador et al., 2013). The flat structure and low emphasis on hierarchy organization (Dvir and Pasher, 2004) are the suitable one and could be applied to the management team needed by the Jakarta Creative Hub (Rahmiasri, 2017a). B2B policy for tenants (Leon, 2008) and networking participation (Tan et al., 2008) can be adopted in the creative hub. Although many papers analyzed the institutions needed to support an innovation engine like a creative hub, only a few of them discuss the institutions inside the innovation engine.

Regarding the creative human resources factor, the established companies' involvement in creative hub could advance tenants' learning process (Carter, 2013) besides the effort from education organizations. This complements the start-ups (Rahmiasri, 2017b) as representative of creative business actors. Several programs can be compiled from the UK practices (M2 Presswire, 2008) and examples mentioned in Macgregor et al. (2010). Collaboration with other cities or other countries actors (Dvir and Pasher, 2004) can be enhanced to solve this factor's problem as well. Facilities owned by creative hub (Rosadi, 2016; Rahmiasri, 2017a) should be optimally utilized in executing programs.

Reliable ICT facilities, including the internet, as the key instrument to develop creative industries (Caroline et al., 2006; Leon, 2008; M2 Presswire, 2008) should be provided by the creative hub to solve infrastructure and technology factor. Shared basic usage of creative hub facilities (Rosadi, 2016; Rahmiasri, 2017b) is in accordance with Macgregor et al. (2010). They can be utilized for R&D as well as diffusing tools. The design of creative hub building confirms (Dvir and Pasher, 2004) as an inspiring and amusing place.

It was found that none of the papers explicitly discusses marketing and material aspects of the creative hub and similar policies. The only relevant article is an online magazine article which reported the availability of art gallery and design store as facilities of Bandung creative hub (Rosadi, 2016). They can be put as the solution for the marketing factor. Material aspect is probably considered inside R&D process when infrastructure and technology analyzed. It can be found in Macgregor et al. (2010) who mention the supply of technical products and services. R&D should be pushed to create a new material by utilizing several national R&D centers. In industrial development factor, co-opetition (Macgregor et al., 2010) and co-creation concept (Markkula and Kune, 2015) should be encouraged among quadruple helix entities, more particularly the creative hub tenants (Niemi et al., 2015).

## 5. Conclusion

A region must fulfill several requirements before building an innovation engine such as a creative hub. First, a region should keep its innovation conduciveness or create innovation ecology. Creativity has to be encouraged organically and the role of communities is significant here. A region should consider its roles as a knowledge hub and consumer hub. A region should also provide different places, tolerant, and open to new ideas for the creative class as the creative actors.

As a part of the innovation system, the creative hub does not only coordinate the creative SMEs, but also other creative actors incorporated in a quadruple helix. There is a need to maintain synergy among helix: academia, business, government, and communities or civil society. Collaboration between the creative hub and other R&D centers owned by the government, state-owned enterprises as well as universities should be created as well. A relevant innovation process in one center can be held in the creative hub and vice versa. Hence, this R&D process will save the budget since it is conducted together in a collaboration form between R&D centers and creative hub. It is also important to maintain the roles of communities as a bottom-up approach to the creative industries development in Indonesia.

Roles of the creative hub and related policies in resolving the lack of Indonesia's creative economy supportive factors are only found for the funding, institutional, creative human resources, infrastructure and technology, and industrial development factors. Marketing and material factors are not explicitly analyzed within papers found. To address funding problem, a creative hub must be able to compile all financial instruments from the government as well as private sectors such as venture capital and Corporate Social Responsibility (CSR) funds. Creating regulations and formal arrangements to strengthen quadruple helix entities collaboration is a strategy to cope the institutional factor. Comprehensive creative development policies, flat structure organization, B2B policy for tenants, and networking participation mechanism are several points which can be adopted. Academia should increase the implementation of three higher education institution's roles to support creative hub. It solves creative human resources problem as well. The role of established creative companies is also needed to advance learning process such as the apprenticeship. Several proven programs from the UK and European countries can be imitated in the creative hub. For infrastructure and technology factor, ICT is the key factor and the existence of creative hub solves difficulties to access sophisticated equipment. They can be utilized in shared basis usage. Besides art gallery and design store, maximizing online marketing and optimizing quadruple helix to promote creative products created can be used as the solution for marketing problem. Moreover, material difficulty can be solved by creative city policy. When creative industries run, material suppliers will automatically get closer to the market. Several R&D centers can assist the industry in resolving the material problem. Lastly, co-competition and co-creation concept must be encouraged to address the industrial development.

There are not many works analyze creative hub and its related topics from emerging countries context. Policies taken by developed countries will not give the same result to an emerging country like Indonesia. Further research can be organized to measure the impact of creative hub after the utilization. There is also an opportunity to develop an institutional framework of creative hub since none of the integrated procedures was found. This study only focuses on the lack of Indonesia's creative economy supportive factors surveyed by the government. Further research should include intellectual property rights as well.

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## INHIBITING FACTORS IMPROVING TRANSPARENCY OF OIL AND GAS GOVERNANCE FROM EXISTING SYSTEM BEING BUSINESS INTELLIGENT AS A SERVICE (BIAAS)

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**Abstract:** Indonesian Government through Special Task Force For Upstream Oil and Gas (SKK Migas) has determined the application of Integrated Operation System (abbreviated SOT) as governance transparency, this policy applies to all operators of oil and gas field management known as "Production Sharing Contract Contractor" (PSC) whom purely private entities or state-owned and regional state-owned enterprises. SOT supports Business Intelligent (BI) and in the implementation instructions are required every PSC to provide access for SKK Migas to monitoring of oil and gas lifting.

The purpose of this research is to study the factors that influence the improvement of transparency of oil and gas governance of the ongoing system into using Business Intelligent As A Service (BlaaS), Research focuses on identifying factors that potentially affect/inhibit when the system uses BlaaS, so it can be done the implementation of business strategies such as what can minimize the factors that potentially hamper it.

The research was conducted by using qualitative explorative technique, instrument of data source collection using Delphi method or in depth interview whereas secondary data was obtained from related references, analysis phase was conducted using two step analyses, before and during up to after data collection. The analytical approach uses analytical cycles frameworks, legal references, government policy and contractors policy.

The results of this research are several main inhibiting factors and secondary inhibiting factors. Furthermore, this research is expected to be an input on the process of increasing transparency of oil and gas governance and also become the basis for further research.

**Keywords :** *Business Intelligent; Business Intelligent as a Service; efficiency; Integrated Operation System; Governance Transparency.*

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## 1. Introduction

Oil and gas business is high-tech, high investment and high risk, oil and gas governance must pay attention to the development and application of technology in order to achieve optimum efficiency and effectiveness therefore anticipation of new technology is required, in the case of integrated operating system (SOT) the technology development in line with the development of information and communications technology (ICT) as "Standardization Priorities" issued by the European Union / EU (<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2016:176:FIN>) that there is some things to note related to the future technology. Firstly, all sectors of the economy increasingly rely on digital technologies that change ever faster, frequently dramatically exceeding the pace of change in more traditional sectors and industries. Secondly, the value of digital systems increasingly derives from cross-sector applications, data and technology convergence. This, and the convergence of physical and digital worlds, in turn, blurs the boundaries between traditional sectors and industries, products and services, consumption and production, online and offline, and therefore challenges standard setting processes. Thirdly, the increasing complexity resulting from a proliferation of standards, and the diversity of technical communities involved in standard setting can slow down innovation. Fourthly, there are ever more bodies and organizations involved in standard or technical specification setting around the world. Fifthly, European work on standardization cannot be viewed in isolation, this is because the need for access to a wider market. Finally (sixth), the actions to address the challenges mentioned above needs to ensure a proper balancing in view of their compliance with fundamental rights, as standardization may have implications in this area, for example, action must ensure full respect for the right to personal life and personal data and must also take into account Other basic rights, including the freedom to provide business and the right to ownership.

In this regard, research is needed that focus on improving transparency of governance using Cloud Computing as European Union (EU) gives special attention related to Cloud Computing, the system applied in this Cloud Computing research is Business Intelligent based, so according to Di Sano (2014) quotes from Ambrust et al ( 2014) is termed BaaS and states "BaaS is a new cloud computing paradigm". Di Sano (2014) continued "It provides both the possibility to offer data access through a web interface; And the capacity to organize business processes and data flow in a simpler way; In order to do not care about their IT implementation and details "which means BaaS provides both the possibility to offer data access through the web interface as well as the capacity to manage business processes and data streams in a simple way; With no care about the details of IT and its implementation then based on Di Sano's statement Business Intelligence as a Service or BaaS technology is derivative of cloud technology and conceptually appropriate for SOT so feasible to be applied in transparency of oil and gas management besides with technology development of oil and gas management indeed the problem and the challenge faced is maintaining governance transparency as well as improving it over time so that with improved performance of oil and gas governance transparency it can increase investor confidence where in the end the investment flows are increasing therefore the purpose of this research is to study the factors that can inhibit the increasing of transparency from Oil and gas governance of the current model runs into a model that uses Business Intelligent as a Service.

## 2. Literature Review

This qualitative case study research refers to two main reference types that are used as the basis in the research process;

## **2.1 Strategies in oil and gas governance**

Aditya Singh (2010) emphasized that there are variety of challenges facing the energy industry, from decreased access to sovereign reserves, to declining fields, innovation challenges, increased regulation and new energy policies. These challenges pose a threat to the basic industry structure. Oil and Gas Companies espouse four common industry wide-strategies of Porto folio Management, Operational Efficiency, Financial Management and Sustainability – of which the first three are core operating strategies. The companies have derived their profitability, growth, and shareholder returns based on the superior execution of these strategies. Though talk about Sustainability is a business imperative, it is no longer a differentiating factor and is not integrated with the core strategies. The current challenges facing the energy industry, however, necessitate that the companies integrate sustainability, innovation and management of technology strategies with their core strategies of Porto folio management, operational efficiency and financial management.

Strategies in the oil and gas industry should be able to help oil and gas companies develop their strategies to manage growth and create value in an environment that is influenced by the certainty and stability of a region through an accountable process.

## **2.2 Business Intelligent**

Okkonen et al., (2002) describes Business Intelligent definition according to the process of gathering and analyzing internal and external business information, while Moss and Atre (2003) also Papadopoulos and Kanellis (2012) state that BI is an architecture and a collection of integrated operational as Well as decision-support applications and databases that provide the business community easy access to business data, Lomqvist and Pirttimäki (2006) states that “an organized and systematic process by which organizations acquire, analyze, and disseminate the internal and external information sources significant for Their business activities and for decision-making”.

Steadman (2003) discloses some of the benefits that can be obtained from BI implementation as follows:

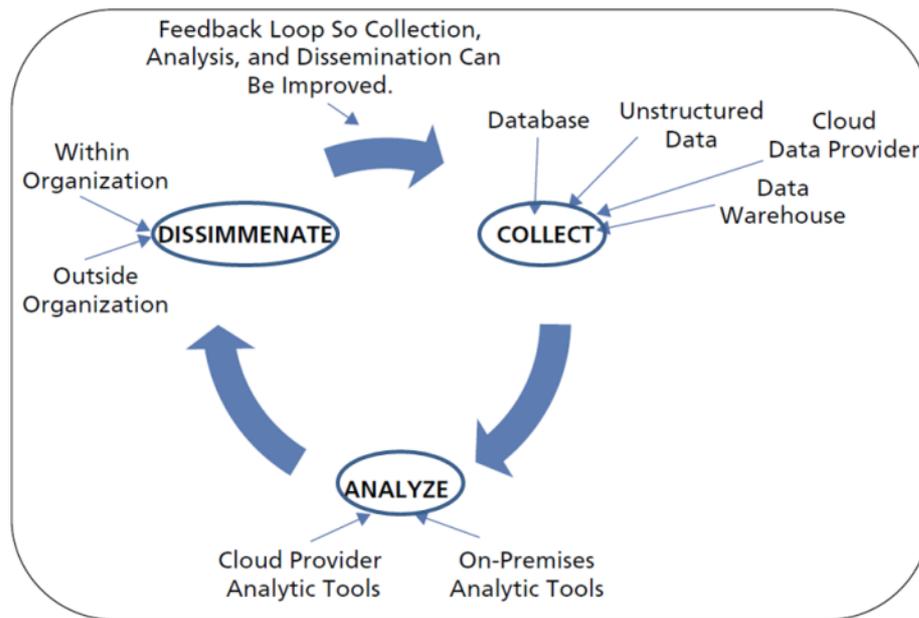
- a. Increase the value of organizational data and information while maintaining security first
- b. Facilitate monitoring of organizational performance
- c. Increase the value of existing IT investments
- d. Creating well-informed workers
- e. Improve cost efficiency

Di Sano (2014) explained that Business Intelligence as a Service is a new approach to manage business processes in the Cloud which means the realization of a BI platform solution (called BIOP, Bussines Intelligent Orchastration Process) is placed in a customized cloud system, So as to exploit the advantages of both flexibility and on-demand solutions.

Di Sano (2014) Research Methods is undertaken through the assessment of several existing systems plus literature studies as well as comparisons of BIOAS architectural concepts from other studies and an emphasis on process orchestration theory.

Gendron (2014) delivered a better framework to implement the analytical cycle for assessment of BlaaS implementation.

Figure 1. Gendron Analytic Cycles



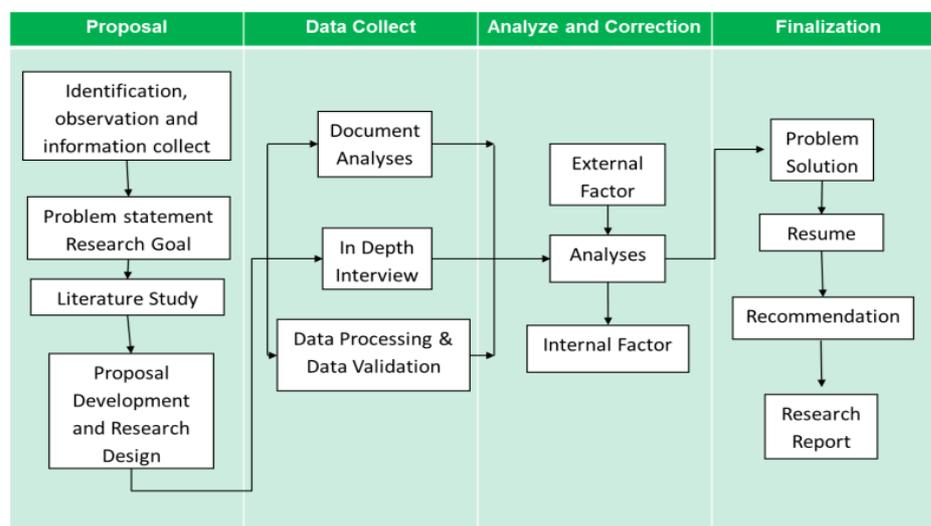
### 3. Material and Methods

Research uses qualitative method with explorative approach (exploratory research, Zikmund, 2003). Sekaran and Bougie (2010) explain that exploratory research is done when not much information is known about the problem or the problem is not "firm".

In accordance with the problems raised related to the Study of Inhibiting Factors of Improving Transparency of Oil and Gas Governance through the Implementation of Business Intelligent as a Service, the combination of experience surveys and secondary data analysis applied in this study.

Stages of study are: Literature study, research design, in depth interview with interviewees, document analyzes (reference, annual report, internal document etc.) and data analyses,

Table 1 Research Process Flow



Secondary data were extracted from Study & Research results from related environment, resumes from studies and research conducted at SKK Migas with focus of data related to Business Intelligent Systems and company data archive. In addition, documentary sources from the government and the private sector, in this case the Ministry of Energy and Mineral Resources/ESDM, Consultant, Production Sharing Contractor (PSC)/KKKS and University, are also used as secondary data to support research.

The research was conducted in SKK Migas and KKKS while other experts were taken from University and professionals (ICT consultants), required time of up to 3 months for the data collection process until the writing of the result and the conclusion or recommendation.

The selection of interviewees takes into account the achievement of the aspects of expertise and the ability of personnel analysis on oil and gas governance mainly related to business intelligent or business process to companies/institutions involved in direct and indirect oil and gas management such as from independent universities and consultants. Classification of personnel used as resource interview persons completely according to table 2.

Table 2 Interviewed Personnel Classification

<b>Classification</b>	<b>Managerial Level</b>	<b>Expertise</b>	<b>Institution</b>
Governor	<i>Senior manager and Manager</i>	Geology and IT	SKK Migas
Oil and Gas Contractor	<i>Senior Manager and Manager</i>	IT and HSSE	Contractor X
Independent Consultant	<i>Senior Manager</i>	Industrial Business	Consultant X
University	<i>Dean</i>	Business & Management	SBM ITB

Referring to Patton's qualitative research and the needs of this research related to oil and gas strategy using BaaS, the Gendorn framework is the closest but needs adjustment to the industry under study (oil and gas).

#### 4. Results And Discussions

The results obtained were analyzed and verified using Interactive Model Data Analysis methods from Miles and Huberman (1992).

##### 4.1 Collect

Collect variable consist of three (3) sub-variable ;

*Sub-variable database*, it is found that the potential factor to be the inhibits is Lack implementation of regulation, strategy and management of how to synchronize between cloud database or between master and disaster recovery center (DRC), including how to manage contractors to cooperate in data management and Level authority is also very potential to become an inhibit factor.

*Sub-variable unstructured data* obtained the fact that the potential inhibiting factor is the confidentiality of each personnel (individual self-control).

*Sub-variable cloud data provider*, the fact that potentially inhibiting factors is the interaction between people is still quite a lot (ideally less interaction is better), Many parties are involved, and the extent to which the parties will maintain the availability of data by keeping the rules.

*Sub-variable of data warehouse*, the fact of the inhibiting factor is that the data storage when handled by self-manage can be deficient should give the provider with the business to business pattern (B to B) and improve the Historical Data Management well (because of the potential to be an inhibit).

#### **4.2 Analyze**

There are 2 sub variable within analyze variable ;

*Sub-variable cloud provider analytic tools* obtained the fact that as the decision-making process based on the analysis there will be difference from the government (political, social, regulation and economy) while from KKKS business aspect is very important.

*Sub-variable on premises analytic tool*, it is found that there is data defines mismatch to be analyzed with the policy owner (SKK Migas).

#### **4.3 Disseminate**

The last variable disseminate contain 2 sub variable ;

*Sub-variable within organization*, the fact of the inhibiting factor is misinterpretation translating information from organization to operational activity (cascading from corporation to part/individual).

*Sub-variable outside organization*, it is found that the inhibiting factor is broken ethic, negative reaction from public and public don't aware with oil and gas business rules which lead to misunderstanding.

### **5. Conclusions and Implications of Study**

The results indicate that the application of BaaS in oil and gas business is a positive value in order to improve governance level to be better, accountable and transparent, several things that should be considered among others, first related collect variable in terms of managing the database should not occur the factor of lack implementation of regulation, strategy and Management, note also the technical factors of data synchronization management. Confidentiality factor also need to be maintained so that the quality and confidentiality of data can be maintained. Related to the availability of data, the interaction factor between personnel must be reduced by still complying with the rules, while for the data warehouse is worth considering the B to B scheme to avoid the lack (can be accommodated in the form of SLA) At the level of policy and rules should each party realize their respective functions and return To the 1945 Constitution that natural resources are for the welfare of the people as widely as possible, the regulator must be well understood and impartial, the greatest thing here is the willingness of each party to open up and fulfill the interests of the people according to the regulation.

Furthermore, with these factors, the problems and challenges of maintaining and improving the transparency of oil and gas management can be identified and anticipated better and better prepared, the research has shown that inhibiting factors can be identified so that the oil and gas management process using BaaS can be Manage well.

### **6. Implications**

The role of the regulator is very significant, the regulator is required to be able to carry out oil and gas governance accompanied by the principle of transparency and accountability so

that the inhibiting factor as recorded by the sub variable database is the implementation of low regulation can be handled by continuous socialization continuously. In addition, there is still a potential interaction between people that can lead to negative excesses, and the extent to which parties involved can maintain the feasibility of data. The principle of data management by yourself is also potential to create barriers because the main business is not in the IT field.

This research is limited only to the rules of business governance study, there are other things that also need to be in the care of economic factors, especially for the long term implementation of whether the transparency of oil and gas management using BaaS will indicate the cost constraints to be additional cost and if there is additional cost whether significant or not, The study of economics can be used as a material for further research apart from that the results of this study can also be used as the basis for further research, especially related to business intelligent problems in order to add related information.

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## DESCRIPTIVE ANALYSIS OF SUPPLY CHAIN IN UMKM HALAL FOOD AND DRINKS IN BANDUNG USING VARIABLE SUPPLY CHAIN OPERATION REFERENCE (SCOR)

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**Abstract:** As one of the countries with the largest Muslim population, Indonesia should be a precursor to halal and halal center of the world, said the Chairman of the Parliament of Indonesia. And Chairman of the Indonesian Ulema Council (MUI), Din Syamsuddin said halal products has begun to attract the huge demand of many people and encourage the development of civilization in accordance with Islam (MINA: 2014).

From 113 thousand products registered, only 41 thousand products have been labeled as Halal. Many products labeled as halal because the voluntary principles that have been adopted in the halal certification process then there is no maximum protection for Indonesian consumers, especially Muslims (Abdul et al: 2013). Hundreds of Small and Medium Enterprises that produce food and beverages will be facilitated by the Jakarta City Government in obtaining halal certification from the Indonesian Ulema Council or MUI (Majelis Ulama Indonesia). To facilitate the understanding of the supply chain to UMKM in addition to training to be certified halal, UMKM should know their supply chain through the Supply Chain Resource Operations (SCOR) model, as recommended by the Supply Chain which SCOR is an effective model for business supply chain processes to build made integration within the enterprise supply chain (Gordon: 1997).

This research is quantitative descriptive with the questionnaires distributed to 100 respondents who have appropriate criteria as the object of this research that UMKM food and beverage manufacturers halal and who has knowledge of the supply chain of production of its own, so the 100 questionnaires distributed around Bandung city, only about 77 respondents who fit the criteria of this research object. Processing data using data analysis techniques with variable-variable descriptive analysis of Supply Chain Operations Reference (SCOR) is a Plan, Make, Source, Deliver, Return.

**Keywords:** HALAL SCM, UMKM, SCOR

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## 1. Introduction

Currently the market for halal products are widely distributed throughout the world. This leads to increased demand for halal products not only by Islamic countries but also by the non-Muslims. Therefore, as halal applies not only to Muslims, but also for others, this causes the product became known globally as well as stressing the need for halal supply chain (Omar, Jafar: 2011). As one of the countries with the largest Muslim population, Indonesia should be a precursor to halal and halal center of the world, said the Chairman of the Parliament of Indonesia. And Chairman of the Indonesian Ulema Council (MUI), Din Syamsuddin said halal products has begun to attract the huge demand of many people and encourage the development of civilization in accordance with Islam(MINA: 2014).

But on the other hand, Indonesia had to face several challenges to put himself among the global halal hub market. It has focused on improving the halal market confidence by enforcing, implementing and monitoring the certification of halal food among SME manufacturers in addition to disseminating information on halal hub and availability of world demand on halal products (Abdul, et al: 2013). Many food products in West Java has not obtained the certification of halal even though the target provinces to be recognized as a province of halal (Dipa: 2013). Of 113 thousand products registered, only 41 thousand products have been labeled as Halal. Many products labeled as halal because the voluntary principles that have been adopted in the process of halal certification; then there is no maximum protection for Indonesian consumers, especially Muslims (Abdul et al: 2013). Hundreds of Small and Medium Enterprises that produce food and beverages will be facilitated by the Jakarta City Government in obtaining halal certification from the Indonesian Ulema Council or MUI (Majelis Ulama Indonesia). It aims to provide a better understanding of producing and managing halal products, and so from a competent speaker so that if the MUI came to inspect the products, have gone through the correct process (BeritaJakarta: 2014).

To apply Indonesia hopes to become the center of halal, they should have a supply chain halal, because it is very important in ensuring that the halal concept does not just apply to the food itself, but also for the entire supply chain from the farm to the customer (Omar, Jafar: 2011) , To facilitate the understanding of the supply chain to UMKM in addition to training to be certified halal, UMKM should know their supply chain, they can learn through the Supply Chain Resource Operations (SCOR) model, as recommended by the Supply Chain which SCOR is an effective model for business processes the supply chain to construct created within the supply chain integration company (Gordon: 1997) was conducted with respondents. This research was conducted by the SME respondents Halal food and drinks around the city of Bandung. The purpose of this research is to create a model that will provide a reference for the operation of SMEs to become the company with the supply chain for halal food and drink, so that they can get the halal certification from MUI. Penelitian This is a descriptive study of quantitative data collection method using kuesioner. Data analysis technique used is descriptive analysis.

## 2. Theory

Supply Chain Management is the integration process of the basins of the end user through original suppliers that provides products, services, and information that add value for customers. SCM framework consists of three main elements and are closely linked: business processes, component management, and supply chain structure (Martha, et al: 1997). The central organizing unit of the supply chain in the global supply chain industry today can be extended in the industry in addition to operating efficiently and effectively in the industry (Raymond, Charles: 2007). Supply chain management refers only to the management of the entire set of production, distribution, and marketing processes by which consumers are provided with the desired product(Zailani, et al: 2010).

Halal not certify final product that is free from substances that are not legitimate, covering the entire process from raw material, manufacturing location, the utility is used, the process of packaging and transport trips (Aziz Sulaiman: 2014). Halal religion does not matter now is in the realm of business and trade and a global symbol for quality assurance and lifestyle choices (Talib, et al: 2013). halal Hub is a joint effort between Islamic organizations such as producers of halal, halal vendors, shoppers, and consumers from around the world(Muhammad dkk: 2009).

The supply chain is halal, is the core halal cluster. consisting of suppliers, production and receiving halal food products (Tieman: 2015). Awareness about halal food has gone global and sudahkekhawatiran on halal product supply chain for the people, some examples are those in Singapore, Malaysia and Australia realized the kosher dietary laws and are willing to pay a premium for halal meat(Alqudsi : Ghazali: 2014). It also proves to Zulfakar, et al, that halal food consumers are now more aware and concern about the integrity of the halal status and wanted to know about the activities along the supply chain of the products they buy actually halal along the way. Halal food supply chain integrity: halal, halal standards, trust, commitment, and the role of government. This study developed a conceptual framework beginning from factors increase the halal integrity of the food supply chain(Zulfakar, et all: 2014). E-SCM must first guarantee that theres no contamination between clean and unclean. The whole supply chain needs to be addressed to protect the integrity from halal products. Consumer perception of Muslims is an important parameter for the halal supply chain(Tieman: 2015).

### **Supply Chain Operation References (SCOR)**

Applying SCM in developing countries, such as Malaysia and Indonesia, is still regarded as a major challenge, the prerequisite is the need to understand the requirements and behavior of SMEs in the context of the development of SCM. SMEs have their own unique characteristics that distinguish them from the larger company. One conclusion is that if the company uses the indicators of maturity in the area of Supply Chain Operations Reference to improve their processes, they are likely to reach a positive effect on the performance of the supply chain and possibly also on financial performance (Rahman: 2012). To overcome the growing competition stress of the supply chain, the Supply Chain Council has suggested Supply Chain Operations Reference (SCOR) model. This study shows that the manufacturing industry is the biggest followers of SCOR Model (Prakash, et al: 2013). Supply chain operations reference model (SCOR) is the first cross-industry framework to evaluate and improve performanceenterprise-wide supply chain and management (Gordon: 1997). SCOR also be a tool for assessing the performance of the supply chain that is expressed in some of these studies, (Eryuruk, et al: 2014), (Jameeshooran, et al: 2015), (Banomyong, Nucharee: 2011), (Thakkar, et al: 2009 ), and many others.

### **3. Research Model**

This research is quantitative descriptive. This study used a tool for reference chain SCOR supply chain operations. Respondents were 100 food SMEs in Singapore to get the business processes based on the SCOR model approach using a convenience sampling

SCOR® typically used to identify, measure, resetting, and improve the process of Supply Chain. In the SME food producers in Bandung, they do not use the E-SCM system so that the research conducted identification from supply chain process first in order to be used as a characteristic that can be used in building models of the E-SCM on research to identify the supply chain process which will be conducted in this research is to capture the configuration from Supply Chain driven by:

- a. Plan, plan to deal with the level of aggregation / unity and resources
- b. Source, source locations and products

- c. Make, make relating to the location and method of production
- d. Deliver, relating to the delivery network, for distributing supplies and products
- e. Return, return relating to the location and method of
- f. by([www.supply-chain.org/about/scor/how/do/i/use/scor](http://www.supply-chain.org/about/scor/how/do/i/use/scor))

Descriptive statistical analysis was used to analyze the data in ways that describe or depict the data that has been collected as it is without intending to apply to general conclusions or generalizations (Sugiyono, 2013: 147). Descriptive analysis technique used in this study to describe the variables SCOR by calculating the average from each study variable. Each statement is accompanied by four possible answers to choose. According Widoyoko (2012: 109) from the answers are then compiled the assessment criteria for each item statement by percentage.

#### 4. Results and Discussion

Criteria required respondents in this study is UMKM halal foods and beverages, as well as the supply chain process from business. So from 100 questionnaires that have been distributed only 77 respondents who have criteria in accordance with the criteria of the respondents in this study. From 77 respondents to note that the majority of UMKM business operators halal food and beverages are men in productive age above 30 years. The questionnaire was obtained from respondents Area Bandung city which is the center of Bandung. Overall respondents answered yes to the question, do you know the whole technical process from ordering raw materials from suppliers to consumers? And the technology used majority use the internet and smartphones with frequent usage.

##### a. Descriptive analysis of the variables Plan

Variable Plan is a variable SCOR related to planning in the supply chain. Based on the answers from the respondents can result in the following descriptive analysis,

Table 2(a) describes the responses of respondents to the four assessment statement filed in measuring sub variables Plan. From data presented in table 2 (a), that the actual score obtained from the fourth statement filed by 1048 and the ideal score achieved by 1232. From the comparison between the actual score of the ideal score, obtained percentage value 85.06% which is a percentage of the average from four-item statement. This value is in a class interval of > 81.25% - 100% and included in the category strongly agree. This shows that UMKM in the supply chain SCOR model based on respondent ratings views on aspects of the PLAN, the respondents strongly agreed with the statement in the plan in this study. Category strongly agreed in the Plan, if depicted in a continuum line can be seen in the Fig.1.

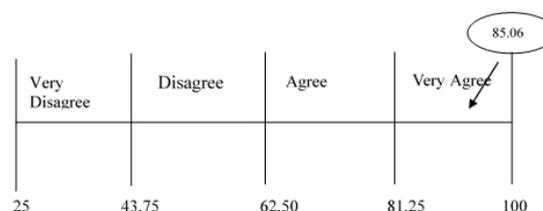


Fig. 1. The location of the Plan Variable in the Continuum Line

## b. Descriptive Analysis of the Variables Source

SCOR Source variables are variables related to the source in the form of raw materials and suppliers in the supply chain. Based on the answers from the respondents can result in the following descriptive analysis,

Table 2(b) describes the responses of respondents to the four assessment statement filed in measuring sub variable Source. From data presented in Table 2 (b), that the actual score obtained from the fourth statement filed by 974 and the ideal score achieved by 1232. From the comparison between the actual score of the ideal score, obtained percentage value 79.06% which is a percentage of the average from four-item statement. This value is in a class interval of 62.50% -81.25% and are included in the category of agree. This shows that UMKM in the supply chain SCOR model based on respondent ratings views on aspects of the responses agreed Source from respondents to the source must be in accordance with the statement on aspects source of this research. Category agreed in the Source, if depicted in a continuum line can be seen in the Fig.2.

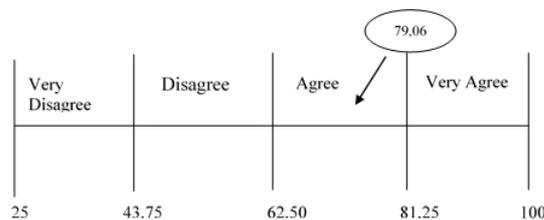


Fig. 2. The location of the Source Variable in the Continuum Line

## c. Descriptive analysis of the variables Deliver

SCOR Deliver variables are variables relating to the delivery of raw materials from suppliers agree or finished materials from employers to consumers in the supply chain. Based on the answers from the respondents can result in the following descriptive analysis,

Table 2(c) describes the responses of respondents to six votes statement filed in measuring sub Deliver variables. From data presented in Table 2 (c). That the actual score obtained from the sixth statement filed by 1359 and the ideal score achieved by 1848. From the comparison between the actual score of the ideal score, obtained percentage value 73.54 % which is a percentage of the average from six-item statement. This value is in a class interval of 62.50% -81.25% and are included in the category of agree. This shows that UMKM in the supply chain SCOR model based on respondent ratings views on aspects of the response Deliver agree with the statement that there is in category deliver. Category agree to Deliver, if depicted in a continuum line can be seen in the Fig.3.

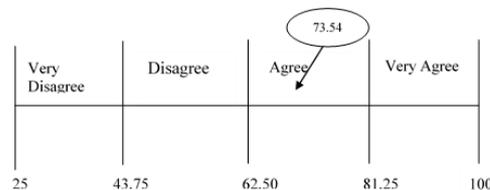


Fig. 3. The location of the Deliver Variable in the Continuum Line

## d. Descriptive Analysis on Variable Return

Variable Return is a variable SCOR relating to the return of damaged or defective items in this study was defective or not in accordance returned in the form of raw materials to suppliers

or employers receive a refund of food and drinks was broken from the consumer in the supply chain. Based on the answers from the respondents can result in the following descriptive analysis,

Table 2(d) describes the responses of respondents to the four assessment statement filed in measuring sub variable Return. From data presented in Table 2 (d). That the actual score obtained from the fourth statement filed by 988 and the ideal score achieved by 1232. From the comparison between the actual score of the ideal score, obtained value a percentage of 80.19% which is a percentage of the average from four-item statement. This value is in a class interval of 62.50% -81.25% and are included in the category of agree. This shows that UMKM in the supply chain SCOR model based on the assessment Return views on aspects of the perception of respondents are in agreement. Category agreed in return if portrayed in a continuum line can be seen in the Fig.4.

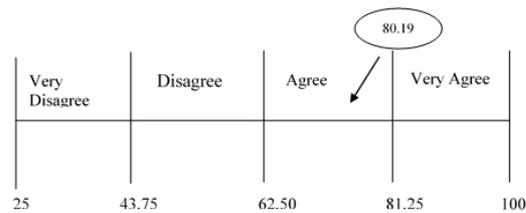


Fig. 4. The location of the Return Variable in the Continuum Line

#### e. Descriptive Analysis on Variables Make

Make variables are variables associated with SCOR or the production of raw material in this study is halal food and beverage products manufactured in the supply chain. Based on the answers from the respondents can result in the following descriptive analysis,

Table 2 (e) describes the responses of respondents to the four assessment statement filed in measuring sub Make variables. From data presented in Table 2 (e), that the actual score obtained from the fourth statement filed by 1035 and the ideal score achieved by 1232. From the comparison between the actual score of the ideal score, the value percentage of 84% is is the value of the average percentage from four-item statement. This value is in a class interval of > 81.25% - 100% and included in the category strongly agree. This shows that UMKM in the supply chain SCOR model based on the respondent's assessment when viewed in the aspect Make the respondents strongly agreed with the statement given in accordance with aspects Make way they do. Category strongly agree in Make, if described in a continuum line can be seen in the Fig.5.

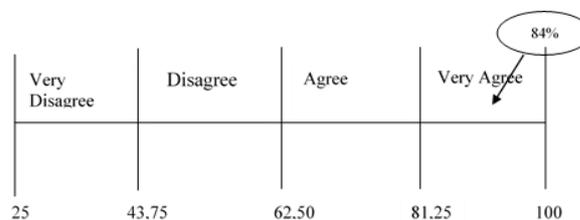


Fig. 5. The location of the Make Variable in the Continuum Line

## 5. Discussion

Descriptive analysis showed that the Plan / planning in the process of supply chain of halal products in UMKM have an important role as well as the Source / Source of raw materials, Deliver / distribution, directly or with the assistance of third parties for distribution, Return / refund either raw materials or finished products , as well as the manufacturing process from its own Halal products that become approved to UMKM overwhelmingly approved by the Halal food and beverage products in Bandung. From the UMKM that halal food raw materials can be obtained from the nearest place with a place of business, raw material suppliers guarantee the halal food, the halal raw material, raw material suppliers to deliver raw materials kosher food to the place of business, raw materials kosher food is damaged can be returned to the supplier, the replacement from raw materials damaged by the supplier, and the delivery of raw materials by suppliers are made on time, which means the need for good cooperation with suppliers. On the internal processes in UMKM was also there is some process that consists from four planning as it has received the statement agreed to strongly agree from the UMKM that the process should be carried out where the first planning that is in operational activities need to be planned in advance technical from the initial search for raw materials halal until sold to consumers planning to do after the information needed to support the halal food business that is based from planning cooperation with halal food supplier and planning cooperation with halal foods distributor having previously contained source sampling process with the customer.

UMKM also on the internal processes are the storage of raw materials with food supplies that will be produced avoid contamination of non- halal food after being sent by the supplier where the checking and, if found defective can be directly returned to the supplier. Having saved the production process is carried out with the manufacture of food products still keep food halal, where the production of halal food manufacturing is in the same location where the sale and manufacture of food products kept hygienic. After the production process is completed, then do delivery in products to consumers.

The process that occurs with consumers do with the process of delivery of food products to your customers is always on time and sometimes in the delivery of food products to consumers, you use the services of logistics delivery, and do not refuse to accept food products returned by consumers for damaged and provide a replacement product the food is broken with the new consumer. 4. Based on the picture, at the company interacts with consumers seem that consumers are involved in the planning process in terms of payment, the agreement and the waiting time. Sometimes consumers also have contributed to the sampling of food and have the right to return the product when they receive damaged.

The model will provide a reference for the operation of UMKM to be a company with supply chains for food and drink halal in UMKM in Singapore can be seen in Figure 4. Where the mapping of the model shows the supply chain process that has been approved by the UMKM Halal food products and beverages alone to be a process that could guide them in order to keep them fixed Halal products from suppliers / supplier until the product reaches the consumer.

From mapping the model shows that the SME food products must have a very good relationship with its suppliers so that it can ensure that it is the raw material that they receive the raw material is guaranteed halal. For other than the internal processes of its manufacturing process that must be maintained halal, planning is necessary both in terms of information and even the planning done by the consumer when ordering so that planning becomes one sub variable SCOR which has the largest component and be the main focus in the internal process. Seen on the consumer side in the SCOR model that has been made, consumers have contributed enough to affect the internal processes of the supply chain UMKM. This research could be the basis for further research to expand the area of research and add research object not only for the food and beverage industry Halal just yet Halal industry sectors such as in the cosmetics industry, medicine and finance.

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## CALIBRATION OF INVESTMENT VALUATION MODELS

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**Abstract:** Investors needing valuation techniques have been using Damodaran (2012) to help them valuing publicly traded stocks. Yet casual application of the models in the books usually result in a bewildering valuation results, stemming from careless use of basic assumptions. This paper argues that the application of simple valuation models needs to be calibrated for the general assumptions such as risk free rate and equity market risk premium. This paper also argues that the calibration process needs to be conducted simultaneously to limit the plausible range of the so-called general assumption. Only after such general calibration is conducted then assumptions specific to a particular companies can be used for further calibrations. Toward this goal, the paper picks the Free Cash Flow to Equity (FCFE) model and applies it to ten large-capitalization companies currently listed in Indonesian Stock Exchange. This paper, through sensitivity analysis, aims to also identify major factors that affect the valuation FCFE investment valuation models, and also to find major adjustments needed for the model so that they can perform the valuation better. To calibrate the investment valuation models, this paper compared expected stock price in 2016 using investment valuation models against real historical stock price through 2016. In general, the major factors that affects FCFE model are equity reinvestment rate and risk-free rate. Using the calibration results, models' performance improved significantly. Investors can then proceed to take care of other company-specific assumptions (such as first-stage length) for more realistic predictions.

**Keywords:** *valuation; validation; FCFE; factors; sensitivity analysis; calibration.*

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### 1. Introduction

The activity on the stock markets around the world has increased during the last decades. According to World Bank (2016), the number of domestically listed companies in Indonesia has more than doubled during two last decades, from 252 companies in 1996 to 537 companies in 2016. However, it is not only corporations and institutions that participated in the stock markets. By June 2017, the number of single investor in Indonesia stock market has reached 1 million investors. Many of these investors are small investors in need of valuation techniques.

To take part in the growing market, investors must use techniques for valuing a publicly traded stock (Claesson, 2011). Uncertainties related to the valuation process come not only from the specific asset being valued, but also related to the valuation model in particular. The result of the valuation depends on whom and which method he or she uses, resulting in

bewildering arrays of firm values. To investigate all different approaches to the firm valuation process would demand large quantities of information, which would be both difficult and time consuming to analyze, and which may also lead to results that are harder to interpret.

This paper limits its scope by using the Free Cash Flow to Equity Model (the FCFE). On one hand, the FCFE shared the same easily accessible financial data with (say) the Dividend Discount Model (the DDM). However, the FCFE and the DDM have different sensitivities to the same input (say, profits). Investor planning to use the DDM must be careful in the treatment of certain set of inputs, while those planning to use the FCFE must be careful in the treatment of other sets of inputs. An improved understanding of the FCFE model and its critical input requirements leads to a more accurate model and, hopefully, leads to a more profitable investments.

To implement this idea, the paper will evaluate the applicability and the accuracy of the FCFE investments valuation models on ten large cap firms on Indonesian Stock Exchange. Using the evaluation result, this paper will identify the major factors that affect the accuracy a of the three investment valuation models, and hence finding the major adjustments (i.e. calibration) needed for the FCFE investments valuation models so that these models can perform better in the valuation exercises.

## 2. Theory and Data

To validate investment valuation models, the authors compare expected stock price in 2016 using investment valuation models with real historical stock price through 2016. Sensitivity analysis was used to find the major factors that affect the accuracy and applicability of the each investment valuation model. Based on the major factors findings, authors created an across-the-board major adjustment for the same investment valuation models and compared the result with valuation result before adjustment.

### **Free Cash Flow to Equity (FCFE)**

Allowing for the cash flow effects of net capital expenditures, changes in working capital, and net changes in debt on equity investors, we can define the remaining cash flow as the free cash flow to equity (FCFE):

$$\begin{aligned} \text{Free Cash Flow to Equity} \\ &= \text{Net income} - (\text{Capital Expenditures} - \text{Depreciation}) \\ &\quad - (\text{Change in noncash working capital}) + (\text{New debt issued} \\ &\quad - \text{Debt repayments}) \end{aligned}$$

$$\text{Value} = \sum_{t=1}^{t=n} \frac{FCFE_t}{(1 + k_{e,hg})^t} + \frac{P_n}{(1 + k_{e,hg})^n}$$

$$P_n = \frac{FCFE_{n+1}}{(k_{e,st} - g_n)}$$

Where  $FCFE_t$  = Free cash flow to equity in year t

$P_n$  = Price at the end of the next extraordinary growth period

$k_e$  = Cost of equity in high growth (hg) and stable growth (st) periods

$g_n$  = Growth rate after the terminal year forever

## The Companies

The selection of companies was made entirely from companies listed in the Indonesian Stock Exchange (BEI) from different industries and states of maturity (excluding banks). The idea behind the selection is to help the calibration process while allowing for companies that respond to valuation methods in different ways, based on their different financial attributes. The study covers ten companies in total. All of the stocks used here are ten largest market capitalization non-bank listed companies in December 30, 2017. The following information has been collected from Indonesian Stock Exchange.

Table 1: Indonesia's Biggest Non-bank Listed Companies (Market Capitalization)

No	Company	Ticker	30 Dec 2016 Closing Price	Outstanding Shares	Market Capitalization (in Rupiah)
1	PT H.M. Sampoerna, Tbk.	HMSP	3,830	116,318,076,900	445,498,234,527,000
2	PT Telekomunikasi Indonesia, Tbk.	TLKM	3,980	100,799,996,400	401,183,985,672,000
3	PT Astra International, Tbk.	ASII	8,275	40,483,553,140	335,001,402,233,500
4	PT Unilever Indonesia, Tbk.	UNVR	38,800	7,630,000,000	296,044,000,000,000
5	PT Gudang Garam, Tbk.	GGRM	63,900	1,924,088,000	122,949,223,200,000
6	PT Indofood CBP Sukser Makmur, Tbk.	ICBP	8,575	11,661,908,000	100,000,861,100,000
7	PT United Tractors, Tbk.	UNTR	21,250	3,730,135,136	79,265,371,640,000
8	PT Kalbe Farma, Tbk.	KLBF	1,515	46,875,112,110	71,015,794,846,650
9	PT Indofood Sukses Makmur, Tbk.	INDF	7,925	8,780,426,500	69,584,880,012,500
10	PT Chandra Asri Petrochemical, Tbk.	TPIA	20,650	3,286,962,558	67,875,776,822,700

## 3. Results and Analysis

This section describes the paper's finding and analysis regarding to the objectives of this paper. This section will be divided into 3 parts: the (lack of) accuracy non-calibrated of the investments valuation models, the major factors that affect the investment valuation models, and the calibration adjustment for investment valuation models.

### 3.1. The Accuracy of the Investments Valuation Models

Financial statements of the companies used are from 2010 until 2015 to predict 2016 stock price. As comparison, this paper used companies' real historical stock price through 2016.

Direct application of the models yields unsatisfactory results in the sense that the estimated prices diverge substantially from the market price. Most of the stocks show undervaluation, implying that one or several assumptions are consistently biased. This initial exercise shows that if valuation users use standard valuation model, they will not get an accurate result. Valuation users need detailed and standardized assumptions to build an accurate valuation.

Table 2: Summary of Initial Valuation Result

Company	2016 Closing Price	FCFE - Base Valuation ERP = 8.82% & Rf = 7.50%		Beta	Cost of Equity	CAGR
		Price	Yield			
HMSP	3,830	1,449	-62.17%	0.76	14.20 %	6.65%
TLKM	3,980	2,595	-34.80%	0.58	12.62 %	36.19 %
ASII	8,275	1,807	-78.16%	1.20	18.08 %	8.35%
UNVR	38,800	12,707	-67.25%	0.23	9.53%	-4.92%
GGRM	63,900	40,796	-36.16%	0.50	11.91 %	13.63 %
ICBP	8,575	3,726	-56.55%	1.05	16.76 %	8.39%
UNTR	21,250	13,050	-38.59%	0.92	15.61 %	12.01 %
KLBF	1,515	338	-77.69%	0.88	15.26 %	15.05 %
INDF	7,925	4,517	-43.00%	0.99	16.23 %	-1.87%
TPIA	20,650	7,429	-64.02%	0.34	10.50 %	0.51%

To evaluate the applicability and the accuracy of the FCFE valuation models, the results of these valuation models are compared against the actual price of the firm. The table also shows some of the basic assumptions that are shared by all the models.

Clearly, casual applications are off the mark. In some of the cases, the divergence can reach more than percent (ASII and KLBF). This paper argues that these divergences should be reduced. However, instead of calibrating each model individually, the calibration should be conducted simultaneously. For example, the risk free rate of 7.5 percent (or any new values) should apply to all stocks. However, we need to find out which other assumptions that have large impact on the models prior to doing the calibrations.

### 3.2. The Major Factors that Affect the Investment Valuation Models

Sensitivity analysis was used to find the major factors that affect the accuracy and applicability of the each investment valuation model. There are 2 types of factor that will affect the result of the models, general factors and firm internal factors. General factors are factors

whose value(s) is (are) equal for each company. Examples of the general factor are risk-free rate, equity risk premium, pretax rate, and GDP growth. Internal factors are factors that the value is different for each company, such as beta, weight of debt, reinvestment rate, and return on capital. Tornado chart and spider chart can be used to illustrate the result of sensitivity analysis.

From sensitivity analysis, it is clear that the major factors of each company are different. The blue colored values are firm internal factors and red colored cells are general factors. For the FCFE models, the general factor that affects the model the most are risk-free, equity risk premium, and terminal growth rate.

For valuation users the results leads to the need for them to be more aware and be careful in using these factors in valuation models. This is clearly an important result. The next section will show how major adjustments can be incorporated to obtain better valuation.

Table 3: Summary of the Major Factors for Investment Valuation Models

No.	Company	Rank	FCFE Major Factors
1	HMSP	I	Risk-free rate
		II	Beta
		III	Equity Risk Premium
2	TLKM	I	Risk-free rate
		II	Equity Reinvestment Rate
		III	Return on Equity
3	ASII	I	Beta
		II	Equity Risk Premium
		III	Risk-free rate
4	UNVR	I	Risk-free rate
		II	Terminal growth
		III	Beta
5	GGRM	I	Risk-free rate
		II	Terminal growth
		III	Beta
6	ICBP	I	Beta
		II	Equity Risk Premium
		III	Risk-free rate
7	UNTR	I	Beta
		II	Equity Reinvestment Rate
		III	Return on Equity
8	KLBF	I	Equity Risk Premium
		II	Beta
		III	Risk-free rate
9	INDF	I	Beta
		II	Equity Risk Premium
		III	Risk-free rate
10	TPIA	I	Risk-free rate
		II	Terminal growth
		III	Equity Risk Premium

### 3.3 The Major Adjustment for Investment Valuation Models

This section investigates whether simultaneous adjustment to these general factors can lead to better valuation. In this paper, authors only adjusted the general factors to find better valuation. It is because the value of general factors is same for all companies. The firm internal factors were not adjusted at this stage because each company has their own additional unique parameters that lack generality.

Based on section 3.2, two of the general factors that affect all investment valuation models are risk-free rate and equity risk premium. In the three valuation models, risk-free rate and equity risk premium are used to calculate cost of equity. For risk-free rate, the paper uses 10-year Indonesia Government Bond yield of 7.5% (April 2016). For equity risk premium, this paper uses Damodaran's equity risk premium for Indonesia of 8.82%.

We already knew that higher risk-free rate and/or equity risk premium would give lower expected stock price. Lower risk-free rate and/or equity risk premium would give higher expected stock price. In section 3.1, almost all of the valuation results are lower than its actual price. It means that, across the board, the assumed risk free and/or equity premium were too high. In this section, author compared the result from section 3.1 with the result of models where the following sequential adjustments are made:

- Adjustment-1: Equity risk premium adjustment from 8.82% to 7.06%
- Adjustment-2: Risk-free adjustment from 7.5% to 6.00%
- Adjustment-3: Combination of equity risk premium adjustment to 7.06% and risk-free rate adjustment to 6.00%

The result of the adjustments for the FCFE is presented in Table 5.

Table 5: FCFE Adjustment Result Comparisons

No.	Company	2016 Closing Price	FCFE - Base Valuation ERP = 8.82% & Rf = 7.50%		Adjustment-1 ERP = 7.06%		Adjustment-2 Rf = 6.00%		Adjustment-3 ERP = 7.06% & Rf = 6.00%	
			Price	Yield	Price	Yield	Price	Yield	Price	Yield
1	HMSP	3,830	1,449	-62.17%	1,777	-	1,827	-	2,382	-
						53.60%		52.30%		37.81%
2	TLKM	3,980	2,595	-34.80%	3,239	-	3,653	-8.22%	4,968	24.82%
						18.62%				
3	ASII	8,275	1,807	-78.16%	2,236	-	2,093	-	2,689	-
						72.98%		74.71%		67.50%
4	UNVR	38,800	12,707	-67.25%	14,872	-	29,217	-	47,233	21.73%
						61.67%		24.70%		
5	GGRM	63,900	40,796	-36.16%	50,024	-	59,397	-7.05%	80,609	26.15%
						21.72%				
6	ICBP	8,575	3,726	-56.55%	4,604	-	4,409	-	5,690	-
						46.31%		48.58%		33.64%
7	UNTR	21,250	13,050	-38.59%	16,196	-	15,915	-	20,776	-2.23%
						23.78%		25.11%		
8	KLBF	1,515	338	-77.69%	421	-	418	-	549	-
						72.21%		72.41%		63.76%
9	INDF	7,925	4,517	-43.00%	5,410	-	5,263	-	6,582	-
						31.74%		33.59%		16.95%
10	TPIA	20,650	7,429	-64.02%	8,880	-	12,701	-	17,947	-
						57.00%		38.49%		13.09%

For FCFE, except for KLBF and ASII, the adjustments in two factors provide substantial change relative to baseline results. In the case of TPIA, the 57 percent undervaluation in the baseline result has now been reduced to only 13 percent undervaluation. At this stage, analyst must move to different, and specific, factor calibrations of each stock.

#### 4. Conclusion and Recommendations

The conclusions and recommendations are as follows. First, investors can use the results of this as reference when using the FCFE as their valuation model. While investors should strive to use better assumptions, more attentions should be given to major factors that affect the valuation models.

Second, casual implementation of the simple FCFE valuation model gives valuations that are wide off the mark from the actual price. As such, investor will not get useful results. Although simple valuation model can be used, it must be calibrated based on a group of stocks to control for excessive adjustments. Only after this general calibration is conducted then a specific adjustment can be made.

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## THE INFLUENCE OF SERVICE QUALITY AND CORPORATE IMAGE TO CUSTOMER LOYALTY IN PUBLIC TRANSPORTATION (CASE STUDI: TAXI OF PT. XYZ IN BANDUNG INDONESIA)

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**Abstract:** This study aims to determine the influence of service quality and corporate image toward loyalty in Taxi of PT. XYZ in Bandung Indonesia. Service quality in this study is independent variable ( $X_1$ ) has five dimensions to measured of which tangible, reliability, responsiveness, assurance, empathy. Corporate image in this study is independent variable ( $X_2$ ) has four dimensions to measured of which personality, reputation, value, corporate identity. End then loyalty in this study is dependent variable ( $Y$ ) has four dimensions to measured of which make regular purchase, purchase across product and service line, refers other, demonstrate immunity to the pull of the competition.

The research methodology used descriptive analysis and verificative analysis with survey approach. The sample in this study were 400 respondents in Bandung and surrounding. Data collection techniques obtained through interviews with key person management in Taxi of PT. XYZ in Bandung Indonesia, questionnaires and interviews to respondents, then for data processing using path analysis with SPSS.19.0.

Descriptive analysis (respondents responds) showed service quality, corporate image, loyalty in Taxi of PT. XYZ in low category. The responder results related to the service quality, corporate image, and customer loyalty derived from questionnaires that have been distributed randomly in region Bandung and surrounding.

Conclusion in this study based on the statistics and hypothesis test result showed that the service quality and corporate image simultaneously influence toward customer loyalty. In partial, service quality influence to customer loyalty more significant in comparison of the influence of corporate image toward customer loyalty.

**Keywords :** *Bandung; Corporate image; Loyalty; Service quality; Taxi*

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## 1. Preliminary

The dynamic demands are also increasingly competitive in the public transport industry. Surely, any competition between industries that will have a competitive advantage and there will also be a sustainable transportation company. Proponent of the development of the public transport industry is the development of terms of infrastructure such as Bandung, which is the most important part of the public service system. Azis, Y & Osada, H. (2013) suggest in improving the quality of service of a service provider not only the transport industry alone, while improving the quality of services in the healthcare industry.

One of the factors that influence the development of industrial the transport sector is the increase of population, it is proved by the increasing number of users of transport services as objects of vital public transport service providers. With that, the provider of transportation services especially taxi conduct their business development. Taxi transportation service providers assess that by developing a business is expected to generate huge profits.

The presence of an online taxi based on application mobile in Bandung City, adding an alternative choice for taxi consumers but reduce the market share for conventional taxis that had been present before. It was delivered by the operations manager with the decline in the number ordered Taxi of PT.XYZ by 30% recorded for the last two years. Obtained the information then authors conduct pre-survey research to prove the truth through observation as well as interviews on 20 respondents with obtained as follows :

**Table 1** Move to Competitors

No.	Brands of Taxi	Amount	Precentage
1.	Taxi of XYZ	5	25%
2.	Taxi X	11	55%
3.	Taxi Y	4	20%
<b>Total</b>		<b>20</b>	<b>100%</b>

**Sources : Recapitulation Pre Study Survey (Authors, 2016)**

Seeing the results (Table 1) of the pre study survey above is related with customer loyalty, then conducted interviews in respondents who decide to switch to a competitor Taxi ABC, some reveal the reason, found as many as five as most frequently stated reason of the respondents said that the driver is not friendly. In below is recapitulation of complaints submitted by respondents who move to competitors (See Table 2):

**Table 2** Complaints From Respondents (Customer Taxi of XYZ)

No.	Complaints	Amount
1.	Not according way to the direction a trip	1
2.	The driver operate the mobile phone while driving	3
3.	The cabin taxi is dirty	4
4.	Smell of smoke in the cabin	2
5.	The driver was not friendly	5
<b>Total</b>		<b>15</b>

**Sources : Recapitulation Pre Study Survey (Authors, 2016)**

Consider of the phenomenon that became the background of this study, Seen consumers feel the discomfort associated with the service quality Taxi of XYZ. So with the bad received by consumers allegedly raises the image of a bad company for consumers, if that true it is not impossible consumers will seek the best service from other types of taxi companies are

expected to meet consumer expectations. So that the authors want to know the effect of service quality and corporate image to loyalty.

## 2. Literature

Operations management in this paper explains that it is necessary for a management that is useful for implementing decisions in regulating and coordinating the use of resources from various activities. Swink (2014) states that the Operations management is the process management used to design, supply, and deliver valuable goods and services to customers. Then Heizer and Render (2015) states that the operations management is the activities that relate to the creation of goods and services through the transformation of inputs to outputs. From the definitions that have been expressed by both experts, it can be concluded that operations management is a series of processes in creating goods and services or activities to change the form by creating or adding benefits of goods and services that will be used to meet the needs of people who have more value with Utilizing resources that are owned efficiently. Accordingly the constructs that can be given by the author from the definition of operations management is so important the role of operations management in the effort of developing the quality of service of goods or services that will be given by the company to the consumer related with the appropriate benefit from the cost incurred by the consumer, especially in public transportation service (taxi) In Bandung city.

As the function of operations management state by Sumayang (2003) is the task of the operations that produce products in the form of goods and or services. Basically operations management is a management of the conversion process whereby the resources that act as "inputs" are converted into goods or services. These goods and or services are commonly referred to as "outputs". The following are the differences in the characteristics of goods and services state by Heizer and Render (2015):

**Table 3** Differences in goods and services

No.	Characteristics of goods	Characteristics of services
6.	Tangible	Intangible
7.	Products that can be stored in inventory	In production and in consumption simultaneously
8.	Limited customer involvement in the production process	High customer interaction
9.	Product results	Results of services that can be felt
10.	Quality aspect (quality) is easy to evaluate	The quality aspect (quality) is mostly quite difficult to evaluate / or limit
11.	Products can be resold in the future	Product of Service are difficult to resell in the future
12.	Ownership status is easy to move	Ownership status is difficult to move
13.	Distribution status can be done	Distribution status can not be performed

**Sources :** Heizer and Render (2015)

Based on table 3 on top the tendency of tangible goods producer company is a company engaged in the manufacturing industry, while the tendency of companies that produce something intangible (services) is a company engaged in the service industry, adapapun many products that are a combination of goods and Services. Operational activities, both goods and services, both have quality standards, design, and matching income from customer demand. In reality, almost all services and almost all goods are a fusion of a service and a tangible product.

Related to the discussion in this paper refers to strategic decisions on ten critical operation management decisions put forward by Heizer and Render (2015) be expected of providing effective decisions for the management of companies with an interest. Here below is the

strategic decision intended: Goods and services Design, Managing Quality, Process and Capacity Design, Location Selection, Layout Design, Human Resources and Job Design, Supply Chain Management, Inventory-Material Requirement Planning (MRP) and Just In Time (JIT), Scheduling, Maintenance.

Based on ten strategic decisions operations management state by Heizer and Render (2015), it is a strategy implementation for operations managers to create competitive advantage, while on the second point of managing quality (goods or service) is a topic to be raised in this research . In general quality is one way for companies to dominate the market, while for society the quality is a measure of a person to achieve satisfaction. To focus more on this research the authors more lead to the quality of service in a service company engaged in public transportation.

Service quality to a service provider company is of paramount importance, this will affect the perspective view of the users of the service itself, especially in service companies that are intangible. It is the customers who consume and enjoy the services of an agency, so they should assess the quality of their services. The customer's perception of service quality is a thorough assessment of service excellence. Therefore service providers need to continually improve the quality of service to service users. Definition of service quality according to some experts, Iancu (2013) state the service quality is an important aspect of performance in any organization in the public sector, which may be defined by covering all service delivery components that are important to users, such as the timeliness, accuracy, accessibility, reliability, continuity of service. Kitapci (2013) state the service quality is an inference regarding the superiority of a product or service based on a rational assessment of characteristics or attributes, or an affective judgment or emotional response similar to an attitude. Morgan (1994) in Iqbal (2014) state the service quality is an accurate tool to achieve higher reliability, consistency and responsiveness. Parasuraman (1988) in Camgoz – Akdag (2013) state the service quality is designed to measure perceived by the customer. Zeithaml in Wan Rashid and Jusoff (2009) Service quality is an elusive and distinctive construct. Its intangible, variable and inseparable characteristic is unique to services.

From some definition of service quality according to the experts, the researcher concludes that service quality is a unique and excellent form given by service provider to service user, as a form of fulfillment of service user expectation. Therefore the appropriateness of the definition in this research is the quality of service for public transportation service providers (taxis) given to the service user (customer) must have unique and distinctive advantages in service to the service user, thus become competitive advantage compared with Public transport service providers (taxis) of similar competitors.

In general, each company has an image that is consciously or not has been attached to the company through the goods or services produced to the consumer's mind. Corporate image is derived from the experiences, beliefs, knowledge and feelings of consumers towards the company. Some of the factors that affect the image is consumer perceptions obtained from aspects of available facilities, management services, competence of employees in serving, and so forth. A good corporate image is an effective tool to attract a large number of consumers for the company in the company's competition against competitors for competitive advantage.

Corporate image state by Kotler (2006) is the number of beliefs, images and impressions a person has on an object. The object in question can be a person, organization, group of people, companies or other things that he knows. Then Paul R. Smith (1996) state corporate image is the term of people perception of an organization, images and perceptions are created through all sense : sight, sound, smell, touch, taste and feeling experienced through product usage, customer service. The commercial environment and corporate communications. Its straightly a result of everything a company does (or does not do). Pomeroy and Johnson (2009) state corporate image is just one of a variety of communication tools that might be used to promote

the desired corporate identity of the corporate brand or master brand rather than specific products or services. Based on the definition of corporate image put forward by experts, it can be concluded that the image of the company is a good view of individuals or groups or impressions based on experience, knowledge, and other assumptions about a service provided by service providers that have unique than the company a similar competitor.

Constructs provided by the authors in this study is the corporate image providers of taxi transportation services trying to make a company that has a good image views and consumer impression on services offered to benefit.

Definition of loyalty is formed from the trusty, because loyalty tends to be emotional (feeling) that does not always require a rational explanation. Some conceptual loyalty begins with the repeat purchase of some consumers for a certain period of time, while loyalty is a commitment (affective loyalty) that accompanies the repeat purchase (behavioral loyalty) is a condition where consumers do not want to move even though the products and services are rare in the market and consumers Voluntarily recommend such products or services to colleagues, families or other consumers. According to Tjiptono (2002) state the costumer loyalty is customer commitment to a brand, store or supplier based on a very positive nature in long-term purchases. From this understanding can be interpreted that loyalty to the brand is obtained because of a combination of satisfaction and complaints. While the customer satisfaction comes from how big the company's performance to cause such satisfaction by minimizing complaints so that obtained long-term purchases made by consumers.

The related of loyalty as the dependent variable in this research the public transportation service (taxi) in Bandung city as the object of research which want to know its influence with the service quality and corporate image to the taxi service provider whether it is in accordance with what is expected from the service user Consumers), so that consumers have a desire to reuse taxi transportation services in the future because the consumer feels satisfaction from the services provided.

### 3. Methods

The research method used in this research is descriptive research (descriptive) and verificative analysis. Descriptive research according to Setyosari (2010) is a study that aims to describe a state, event, object (whether person), or anything related to variables that can be explained either through numbers or even words. While the verification analysis in this study using Path Analysis because this study aims to test the direct and indirect influence of independent variables and dependent variables used in this study.

Techniques of Data collection in this study through three stages, including interviews with operations management of PT. XYZ, observation, questionnaire. The population in this study were all heads of families in the city of Bandung and its surroundings. The sample in this study was done by random sampling.

To determine the sample size of a population in this study, used the formula Krejcie and Morgan (1970) as follows:

$$n = \frac{X^2 \cdot N \cdot P (1-P)}{(N-1) \cdot d^2 + X^2 \cdot P (1-P)} \quad (\text{Source: Krejcie dan Morgan, 1970})$$

Information:

- n = Sample size
- N = Population size
- $\chi^2$  = Value of Chi Square
- P = Proportion of Population
- d = Error

The Calculation results of sample of PT. XYZ Taxi user population in Bandung Raya (covering Cimahi and surrounding area) with total population 463956 (population data obtained from website application.bkkbn.go.id) accessed on November, 2016. Here is the calculation of population sample:

$$n = \frac{3.841 \times 463956 \times (0.25)}{(463955)0.0025 + 3.841(0.25)} = 383,7$$

Based on the calculation results of sample determination, then generated 383.6 round up to 400 respondents. The results of this sampling in accordance with formulation by krejcie table. In this study conducted the primary data retrieval of consumer responses (respondents) on service quality, corporate image, and loyalty at PT. XYZ, through the spread of questionnaires (questionnaires), then the need for validity testing, as for correlation techniques used to test the validity of each item statement using Pearson Product Moment correlation. Validity test results have been declared valid because the coefficient of validity pearson `greater than the point rkritis that is 0.30. As the provisions of Azwar (2010) explain that the value of rxy arithmetic compared with the critical r value, ie 0.30, so the statement is considered valid. Reliability testing of each variable formed from the list of statements can be said to be reliably if value of Alpha Cronbach is greater than 0.70 (Ghozali, 2011). Reliability test results in this study obtained greater rkritis value from the point 0.70 then it can be stated that the variables studied have been reliable.

#### **4. Results and Discussion**

In the section of results and discussion is about the description and analysis of data obtained from the results of the distribution of questionnaires to respondents. The data is used as input for data processing and analyzed by using descriptive statistics for supporting data and path analysis.

##### **4.1 Descriptive Analysis**

The sample of this research is 400 respondents, from the total of respondents shows the dominance of female sex respondents, as many as 233 people (58.25%) and men as many as 167 people (41.75%). The dominance of women as taxi users is derived various reasons that are conveyed through interview research such as not having a personal vehicle, simple, fast, feel safe, and want comfort in the journey. Quoted from <http://female.kompas.com> (access January 21, 2017), the same is said Kiki Rizki a Head of Marketing and Partnership GrabTaxi, that the reason women use taxis is a sense of security, time efficiency and comfort.

The dominant age of respondents was 112 people (28.00%) in the range of 26-30 years, and as many as 86 people (21.50%) age range 31-35 years. While the age of the respondents are the least respondents are > 60 years as many as 3 people (0.75%). Seeing the age of respondents 26-35 years as dominant because at that age belong to the age of productive work that has high mobility in their daily activities. According to Kotler (2002) said buying decisions can also be influenced by personal factors one of which is the characteristics of age. Referring to some statements related to the psychological factors of human beings in the age of 26-35 years stated that it entered into its golden phase, meaning that at the age of 26-35 is generally still influenced by emotions in decision making something, and generally have purchasing power is high, thus making the taxi as the main accommodation of transportation. The Central Bureau of Statistics (BPS) stated that the productive age is in the range of 15-64 years. Productive age is defined as a creative action that can produce something and in the productive age phase is considered to be able to produce.

The level of education of the respondent is dominated by the level of education Bachelor Degree as much as 270 people (67.50%) while the level of education Doctoral Degree becomes low dominance as many as 3 people (0.75%).

## 4.2 Results of Service Quality Response (Perception)

There are 18 items of questions for service quality variables (X1) covering five dimensions including tangible, reliability, responsiveness, assurance, and empathy. The result of the service quality response is the actual response felt by the respondent to the service Taxi of PT. XYZ. Because the quality of service is the level of excellence expected by consumers (respondents) as users of the service Taxi of PT. XYZ.

Based on the results of the recapitulation of respondents regarding the perception of service quality Taxi of PT. XYZ, got average percentage of 47.1% from all dimensions of variables which means the respondent's perception of service quality of Taxi of XYZ entered into "poor" category. The criterion refers to table 4.

**Table 4** Criteria Interpretation of Variable Conditions

No.	Average	Informations
1.	20,00% – 36,00%	Very Poor
2.	36,01% – 52,00%	Poor
3.	52,01% – 68,00%	Fair
4.	68,01% – 84,00%	Good
5.	84,01% – 100%	Very Good

**Sources :** Sugiyono (2008)

Table 4 is also a reference to the descriptive interpretation criteria of other variables as well.

## 4.3 Results of Service Quality Response (Expectation)

Almost the same as with the service quality responses (perceptions), both with the number of questions and the question items that distinguish it is the answer expected respondents to the quality of service from the Taxi of PT. XYZ.

Overall responses of respondents regarding the variable quality of service (expectations) on the Taxi of PT. XYZ got average percentage of 81.5% from all dimensions of variables means the respondent's expectation of service quality of Taxi PT. XYZ including "good" category. (Table 4 reference).

The first dimension of "tangible" respondents dominates the expectations associated with cabin comfort, Hygiene, and courtesy of the driver in serving the consumer obtained a percentage of 81.7%.

The second dimension of "reliability" of respondents dominates expectations related to the reliability of the driver to know the location or place name in the city of Bandung, especially when delivering at the location targeted by consumers, this item obtained percentage of 81.9%. But in fact the respondents were quite satisfied with the reliability of the knowledge of the driver to know the specific location in the city of Bandung, with the percentage of perception on this item of 60.2% in the category of "fair". For other aspects of the statement items found consumer expectations associated with the accuracy of appointment time pickup at the time of consumer ordering enough to be taken into account as well, because in reality today consumers are still not feel satisfied, because it is often late or not in accordance with the promised. When looking at similar competitors Taxi of PT. XYZ, they have used information technology to support the

service of taxi order for its consumers through information system based on mobile application. The use of such applications can give the operator the allocation of orders for the radius closest to the available fleet so that the pickup will be faster, the application can also provide information to the customer (consumer) associated with the taxi fleet number, taxi drivers, until the existence of the location of the taxi.

The third dimension of responsiveness of respondents dominates expectations related to the rapid response from the operators and management especially when they want to make a complaint. Expectations in this dimension get 81.6% percentage score means that hope needs to be properly treated for taxi of PT.XYZ management because when compared with similar competitors who have applied application-based information system, can easily convey impression and message enough to give a star score and Column criticism / message.

The fourth dimension of "assurance" respondents are expecting the driver's attention related to cabin cleanliness and driving skills, as indicated by 81.8% percentage score. Seeing from the expectations on this dimension consumers are eager for the Taxi of XYZ to fix the quality of its service because there is enough gap with felt present.

The fifth dimension of "empathy" respondents expect the driver to respond quickly in helping to bring the goods into the vehicle or even open the door when they want to enter the vehicle. That expectation gets the same percentage score as the expected item in the dimension of reliability that is 81.9%.

So far the service quality Taxi of PT.XYZ has not provided as expected by consumers (respondents), considering the percentage score that still there is a gap. This may be due to the management of Taxi of PT.XYZ analysis of improvement yet in service quality as it should. But in an effort to improve the quality management service Taxi of PT.XYZ need to conduct research and feasibility studies related to the resources owned whether qualified for the improvement of quality.

#### **4.4 Results of Corporate Image Response**

The response result of this corporate image variable has 9 items representing four dimensions according to Shirley Harrison (1995) in Suwandi (2007) comprise: Personality, Reputation, Value, and Corporate Identity. The results obtained score percentage of 47.7% who entered into the category "poor".

In the first dimension, personality got a score of 46.2% dominant percentage (poor) indicates the consumer has no trust in Taxi of XYZ. So that on this dimension will affect the decrease in consumer desire to use Taxi of XYZ in the future.

In the second dimension, reputation gets the 61.2% dominant percentage score (fair) states that consumers are quite satisfied with the reliability of the road driving way, this dimension also represents the reliability dimension in service quality variable. But on this dimension respondents expressed dissatisfaction associated with the driver did not use the safety belt of 48.5%. (Poor), so this statement reinforces the perception of respondents (consumers) strongly expect safety in the journey that starts from the driver's attention to the safety of driving (see 4.3 dimension assurance).

In the third dimension, the value obtained a score of 43% dominant percentage (poor) which states respondents (consumers) feel disagree with the search path of a goal in the wrong way (misdirected). This means that statements on this dimension can provide representations related to the ability of taxi drivers to know the location of a particular area.

In the fourth dimension, corporate identity obtained a 56.8% dominant percentage score that states respondents (consumers) can easily recognize the color of the Taxi of XYZ fleet, meaning that PT.XYZ has succeeded in giving certain characteristics so as to make a difference

with striking colors. But in this dimension also there is a fatal error with the management of PT. XYZ is not paying attention by checking the identity card of the driver who is currently operating percentage score of 41.7% (poor) respondents stated that the attached identity card (figure 1) is not attached. This can lead to a decrease in consumer confidence in the Taxi of XYZ, as consciously the absence of a driver's identity card is similar to the absence of those responsible for the potential possibility of an accident. So as to give a picture that the company's image Taxi of XYZ has not provided a guarantee of safety responsibility properly.



Figure. 1. Capture Not Attached Driver Identity

Source: Documentation by Author (2016)

When compared to similar competitors, they have provided SOP (standard operation procedure) for periodic inspections of vehicle readiness including attached driver's identity card in charge during operation.

#### 4.5 Results of Loyalty Response

Loyalty is a dependent variable that can make a represent answer based on the phenomenon revealed. Griffin (2003) states the four dimensions of loyalty that can be measured include: Make regular repeat purchase, Purchase across product and service line, Refers other, Demonstrate immunity to the pull of the competition. There are eight items of questions that represent the four dimensions of the loyalty, obtained a percentage score of 42.3% (poor).

In the dimensions of make regular repeat purchase respondent dimension often does not always order and use Taxi of XYZ as general transpotation accommodation, with indicated percentage score of 40.9% (poor).

In the dimensions of purchase across product and service line dimension, the respondent stated that they did not choose Taxi of XYZ as public transportation taxi accomodation with 48.7% (poor) percentage score indicated. Other statements on this dimension of respondents will not use Taxi of XYZ despite an increase in price by indicating a 48.3% (poor) percentage score.

In the dimensions of refers other dimension respondents express reluctant to give positive opinion about Taxi of XYZ and do not give recommendation to others to use Taxi of XYZ with indicated percentage score 38.1% and 33.1% (poor) respectively.

In the dimensions of demonstrate immunity to the pull of the competition respondents give an interesting response that they will use alternative services from competing taxis. Shown with a percentage score 53.8% of respondents are expecting a competitor taxi service that provides good service.

#### 4.6 Results of Verificative Analysis

Furthermore, the path model that describes the functional relationship of the variable Quality of service (X1) to loyalty (Y) is as follows:

$$Y = \rho_{YX1} + \rho_{YX2} + e1$$

**Table 5** Path Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,856	,786		8,723	,000
	KUALITAS PELAYANAN	,226	,018	,546	12,406	,000
	CITRA PERUSAHAAN	,110	,030	,161	3,652	,000

a. Dependent Variable: LOYALITAS

Based on result of data processing (table 5) can be seen that path coefficient value obtained from table Beta, with detail coefficient of service quality line equal to 0,546 and coefficient of company image line equal to 0,161.

So obtained the path equation as follows:

$$Y = 0,546_{YX1} + 0,161_{YX2} + e1$$

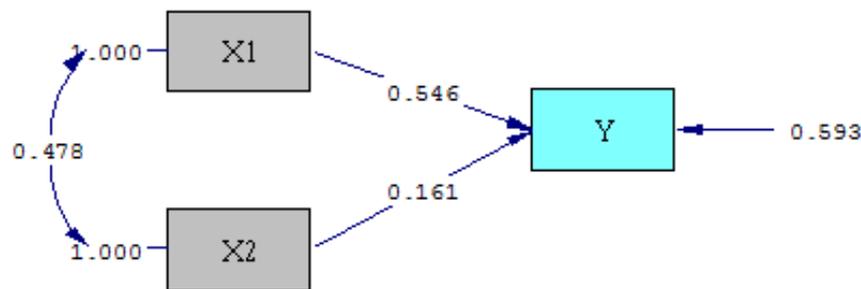


Figure. 2. Coefficients of Variabel X<sub>1</sub> and X<sub>2</sub> to Y

Source: Authors (2016)

To find out the effect simultaneously the relationship between service quality variables (X<sub>1</sub>) and corporate image (X<sub>2</sub>) simultaneously to loyalty (Y).

$$H_0 = \rho_{YX1} = \rho_{YX2} = 0$$

The statistical test used is:

$$F = \frac{(n-k-1) \sum_{i=1}^n P_{YXi} r_{YX1}}{k \left\{ 1 - \sum_{i=1}^n P_{YXi} r_{YX1} \right\}}$$

$$F = \frac{(400-2-1) \times 0,407}{2 \{1-0,407\}} = 136,416$$

Based on statistical test follows the F-Snodcor distribution with  $\alpha = 5\%$ , degrees of freedom db1 = 2, and db2 = 400-2-1 = 397, obtained F table = 3.018. Results obtained from the SPSS output are as follows:

**Table 6** Test of F (simultaneous)

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1293,789	2	646,894	136,416	,000 <sup>a</sup>
	Residual	1882,601	397	4,742		
	Total	3176,389	399			

a. Predictors: (Constant), CITRA PERUSAHAAN, KUALITAS PELAYANAN

b. Dependent Variable: LOYALITAS

Sources: Authors (2017)

From the test of F results can be seen that  $F_{\text{arithmetic}} > F_{\text{table}}$  ( $136,416 > 3,018$ ) so that the results have been in accordance with the criteria of the simultaneous test is rejected  $H_0$ , meaning that the variable of service quality ( $X_1$ ) and corporate image ( $X_2$ ) have a significant effect on the variable on loyalty (Y).

After the simultaneous test (Test F) with significant results. So to know the influence of partial relationship between service quality variable ( $X_1$ ) to loyalty (Y) and corporate image ( $X_2$ ) with loyalty (Y). Performing this partial test results are obtained as follows:

**Table 7** Test of t (Partials)

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,856	,786		8,723	,000
	KUALITAS PELAYANAN	,226	,018	,546	12,406	,000
	CITRA PERUSAHAAN	,110	,030	,161	3,652	,000

a. Dependent Variable: LOYALITAS

Sources: Authors (2017)

- Variable of service quality ( $X_1$ ) has a significant effect on loyalty (Y), where  $t_{\text{arithmetic}}$  ( $12,406$ )  $>$   $t_{\text{table}}$  ( $1,966$ ), with coefficient of Beta  $0,546$ .
- Corporate image ( $X_2$ ) has a significant effect on loyalty (Y), where  $t_{\text{arithmetic}}$  ( $3,652$ )  $>$   $t_{\text{table}}$  ( $1,966$ ), with coefficient of Beta  $0,161$ .

## 5. Conclusions

Conclusion from this research is taxi consumer of PT. XYZ has not felt the suitability of expectations with the perception of the quality of services provided so that the image of the company emerged PT. XYZ is bad with an impact on consumer loyalty. Evidenced by the results of path analysis test as below:

1. Variable of service quality ( $X_1$ ) has a significant effect on loyalty with value  $0,546$  to variable of loyalty (Y).
2. Variable of corporate image ( $X_2$ ) has a significant effect on loyalty with value  $0,161$  to variable loyalty (Y).
3. Simultaneous testing (coincide) variable of service quality ( $X_1$ ) and corporate image ( $X_2$ ) have significant influence with value  $0,478$  to variable loyalty (Y).

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## A PROPOSED SELECTION PROCESS IN OVER-THE-TOP PROJECT PORTFOLIO MANAGEMENT

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**Abstract:** Ultimate objective of Project Portfolio Management (PPM) is to maximize value. This situation is quite different when Communication Service Providers (CSPs) conduct project or initiative selection in Over-The-Top (OTT) businesses. The existence of interdependency and externality have made OTT initiative selection becomes unique. If CSPs use normal procedure, it is very likely that they will get trapped into narrow-focused financial restrictions. However, currently there is no sufficient analytical tool available to guide decision makers in selecting OTT initiatives. This paper proposes a different approach to perform OTT initiative selection process. A way to identify cluster and platform is also suggested.

**Keywords:** *Communication Service Provider (CSP), Over-The-Top (OTT) initiative, interdependency, cluster, platform.*

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### 1. Introduction

The presence of Over-The-Top (OTT) services have created new challenges for Communication Service Providers (CSPs). The challenges can be perceived as direct or indirect threats and opportunities. For many decades, CSPs possess competitive advantage in the network infrastructure that covers wide areas. However, when comes to OTT business, CSPs are having difficulty to take advantages out of their own network infrastructure. CSPs should consider providing their own OTT services but unfortunately OTT business requires different capability to deal with. On the other hand, OTT players can easily utilize network provided by CSPs at near zero overhead costs.

Given the challenge to embrace OTT business, CSPs must systematically consider their limitation. Among those are mindset and skills of their employees that need to be shifted from ordinary communication service business into digital OTT business. Business model also becomes an issue for CSPs since they are used to deploy one-sided value chain model (Zhao 2011) in which they act as buyers to the network equipment manufacturers and use various distribution channels to offer their services. While in the OTT business, other type business models such as two-sided markets model (Zhao 2011, Armstrong 2006, Rysman 2009), freemium (Martin 2012, Needleman and Loten 2012) and market capitalization (Morgan Stanley 2014, Gupta and Mela 2008) have been explored to create new profitability for the OTT business. CSPs are also perceived as having slow time to market in which the measure of

years is considered as something normal while the OTT players could deploy their service in a matter of months or even weeks. Business foot print is also an issue for CSPs. Historically, CSPs operated within certain geographical boundaries while OTT players which operate over the internet could not be geographically limited around the world. Many OTT services also involve interdependency and externality which require special approaches.

Given those situations as explained above, this research raises the following questions for a CSP entering OTT businesses:

1. Should the CSP deploy conventional portfolio selection process or should it use different approach?
2. Does financial aspect remain primary consideration in OTT initiative selection process?
3. How can the CSP deal with unique characteristic of OTT business such as interdependency?

## **2. Literature Review**

There are four aspects in project management area which are very relevant to the way CSPs should translate their OTT business strategy into OTT portfolio: Project Portfolio Management (PPM), strategic orientation, interdependency and resource limitation. PPM process will ensure the alignment between business strategy and project portfolio by cascading business strategy of CSPs, which typically includes the vision, mission, and strategic objectives, into opportunities and threats which later on will be translated into actions in the form of OTT projects (Morris and Jamieson 2004, Turner 1999). Strategic orientation is meant to align resource allocation and project selection in accordance to the firm's strategy. Interdependence could partially or entirely determine whether an OTT project can be started before another is completed or not (Bathallath, Smedberg and Kjellin 2016). Eventually, resource limitation will determine how many OTT projects can be included given the available resources.

PPM performs evaluation, prioritization and selection of the projects, or the term used in this paper: initiatives, that best meet objectives of the firm. To carry on its function, PPM adopts various tools and methods per individual project evaluation with the aim to select projects to be included into the portfolio in such a way that will balance and align with the strategies, resources and vision which in turn will realize benefits and obtain the best results (Cooper, Edgett and Kleinschmidt 2001, Levine 2005). The selection of individual project is performed using a set of criteria on which each project is scored. Identified potential projects are then analyzed to determine their feasibility (Kerzner 2009, Martinsuo and Lehtonen 2007, Moore 2010). Gray and Larson (2011) explain that there are five criteria to ensure well fit implementation of project portfolio system: linkage between project selection to strategic metrics, prioritization of project proposals in accordance to set of criteria, alignment of resources allocation and strategic direction, risk balancing across all projects and justification to terminate not supporting projects. Both PPM studies and practices have primary focus on how to ensure each individual project will satisfy performance standards before further inclusion into a portfolio. This perspective may potentially disqualify certain projects while they are needed for the success of other projects.

There are two major parts of project selection in PPM. The first part is project ranking and the second part is portfolio balancing in which firms would typically decide to terminate a project either due to its performance or in favor of another project (Archer and Ghasemzadeh 2004, Pennypacker and Retna 2009, Project Management Institute 2008). Contribution toward organization's strategic objectives is very important in making project selection (Gray and Larson 2011). Nevertheless, the focus is mostly on individual project selection and tend to neglect the possibility to combine several projects which may result in different portfolio decision. Similarly, in highly quantitative R&D projects, different approaches to the prioritizing system using Balanced Scorecard have been proposed by Stewart (2001) and later extended



an effective strategic alignment, a firm is required to perform integrated approach including quantitative and qualitative methods (Kester, Hultink and Lautche 2009) and sufficient requirement analysis (Bergman and Mark 2002). Murray, Burgher and Alpaugh (2009) address the importance of strategic alignment and pre-defined needs. Appropriate requirements will prevent the firm from selecting unnecessary projects and avoid project catastrophe which will be very expensive to recover. Muller, Martinsuo and Blomquist (2008) empirically proves that alignment of project selection and prioritization must be practiced at organization level. Since interests of the whole organization are to be prioritized over individual needs, alignment between organization's strategy and project selection should be extended to position overall project portfolio construction prior to individual project analysis. This statement is at least feasible in the OTT business where many projects may converge on the same technology.

Turner (2009) proposes two major criteria: benefit and risk in the effort to establish a linkage between project selection and organizational benefits. However other criteria may also be included such as strategic importance, stakeholder acceptance and opportunity for learning. This flexibility to include other criteria opens possibility to include financially non-feasible projects but it has not considered project interdependency as a whole. Although some authors suggest non-financial related criteria, project portfolio selection is still dominated by financial and financially related criteria such as risk as suggested by many authors (Lawson, Longhurst and Ivey 2006, Jafarizadeh and Khorshid-Doust 2008, Murray, Burgher and Alpaugh 2009). With strong direct financial impact in consideration, very likely project portfolio managers will evaluate project on individual basis and will disregard interdependency which could determine overall portfolio success especially in OTT business which has very intensive relationships among projects.

PPM has recognized that project interdependency does exist and should be considered in portfolio construction (Soderlund 2004, Stummer and Heidenberger 2003). The type of interdependency commonly being referred to is related to resource allocation, time availability, project sequence (Archer and Ghasemzadeh 1999), key people who work simultaneously in many projects (De Maio, Verganti and Corso 1994) and competency of organization and individual (Gutjahr et al. 2008) which can be categorized as resource interdependency. Bathallath, Smedberg and Kjellin (2016) explain that resource interdependency occurs when some resources need to be shared among several projects especially if the shared resources are very rare. Consequently, certain project cannot be started unless another project has completed using those particular resources. However, in the OTT business case, another type of interdependency, which is called technical interdependency more commonly takes place. Technical interdependency is the reason that a success of one initiative may affect the probability of success or failure of another initiative (Bathallath, Smedberg and Kjellin 2016). In managing OTT initiatives, technical interdependency is far more likely to occur than other type of interdependencies. Because of its relevance, unless otherwise specified, the term interdependency being discussed in this paper refers to technical interdependency.

Multiple project interdependencies are common characteristic of complex project portfolios. However, supported by facts and arguments, Elonen and Artto (2003) argue that management of interdependences is one weakness area of PPM. PPM has not been able to bring project portfolio managers into the same understanding about definition and influence of project interdependency moreover how to deal with it. Even though many PPM tools and methods provide a portfolio-level perspective (Killen and Kjaer 2012), common PPM practices still treat each project isolatedly as if interdependency does not exist or has no impact towards balancing project decisions. This situation could also be partially driven by the fact that effects of interdependency are very complex and difficult to analyze and be included in project portfolio construction (Aritua, Smith and Bower 2009). Complexity and difficulty of managing interdependent projects are in parallel with multi-dimensional challenge which contains uncertainty and dynamism (Collyer and Warren 2009, Perminova, Gustafsson and Wikstrom

2008). This challenging field has increasingly attracted more researchers to study project interdependency (Collyer and Warren 2009, Elonen and Artto 2003, Soderlund 2004, Stummer and Heidenberger 2003) including project environment which involves incomplete cost information in the presence of multiple evaluation criteria (Liesio, Mild and Salo 2007, 2008). Given the importance, complexity and difficulty of project selection, further PPM practices is greatly expected to provide simple quantitative approach involving non-financial criteria and needs identification in alignment with organization's strategy, such as studied by Murray, Burgher and Alpaugh (2009) and OTT initiative selection process as proposed in this paper.

The dynamic environments of project portfolio management always create challenges for better methods and tools (Killen and Hunt 2010) including those which are related to project interdependency. Analytical tools such as network mapping could enhance the understanding of project portfolio managers toward interdependency. Graphical and visual methods investigated by Killen and Kjaer (2012) is believed will strengthen the handling of project interdependency in the PPM processes. A very common graphical and visual method to enhance understanding on project interdependencies is two dimensional dependency matrices (Dickinson, Thornton and Graves 2001, Slade 2009) which functions by capturing inward and outward between interdependent projects. Nevertheless, Killen and Kjaer (2012) remind that the two dimensional approach is still not sufficient to highlight cumulative dependencies in a project portfolio and therefore more complex visualization methods using two-and-a-half dimensional displays is recommended (Warglien 2010). To achieve simple and easy to use methodology and tools, discussion in this research will be limited to two dimensional displays only.

Understanding project interdependencies is very essential for effective project selection (Blau et al. 2004, Verma and Sinha 2002). Effective or ineffective management of these interdependencies will in turn contribute to the portfolio success or failure. To deal with issues pertaining interdependent projects and then leverage related benefits, firms deploy hard practices and soft practices (Tasevska, Toropova, Vanyushyn 2013). Hard practices make a firm possible to identify project interdependencies but they do not provide managerial solutions. A more prevailing mechanism is found in the soft practices. Tasevska, Toropova, Vanyushyn (2013) argue that combination of both hard and soft practices could be very potential for effective project interdependency management. One way to exercise both hard and soft practices is deploying a procedure to consider interdependency prior to portfolio construction.

Behavior of an organization and its people also play important role in the adoption of project interdependency into project selection and portfolio construction (Blau et al. 2004, Verma and Sinha 2002). Discipline is very much required to successfully deploy the right methods and tools in project decision. To understand possible effects of a project in a portfolio and eventually make a better decision, project portfolio managers should deploy appropriate PPM processes and tools (Shenhar et al. 2001) eventhough some individual customization may be required to achieve the best results (Loch 2000). An organization needs to develop and combine the right process and the right culture which in turn will enable it to effectively learn from the past experiences (Williams 2007). As for OTT business, providing the right methodology and tools is a good PPM practice and it would be gradually improving if cultural approach is also deployed.

In common practices, a firm is required to allocate its limited resources to support only feasible projects and to ensure that most beneficial projects are selected. Researchers and practitioners have developed many models, methods, guidelines, and techniques to select projects or initiatives for portfolio inclusion with intention to maximize benefits and minimize expenses. As Meyer (2012) explains, resources are considered as a very important factor to determine project inclusion into the portfolio. The technique is deployed by putting all feasible projects in priority order according to certain predetermined criteria. The ranked feasible

projects will be truncated according to the availability of resources. An example of this technique is proposed by Archer and Ghasemzadeh (1999) in these three consecutive steps:

1. Eliminate unfeasible projects prior to the portfolio selection process.
2. Create desirability ranking of the projects by simultaneously comparing them based on predetermined dimensions.
3. Include most highly ranked projects into the portfolio according to the available resources.

As it has been discussed in this literature review, the approach as it is proposed by Archer and Ghasemzadeh (1999) neglect possible contributions of seemingly non feasible projects and therefore may miss the opportunity to achieve the most optimum portfolio.

### 3. Special Case of OTT Initiatives

The emerging and unique OTT business requires special treatment due to its liquidity, externality and interdependency natures. In the OTT business, during strategy development phase, portfolio or business decision makers may also consider objectives which are not directly related to financial measures such as to provide support for other services, to obtain strategic position or to pursue market capitalization. Similarly, interdependency in the OTT context refers to technical interdependency, which concerns on how one OTT service can support other OTT services regardless financial aspects.

Both perspective and criteria in project selection techniques are dominated by strategic, financial and risk indicators (Bitman and Sharif 2008). Their summary implies that many previous researches pay heavy attentions on accuracy and validity consequently seemingly non-performing interdependent projects will be eliminated. To address specific case of OTT initiatives with their interdependent characteristics, a comparison among various earlier researches in the area of portfolio analysis is also constructed with four main focuses: linkage to strategy objective, dominance of financial criteria, portfolio selection process and prioritizing system as shown in the **Table 1**. Similar to the previous researches, this paper proposes that linkage to strategy objective is very important and as for financial perspective, this paper suggests margin and particularly investment structure as criteria for consideration. In contrary to other researches, this paper holds a hypothesis to analyze overall portfolio first before evaluating individual initiatives and to consider technical interdependency in the prioritizing system.

Table. 1. Comparison of Various Portfolio Selection Techniques

Authors	Linkage to Strategic Objectives	Financial Criteria	Portfolio Selection Process	Prioritizing System
Gray and Larson (2011)	√	√		Best help the organization to implement strategies.
Eliat, Golany and Shtub, (2008)	√	√		Balanced Scorecard
Archer and Ghasemzadeh (1999)	√	√	Individual project then overall portfolio	Interdependency and resource limitation
PMI (2008)			Individual project then overall portfolio	

Authors	Linkage to Strategic Objectives	Financial Criteria	Portfolio Selection Process	Prioritizing System
Yu, Wang and Guo (2008)	√		Individual project then overall portfolio	
Liesio, Mild and Salo (2008)				Interdependency and resource limitation
Turner (2009)	√	√		Benefit and risk
Lawson, Longhurst and Ivey (2006)		√		
Jafarizadeh and Khorshid-Doust (2008)		√		
Murray, Burgher and Alpaugh (2009)	√	√	Individual project then overall portfolio	Simpler qualitative method involves non-financial criteria
De Maio, Verganti and Corso (1994)				Key people
Jiang and Klein (1999)	√			
Kester, Hultink and Lauche (2009)	√			Quantitative and qualitative
Bergman and Mark (2002)	√			Requirements analysis
Muller, Martinsuo and Blomquist (2008)	√			Selecting and prioritizing
Jung (2009)				Balancing quantitative and qualitative methods/criteria
Bathallath, Smedberg and Kjellin (2016)	Optimizing resource	Effects of interdependency		Interdependency and interaction pattern
Proposed in this paper	√	Margin and investment structure	Overall portfolio then individual project	Technical interdependency, initiatives with more dependant is preferred

By considering specific nature of OTT initiatives, **Table 2** below is constructed to directly contrast common portfolio selection as suggested by Archer and Ghasemzadeh and specific OTT portfolio selection. The table contrasts the two perspectives in six aspects: strategic orientation, interdependency, resource limitation, selection approach/method, selection complexity and selection sequence. Proposal from Murray, Burgher and Alpaugh to simplify the evaluation process and to use qualitative information is also considered.

Table. 2. Comparison between Conventional Portfolio Selection and OTT Portfolio Selection

	<b>Conventional Portfolio Selection (Archer and Ghasemzadeh)</b>	<b>OTT Portfolio Selection</b>
Strategic orientation	Based on direct financial impacts	Based on direct or indirect financial impacts
Interdependency	Interdependency in the context of resource allocation and time or project sequence (resource interdependency)	Interdependency in the context of influence from one OTT service to another (technical interdependency)
Resource limitation	As criteria to select project in the portfolio	As an opportunity for collaboration
Selection approach/method	Mostly quantitative	Combination of simple qualitative and simple quantitative
Selection complexity	Can be very complex	Must be made simpler
Selection sequence	Individual project then overall portfolio	Consider overall portfolio then evaluate individual project

#### 4. Methodology

The research adopts Group Model-Building (Vennix et al. 1992, Vennix 1996, Andersen and Richardson 1995, Andersen and Richardson 1997, Andersen, Richardson, Vennix 1997) approach to identify the needs for adjustment of common PPM and to propose a new PPM specifically adjusted for OTT initiative development process. To gain information regarding effectiveness of common PPM and to test the new PPM, the research includes in-depth interviews, questionnaires, and Focus Group Discussions (FGD) from participants and respondents who have been working on more than fifty OTT initiatives in total. The in-depth interview involves top-level executives while both questionnaires and FGDs involve strategic-level business managers. The research is conducted at one largest CSP in South East Asia.

In-depth interview to seven top-level executives of the CSP both at group holding and subsidiary level is conducted to assess their perspectives and concerns toward current portfolio selection process in which OTT initiatives are evaluated and included into the portfolio. Potential advantages of the newly designed PPM approach and conditions to be met are also discussed. The questionnaires are intended to gain initial opinion about the needs to adjust existing PPM process to make it more suitable for OTT initiative selection process. Forty respondents at strategic level are given closed 'Yes' or 'No' questions. The questions are arranged in such a way that certain answer from previous questions may refer to certain answer in the following questions. If any inconsistency is found, then further confirmation is made.

Eight respondents who consistently agree that overall portfolio should be constructed first before evaluating individual initiative are then selected to participate in two FGD sessions. Respondent's position either at group level or subsidiary level and whether they are managing portfolio (portfolio manager) or initiatives (project manager) are also considered. Another factor influencing the selection is schedule match and availability of the respondents. The FGD consists of two sessions to assess participants' opinions toward the need to evaluate interdependent initiatives simultaneously rather individually and to deploy Group Model-Building approach. The ultimate objective of the FGD is to construct a new approach to simultaneously evaluate OTT initiatives. For that purpose, participants are stimulated to use dependency matrix and consider all interdependent initiatives as one single initiative. Upon the

completion of the OTT PPM modification, participants are invited to use the model to evaluate OTT initiatives within their responsibility. Prompt participants' feedback are solicited immediately afterward.

## 5. Research Findings

In general, all top-level executives agree that current PPM process in the OTT situation needs to be improved with some emphasizes on interdependency impacts. Three top-level executives expect the PPM becomes more ecosystem oriented by taking into consideration other related initiatives in the portfolio which is in alignment with the idea of interdependency. Similarly, one executive addresses that a more integrated development model which stimulates coordination across various related function is very much expected. Two executives expect PPM to become more accurate and faster in facilitating decision making with some tolerance for failure. A tool to help executives in finding partners and making partnership deal especially with global partner is also expected. In conclusion, the executives need more integrated, systematic, accurate and simpler approach on OTT portfolio construction.

Interdependency is very important and it has been considered during the evaluation process of OTT initiative portfolio as confirmed by six executives. One executive states that some OTT services such as music and movie involve strong interdependency while other OTT services such as game, travel and shopping involve moderate interdependency. All top-level executives realize that single OTT initiative is almost impossible. They also agree that interdependency is very impactful and important to consider but still under utilized in the initiative selection process. The top-level executives concern that current process potentially misses the importance of interdependency. One of them also provides example of video call which was not so successful but having high interdependency with e-learning. Even one top-level executive suggest to form a committee to purposefully review interdependency. Another top-level executive urges to sharpen assumptions in project selection when using portfolio evaluation matrix such as BCG or GE matrix.

Preliminary questionnaires were distributed to confirm the concern at strategic level. The questionnaires ask six relevant statements as shown in **Figure 2** to 36 business managers who work at various business lines and have been initiating various OTT initiatives both at group holding and subsidiaries. The questionnaires are also distributed to 4 external consultants who have global experiences in providing consultancy to various CSPs in managing OTT initiatives. From **Figure 2** below, it can be recognized that dominant portion of respondents are customized to evaluate individual projects (initiative) first. After further clarification, the rest portion of the respondents who are not customized to evaluate individual initiative explain that their answers represent their thoughts and not their real practice. This clarification concludes that in the current practice, all respondents normally evaluate each individual projects first. While financial indicators are solely used as determinant for OTT initiatives selection, dominant portion of respondents think that some OTT initiatives are not financially feasible but should be included in the portfolio because they are required by other OTT initiatives. The rest who don't agree with this statement are respondents who actually responsible for project funding or businesses acquisition and seemingly financial perspective has become their primary concern. Based on the logic sequence as asked in the questionnaire, it can be concluded that technical interdependency does exist as confirmed by all respondents. Most respondents conclude that due to technical interdependency, construction of the overall portfolio should take place prior to evaluation of individual OTT initiative regardless its financial feasibility.

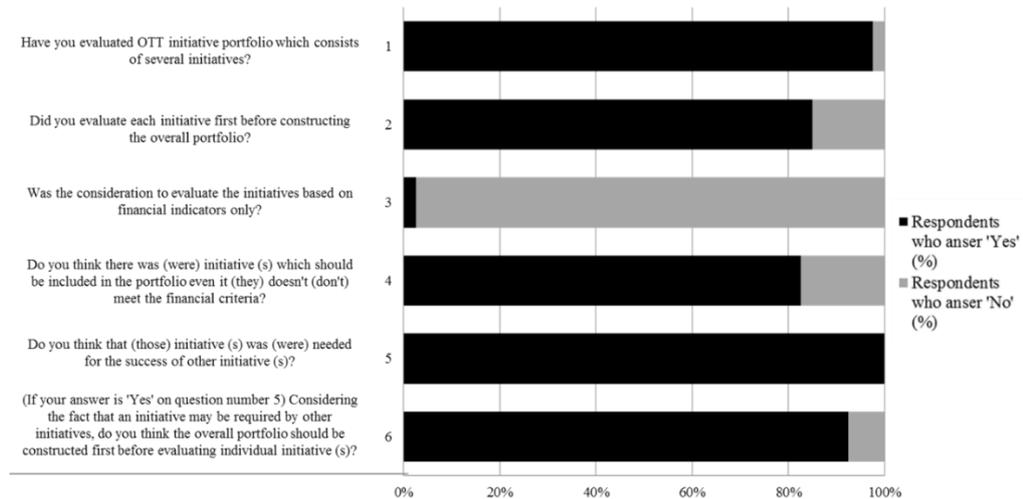


Fig. 2. Questionnaire Results on Portfolio Selection Process for OTT Initiatives

To confirm if portfolio can be constructed prior to evaluation of individual OTT initiative, eight respondents who support the premise are selected to join the FGD sessions. The FGDs are conducted twice in two different session. In the first session, all respondents reconfirm that interdependency strongly influences the success of most OTT initiatives since in the OTT world, it is very rare to find a single service. All respondents also agree that construction of overall OTT initiative portfolio should take place prior to individual evaluation in order to provide more reliable decisions. The second session deploys Group Model-Building approach to confirm if portfolio can be constructed by including interdependency. Respondents are asked to use dependency matrix for assessing interdependency of all initiatives they are currently working on. The result are then mapped into a two by two matrix with business attractions on the X-axis and business barriers on the Y-axis. To assist the respondent in the simulation, a set of selection rule of interdependent OTT initiatives are set as follow:

1. An initiative which gives influence to another initiative is defined as interdependender and an initiative which receives influence from another initiative is defined as interdependant.
2. One interdependender may influence more than one interdependants and one interdependant may receive influence from more than one interdependenders.
3. If an interdependant is selected, then all of its interdependenders must also be selected into the portfolio to ensure the interdependant will be successfully implemented. In contrary, if an interdependender is selected, it does not mean all of its interdependants must be selected. Unfeasible interdependants should not be selected into the portfolio, unless they also become interdependenders to other selected initiatives.

After all initiatives are fairly selected using this new specific rule, the respondents are asked to evaluate feasibility of the portfolio. In order to ensure fair analysis, an interdependender may be included into another interdependant financial analysis. However, since an interdependender may influence several interdependants, there is a possibility that the same interdependender is being evaluated several times and therefore misleadingly increasing the amount of investment. To avoid such miscalculation, the FGD respondents agree to use one out of these two following options for project financial analysis purpose:

1. Largest interdependant in term of financial investment or interdependant which mostly use the interdependender's service could be selected as the one which bear the interdependender's expenses.

- The interdependence's expenses are shared proportionally to all of its interdependants according to their usage.

## 6. Discussion: Proposed Steps to Construct Portfolio of OTT Initiatives

Based on the empirical findings as explained above, the research concludes that OTT initiative is quite unique because it involves high degree of technical interdependency and the research confirms that overall OTT initiative portfolio should be constructed prior to individual initiative evaluation. The research proposes the following steps to construct portfolio of OTT initiatives:

- Candidate list of OTT initiatives
- Interdependency diagram
- Evaluation of all interdependent OTT initiatives
- Evaluation of all non-interdependent OTT initiatives
- Optimal portfolio which consists of interdependent and non-interdependent (single) OTT initiatives

The proposed steps to construct portfolio of OTT initiatives begin with listing the candidates of OTT initiatives. All initiative ideas could be included in this steps. Each initiative should be equipped with clear information regarding the purpose, technical capability and its requirement, especially those which relates to other OTT initiatives. The second step specifically addresses the need to map all candidates into an interdependency diagram as shown in **Figure 3** by firstly constructing a dependency matrix as shown in **Table 3**.

Table. 3. Dependency Matrix

	Network verification	ID verification	Payment service	Chat & messaging service	Media hub	Online store	Music streaming	Video streaming
Network verification		√						
ID verification			√	√	√			
Payment service					√	√	√	√
Chat & messaging service					√			
Media hub			√				√	√
Online store								
Music streaming								√
Video streaming							√	

Using the dependency matrix, project portfolio managers can identify which OTT initiatives are needed by other OTT initiatives. OTT initiatives which are interdependent one to another should be clustered and considered as simultaneous initiatives. If there is (are) OTT initiative(s) needed by more than one different cluster, that (those) initiative(s) will be considered as platform(s). To get a better picture about cluster and platform, **Figure 3** below provides an illustrative example which has three clusters as follow:

Cluster 1: Network Verification, ID Verification, Payment Service, Chat and Messaging Service, Media Hub, Music Streaming

Cluster 2: Network Verification, ID Verification, Payment Service, Chat and Messaging Service, Media Hub, Video Streaming

Cluster 3: Network Verification, ID Verification, Payment Service, Chat and Messaging Service, Online Store

In this example, Network Verification, ID Verification, Payment Service and Chat and Messaging Service construct a platform which provides basic functions for all other OTT services and therefore all those initiatives should be included into platform. Inclusion of initiatives into platform may differ according to policy of the firm. For instance, in **Figure 3**, media hub can be considered as platform with network verification, ID verification, payment service and chat and messaging service as its features or, alternatively, certain services can be excluded from the platform and be treated as single initiatives. Furthermore, the way a cluster is evaluated is equivalent to evaluating all OTT initiatives in that cluster. Similarly, total resources allocated into a cluster is equivalent to the sum of resources allocated to all OTT initiatives in that cluster. However, if several clusters utilize the same platform, than to avoid double counting and to maintain fair evaluation, cost of the platform can be covered by the largest cluster which uses the platform most frequently or proportionally shared to all clusters. Consequently, financial evaluation of the platform should be derived from financial projections of the clusters using its services.

It could be the case where several non-interdependent OTT initiatives are selected due to their business potentials. Those OTT initiatives are not depended to other OTT initiatives and considered as separate single initiatives. These single initiatives could be evaluated and included into the portfolio based on business and technical considerations. The OTT initiative portfolio can be considered as final when cluster of interdependent OTT initiatives, platforms and single initiatives have been evaluated and selected.

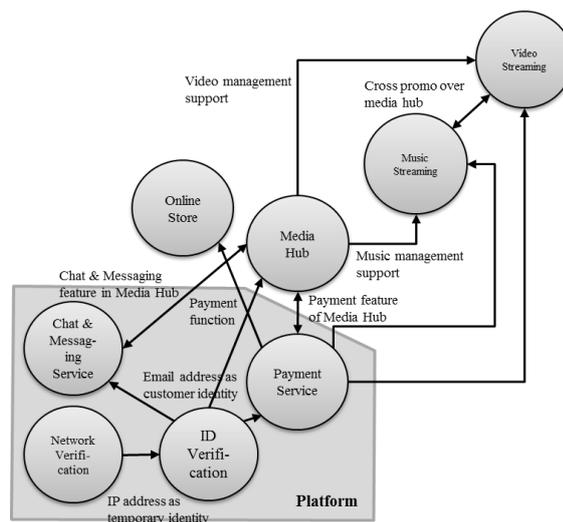
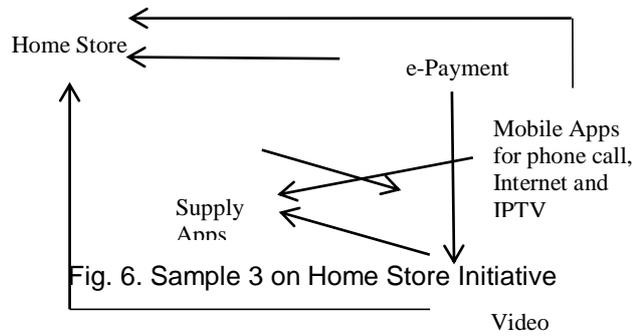
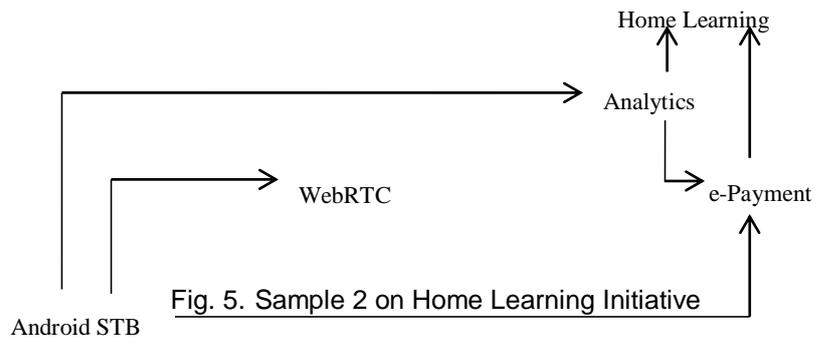
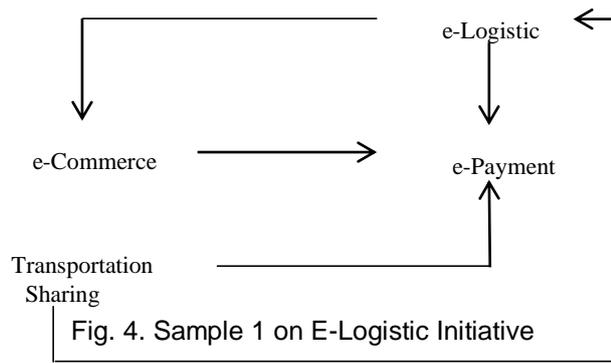


Fig 3. An Example of OTT Initiative Portfolio using Dependency Matrix

Five samples from the FGD which share similar initiatives are selected for further discussion as depicted on **Figure 4 to 8**. Those samples are initiatives being developed by the respondents and are reconstructed using the proposed five steps. All of these samples require e-Payment as an interdependener including Sample 4 which needs it to run Home Shopping, Cloud Game and OTT Video services. Two initiatives: Home Store in Sample 3 and Home Shopping in Sample 4 are actually the same. This redundancy occurs due to the absence of proper portfolio selection tool and insufficient coordination.



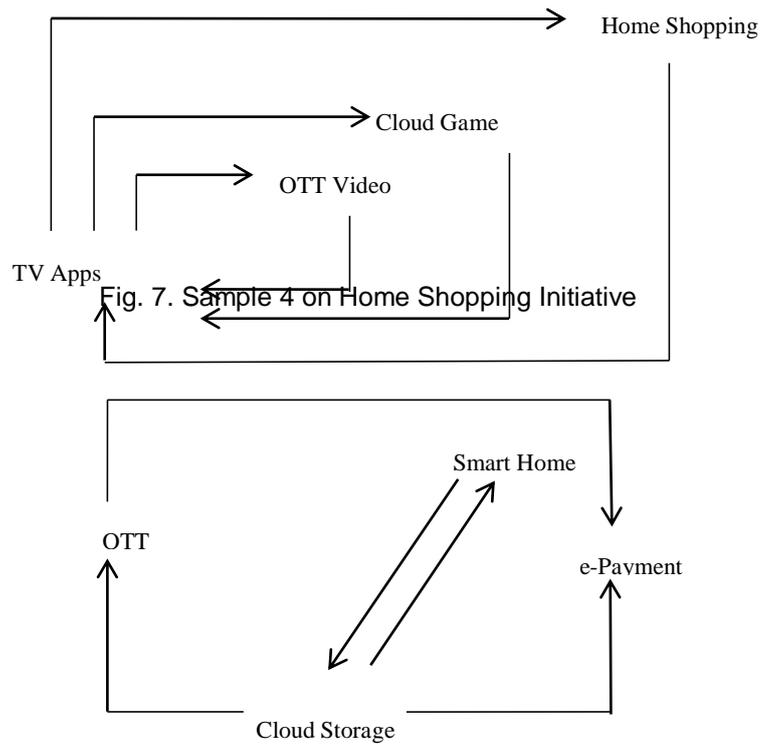


Fig. 8. Sample 5 on Smart Home Initiative

Further clarifications were made to each respondents to ensure all arrows are drawn properly. Specific clarification was performed for every bidirectional arrows to ensure if the initiatives are reciprocally interdependent. For OTT initiative portfolio analysis purpose, the step to construct interdependency diagram can be stopped here. However, to answer curiosity of the research, the process is continued. All initiatives from the five samples are placed together on the same chart. After interdependency lines were redrawn, new interdependencies across different units were identified as shown in the **Figure 9**.

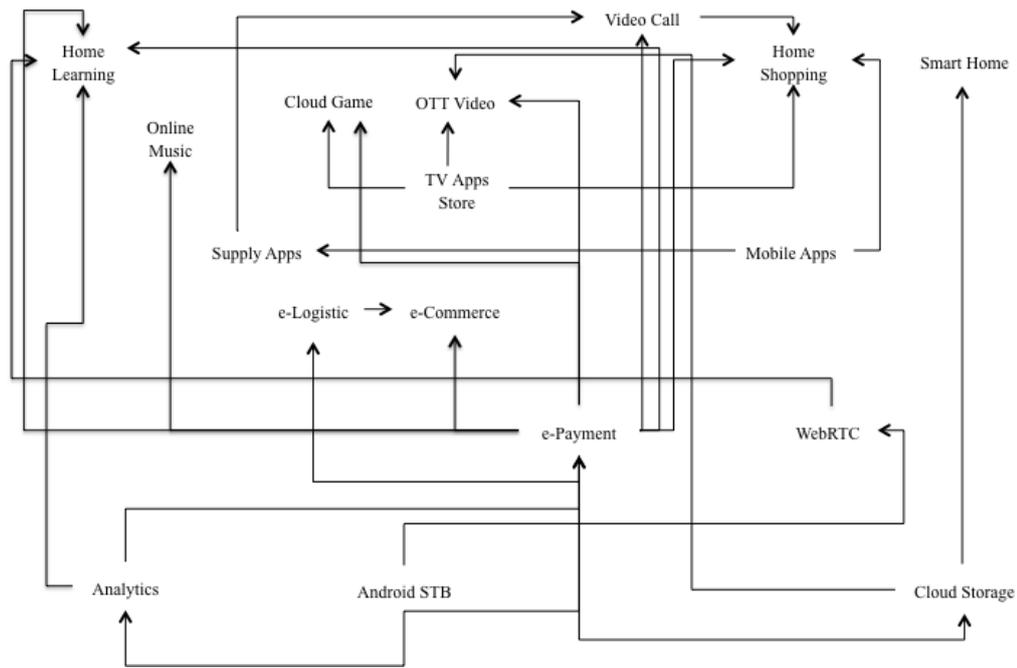


Fig. 9. Combination of All Initiatives from Five Respondents

From **Figure 9**, it can be quickly identified that there are 7 clusters which are Home Learning, Online Music, Cloud Game, OTT Video, Home Shopping, Smart Home and e-Commerce. These initiatives are the final service to customers. The other initiatives become interdependent to the cluster head. Among them, e-Payment and TV Apps Store are the most needed initiatives. E-Payment is an interdependent of Analytics and Android Set Top Box (STB) and therefore these four initiatives should be included into platform regardless of their financial performances.

After completing the newly proposed OTT initiative selection process, the respondents are requested to provide feedback using Technology Acceptance Model (TAM) from Davis (1989) which consists of perceived usefulness (PU) and perceived ease of use (PEOU) aspects. The questions in the TAM feedback form are modified to make them relevant to the OTT initiative selection process. Almost all respondents provide positive feedback to this newly proposed OTT initiative selection approach for PU relevant aspects such as more accurate evaluation, better anticipate challenges and very helpful to make OTT initiative decision. Respondents also provide fairly positive feedback for PEOU relevant aspects such as easy to learn, easy to remember, clarity and understandability.

## 7. Conclusion and Recommendation

Common practices in portfolio selection which suggest to evaluate individual project prior to portfolio construction do not fit OTT initiative portfolio selection performed by CSP due to specific characteristic such as interdependency. Empirical research using Group Model-Building which involves in-depth interview, questionnaires and FGD from top-level executives and strategic-level business managers in one largest CSP in South East Asia and several consultants in OTT field indicates that a different approach in constructing OTT initiative portfolio is required. This paper suggest five distinct steps to construct OTT initiative portfolio: candidate list of OTT initiatives, interdependency diagram, evaluation of all interdependent OTT initiatives, evaluation of all non-interdependent OTT initiatives and optimal portfolio of OTT initiatives. The inclusion of interdependent OTT initiatives into the portfolio regardless of their individual profitability implies that financial aspect is no longer the primary consideration in the

selection process. The use of tools such as dependency matrix is very helpful for a CSP to handle unique characteristics of OTT initiatives in the portfolio selection process.

This paper also suggests a simple method to identify cluster of OTT initiatives in which all interdependent OTT initiatives are evaluated simultaneously for their inclusion into the portfolio. A cluster head only receives support and does not provide support to other initiatives. Using similar approach, the presence of platform can also be identified. To avoid double counting, platform evaluation can be included into a cluster which most frequently uses the platform or, alternatively, it can be distributed proportionally to all OTT initiatives uses the platform. Single OTT initiatives could also be included into OTT initiative portfolio if the initiatives are feasible according to agreed upon criteria.

This proposed approach to construct OTT initiative portfolio could also be deployed in a non-OTT portfolio as long as the projects being evaluated possess interdependency characteristics. However, considering limitations of empirical research being used as the basis of the conclusion, generalization of this approach will require further empirical tests in different CSPs, OTT players or any firms performing portfolio selection.

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## INNOVATING THE MICRO LENDER CREDIT SCREENING USING SURVIVAL ANALYSIS (CASE STUDY OF BMT MITRA SADAYA)

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**Abstract:** Micro, Small and Medium Enterprise (MSMEs) sector currently becomes the government concern because of its contribution to national economic growth. Given its importance in creating employment and eliminating poverty, the MSMEs are beset by high non-performing loans. As a result, many financial institutions are reluctant to engage in the MSMEs segments. This research suggests that a more effective screening tool to find less risky borrower can be designed by taking into account the demographic factors of MSME's debtors. This is a complement to existing screening tools that are generally based solely on credit scoring in the form of income to installment / liability ratio. The method proposed in this paper is survival analysis.

**Keywords:** Micro and Small Enterprise loan; Survival Analysis; NPL.

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### 1. Introduction

Micro Finance Institutions (MFI) have significant role in the development of MSEs. The role of the institution is a source of alternative financing, but also a channel of the aspirations and interests of the society to play an active role in development, especially the economic field. Micro Financial Institutions in Indonesia are divided into 2 categories: banks and non-banks. The bank's form MFI is usually in form of a micro unit of the Bank, while non-banks include Cooperatives, BMTs, Credit Union, etc.

The performance of financial institutions, especially non-bank, will also be related to the performance of its loan portfolio. Microfinance institutions that have bad performance will certainly hamper the development of MSEs because the disbursement of loan funds will be disrupted. Thus, there is a relationship between the performance of micro finance institutions (Credit Union, BMT) with the performance of its member SMEs (Muljani, Ellitan, & Koesworo, n.d.).

For microfinance institutions, credit process is not easy, despite the fact of the large MSEs market share that are in need of credit. In Indonesia, only 22% of MSEs already have access to credit to banks (BI Report per Quarter II 2016). This means that the potential to channel credit to this sector is still wide. A large obstacle faced by the MFIs is in the difficulty of assessing the feasible and bankable MSEs that meet prudential the requirements

Table 1. NPL Credit MSEs by Year *in Billion Rp*

	2012 (Dec)		2013 (Dec)		2014 (Dec)		2015 (Dec)		2016 (Oct)	
	Total	%								
Micro Enterprise Credit	3,698.4	3.25	4,298.0	3.12	6,890.1	3.83	6,626.1	3.33	7,385.4	3.41
Small Enterprise Credit	8,115.8	4.78	8,750.3	4.53	10,782.0	4.81	12,118.0	5.07	14,160.0	5.39
Medium Enterprise Credit	6,952.5	2.59	8,399.8	2.72	13,763.5	3.79	17,718.5	4.52	22,450.5	5.43
NPL Gross MSME's Credit	18,766.7	3.40	21,448.1	3.35	31,435.6	4.10	36,462.6	4.39	43,995.9	4.93
NPL Gross of Non-MSME's Credit	35,579.3	1.64	39,914.4	1.45	51,634.9	1.71	69,334.7	2.07	97,998.3	2.85

(Source: Central Bank of Republic of Indonesia (SME Development Department-DPUM))

The difficulty of financing to this sector has been the concern by many parties, reflected in the many topics of researches in economics and finance that discuss this topic. One study conducted by Huang Cheng (2014) stated that the root cause of MSE financing difficulties lies in the serious information asymmetry that exists between MSMEs and financial institutions (Cheng, When, & Liu, 2014). This research found that asymmetry information leads to adverse selection that would aggravate the financing difficulties for SMEs. It will make a large number of MSE's that have good potential of growth to have no access to loan. Information asymmetry also leads to moral hazard, as bank cannot completely know and control what indeed the borrower use loan for and the borrower are likely to take a risk to default on the agreement. It leads to reluctance in financing institutions to lend to MSEs.

Thus the goal of this paper is to present tools that can be used by small-scale rural lenders, with limited amount of data, in order to predict the probability of default of prospective borrower, as well as finding the major factors affecting the default probability.

## 2. Methodology

This uses Survival Analysis theory, that the paper considered to be relevant for this case, with the following consideration:

1. Survival analysis is one of statistical method designed for the analysis of duration data. In this case, the duration data is days until a credit become NPL
2. Observation time of each research subject are not uniform (different time observation)
3. Contains regression analysis to show the causal relationship among variables (Cox proportional hazard regression model)

## 2.1 Theory of Survival Analysis

Survival analysis is collection of statistical procedures for data analysis, for which the outcome variable of interest is time until an event occurs (Singh & Mukhopadhyay, 2011). The time to event can be measured in days, week, years, etc. In this research, the survival time is days until a credit become non-performing loan. The goal of survival analysis is to estimate and compare survival experiences of different group. The dependent variable in Survival Analysis is composed of two part: time to event and event status. The event status record whether or not the event of interest occurred. Some common terms used in Survival Analysis are:

### 1. Survival Function

Survival function  $S(t)$  gives the probability that a subject survives longer than some specified time  $t$ . It gives the probability that the random variable  $T$  exceeds the specified  $t$ .

$$S(t) = P(T \geq t) \quad (1)$$

The survival function is fundamental to a survival analysis and it's often expressed as a Kaplan-Maier curve.

### 2. Hazard Function

The hazard function  $h(t)$  gives the instantaneous potential per unit time for the event to occur, given the individual has survived up to time  $t$ . It is the probability of failure in an infinitesimally small time period between  $t$  and  $t + \Delta t$  given that the subject has survived up till time  $t$ .

$$h(t) = \lim_{\Delta t \rightarrow 0} \frac{P(t \leq T < t + \Delta t | T \geq t)}{\Delta t} \quad (2)$$

In this sense, the hazard is a measure of risk: The greater the hazard between times  $t_1$  and  $t_2$ , the greater the risk of failure in this time interval. The hazard function has its own importance, as it provides an insight into the conditional failure rates.

### 3. Hazard Ratio

Hazard ratio is a ratio of hazard rates corresponding to the condition described by two level of an explanatory variables. It measures of an effect of in intervention on an outcome of interest over time (Singh & Mukhopadhyay, 2011).

### 4. Cox Proportional Hazard Model

The Cox PH model is the model most common used multivariate approach for analyzing survival data. The model describes the relation between set of covariates and event incidence which is expressed by the hazard function. The Cox PH model is a linier model for the log of the hazard ratio. Cox PH model describe as below:

$$h(t, x) = h_0(t) \exp(\beta_1 x_1 + \beta_2 x_2 + \dots + \beta_p x_p) \quad (3)$$

with:

$h_0(t)$  : Baseline hazard  
 $\beta_1, \beta_2, \dots, \beta_p$  : Regression parameter estimates  
 $x_1, x_2, \dots, x_p$  : Independent variable

### 3. Result and Discussion

As mentioned above, this paper proposes to make a screening tools to address the NPL problems. The screening tool that will be made are in the form which can be used to complete the checklist system that has been running in Baitul Maal wa Tamwil (BMT) Mitra Sadaya. The checklist system only take into account the quantitative aspects of debtors, and is represented by the ratio of net revenue/income to the installment. If the ratio is less than 35%, then the credit application will be approved.

The data used in this case study are primary data's sampling from BMT Mitra Sadaya. The data contain NPF report of 251 BMT Mitra Sadaya's members, in the time period of 2014- 2017. The data include: name of customer, age, sex, address, education, number of dependent, age of membership, date of credit disbursement, type of payment, credit status. The data were collected by simple random sampling technique, where samples were taken randomly without considering the level in the population.

#### 3.1 Distribution Data

The data obtain in this research is nominal data, i.e. the numbers given to objects only have a meaning as a label, and do not show any level. Below are the distribution data by category:

Table 2. Distribution Data by Category

Category	Sub-Category	Number of Data	
		NPL	Current
Gender	Male	37	67
	Femal e	44	103
Education	Junior- Intermediate	42	19
	Senior High School	34	142
	Bachelor	5	9
Number of Dependent	1 – 3	55	124
	4 – 5	23	38
	> 5	3	8
Installment	Daily	3	5
	Weekly	7	17
	Monthly	71	148
Age of Membership	1 – 2 years	6	35
	3 – 5 years	9	135
	> 5 years	66	2
Region	Kota Bandung	34	15
	Kab. Bandung	41	32
	Kab. Purwakarta	6	123

From the Table 2 above, we have 81 data with default status and 271 data with current status.

### 3.2 Correlation Test

Correlation test is used to measure and describe the strength and direction of the relationship between two variables. In this paper, the relationship between each independent variable and the dependent variable will be analyzed using Chi Square Test. In this case, we define variables into two groups:

- Dependent variable: Non-Performing Loan
- Independent variable: Gender, Education Level, Number of Dependent, Installment, Age of Membership, Region

Below are the results of Chi Square test of independence (obtained using R software):

Table 3. Correlation Table

Variable	$\chi^2$	DF	$p$ -value	Sig.level	Result
Gender	27.994	1	1.217 e-07	0.05	H0 rejected
Education Level	43.251	1	4.814 e-11	0.05	H0 rejected
No of Dependent	0.6166	1	0.432500	0.05	H0 accepted
Installment Period	9.6682	1	0.001875	0.05	H0 rejected
Age of Membership	180.29	2	2.20 e-16	0.05	H0 rejected
Region	94.977	2	2.20 e-16	0.05	H0 rejected

Table 3 shows that there is a positive correlation between Gender, Education, Installment, Membership and Region with the non-performing loan. In contrast, the number of dependent is not.

### 3.3 Survival Function

Survival function usually is presented graphically using the Kaplan-Meier (KM) survival curves. The Kaplan-Meier model works by breaking up the estimation of survival function into a series of step / interval based on observed event times. The survival function is the probability of the customers will have not default in the first t-days of the credit. By using the R software, we can calculate the Kaplan-Meier survival estimates for the data with significant level 95%.

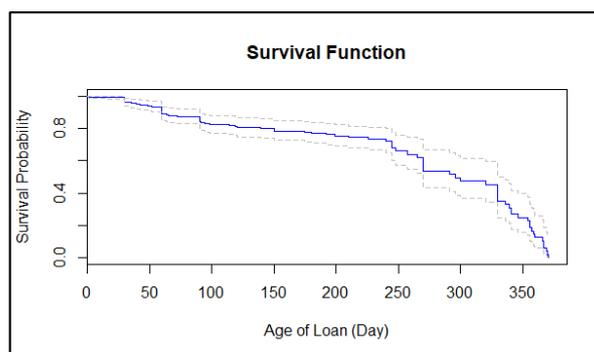


Fig 2. Survival Function

The graphic above shows that during 60 days after credit disbursed, the survival probability of those disbursed credits are more than 90%. But in the following 60 days, the probability of

credit survival goes down to 81,7%. In the tenth month after credit disbursement, the survival probability is only 51% and continues to decline until 13% for the credit after 1 year. Below are survival probability by gender, education, installment period, regions, and age of borrowers:

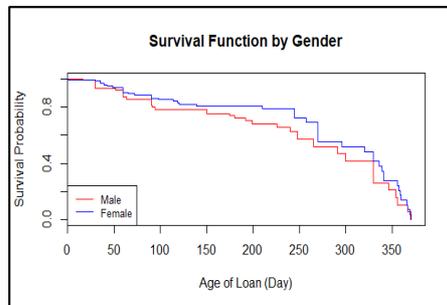


Fig 3. Survival Function by Gender

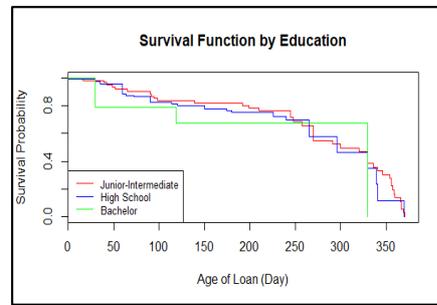


Fig 4. Survival Function by Education Level

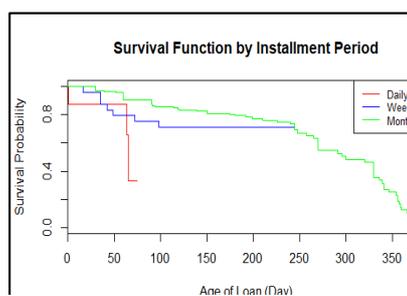


Fig 5. Survival Function by Installment Period

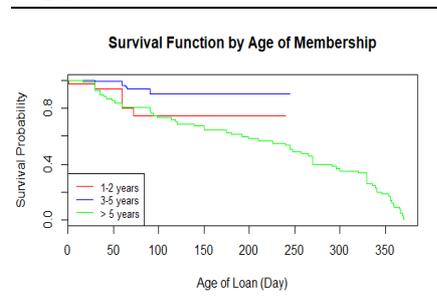


Fig 6. Survival Function by Age of Membership

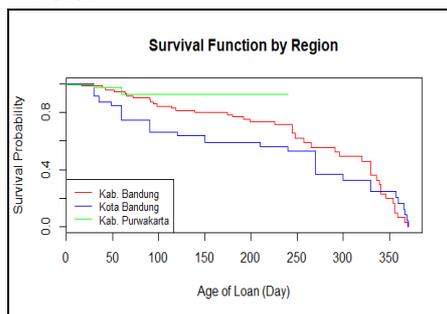


Fig 7. Survival Function by Region

### 3.4 Log Rank Test

After the presentation of the Kaplan-Meier curves, we need to know whether the KM curve of each groups are statistically equivalent or not. To answer this question we can use Log Rank test. The test compares the entire survival experience between groups. The Log Rank test operates under the null hypothesis that there is no difference in survival between two or more independent group. The Log Rank statistic is approximately distributed as Chi Square test statistic. The following is the result of computation with significance level of 95%.

Table 4. Log rank Test

Group	Chi Square	DF	P-value	H0
Gender	1.7	1	0.19000	Accepted
Education	1.2	2	0.55500	Accepted
Installment	8.9	2	0.01440	Rejected
Membership	23.5	2	7.94e-06	Rejected
Group	Chi Square	DF	P-value	H0
Region	11.3	2	0.00357	Rejected

Table 4 above shows that there is no difference in survival between debtors by group gender and education level. Meanwhile for the group Installment, age of membership and region, the survival probability for each of sub group was significantly different.

### 3.5 Hazard Function

Hazard function also known as the hazard rate is the risk of failure (i.e. the risk of credit become NPL). The hazard represents the expected number of events per one unit of time. Below is the graphic of baseline hazard:

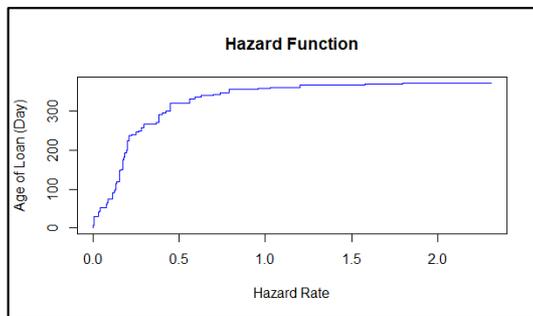


Fig 8. Baseline Hazard

The graphics shows the hazard when the predictors or independent variables are equal to zero. The longer age of loan increases the hazard ratio of the credit to become NPL. We are interested in comparing group with respect to their hazard. The table below show the hazard ratio along with their 95% confidence interval:

Table 5. Hazard Ratio per Group

Variable	Hazard Ratio (HR)
Gender	0.7623
Education	1.6522
Installment	0.3518
Membership	3.3792
Region	0.9632

with:

HR = 1: no effect

HR < 1: reduction in hazard

HR > 1: increase in hazard

### 3.6 Cox Proportional Hazard Model

The Cox PH model is the model most common used multivariate approach for analyzing survival data. The model describes the relation between set of covariates and event incidence (NPL) which is expressed by the hazard function. The Cox PH model is a linear model for the log of the hazard ratio. The parameter estimates are generated in R using Cox proportional hazard regression model relating an expanded set of risk factor to time to non-performing loan. Below are the parameter estimates for all covariates using Breslow Method:

Table 6. Parameter Estimates Covariate

Variable	Symbol	$\beta$	z	Pr(> z )
Gender	X1	-0.2714	-1.196	0.231629
Education	X2	0.5021	2.667	0.007662
Instalment	X3	-1.0448	-3.507	0.000452
Membership	X4	1.2176	3.692	0.000223
Region	X5	-0.0375	-0.204	0.838005

This is the model that can be implemented as screening tools when the debtors apply the credit to BMT. Those model will calculate the survival time of the prospective customer base on their demographic status, include gender, education level, installment period they chose, age of membership and the region / area where they live.

### 3.7 Goodness Fit Test

Global statistical of the model, showed by three alternative tests for overall significance of the model as follow:

Table 7. Goodness Fit Test

Test	Chi Square	DF	P-value
Likelihood ratio	26.54	5	7.009 e-05
Wald	25.71	5	0.0001014
Score ( <b>log rank</b> Test)	27.87	5	3.852 e-05

The P value for all three tests (likelihood ratio, wald and log rank) are significant, indicating the model is significant ( $p < 0.05$ ). Thus the model been constructed is considered to meet statistical requirement.

The analysis that had been done by using Survival analysis implemented to portfolio credit of BMT Mitra Sadaya obtained the following results:

- During 90 days after credit disbursed, male and female debtors have almost the same

survival probability of above 80%. But after 90 days, female debtors have a better survive than male debtors in maintaining their loan performance. This result is in line with the argument that female are more diligent and conscientious in their credit repayment schedule relative to male, consequently they are more disciplined in returning the loan (Fujianti, 2014)

- The debtors whose education is junior until high school have survival probability of 75% for eight months after the credit is disbursed, and its survival rate is higher compared to debtor whose education is bachelor degree (only 67.3%). Overall, the survival probability for higher education level is less than the lower one. It was contradictive with other research which state that variable of education level has a significant effect on credit repayment rate. Previous study suggests that people with high education level have more knowledge which is useful for managing their the business (Rahmawaty & Kiswati, 2015). The differences in this result of the study with previous research can be caused by the possibility that the higher educated debtors may cause the debtors to understand about the credit system so they look for the loopholes to delinquent their obligation to BMT (moral hazard).
- For eight months after the credit disbursement, customer with monthly credit installment would have a good probability to survive compared to customer with both weekly and daily installment. But after eight months, survival probabilities of credit with monthly installment go down to 0% over 371 days. In the same period, 33% of customers with daily installment period still have a good credit performance. While the customer with weekly installment, will have a good credit performance with probabilities 71% over 3 months.
- Age of membership has a significant relationship with the survival probability. Logically, the longer they becomes the customer, the more we know about their characteristics and it will increasingly bring trust to each other. From the graphic above, there is anomaly. The customers which have longer than 5 years of membership show a smaller survival probability than customers with short age of membership, especially for age of loan more than 3 months, the survival probability is just 73% and further reduced 0% after 371 days.
- From the graphics above, there are different survival probabilities among three regions (Kab. Bandung, Kota Bandung and Kab. Purwakarta). The highest survival rate comes from the customers from Kab. Purwakarta, with survival probability 93% at 60 days after the credit disbursed. The worst survival rate is the customers from Kota Bandung, with survival probability 75% at 60 days after the credit disbursed and goes down gradually until 0% after 371 days of age of loan.

#### 4. Conclusion

The Survival Analysis is a desirable tool for many micro lenders. It relies on demographic data readily available to most micro lenders. This tools is also important as a tool to improve the risk management practice as well as good governance, hence it is in the interest of both the micro lenders, as well as regulators who cares about the integrity of its financial system.

Given the results, the recommendation for BMT Mitra Sadaya (and indeed many micro lenders) are as follows:

- The management needs to consider the demographic factor of potential debtors in analyzing the proposed creditworthiness. The model generated in this study can be used as a screening tool to complement the credit checklist that is already running in BMT Mitra Sadaya.
- Management is also expected to implement a more comprehensive portfolio of credit evaluations, so the risk of each type of portfolio will be well reflected. This is useful for

determining interest rates and costs (e.g. provision) so that credit risk can be covered

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## THE INFLUENCE OF LEADERSHIP STYLE TO EMPLOYEE PERFORMANCE AT BANK MEGA SETRASARI BANDUNG BRANCH

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**Abstract:** All the resources involved in the organization's needs, human resources play a significant role in the sustainability of the organization. Because the human resources that exist in the organization that can determine decisions related to organizational strategy, as well as a facilitator who manages the organization.

The purpose of this research is to measure the influence of transformational leadership style and transactional leadership on employee performance in Bank Mega of Setrasari Bandung branch.

In this study, data collection was conducted using questionnaires distributed to 30 employees of Bank Mega regional Bandung and by doing literature study. Non-probability sampling were used to collect data. The method used is multiple linear regression analysis using SPSS software.

As a result of the research, there is a positive relationship between transformational leadership and employee performance. So the conclusion on the object of research is the bank mega branches setrasari Bandung, employee performance is strongly influenced by leadership with a transformational leadership style. Employee performance will increase if transformational leadership is improved and vice versa. Besides itu, the research results show that there is no significant influence between transactional leadership on employee performance.

Based on the results of processing and analysis in this research, there are several things that can be considered for the company to develop the quality in developing its business, especially by preparing future leaders who will handle the company with characteristic characteristics of transformational style leaders. That way, employees are expected to be more motivated, and participate in a positive way in improving the performance of employees and even companies.

**Keywords:** *Leadership; Transformational Leadership; Transactional Leadership; Performance*

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## **1. Introduction**

### **1.1 Background of Research**

All aspects of human life can not be separated from the organization because humans are social beings. Be it a social organization, social organization, or work organization. Organization is a place to meet the common goals for the people who are involved in it.

According Tampi (2014: 2) Every organization needs resources to achieve its goals. These resources include natural resources, financial resources, technological resources, scientific resources, and human resources.

Of all the resources involved in the organization's needs, human resources play a significant role in the sustainability of the organization. Because the human resources that exist in the organization that can determine decisions related to organizational strategy, as well as a facilitator who manages the organization.

So is the organization engaged in the banking industry. Quoting from an online page about the banking world ([ahliperbanks.com/development-competence-sdm-banking](http://ahliperbanks.com/development-competence-sdm-banking): accessed on 10-5-2017 19:00), As a provider of financial services engaged in the services sector, is required to be more selective In managing the human resources involved in it in order to provide maximum performance in the form of professional and reliable financial services.

Individual performance within the organization can affect the realization of the organization's objectives. According to Carnes (2015: 2), it takes a leader who can organize and direct human resources to achieve organizational goals. Organizational goals can be achieved one of them with the maximum performance of its employees. It is important to select leaders who have the capability and capability to guide, accommodate, and ensure employee welfare to improve employee performance.

Based on the above exposure, looking at the object of his own research, there is a phenomenon that is quite interesting related to the performance of its employees. Where the results of achievement of employee performance is indicated by the achievement of an average target increase.

### **1.2 Research Purpose**

Based on the identification of the problems previously described, the objectives of this study are as follows:

1. Measuring the influence of transformational leadership style partially on employee performance in Bank Mega branch Setrasari Bandung.
2. Measuring the influence of transactional leadership style and partial to employee performance in Bank Mega branch Setrasari Bandung

### **1.3 Usefulness of Research**

This research is expected to provide benefits for all parties related to the discussion of this research.

#### **1. Theoretical Uses**

For Further Researchers

The results of this study is to be used as reference materials in the field of HR Management namely leadership and employee performance.

## 2. Practical Usefulness

For the Company

The results of this study can be used as a material input for the company in evaluating employee performance and leadership style in the company.

## 2. Literature Review

### 2.1. Employee Performance

In an organization, every employee has different performance. Performance is a result of work achieved by a person in carrying out tasks assigned to him based on skills, experience, sincerity and time (Hasibuan, 2001: 94).

### 2.2. Leadership

Leadership is a science that examines comprehensively about how to direct, influence, and supervise others to do the task in accordance with the planned order (Fahmi, 2012: 15).

### 2.3. Transactional Leadership

As Yukl (2010: 305) proposes transactional leadership that is defined as leadership involving an exchange process that causes subordinates to receive rewards and help their superiors.

### 2.4. Transformational Leadership

According to Robbins (2011: 90) the meaning of transformational leadership is a leader who inspires his followers to put their personal interests aside and have an extraordinary influence ability

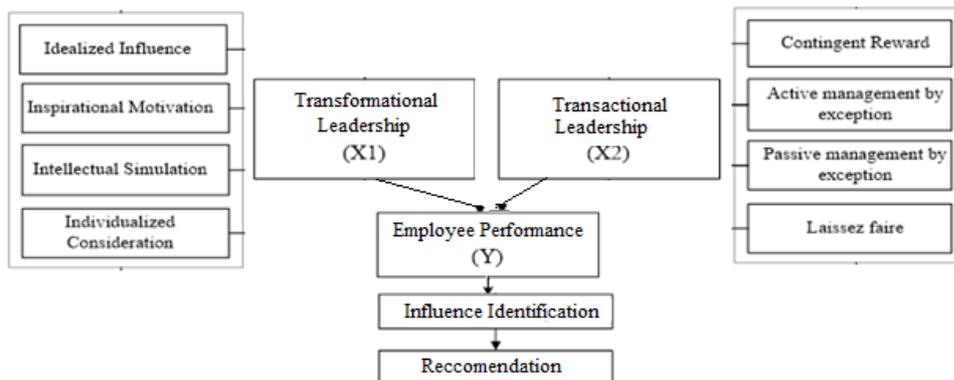


Fig. 1. Conceptual Framework of a Study.

### 2.5 Research Hypotheses

H1 : Transformational leadership positively affects performance.

H2 : Transactional leadership positively affects performance.

### 3. Methods

#### 3.1 Population and Sample Size

The population in this research is all employees of Bank Mega in regional Bandung. While the sample for this research is employees of Bank Mega Regional Bandung

#### 3.2 Determine the Sample Size

The technique of determining the sample is done with certain consideration that in this study the sample was chosen purposely because only the sample that can represent or provide information to answer the research problem. Thus, the sample used is employees of Bank Mega regional Bandung amounted to 35 people, drawn from 4 Bank Mega branches located in the regional Bandung

#### 3.3 Data Collection

In this study, data collection methods used are questionnaires and literature studies

#### 3.4 Validity Test

To determine the validity of the items in the questionnaire, then performed a correlation test using IBM SPSS Statistics software with Product Moment Pearson formula (r arithmetic) with significance level ( $\alpha$ ) = 0.05, n = 30 to obtain the table correlation table (rtabel) of 0.361

#### 3.5 Reliability Test

The reliability test can use Cronbach's formula as follows (Kurniawan, 2014: 102) :

$$\alpha = \left[ \frac{k}{k-1} \right] \left[ 1 - \frac{\sum \sigma_b^2}{\sigma_t^2} \right]$$

Source : Kurniawan (2014:102)

contains:

K = number of item questionnaire

$\sum \sigma_b^2$  = amount of varians

$\sigma_t^2$  = Varians total

#### 3.6 Data Analysis Technique and Hypothesis Testing

Data analysis techniques used in this study is descriptive analysis and multiple regression analysis to see how far the influence of independent variables to the dependent variable. The above equation is derived in geometric equations identical to the Cobb Douglas function as follows:

$$P = \beta_0 + \beta_1 B + \beta_2 E + e$$

Source : Kurniawan (2014:104)

Containts :

P = performance

$\beta_0$  = constant

$\beta_1 B$  = Transformational

$\beta_2 E$  = Transactional

$\beta_1 \beta_2$  = Regression Coefficient

e = Standard error

### **3.6.1 Classical Assumption Test**

The classical assumption test is a statistical requirement that must be met in multiple linear regression analysis. Multiple linear regression analysis test is useful to find the influence of two or more independent variable (X) to the dependent variable (Y). The classical assumption test used is heteroscedasticity test, normality test, and multicollinearity test.

### **3.6.2 Hypothesis Test**

Hypothesis testing is done by using partial test (t test). Partial test is used to test whether any independent variable that is transformational leadership and transactional leadership have positive and significant influence to employee performance variable partially.

## **4. Results and Discussion**

### **4.1 Respondents Characteristic**

Respondents with age range 20 - 25 years, as many as 21 respondents (60%), Other respondents with the age range 26 - 30 years as many as 8 respondents (22.86%) and more than 30 years as many as 6 respondents (17.14%). While based on gender, male respondents as much as 18 Respondents (51.43%), and the remaining 17 respondents (48.57%) were Women.

### **4.2 Results**

1. Hypothesis testing concludes that there is a significant positive relationship between transformational leadership and employee performance. This is indicated by the correlation coefficient of 0.786 is greater than  $r$  either at the 5% or 1% tariff of 0.345. It can be concluded from this research that on the object of research is the bank mega branches setrasari Bandung, the performance of employees is strongly influenced by leadership with a transformational leadership style. It can be concluded that employee performance will increase if transformational leadership is improved and vice versa.

2. Hypothesis testing partially also concluded that there is no significant influence of transformational leadership leadership on employee performance. This is indicated by the correlation coefficient of 0.155 greater than the value of  $t$  table is 0.05 at 5% and 1% tariff. It can be concluded from this research that in the object of research that is bank mega branch of setrasari Bandung, employee performance is not dipengaruhi by leadership with transactional leadership style. It can be concluded that employee performance does not increase if transactional leadership is improved and vice versa

### **4.3 Descriptive statistical analysis**

Descriptive statistical analysis is used to determine the responses of respondents to the variables in the research model. From the questionnaires using the likert scale, the answers that have been collected are processed by the average technique, which is using the following formula Based on the survey data on transformational leadership variables.

Based on the survey results, it is known that the results show that all indicators of transformational leadership variables are in good category. With an average score of 71.98%. The lowest value for transformational leadership variable is TRF8 indicator that is 62,86%. While the highest score for performance variable is TRF3 that is 78,57% where the respondent stated that their boss have integrity of work

All indicators of transactional leadership variables are in good category with an average score of 71%. The lowest value for transformational leadership variable is TRS5 indicator that is 67,86%. While the highest values for transformational leadership variables are TRS7 and

TRS8 is equal to 75% where respondents stated that their bosses often do not participate in working on a project work and superiors tend to give authority decision to a higher position. Based on the survey it is known that the survey results show that all indicators of the performance variables are in good category with an average value of 70%. The lowest value for performance variable is KK1 indicator that is 68,86%. While the highest score for performance variable is KK4 that is 72,14% where respondent stated that their boss collect job report before deadline and limit Service Level Agreement.

## 5. Conclusions

1. Data processing using SPSS software, obtained the result that transformational leadership significant effect on employee performance. While leadership with transactional style on the contrary. This can be a lesson learned especially for companies to develop their leaders or potential leaders. Companies can challenge leaders who have a transformational leadership style to improve employee performance or develop future young leaders in the company for that purpose.

2. This is in line with the characteristics and dimensions possessed by the leader with a transformational style that has the ideal influence, has the spirit and confidence, optimistic in bringing his team to the target, to have a real vision. The mentality and character traits will be able to affect many employees. After being confirmed by HRD also known that the demand of corporate leaders in the era of globalization as it is today is a leader who has the character of expert which shows the style of transformational leadership and transactional leadership style has been reduced because it is no longer relevant to the work ecosystem now because the population is also from Workers are now dominated by the dynamic and rapidly changing Y Genes. So it takes a leader who is flexible, not rigid and rigid.

## 6. Recommendation

### 6.1 Aspects of Practitioners

Based on the results of processing and analysis in this research, there are several things that can be considered for the company in order to develop quality in developing its business, especially by preparing future leaders who will handle the company with characteristic characteristics of transformational style leaders. That way, employees are expected to be more motivated, and participate in a positive way in improving the performance of employees and even companies.

### 6.2 Theoretical Aspects

Suggestions for further researchers especially in the field of human resources with the theme of leadership. This study has many limitations, therefore, the next researcher may be able to add other variables related to this topic. The next researcher can also use different research methods in order to further explore the characteristics of leadership.

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## THE INFLUENCE OF MOTIVATION FACTORS ON EMPLOYEE'S PERFORMANCE AT PT. TELEKOMUNIKASI INDONESIA, TBK, TELKOM CENTRAL JAKARTA AREA

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**Abstract:** Human resources is a central factor in organizations and companies. The importance of human resources in an organization or company requires every organization has a qualified and productive employees to run the organizations. This research was conducted in PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta by using work motivation as the independent variable and performance as the dependent variable. The purpose of this study is to determine the influence of work motivation, consisting of intrinsic and extrinsic motivation on the performance of the employees of Telkom Area of Central Jakarta. This research is descriptive and causal. Data were analyzed by using descriptive analysis, multiple linear regression analysis, simultaneous hypothesis test (F test), the partial hypothesis testing (t-test), and the coefficient of determination. Sampling technique used is Proportionate Stratified Random Sampling. Based on the results of the questionnaire with 100 respondents, the assessment of employees' work motivation are in the category of high, and the assessment of employee's performance are in the category of very high. In the hypothesis testing results, it can be concluded that the work motivation variable (X) consisting of intrinsic motivation (X1), extrinsic motivation (X2) simultaneously and partially had significant effect on employee performance (Y).

**Keywords:** Intrinsic motivation; extrinsic motivation; employee's performance

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### 1. Introduction

Entering the era of globalization, the business opportunities more widely open with technology development that will make it easier for companies to manage the company's management in terms of financial, human resources, and other assets, as well as to establish cooperation with other companies. Especially in facing ASEAN Economic Community (AEC), human resources have a very strategic role in the achievement effort into a company with global standards. Therefore, it is important for company to develop their employee by improving employee performance which is very closely related to the company productivity. (Pawirosumarto, Sarjana and Muchtar, 2017).

Organizations whom capable in managing their employee performance well, than the implication is improvement in performance and effectiveness organization (Stanton and Pham,

2014). Performance management is one of the most important tools for maintaining and instilling organizational progress (Kamoche, 2001). PT Telekomunikasi Indonesia, Tbk (PT Telkom) as one of the biggest telecommunication company Indonesia every year conducted employee performance assessment, their objective was to maintain their corporate performance. The performance assessment of employees at Telkom Area of Central Jakarta using *Key Performance Indicator* (KPI). The employee performance assessments data from 2012 to 2014 can be seen in Table 1 as follows

Table 1 Employee Performance Assessment PT Telkom in Central Jakarta

Assessment Criteria	2012		2013		2014	
	Number Employee	%	Number Employee	%	Number Employee	%
Outstanding	0	0	0	0	0	0
Very Good	162	52.9	8	2.6	105	34.3
Good	144	47.1	298	97.4	201	65.7
Less Good	0	0	0	0	0	0
Very Less	0	0	0	0	0	0
Number Employee	306	100	306	100	306	100

Source: PT Telkom Central Java Area

According to Table 1, it can showed that there were a fluctuations in the achievement of the performance of employee from 2012 to 2014, and it was not suitable with the management objective, they should be in increasing position.

There are several factors that affect the performance of employees, according to Mangkunagara (2009: 67) factors that affect the performance of employees is the capability and the motivation factor. And according to Locke and Latham 1990, motivation was affected employee performance. This was showed by the pilot study that have been conducted in this study to 30 employee about their work motivation, it showed that 59.4% employee was well motivated and 40.6% employee were not motivated enough to work in PT Telkom Central Jakarta area.

Looking at the facts, the objective of this study was:

1. To find out how employee motivation PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta
2. To find out how employee performance PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta
3. How big is the influence of motivation on employee performance PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta

## 2. Literature Review

### 2.1 Motivation

Motivation is a topic that already studied by many scholars, and various studies have been conducted to determine the importance and motivation implementation. Robbins (2005) defines motivation as a desire to do something by high level of effort for the organization's goals, conditioned by the effort to satisfy individual requirement. Aworemi et al (2011) stated that the motivation generates benefits for organizations, as it puts human resources in action, enhances

the level of efficiency of the employees, leads to the achievement of organizational objectives, builds friendly relationship, and finally leads to stability of the workforce.

Herzberg's work categorized motivation into two factors: motivators and hygienes (Herzberg et al., 1959). Motivator or intrinsic factors, such as achievement and recognition, produce job satisfaction. Hygiene or extrinsic factors, such as pay and job security, produce job dissatisfaction and become demotivated if not met to the expectations of workers. One of the challenges in understanding and applying the Herzberg's theory is take into account exactly which factor is more powerful influence in one's life, whether that is intrinsic or intrinsic nature.

## 2.2 Employee performance

According Mangkunagara (2009: 67) performance is the result of the quality and quantity of work achieved by someone employee in performing their duties in accordance with the responsibilities given to someone. According Wirawan (2009: 54) performance has three dimensions: work, work behavior, and the personal nature that related with work.

## 2.3 The relationship between motivation and employee performance

Scholars already conducted several studied about the relationship between motivation and performance. Mostly scholars found that motivation was positively and significant affected employee's performance (Zameer, 2014; Shahzadi, 2014; Pawirosumarto et al. 2017).

## 2.4 Research Framework

The research framework for this study was shown in Figure 1

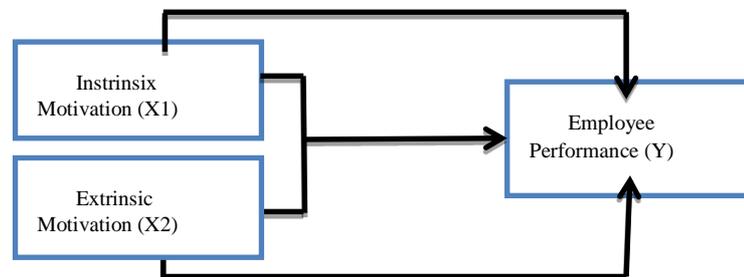


Figure 1. Research Framework

Based on the research framework, this study attempted to make a hypotheses as a temporary answer to the problems that existed in PT Telkom Central Java area to be empirically tested as below:

- H1 Intrinsic motivation influence on employee performance PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta
- H2 Extrinsic motivation influence on employee performance PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta
- H3 Intrinsic and Extrinsic Motivation significant effect on employee performance PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta.

### 3. Research Method

In this study, the population was the employee of PT. Telekomunikasi Indonesia, Tbk. Central Jakarta Area, which is 310 employees. The sample in this study were obtained by *proportionate stratified random sampling*.

In this study, the sampling technique used is Slovin formula as follows:

$$n = \frac{N}{1+Ne^2} \qquad n = \frac{310}{1+(310 \times (0,05)^2)} = 76$$

Which: n = total number of sample, N = total number of population, 310 people, d2 = margin of error, 5 %.

Then the number of samples was 76 respondents. And its rounded to be 100 respondents.

#### 3.1 Data collection technique

Data collection techniques include interviews, questionnaire, observation and a combination of all the three. This study uses a combination of data collection techniques, namely, questionnaire, in the form of closed questionnaire in which answers have been provided by the researcher and the respondents simply have to choose the alternatives provided.

#### 3.2 Data analysis method

This study conducted data analysis multiple regression analysis, F-test, t-test, R2 test) and the correlation between dimensions. Overall, data processing and analysis is conducted with the help of SPSS (Statistical Product for Service Solution) version 23.

## 4. Result and Discussion

### 4.1 Result

According Sugiyono (2013: 29) descriptive statistics are statistics used to decrypt or give a picture of the object under study through a data sample or population as is, without analyzing and prepared conclusions are generally applicable. From the results of the descriptive statistics obtained recapitulation continuum line on each of the independent variables and the dependent variable. For variable intrinsic motivation recapitulation gained an average of 80.87% continuum line is included in the high category. For variable extrinsic motivation gained an average recapitulation continuum line of 79.81% is included in the high category. For performance recapitulation gained an average of 81.94% continuum line is included in the very high category

#### Multiple regression analysis

Multiple linear regression analysis is used to predict the situation (increase and decrease) of dependent variables when two or more independent variables as predictive factors are manipulated (increase and decrease in value) (Sugiyono, 2008).

$$Y = 1.301 + 0.306 X1 + 0.409 X2$$

Notes :

Y : Employee performance  
X1 : Intrinsic motivation  
X2 : Extrinsic Motivation

The linear regression equation above can be explained as follows:

1. A coefficient 1.301, means that if the intrinsic motivation and extrinsic motivation is zero , then the performance of employees in value by 1,301. This means that employee performance is still positive although it is still low.
2. Regression coefficient of Intrinsic motivation gives a value of 0.306, which means that if intrinsic motivation is better, assuming other variable are constant, the employee performance will be increase and the vice versa.
3. Regression coefficient of Extrinsic motivation gives a value of 0.409, which means that if extrinsic motivation is higher, assuming other variable are constant, the employee performance will be increase and the vice versa

### F-simultaneous test

F-test is carried out by comparing the F-count and the F-table. In this study, the results of analysis of variance (ANOVA) test (F test) are as follows.

Table 3.1. Significance Test (F Test)

ANOVA <sup>a</sup>						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	13.471	2	6.735	60.142	.000 <sup>b</sup>
	Residual	10.863	97	.112		
	Total	24.334	99			

a. Dependent Variable: kinerja

b. Predictors: (Constant), ekstrinsik, Intrinsik

F-table value in this study was 3.09 and from table 3.1 od ANOVA test, we obtained F-count = 60.142, so F-table < F-count (3.09 < 60.142) meaning that Ho is refused and H1 is accepted so it can be said there is significant effect simultaneously between the variable of intrinsic motivation (X1) and extrinsic motivation (X2) against performance (Y)

### T-partial test

T-test shows to what independent variables individually affect in explaining the variation of the dependent variable at the 0.05 significance level or by comparing the value of *t-table* with *t-count*

Table 3.2. Significance Test (T Test)

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.301	.265		4.913	.000
	Intrinsic	.306	.075	.348	4.053	.000
	extrinsic	.409	.074	.478	5.559	.000

a. Dependent Variable: Performance

From Table 3.2 it can be seen that the intrinsic motivation variable has a value of the test statistic of 4.053 t-test and t-table is 1.984. So the t-test 4.053 is greater than t-table 1.984. With a significance level of 0.000 less than 0.05.

Decision:

- In Table 3.2, significance value of variable X1 = 0.000 < 0.05, so Ho is rejected, which means that the independent variable is partially positive and significant on variable Y. The higher the X1, the higher the Y and the vice versa.
- In Table 3.2, significance value of variable X2 = 0.000 > 0.05, so Ho is rejected, which means that the independent variable is partially positive and significant on variable Y. The higher the X2, the higher the Y and vice versa.

It can be concluded that intrinsic motivation variables have a significant effect on the performance of employees with the direction of positive regression coefficient. It can be stated that this study has strengthened the theory proposed by Herzberg in Siagian (2012: 290) that encourage someone intrinsic motivation to excel. It is supported by a previous study conducted by Maulana Harza, Fakhrian. *Et.al* (2015) which states that the intrinsic and extrinsic motivation influence on employee performance

## 4.2 Discussion

The effect of intrinsic motivation on employee performance

H1 testing result prove intrinsic motivation affect employee performance, t-values obtained was 4.053 with a significance level of 0.000<0.005, which means to accept H1 and reject Ho. It has been statistically proven that intrinsic motivation has positive and significant effect on employee performance. The result of this study are consistent with theory of Herzberg in Siagian (2012;290) which stated that intrinsic motivation encourage someone to get their achievement on their job. And this study also consistent with previous research by Fakhrian (2015, Zameer, 2014, Shahzadi, 2014).

The effect of extrinsic motivation on employee performance

H1 testing result prove intrinsic motivation affect employee performance, t-values obtained was 5.559 with a significance level of 0.000<0.005, which means to accept H1 and reject Ho. It has been statistically proven that extrinsic motivation has positive and significant effect on employee performance. The result of this study are consistent with theory of Herzberg in Siagian (2012;290) which stated that intrinsic motivation encourage someone to get their achievement on their job. And this study also consistent with previous research by Fakhrian (2015, Zameer, 2014, Shahzadi, 2014).

The effect of intrinsic and extrinsic motivation on employee performance

H3 testing result prove independent variable (intrinsic and extrinsic motivation) affect dependent variable (employee performance) marked by R<sup>2</sup>value of 0.554 (between zero and one) which means 55.4% of the variations that occur in employee performance can be predicted by the two independent variables (strong correlation). These results are supported by the research of Pawirosumarto et al (2017).

## 5. Conclusion and Recommendations

### 5.1 Conclusions

Based on the results of research conducted on the employees of PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta regarding the effect of motivation on employee performance, then be concluded as follows:

1. H1 test results prove that there is a positive and significant effect of intrinsic motivation on employee performance in PT. Kiyokuni Indonesia. It supports the research by Fakhrian (2015), Zameer (2014), and Shahzadi (2014) and several other research;
2. H2 test results prove that there is a positive and significant effect of extrinsic motivation on employee performance in PT. Kiyokuni Indonesia. It supports the research by Fakhrian (2015), Zameer (2014), and Shahzadi (2014) and several other research;
3. H3 test results prove that there is a positive and significant effect simultaneously of intrinsic and extrinsic motivation on employee performance in PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta.

## 5.2 Recommendations

Based on the hypotheses built, it has been proven that intrinsic motivation (X1) and extrinsic motivation (X2) together (simultaneously) and partially significant effect on employee performance (Y) PT. Telkom Central Jakarta Area. The management of PT Telkom on Central Jakarta suggested to provide assistance based on the sequence of the dominant factors as seen in the results of the regression equation:

1. Based on the results of research, intrinsic motivation variables obtained an average score of 80.87% is included in the high criteria. To increase the intrinsic motivation of employees, it needs to be done by the management of the company is to conduct organizational changes to adapt to the changing demands of the market and the business core. Then PT. Telekomunikasi Indonesia, Tbk Telkom Area of Central Jakarta management must also be constantly analyzing the need for increased competence, so that employees are always ready to carry out their duties.
2. Based on this research, extrinsic motivation variables obtained an average score of 79.81% is included in the high criteria. To maintain this, the management company must create a work culture in order to raise awareness, individual employee contribution, and the contribution of the employee in the team, so that:
  - a. Each employee will have the *value* of the management company, and employee relations.
  - b. Each employee will receive the same attention from the management with regard to the contribution of active employees in the work.
  - c. Each employee will create an atmosphere and working conditions adapted to the demands of the job.
  - d. Each employee will begin to compare his contribution to the company on income / salary earned by the employees, so as to get a larger salary, employees have to contribute more.
3. Based on the results of research on performance variables obtained an average score of 81.84% were classified as very high criteria. Factors maximum work creating optimal work habits and cause personal properties were excellent. These will be automatically created with perfect if companies find, implement, and enforce proper work culture and constantly analyzing the needs of increasing employee competency

And for further research, this study can be suggested several suggestion as below:

1. Further research can use other variables that affect the performance of employees, given the existence of other factors that affect the performance of employees is 44.6%, which was not examined in this study, for example, compensation, organizational culture, or leadership, and so on.

2. Further research can expand the area of the object of study is the research to other Telkom Area other major cities.
3. Subsequent research can reproduce the sample population
4. Study can then use other research methods, for example with path analysis.

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## WHAT WE CAN LEARN FROM THE CONCEPT OF BRICOLAGE AND EFFECTUATION: A CONTEMPORARY CONCEPTUAL FRAMEWORK

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**Abstract:** The main purpose of this research is to present in-depth study with critical analysis of the application of Bricolage and Effectuation concept. The exposure is conceptualized by collaborating and comparing theories of some experts through prior research. In addition, the researcher tried to chart the chronology of the development of these two concepts in contextual so as to create an understanding that can be applied not only in academic circles but also practitioners who are ready to apply it. The conclusion in this study is the emphasis of the focus of both concepts that put forward creativity and improvisation in response to emerging opportunities. Especially bricolage, this concept is not to find opportunities but to create them within limitations.

**Keywords :** *bricolage; effectuation; critical analysis; creativity; improvisation*

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### 1. Introduction

The study of entrepreneurial science based on previous literary studies belongs to a relatively new branch of science (Welter, Ren mauer, et al,2016). But in its development, there has been a significant increase in the number of academic studies related to entrepreneurship over the last few decades. This is driven by entrepreneurial characteristics classified as multidisciplinary studies that encapsulate many of the essential essences of other branches of science. This is understandable given that entrepreneurship will intersect with a variety of diverse phenomena as a result of the increasingly dynamic realities of society (Chris Steyaert & Jerome Katz,2006; Eisenhardt, Kotha, Meyer, & Rajagopalan, 2010). Specifically (Welter, Ren mauer, et al, 2016) have identified and mapped other branches of knowledge that often enter into entrepreneurship discussions including strategic science, psychology, cognitive science and sociology. These diverse combinations further strengthen motivation for interdisciplinary researchers to harness their expertise and understanding to create new, more specific dimensions.

In understanding the meaning of entrepreneurship, the researchers began to segment between entrepreneurship as the subject of a human profession and entrepreneurship as a trait or behavior that can be studied scientifically through cognitive science (Mitchell, et al,2002). Talking about the problems of entrepreneurs, is closely related to the discussion of the limitations experienced by these entrepreneurs. However, a good entrepreneur must be able to turn that limitation into a new opportunity. As for (Stritar et al, 2015), the root tracing of entrepreneurship opportunity studies is still the object of research which is widely studied by researchers because of its multi-perspective origins. The main question is what the opportunity looks like, whether it is a precious treasure ready to be found by a lucky person or waiting to be created by an entrepreneur's skilled hands.

Every individual is faced with a situation where he sees the value of hidden benefits that others may not see. Chances are not talking about luck but accurate and precise identification techniques. (Welter, Renémauer, et al,2016). Intelligently (Alvarez and Barney, 2007) provide a very precise and touching metaphor.

*"When asked why he climbed Mount Everest, world renowned mountain climber George Mallory is alleged to have responded, 'Because it is there'"*

The intent of the metaphor is the opportunity will always be present when the subject who sees it is able to use it with good insight and good identification ability. Output from the utilization of opportunities not only questioning the economic motives alone but there are other secondary benefits that come influential. Opportunities are always waiting to be found depending on the persistence in showing their entrepreneurial action. (Alvarez and Barney, 2007).

The creation of opportunities focuses more on post-entrepreneurial conditions, so that the technical nuances therein, (Alvarez and Barney, 2007) thoroughly seek to explore the creation of opportunities from all sides and relate them to other simultaneous aspects. In contrast to the effectuation and bricolage that precisely focuses on the creation of behavioral models that reflect what entrepreneurs do in practice (Welter, Renémauer, et al,2016). The research question in this study is how the concept of Bricolage and Effectuation is able to create a thrust against the process of opportunity creation?

According to Bjerke (2013) and Suoranta (2016), reveal that bricolage is defined as a preliminary process in the face of a new phase containing combinations and strategies to achieve new goals to be achieved (Bjerke and Hultman, 2013; Suoranta, 2016). The new phase in this case could be a problem faced by an entrepreneur, or the limitations that entrepreneurs encounter. Bricolage teaches a blend of efficiency and creativity that can be the foundation for achieving goals. Because the concept of bricolage is utilizing "Whatever is there" (Ted Baker and Reed E Nelson, 2005). The concept of bricolage in the world of entrepreneurship is how an entrepreneur is able to create "something out of nothing" (Baker and Nelson, 2005) and the positive role of bricolage in the entrepreneurial world is the orientation of exploration.

According to Strauss (1966) and fugslang (2010), provides a unique comparison that seeks to convince why bricolage is so important to apply: "The scientist creating events by means of structures and the 'bricoleur' creating structures by means of events". Similar to the orientation of the bricolage, the effectuation encourages a significant role for the entrepreneur to dare to create a value rather than find opportunities (saravathy, 2001,2004; daniel, domenico, 2012), but the effectuation focuses more on the exploitation of existing resources (polyis et al. , 2012; Venkataraman et al., 2012; daniel, domenico., 2012).

The current market conditions are very uncertain, then the role of Effectuation is required. (Lehner and Kanihkas, 2012) put forward an opinion on the description of its influence as "the logic employed by skilled entrepreneurs to solve problems in highly uncertain market environments". An entrepreneur needs to know what potentials and tools it has, it is important to know what response should be created to deal with such market conditions.

## **2. Methods**

Based on the focus of the discussion in this research, that is trying to chart chronology of contextual development of Bricolage and Effectuation so as to create understanding that can be applied not only among academicians but also practitioners who are ready to apply it. Then the method used in this research is descriptive research method with qualitative approach. Research data obtained from secondary data source that is supporting document of research with observation and documentation data collection technique, then analyzed by analysis technique according to Miller and Huberman (1992).

## **3. Results and Discussion**

### **3.1 Result**

#### **3.1.1 Bricolage**

"In the study of entrepreneurial persistence in depleted and constrained environments reported in this paper, we found that Levi-Strauss's (1967) concept of "bricolage," often described as making do with "whatever is at hand" (Ted Baker and Reed E. Nelson, 2005). In the quotation explains that the concept of bricolage is built from limitations. Utilize existing resources to create a value masterpiece. The individual who adopts the values of bricolage is a master creator who has great insight and reasoning. They do not perceive boundaries as constraints but as an incentive to find alternate paths differently. Bricolage talks about how to view it in response to a problem. In the context of change or start-up (Bjerke and Hultman, 2013; Suoranta, 2016) bricolage is defined as a preliminary process in the face of a new phase containing combinations and strategies to meet new goals to be achieved. Starting something from scratch is not an easy thing, it takes courage to be realized through a strong commitment. They are convinced that the path of plated change will bring more promising new hope. So as to initiate a phase of change must be followed by a process of evaluation of many of the inhibiting factors of the past framework.

In the article (Lars Fuglsang, 2010) offers a different concept of bricolage or bricoleur for subjects who use the concept of bricolage that is "adjusting the protocol to unforeseen events" and "creating structures by means of events." The meaning behind the sentence is to find something that Unique in the process of creating innovations and patterns that are formed and repeatedly.

In its development levi strauss (1967) identify there are 2 (two) types of bricolage that is ideational and material. Bricolage ideational emphasizes the process of transformation and renewal of old techniques or procedures into something new with the addition of functional benefits. In contrast to the material bricolage that seeks to harness the diverse range of resources and then creates a useful new approach to addressing problems and exploit the visible opportunities (Baker and nelson, 2005; Welter, Renémauer, et al, 2016).

In addition, from the profession point of view (levi-strauss, 1967; fisher, 2012) provides an example of the comparison of actions and decisions between an engineer and a carpenter, before making a table, an engineer will record the necessary materials needed such as wooden planks, Couplers, sandpaper and other materials and then buy them. While a carpenter who embraces the principle of bricolage simply see the circumstances surrounding the workshop to take advantage of waste materials that can still be utilized. The end result of the second job is the same ie a table but the different is the mechanism and work process is done. A bricolage is required to adapt to the existing environment, creating a new value concept amid an uncertain environment. Bricolage teaches a blend of efficiency and creativity that can be the foundation for achieving goals. The main capital of an achievement is not what we do not have but what we can do with the limitations.

The rule of the bricolage principle which puts the "what is in hand" actually means many biased meanings. The fundamental question that arises whether the opportunities of the existing limitations can always create the expected results. This critical question has no doubt that Bricolage can only produce ordinary solutions that are vulnerable to imperfection. But sometimes the end result of the action of bricolage is very unexpected and amazing (Levi Strauss, 1967; Baker and Nelson, 2005).

In the context of applying bricolage in business firms (Penrose, 1959; D Valliere, 2014) they consider to have a special bond with the surrounding business environment. So they have different perspectives in formulating various corporate development policies. They are driven to penetrate the paradigm that confers productivity in creating a work with limited resources. It takes extra effort to pay for it, especially the assumption that companies are generally reluctant and tend to give in to the existing external environment conditions. In certain situations they have to face threats such as the absence of maximum financial support from the internal organization or the owners of the company, reluctant to borrow funds to a third party or the opportunities that management is targeting from the point of view of the lender is unattractive and has a bad prospect of the business side. In this condition they can not rely on anyone but themselves and "what's in hand" (Davidsson, 2017).

### **3.1.2 The Correlation between Improvisation and Bricolage**

In some previous studies the concept of improvisation is assumed as part of bricolage (Baker, Milner et al, 2003) but this is still much debated. The thing that supports is when the process of creation and execution done simultaneously. Then the ability to process future planning is no longer an urgent thing because the subject has been able to identify and obtain the resources needed. This condition represents a real correlation between bricolage and improvisation. But on the other hand this gets contradicted when referring to the parable of people who are climbing mountain, to light a bonfire of course the climbers do not have to bother to carry firewood, simply take advantage of what is around him. Referring to this parable it can be concluded that the improvisation contains bricolage but otherwise bricolage does not contain improvisation.

### **3.1.3 Entrepreneurial Bricolage**

The key activity of bricolage practitioners in an entrepreneurial context is to create 'something out of nothing' (Baker and Nelson, 2005) - how they create financial advantage amid lack of resources. (Senyard et al, 2011; D. Valliere et al, 2014). The application of bricolage is multidimensional, in other words there are so many paths that can be utilized to boost their business performance among others consumer search process, establish strategic relationships with suppliers and so forth. Bricolage is used as a frame of reference in the preparation of a business model due to its characteristics that tend to form a reliable entrepreneurial behavior. (Guo, 2016) perceives entrepreneurial bricolage as an experimental process of business model innovation capable of bridging various interests related to business exploration in terms of an exploration orientation that plays a positive role in entrepreneurial bricolage and the business model innovation facility developed.

An exploration orientation that plays a positive role in entrepreneurial bricolage and the business model innovation facility developed (Saskia,2015) Trying to share the concept of entrepreneurial bricolage into two aspects: first how bricolage actors behave in the creative industry and the form of action taken; And second, focus on the depth of the concept of bricolage definitively. In the creative industries, workers tend to utilize networks for the self-development process. The practice can be collaboration or seek inspiration through others.

Generally project-based work types. This provides an opportunity for workers to seek other alternatives to be interrupted by limited employment opportunities.

### **3.1.4 Effectuation**

Lehner and Kanihakas (2012) put forward an opinion on the description of the effectuation as “a logic that is applied by expert entrepreneurs to solve problems in highly uncertain market environment”. Almost similar to that conveyed by (Sarasvathy, 2008 ; Fisher, 2012) but with a different editorial “a logic of entrepreneurial expertise, a dynamic and interactive process of creating new artifacts in the world”. Every stakeholder with an interest in business activity will face an external environment full of uncertainty. They are required to continue to adapt to dynamic environmental changes. It's hard to survive if you continue to adopt the outdated business principles. Prioritizing open attitudes toward various phenomena and business issues is worth pointing out. An increasingly competitive business climate does not provide a comfortable space for entities that are allergic to change. Innovation and creativity in designing business processes that run is kewajiban. Managerial and strategic competence of a great entrepreneur is needed. There are many loopholes that a great entrepreneur can utilize to optimize all potential and resources.

### **3.1.5 Effectuation Process**

Sarasvathy (2001) and Welter et al (2016) describes how the effectuation process occurs. Starting with mapping the internal resources they possess and then trying to elaborate on three important aspects represented by critical questions: who they are, what they know and how they know it. Meaning they are trying to first dig up information about the potential that exists in the self and then develop it as a form of response to the demands of the external environment. (sarasvathy, 2001; Ted Baker, 2002) "Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means".

Following the systematic preparation of the discussion of (Fisher, 2012), the authors use 4 (four) fundamental questions that will investigate and identify the various constructs of each concept: the question is:

1. what factors are part of the explanation?
2. How are the factors related to outcomes of interest?
3. Why can we expect the proposed relationships to exist?
4. Who, Where, When? The assumptions and limitations underlying the theory (boundary conditions).

## **3.2 Discussion**

### **3.2.1 Bricolage**

1. Bricolage puts forward the approach to action taken by the entrepreneur irrespective of his limitations. In the early stages of development they do not have a detailed plan of the path that must be passed and put forward the creative side to solve the problem. They realize that they do not have sufficient capital to start a business except creativity and improvisation. Opportunity is something that must be created
2. Entrepreneurs will always face challenging and more difficult environment when the entrepreneurs do not have sufficient resources to develop their business so there are 4 (four) options that can be taken, namely (1) to seek resources from domains external to the firm; (2) to avoid new challenges by remaining inert, down sizing, or disbanding; Or (3) to

enact bricolage by making do by applying combinations of the resources at hand to new problems and opportunities. If they take the third step of bricolage then there are 5 (five) domains that they enter are physical inputs, labor inputs, skills inputs, customers / market and institutional and regulatory environment

3. Bricolage theory has a dependence on the concept of social resource development (Penrose, 1959; Fisher, 2012), the constraint facing a bricolage is a resource constraint, therefore when a company succeeds in creating a revolutionary breakthrough from its absence it is a privilege.
4. It is well known that the built-in resource environment derives from a social approach, entrepreneurs have access to utilize these resources to create both economic and social benefits, the drive to adopt the principle of bricolage arises when entrepreneurs are in a situation of very dominant resource constraints (Fisher, 2012)

Following attached a chart showing the bricolage approach to entrepreneurial concepts quoted from (Baker & Nelson, 2005; Fisher 2012)

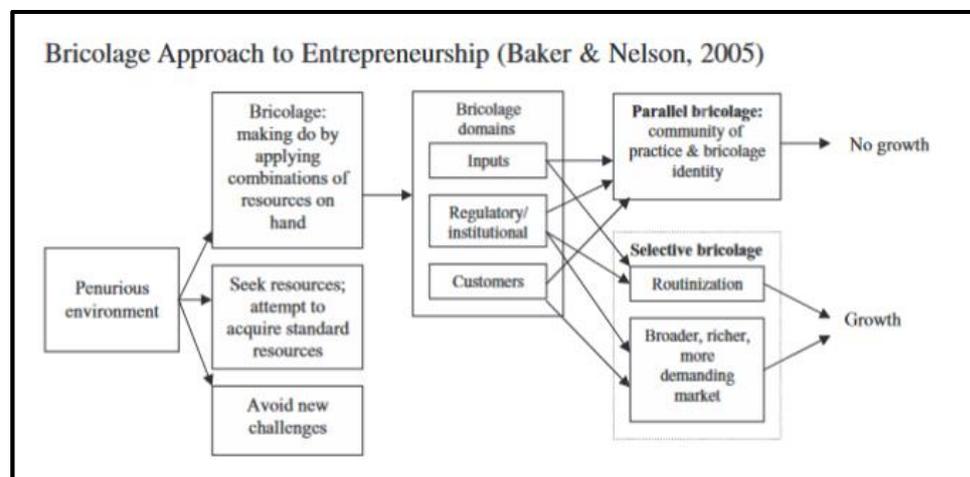


Fig. 1 Bricolage Approach to Entrepreneurship

### 3.2.2 Effectuation

1. There are 4 (four) important points that become the reference in implementing the effectuation role that is (1) The execution process in the early stages of pioneering and setting the ultimate goal has the fundamental nature difference (2) applying affordable loss instead of expected return when evaluating options (3) Strengthening relationships with potential partners compared to competitive analysis (4) exploiting and not avoiding contingencies (Sarasvathy, 2008; Fisher, 2012)
2. Market penetration process for newcomers it is advisable to use effectuation strategies given the uncertain business environment of the business environment. Effectuation makes disclosure and exploration opportunities the primary basis. Other supporting factors are uncomplicated future planning and prediction techniques. It significantly cut costs so as to create efficiency. As for if the worst pilhan company losses or bankrupt then the negative impact of the financial side is at the most minimal point compared to using the causation process (Fisher, 2012)
3. One of the basic ideas that build the concept of effectuation is the theory of decision-making. When they are faced with situations that are relatively difficult to predict then steps can be taken by collecting as much information and experience as possible, and over time they will continue to learn and evaluate each experience through learning by doing.

Gradually they will find the right pattern in creating excellence and effectiveness (sarasvaty, 2001; fisher 2012)

4. Effective effectuation strategies are applied to dynamic business environments and are vulnerable to uncertain conditions. Besides that entrepreneurs have difficulties in knowing and measuring the future so that what can be done is an experimental action. Entrepreneurial opportunities tend to be perceived as subjective because the decision is entirely within the control of the business actors and the personal considerations they have (fisher,2012).

The following chart contains conceptual framework and the process flow of the concept of effectuation:

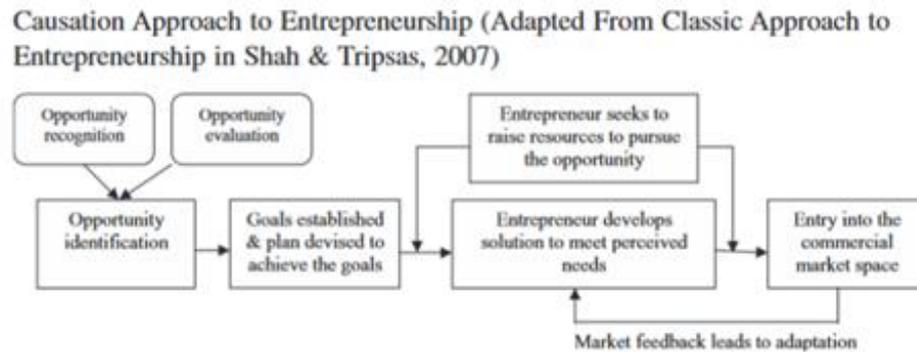


Fig. 2 Causation Approach to Entrepreneurship

The authors find it difficult to analyze company cases that are relevant to the topic of research being raised. In addition, the company that prioritizes prisp effectuation and bricolage is difficult to be identified because it only takes place in the early stages of establishment. Researchers still keep a sense of curiosity if the principle of effectuation and bricolage applied to established companies. Discussion of the topic itself is still considered general. It is hoped that future research in the future can develop this topic more specifically and discuss other aspects that have not been described in this study. The value of the novelty of the research must always be maintained.

#### 4. Conclusions

- A. Over the years the development of the global business world continues to experience dynamic growth. But behind that every company will always deal with the situation of uncertainty, especially concerning the future. This is regarded as a constraint that limits the company to develop especially in the early phase of establishment. The solutions offered for such situations are the principle of effectuation and bricolage, although there are some differences but both emphasize sustainable learning as a solution to the uncertainty. Someone who adopts bricolage will not take problems and limitations into things that can hinder goals. However, they will use it to be something that can bring new hope that is more promising. Bricolage applications are multidimensional, in other words there are so many paths that can be utilized to improve their business performance, among others, the process of searching consumers, establishing strategic relationships with suppliers and so on.
- B. In the Bricolage concept, when an entrepreneur discovers limitations they can do two types of ideational and material bricolage (levi strauss, 1967). Both things are done to be able to take advantage of the opportunities they have. Because the main capital of an entrepreneur to excel is not focusing on what we do not have but what we can do

with the limitations, so as to maximize what is currently available to create business opportunities.

- C. An entrepreneur must have an open attitude towards the various phenomena and business problems that exist. Despite the limitations, there are still many loopholes that great entrepreneurs can use to optimize all potentials and resources, including their own potential. Knowing all potential and existing resources will be able to respond to external environmental conditions and be able to prepare for possible effects that can be created. Capitalize limited resources does not become an obstacle for entrepreneurs to create a better economic value. "Create something from nothing" is the motivation of the actuators of effectuation and bricolage.

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## FACTOR ANALYSIS EMPLOYEE ENGAGEMENT GENERATION Y IN PADMA HOTEL BANDUNG

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**Abstract:** Today, there has been a shift in the labor force, where Y generation dominates the company's human resources. Human resource is a company's vital asset because its role and function cannot be replaced by other resources so it needs special treatment to maintain loyalty to the company. One way to get employees to have high loyalty is employee engagement. Employee engagement is considered more important than employee satisfaction, because with employee engagement, employees aren't only doing the maximum effort exceed expectations but also affect the employees' decision to stay.

This study aims to analyze the factors of Generation Y employee engagement. There are seven factors in this research, namely vigor factor, dedication, absorption according to Schaufeli et al and leadership, achievement, camaraderie, and equity according to Sirota Consulting LLC. The study population is Generation Y employees at Padma Hotel Bandung that will be analyzed using confirmatory factor analysis.

The result shows that the level of Gen Y employee engagement at Padma Hotel Bandung is included in high category that is equal to 76.756%. By using factor analysis, there are thirteen determinants of employee engagement, namely equity, personal resources, leadership, dedication, achievement, absorption, kinship, team work, uneasy feeling, unyielding, vigor, and task alignment. From the thirteen factors, it can be seen that the equity factor is the most dominant factor.

**Keywords :** *Employee Engagement, Gen Y*

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### 1. Introduction

MICE industry development in Indonesia began to increase rapidly, this can be seen from the increase in MICE activities as well as the number of convention and hotel buildings equipped with meeting room facilities to support MICE activities. The rapid activity of MICE in big cities and bestselling convention buildings encourages hotels to take part in the procurement of MICE services. The hotel, which initially only moved in the field of leisure turned into MICE organizer in low-season. Most hotels currently offer MICE packages with the main components of the room where MICE is held and rooms to accommodate MICE participants.

Increased MICE activities encourage the improvement of other accommodation support facilities within the hotel.

The high potential of business in the field of hospitality will trigger competition between hotels. With high levels of competition, hotel entrepreneurs compete to stay in business. Hotels are advised to develop excellent service and efficient and have complete facilities and adequate as a strategy to attract more guests. Not infrequently hotel competition is often colored by tariff war. From the various strategies that the strategy provides excellent service and facilities that memadailah selected by Padma Hotel Bandung as a way to attract more guests.

Tabel 1 Fifth Star Bandung Hotel Rating Based on Tripadvisor

No	Nama Hotel	Peringkat
1.	Padma Hotel Bandung	1
2.	The Trans Luxury Hotel Bandung	2
3.	New Naripan Hotel	3
4.	Sheraton Bandung Hotel & Towers	4
5.	Hilton Bandung	5

Source: [www.tripadvisor.co.id](http://www.tripadvisor.co.id)

Table 1 shows the position of Padma Hotel Bandung as the most recommended five star hotels based on Tripadvisor. In addition, table 1 also shows the competitor Padma Hotel Bandung. Ratings based on this Tripadvisor may change at any time following reviews provided by visitors. Therefore assessment can change daily. It is not easy for Padma Hotel Bandung to be able to occupy the position of the top 5. A remarkable achievement has been achieved by Padma Hotel Bandung with the 1st rank in a row for 3 years starting from 2014.

To deal with the tight competition, there are some things that must be owned by the organization that includes physical resources, financial resources, marketability, and human resources (Fisher et al. In Endres & Mancheno-Smoak, 2008: 69). Furthermore, Fisher et al. In Endres & Mancheno-Smoak (2008: 69) states that of the four factors, the human resource factor becomes the key factor to create competitive advantage of the organization or company. Manager of SDM Padma Hotel Bandung, Mr. Ikhsan confirmed that employees are an asset for the company even more because Padma is a company engaged in services.

HR is a vital asset because the company's roles and functions can not be replaced by other resources so it needs special treatment to maintain its loyalty to the company. In line with this, many efforts must be made by the company to create a climate or a positive work environment so that employees have a good engagement with the company. One way to get employees to have high loyalty is employee engagement (Macey and Schneider in Hermawan, 2011: 16). Employee loyalty levels are a problem for some companies including Padma Hotel Bandung.

Employee turnover rate Padma Hotel Bandung averages 38% over the period 2014 to 2016. According Hasibuan (2003: 52), if the turnover value above 15% indicates that the turnover of employees included in the high category. A similar opinion is put forward by Branham (2009: 12), if the annual turnover in an organization exceeds 10% then turnover within the organization can be categorized as high. Turnover can have a positive and negative impact on the organization. If the organization loses 20% of employees who have high performance then it has a negative impact, but if the organization loses 20% of employees who have low performance then it has a positive impact. Therefore, organizations must maintain a growth

rate of employee turnover. For Padma Hotel Bandung, the turnover has a negative impact, especially in providing services to guests.

This high level of employee turnover is dominated by Y generation employees. Unlike previous generations, Y generation has a distinctive feature characterized by this generation growing with full employment opportunities for women, respecting ethnic and cultural diversity, and increasing understanding of technology Better (Hawkins et al., 2007 in Anggraini et al., 2016: 184). In addition to having privileges, Gen Y also has a negative side, Eisner (in Horeczy et al., 2012: 2) mentions a problem for the organization regarding the existence of Gen Y in terms of attachment. The issues that arise relate to Gen Y that require flexibility in work, the quality of the work environment is adequate, and expect them to work on organizations that implement work-life balance.

The negative side of Gen Y makes Padma Hotel's dilemma largely because Padma has an employee composition dominated by Gen Y especially on the operational part. This is indicated by the number of employees of Gen Y as many as 118 people from 146 people or 80.82% of employees overall. By dominating Gen Y, management hopes to increase the productivity of the company. That's because management assesses Y genes more creative, communicative, and innovative in providing services to guests. But it also poses a challenge for companies to see Gen Y that has a stereotype that works only as a stepping stone or just to seek experience and move to another place (job-hopping) for career development to be achieved, so often perceived as unfaithful or committed low .

The high turnover rate as well as Gen Y is dominated by the company. One of the impacts is the cost to be spent on the recruitment process, the costs for training new employees, the time to be spent on recruiting, and training new employees, as well as other impacts. This disturbs the effectiveness of hotel operational work considering the level of achievement that is expected Padma is a leader hotel five star Bandung. To be able to achieve these dreams Padma must excel in the competition between hotels by highlighting the quality of service whose role is held by human resources.

## **2. Review of Literature**

### **2.1 Generation Y**

Gen Y or better known by various other names such as Millennial Generation, Echo Boomers, New Boomers, Global Generations is a generation born in the period 1977-2002 with an age range of 22-39 years. Another opinion expressed by Shiffman & Kanuk (2007:245) states that the Y generation are those born between 1977-1994. Generation Y was born amid rapidly advancing information technology, so this generation has a very different character from previous generation better known as Generation X.

Erickson (2008:6) states that Y generation has a characteristic that they are a multicultural generation, have high volunteerism, confidence, and also intelligent in technology. Generally speaking, these generations are individuals who want to be rewarded for their effort, in the hope that they will get constant praise (Crampton & Hodge, 2009:4). In contrast to previous generations, Y generation has the privilege, Generation Y grew up with full employment opportunities for women, respect for ethnic and cultural diversity, and improved understanding of better technology (Hawkins et al., 2007 in Anggraini et al 2016: 184) . Not only has the privilege, Gen Y also has a negative side. Generation Y who has worked shows an attitude that always contrary to office regulations, the generation of lazy, demanding many things, and not good at thanking. However, this generation may be praised for being energetic, courageous, and most of them capable of being strong leaders (Jarot Wijanarko et al, 2016: 58). The Y generations do everything in balance, when the hours are over, then it's over what they do, and they really need time other than to work. Like vacation with family and friends, because in work

too they prefer to work together (Lancaster & Stillman, 2002: 297). Therefore Generation Y hopes they can work on organizations that implement work-life balance (Anggraeni et al, 2016: 184).

## **2.2 Employee Engagement**

According to McLeod (2009:89) "employee engagement is an emotional attachment to work and organization, motivated and able to provide their best ability to help succeed from a set of tangible benefits to organizations and individuals." While Kreitner & Kinicki (2014:29) states that: "Employee attachment is defined as the involvement, satisfaction and enthusiasm of one to work". The position of employee engagement is vital to achieve success and provide competitive advantage to the company. McLeod (2009:92) says that: "The engaged organizations have authentic power and value, with clear evidence of trust and fairness based on mutual respect, both of which have promises and commitments between employers and employees that are understood and fulfilled." Therefore it is necessary to establish employee engagement. A good engagement can be formed from reciprocal relationships between organizations and employees.

### **a. Vigor**

Vigor is an aspect characterized by high levels of strength and mental resilience in work, a desire to strive earnestly in the work, persistent in the face of adversity. Wilmar Schaufeli & Arnold Bakker (2004:5) states that:

Vigor is assessed by the following six items that refer to high levels of energy and resilience, the willingness to invest effort, not being easily fatigued, and persistence in the face of difficulties.

- a) At my work, I feel bursting with energy
- b) At my job, I feel strong and vigorous
- c) When I get up in the morning, I feel like going to work
- d) I can continue working for very long periods at a time
- e) At my job, I am very resilient, mentally
- f) At my work I always persevere, even when things do not go well

Those who score high on vigor usually have much energy, zest and stamina when working, whereas those who score low on vigor have less energy, zest and stamina as far as their work is concerned."

### **b. Dedication**

The aspect of dedication is characterized by a feeling that is full of meaning, enthusiasm, inspiration, pride and challenging in the work. People who have high dedication scores strongly identify their work because it makes it a valuable, inspiring and challenging experience. In addition, they usually feel enthusiastic and proud of their work. Wilmar Schaufeli & Arnold Bakker (2004:5) states that:

"Dedication is assessed by five items that refer to deriving a sense of significance from one's work, feeling enthusiastic and proud about one's job, and feeling inspired and challenged by it.

- a) I find the work that I do full of meaning and purpose
- b) I am enthusiastic about my job
- c) My job inspires me
- d) I am proud on the work that I do
- e) To me, my job is challenging "

### c. Dedication

The absorption aspect is characterized by deep concentration and interest, drowning in the work, time passes so fast and the individual is difficult to escape from work so that and forget everything around. People who have high scores on absorption are usually delighted to be consumed by work, feeling lost in work and having difficulty separating themselves from work. As a result, anything around him is forgotten and time passes quickly. Wilmar Schaufeli & Arnold Bakker (2004: 5) states that:

"Absorption is measured by six items that refer to being totally and happily immersed in one's work and having difficulties detaching oneself from it so that time passes quickly and one forgets everything else that is around.

- a) Time flies when I'm working
- b) When I am working, I forget everything else around me
- c) I feel happy when I am working intensely
- d) I am immersed in my work
- e) I get carried away when I'm working
- f) It is difficult to detach myself from my job

Sirota Consulting LLC is a research and consultancy firm in New York that aims to measure employee engagement levels to improve the performance of their client organizations. According to Kourdi (2009:159), the company Sirota Consulting has conducted research as many as 237 organizations around the world from various industries by looking at two aspects of what employees want to the organization/company and its work (achievement, camaraderie, and equity), and aspects of leadership that The leader in the company do.

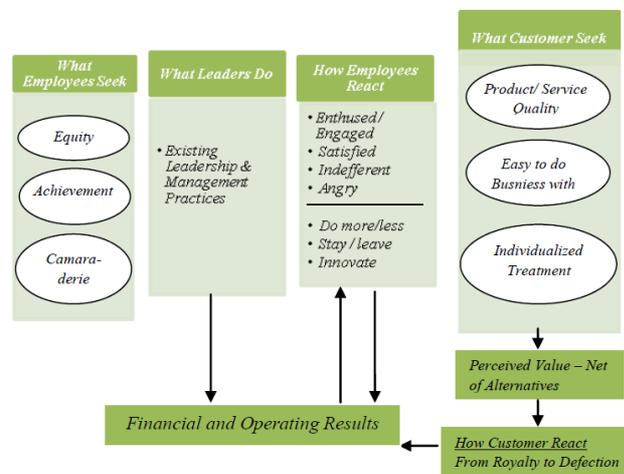


Fig 1 Sirota Survey Intelligence's Framework

Based on figure 1 above, here is a description of these factors:

#### a. Leadership

Leadership is the process of influencing the activities of individuals and groups in an effort to achieve goals in certain situations (Blancard and Hersey in Sutrisno 2009: 214). According to Sirota Consulting LLC website [www.sirota.com](http://www.sirota.com), one of the factors employee engagement that can improve performance is leadership. Attitudes or behavior of a manager to his subordinates in an organization/company can affect the high level of attachment of each employee. Armstrong & Taylor (2014: 219) states that: "The elements found to be fundamental for engagement were strong leadership ...".

From the above statements can be concluded that the existence and influence of a leader / leader directly affect the performance of both individuals and groups in achieving common goals. Employees who have good relationships and thoughts that aligned with leaders will tend to be more motivated to improve their performance is also directly proportional to the level of employee engagement of the company. As the Gallup Organization notes based on interviews with 12 million employees at 7,000 companies over the past 40 years, relationships with superiors determine how long an employee is at work (Kaye & Sharon, 2003: 17).

One of the basic roles of the leadership team is to ensure that managers and supervisors - people who are fundamental points in business strategy are perfectly aligned with business strategy, capable of aligning and motivating others (Schiemann, 2011: 75). Robbins & Judge (2008: 6) states that leadership is a process that includes the provision of people's organizational motivation, selection of the most effective channels of communication, and conflict resolution. According to Development Dimensions International (cited by Markos and Sridevi, 2010: 91), to create a high engagement, a manager must do several things, including:

1. Aligning with business strategy
2. Promote and encourage teamwork and collaboration
3. Assist employees to grow and develop
4. Provide support and recognition accordingly

#### **b. Achievement (Recognition of work achievement)**

Employees will be enthusiastic and motivated to work if they get good recognition from the company. Such recognition includes recognition of work achievement and recognition of himself / herself. According to Sirota in Kourdi (2009:115), achievement is a feeling of pride that comes from doing important work and doing well, earning recognition, and appreciation for achievements both individually and in the work team. In measuring achievement, Sirota Survey Intelligence in Kourdi (2009: 160) used several indicators to see if the employee received proper recognition. These indicators are job challenges, opportunities for growth, the ability to get things done, feelings about the importance of work, rewards for performance and a sense of pride in the company.

According to Schiemann (2011: 224), the acknowledgment of work achievement can also encourage employees, such as employees motivated by team recognition while others seek and strive for individual recognition. There are six main key achievement factors according to Sirota & Louis (2005: 15), among others:

1. The challenge of his own work
2. Acquire new skills.
3. Able to show the results of his own work.
4. Employment of employees is important.
5. Recognition received from its performance, such as financial (compensation and bonus) and non-financial (thanks from leaders or customers).
6. Working in an organization / company where employees are proud of it

#### **c. Camaraderie (Kinship)**

One of the other factors employee engagement is camaraderie that a good relationship between employees both with superiors, subordinates, and with colleagues. According to Sirota LLC camaraderie is: "Having warm, interesting, and cooperative relations with others; Achieving a sense of community, belonging, and collegiality "(<http://www.sirota.com>, accessed on January 17, 2017). The level of stability and productivity of a company is built on relationships. Everyone in the organization depends on each other's knowledge and expertise (Fitz-Enz & Davidson, 2011: 248). Relationships between employees either in the form of

formal or informal relationships need to be fostered well to achieve corporate goals. Such relationships will create a harmonious working environment (Ardana et al., 2012: 137).

Bangun (2012: 325-326) says that affiliation is reflected in a person's desire to create, maintain, and connect the atmosphere of spiritual and mutual feelings among fellow human beings in the organization. People who have a high need for affiliation usually love affection and tend to avoid disappointment because of being rejected by a social group. The ultimate goal of gaining friendship with colleagues within the organization, preferring cooperative situations versus competition, and loving relationships that involve a high degree of understanding.

According to Sirota in Kourdi (2009:161) the most significant aspects of the camaraderie factor, as follows:

1. Relationships with colleagues
2. Cooperation among employees in the business unit work.
3. Teamwork across departments at specific company locations.
4. Cooperation between work teams throughout the organization.

#### **d. Equity**

According to Sirota & Louis (2005: 10-11), one of the factors employee engagement in an organization / company is fair treatment in accordance with its work. Employee fairness perceptions according to Fahrudin (2004: 158) refers to employees to the fairness and balance between the inputs they provide with the organizational results they receive, as well as the employee's perception of the fairness of the processes used to distribute The organizational results.

The theory of justice (equity theory) emphasizes the human ego who always crave justice in reward and punishment for each behavior is relatively similar. Justice is the driving force that motivates one's work morale. In this case, the boss is required to be fair to every employee. According to Kaye & Sharon (2003: 39), talented employees will leave the leadership that he deems unfair because unfair treatment shows a lack of respect in the minds of many employees. Assessment and recognition of subordinate behavior should be done objectively, not on the basis of like or dislike. This will give the perception that the boss in the compensation or punishment done with objective and fair (Sutrisno, 2009: 142).

In measuring fairness or equity, this study uses indicators according to the Sirota Survey Intelligence in Kourdi (2009:160). According to Sirota, justice here is a feeling that what an employee receives has the right and equal to the work they have done. Here are three indicators of justice according to Sirota:

1. Working conditions (physiological aspects)  
This aspect is more emphasis on the working environment conditions experienced by employees. Work environment conditions that provide comfort and security will make employees feel basic needs in work has been met so that there is an indication that the work environment obtained by employees is fair.
2. Compensation (economic aspect)  
This aspect emphasizes more on compensation for what employees have done. The application of justice in this compensation can be seen from whether the employee feels that the salary and benefits he gets is in accordance with the work he is doing. If the salary and allowances given are appropriate then the application of fairness in economic aspects is good.
3. Fair feelings (psychological aspect)  
This aspect emphasizes the employee's sense of justice. If the employee has felt treated fairly and respectfully in the workplace, then the application of justice in the

psychological aspect is good. Fair and honorable is meant to be treated consistently and treated equally with other colleagues.

Kourdi (2009: 116) explains that: "Equity is the most important factor in shaping employee engagement. When equity is rated low, overall enthusiasm can be two-thirds lower. "Which means if the achievement level and camaraderie is high while the level of equity received by employee.

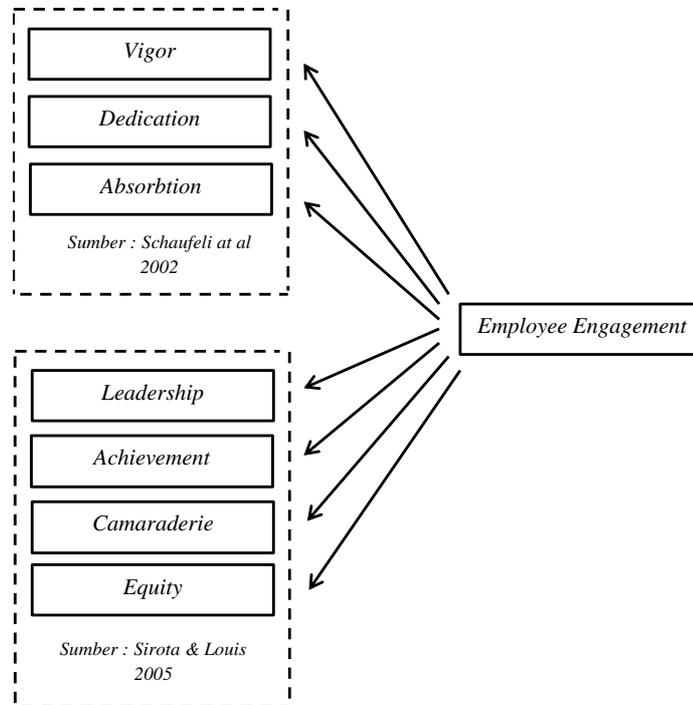


Fig 1 Framework

### 2.3 Research Hypothesis

Based on this framework, the hypothesis in this study is that there is a dominant factor of employee engagement.

### 2.4 Methodology

The research method used in this research is descriptive method on each factor and tested the validity and reliability for each item questionnaire. Then the data were analyzed by using confirmatory factor analysis with SPSS 20.0. The population in this research is 98 employees of Y generation Padma Hotel Bandung. The sampling technique used is the census technique, which is one type of probability sampling technique.

## 3. Discussion

### 3.1 Descriptive Statistics Analysis

Descriptive analysis provides an overview of the data obtained in this study. Through descriptive analysis, it can be seen the frequency of each answer questionnaire distributed to respondents as below:

- a) The vigor factor index is included in very high category, ie with an average index of 89.12%.

- b) The dedication factor index is included in very high category, ie with an average index of 84.24%.
- c) The absorption factor index is included in the high category, ie with an average index of 76.80%.
- d) Leadership factor index included in the high category, ie with the average index of 73.79%.
- e) Achievement factor index included in high category, that is with average index equal to 76.41%.
- f) The Camaraderie factor index is included in the high category, ie with an average index of 77.86%.
- g) Equity index included in the high category, ie with the average index of 78.43%.

### 3.2 Factor Analysis

#### a) KMO and Bartlett Test

The total factors used in this study are 7 factors that are contained in 48 questionnaire questions. All factors studied were input into SPSS for analysis by factor analysis. KMO and Bartlett's Test were used to determine whether or not feasible factor analysis was performed in this study. Figure 1 shows the KMO Measure of Sampling Adequacy (MSA) of 0.746. A MSA greater than 0.5 indicates that factor analysis is feasible.

**Tabel 2 KMO and Bartlett's Test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	3.435E3
	df	1128
	Sig.	.000

#### b) Anti-image Matrices

The next process is to determine the feasible data in the process in the factor analysis, by looking at the value of MSA (Measure of Sampling Adequacy) on the anti-image correlation matrix. MSA values less than 0.5 indicate that these variables are not feasible for use in factor analysis to be eliminated. The value of MSA seen in the anti-image correlation matrix, is the number of numbers that make up the diagonal (which is marked "a"). The anti-image correlation matrix can be seen in the attachment section. The overall anti-image results of the variables can be further analyzed using factor analysis.

#### c) Communalities

Data communalities, which are used to obtain extraction values. The value of this extraction is essentially the amount of variance that can be explained by the factor to be formed. The smaller the value of extraction shows the weaker the relationship of these variables with the factors formed, and vice versa. The full results can be seen in the attachment section. From table communalities shows that the lowest extraction value is 0.625 is the statement "I do not pay attention to other things when doing my job" (VAR00013). This means that 62.5% of the variant of the VAR00013 statement can be explained by the new factor to be formed. While the highest extraction value is 0.909 is the statement "I get the benefits (allowances) in accordance with my position" (VAR00053). This means that the 90.9% variant of the VAR00053 statement can be explained by the factors formed. Likewise that applies to other statements.

#### d) Total Variance Explained

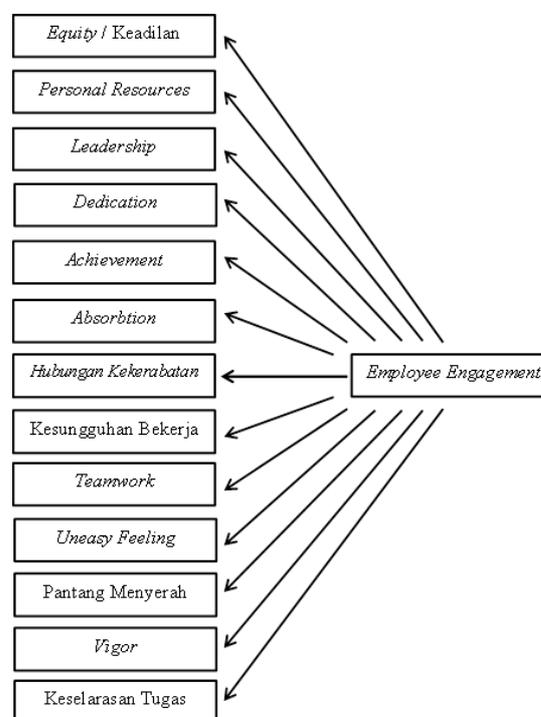
In this study, the authors determine the number of factors with eigenvalue with eigenvalue criteria  $\geq 1$  (Heir et al., 2010: 109). The order of eigenvalue is always sequential from the largest value to the smallest value. To know the number of factors formed from the extraction can be seen in the attachment. Total Variance Explained results show that of the 48 indicators included in the factor analysis, there are 13 factors formed because of the factors numbered 1 to 13 have eigenvalue  $\geq 1$ . While indicator number 14 has eigenvalue of 0.911. It can be concluded that this research has 13 indicators that most optimal.

#### e) Factor Interpretation

After forming a factor through the Total Variance Explained process, the next step is to interpret the factors formed by looking at the component matrix table showing the distribution of 13 factors formed on 48 overall indicators. The value listed in the component matrix table is the loading factor, which shows the magnitude of the correlation between a variable with the factors that are formed. The results of the factors can not be interpreted because the variables that exist only collect on one or several factors are not comprehensive. For that factor rotation needs to be done.

#### f) Rotation Matrix

Rotation of this factor aims to get a clear view of the value of loading for each variable against the factors that exist. This interpretation is based on the largest loading value of each variable on the factors that exist, so a variable will enter in the factor that has the largest loading value, after a large comparison of the correlation of each line. The results of the factor rotation process can be seen in the attachment sheet 4. Based on the Rotation Matrix table formed 13, namely:



The model that has been proposed as reference model in this research is Schaufeli at al (2002) model and Sirota & Louis (2005) model which then analyzed to form a new model which

is more appropriate to describe factors affecting employee engagement of Y Padma Hotel Bandung.

With the formation of 13 factors, it can be determining the level of employee engagement then it has answered what the research's question. Of these thirteen factors can also be used as a reference to improve employee engagement. What has been done by Padma Hotel Bandung so far through the provision of remuneration as a form of extrinsic motivation was already appropriate. However, remuneration is not the only factor determining the level of employee engagement but there are also other factors that influence management strategy in Padma Hotel Bandung. need to consider the thirteen factors (as well as item pembentuknya indicators). Getting justice from management becomes the first factor determinant of the high level of employee engagement of Y genes. Justice in question is fair both psychologically and economically.

Equity in the psychological aspect in the form of the creation of comfortable working conditions and obtain adequate facilities and tailored to the position of employees. Equity in the economic aspect is fair in terms of work load in accordance with the level of remuneration received.

Knowing factors influencing employee's employee engagement level make Padma Hotel Bandung has a more directional pattern in improving programs that increase employee engagement. This suggests that there needs to be a policy approach from management to increase emotional attachment between employees and organizations.

#### **4. Conclusions**

- a. The level of employee engagement Y gene in Padma Hotel Bandung included in high category that is equal to 76.756%
- b. Factors affecting the level of employee engagement Y gene at Padma Hotel Bandung are as follows: equity, personal resources, leadership, dedication, achievement, absorbtion, kinship, earnestness work, teamwork, uneasy feeling, unyielding, vigor, and Task alignment

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## INVISIBLE COLLEGE AS OFFERING COMMUNICATION SCIENCE STUDIES IN INDONESIA

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**Abstract:** Invisible college is a term that refers to a group of scholar that is formed by the intertwining ideas of the scholars with the same interest. It is occurred because of the scientific communication that has taken place between the scholars. The research on invisible knowledge is dominated by disciplines outside of communication science. Whereas, Lievrouw (1989) has emphasized that invisible college is one form of scientific communication. This article focuses to explain theoretically the idea that invisible college has a potential to be developed in communication science, especially in Indonesia. The idea can also be developed further through the method of bibliometric, social network analysis, ethnography communication and discourse analysis.

**Keywords :** *invisible college; scientific communication; communicative process.*

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### 1. Introduction

Invisible college is first mentioned in the 17<sup>th</sup> century, referring to scholars of The Royal Society London (Paisley, 1972; Lievrouw, 1989; Zuccala, 2006; Abel, 1991; Urs & Sharma, 2010). They are a group of scientists that gathered and interacted the sake of exchanging scientific knowledge. They are an informal community (Lievrouw, 1989) that was born from the relation and interaction of the scholars. The relation can be either through direct or indirect contact (Paisley, 1972). As an informal community, they didn't make a certificate to prove their existence as an institution. They gathered for and only for the sake of science (Casey & McMillan, 2008; Chang & Tai, 2005; Lievrouw, 1989; Urs & Sharma, 2010). Nowadays, the term refers to a group of scholars that is formed by the intertwining ideas of the scholars with same interest (Paisley, 1972; Schonland, 1959; Zuccala, 1996).

Invisible college is assumed as a model of scientific communication (Lievrouw, 1989). The relationship built between the scholars evinces a communicative process. Lievrouw (1989) suggests that the mention of invisible college should also consider the communicative process of the scholars. Lievrouw believes that scientific communication occurs when scholars meet, discuss, exchange, and spread ideas. Even when physical contact doesn't occur, the process would still take place through the process of quotation. When a scholar quotes an idea from another scholar, a process of communication has actually taken place. If the citations are inspected, it is possible to find a thought network. Group of scholars under a certain paradigm and research method can be found through the citations they cited. This network of scholars with similar ideas makes invisible college taken form.

Study of invisible college has been conducted in several disciplines, such as anthropology (Diaz-Anderu, 2007); labor and industrial relationship (Casey and McMillan, 2008); education (Tuire & Erno, 2001); and library science (Abel, 1991). The studies have a purpose of discovering the pattern and structure of the scholars in each discipline. While it serves as a proof that the study of invisible college has been researched in other disciplines, the study is rarely found in communication science. There are only two studies found by Chang & Tai (2005) in journalism study and Mario Hambrick (2016) in sport communication.

The discovering of invisible college can be traced through the pattern of bibliography, or commonly called bibliometric method (Lievrouw, 1989; Tuire & Erno, 2001; Casey & McMillan, 2008; Hart, 1993). This method is the most frequent method used in discovering invisible college (Lievrouw, 1989). This method also becomes a starting point to develop invisible college. It takes attention to a scholar's citation behavior toward published works (journal, book, or other scientific articles) of other scholars (Lievrouw, 1989; Tuire & Erno, 2001; Casey & McMillan, 2008; Hart, 1993). This behavior illustrates a pattern in which the scholars interact with each other (Lievrouw, 1989).

Diaz-Andreu (2007) uses this method to describe the pattern and relationship of the scholars in anthropology study. He also describes the position and role of the scholars in a frame of authority. Casey & McMillan (2008) explain the invisible college in industrial science from the citation behaviors. Tuire & Erno (2001) explain that several invisible colleges are formed from the citation behavior of the researchers in education study in Finland. Chang & Tai (2005) explain the role of invisible colleges in communication science in the transforming landscape of mass communication research through the citation behaviors. The study by Mario Hambrick (2016) also explains the relationship between sport communication researchers through the citation behavior.

Aside from bibliometric, invisible college can also be traced using *social network analysis* (SNA) (Urs & Sharma, 2010; Vespagen & Werker 2003). SNA can be used to explain the pattern and social relationship formed from the interaction of the scholars (Urs & Sharma, 2010). This method uses background information of the individual from the researched scholar's group. The knots of this scholars then explain the pattern and relationship between them (Vespagen & Werker, 2003). The intersection of social, political, economic, and study backgrounds would be able to connect the scholars through the invisible college. Even so, the usage of SNA to discover invisible college itself is quite rare (Urs & Sharma, 2010; Vespagen & Werker, 2003). One example is a study by Vespagen & Werker (2003) in economic studies. They inspect the paradigm and people affecting the economics of innovations using direct surveys for the researcher's social background, such as co-authors and co-workers.

All the studies mentioned above offer an idea that invisible college has a potential to be developed further especially in communication science (Lievrouw, 1989). The formulation of the problem in this article is how the potential of invisible college into a study that can be developed as a study of communication science in Indonesia?. This article tries to elaborate the idea and also suggests the development of the study in communication science, with the purpose of enticing the interest of communication scientists to this area. Hopefully, researchers would try to develop this area of study using the applicable method, such as bibliometric or social network analysis (Hambrick, 2016; Vespagen & Werker 2003; Urs & Sharma, 2010). This article is the initiation of the author to make invisible college a topic of study that needs to be discussed and become an offer in developing the study of communication science. This paper followed up the advice of Lievrouw related to the development of invisible college as a scientific communication.

## 2. Methodology

This article was written based on a study of literature conducted by the author. Literature study is a series of activities related to library data collection, reading and recording, and processing of research materials (Zedd, 2008). The author makes notes, quotations or information found and relevant to the problem to be resolved (Darmadi, 2011). The author conducted a literature study on the work of Lievrouw (1989), Paisley (1972), Chang & Tai (2005), Hambrick (2016), that's articles discussed the invisible college in the field of communication science studies. The author also did a search of invisible college literature on google scholars, JSTOR, Proquest using the keyword "Invisible College" or "Invisible College di Indonesia". The data used in this article are from journals and scientific papers which contain the concept of invisible college.

## 3. Discussion

The author wants to explain the offers in the development of invisible college studies based on some literature that has been read by the author. The present article aims to introduce the study of invisible college which is still rarely discussed in Indonesia, especially the study of invisible college in communication science. This assumption is based on the author's exploration of several kinds of literature, and the author has found only one study of invisible college in Indonesia and that's study only explains the invisible college as a concept only and not supported by literature of invisible college clearly.

Study of invisible college has varied benefits (Lievrouw, 1989). Researches on invisible college can explain the relation and interaction between scholars of certain discipline. It explains the structure and relationship of the main actor and influential actor during the time of exchanging idea (Eriyanto, 2014; Lievrouw, 1989). Through the support of the qualitative study, invisible college can also explain the dominant idea in the certain discipline. Invisible college can also be developed to understand the knowledge power in society after relating it to social, economic, and political context.

The relationship built between the scholars evinces a communicative process. This brings an assumption that the fundamental process of knowledge is communication, it cannot exist without communication (Garvey, 1979; Paisley, 1984; Whitley, 1969; Lievrow; 1989). The invisible college has a role on the spreading and existence of knowledge (Paisley, 1984). Lievrouw (1989) suggests that the research of invisible college should also consider the communicative process of the scholars, not only the social structure built between them. The emergence of the idea that invisible college uses the bibliographic pattern as the starting point to describe communicative process doesn't occur in communication research. Meanwhile, the research on invisible college has been conducted in several disciplines (Lievrouw, 1989).

The invisible colleges have a potential to be developed in communication science, considering the rarity of this study in communication science. Meanwhile, the study in other disciplines is counted in greater number than in communication. An example is a research by Tuire & Erno (2001). The research tries to describe the relationship built between communities of education scientist. Tuire and Erno (2001) use the bibliographical pattern depicted in the scientist's citation behaviors toward published works. The result shows three groups that can be called invisible college and explains the informal relation and collaboration of the education professors.

Another example is a research by Richard Hart (1993). It tries to reveal the role of invisible college and the paradigm influencing Stocking Rate study through the citation behavior of animal husbandry scholars. Not only it results in revealing the invisible college, it also explains that there was some kind of conflict of paradigm among the scholars for about a decade (Hart, 1993). It is consistent with the research by Casey & McMilan (2008). The research tries to

reveal the invisible college by looking at the existence of groups formed from the publication and citation behavior of industrial scholars in ILRR (Industrial Labour Relations & Review) for three decades. Aside from the invisible college, it also indirectly reveals dominant theory and paradigm in labor and industrial study.

The studies above explain that the research on invisible college needs to be considered by every scientist in every discipline. It's not only able to unveil the relation between scholars, it can also elaborate the position of researched scholar's group by taking attention to social, politic, and economic information (Diaz-Andre, 2007). It can also reveal the paradigm and theory that influence greatly to the discipline (Vespagen & Werker, 2003). The pattern of relationship that was formed introduces us to the explanation of intellectual networks that were created from interaction between scholars. It can explain the structure and relation of the main actor and influential actor (Eriyanto, 2014; Lievrouw, 1989).

Furthermore, the study of invisible college has potential to be explored in communication science. It is an interesting offer, considering the rarity of the study in communication science in Indonesia. The only researchers found are one by Chang & Tai (2005) and one by Mario Hambrick (2016). The research by Chang & Tai (2005) tries to elaborate the transformation of research landscape in mass communication specific to journalism study. Both of them inspect the citation behavior on the published works throughout the year 2000, 2001, and 2002. Chang & Tai (2005) use the data to depict the network of related scholars. The data acquired also explain in detail the information on the number of citation, the journals cited, and also the authors cited.

Meanwhile, Mario Hambrick (2016) researches the invisible college that occurred in sport communication. The research tries to explore the evolution of sport communication researchers using social network analysis, although the process here doesn't differ from the bibliometric method. Hambrick takes the data from January 1980 to June 2015. There are 1255 researchers, 2537 shared collaboration, and 1283 publication. The research generates the mapping of the studies and researchers activity of sport communication science through published works.

**Table 1** Invisible college research in some field of sciences

No	Title	Researcher	Field of Study	Method
1	Identifying the " <i>invisible colleges</i> " of the industrial & labor relations review: A bibliometric approach	Casey & McMillan (2008)	Industrial and Labour	Bibliometric
2	Mass communication research and the <i>invisible college</i> revisited: The changing landscape and emerging fronts in journalism-related studies	Chang & Tai (2005)	Communication Science	Bibliometric
3	Sport communication research: A social network analysis. Sport Management Review	Mario Hambrick (2016)	Communication Science	Bibliometric & Social Network Analysis
4	<i>Invisible colleges</i> " and Citation Clusters in Stocking Rate Research. Journal of Range Management	Richard Hart (1993)	Livestock & Agriculture	Bibliometric
5	Exploring invisible scientific communities: Studying networking relations within an educational research community. A finnish case	Tuire & Erno (2001)	Education	Bibliometric

The relatively rare research on invisible college by communication scholars makes this study potentially developed further in communication science, considering that this study has a solid relation to communication. Lievrouw (1983) assumes that invisible college is scientific communication. It's understandable since there's an occurrence of communication, either direct or indirect, between scholars with the same specialty. Thus, researchers should take this opportunity to develop the study of invisible college. Lievrouw (1989) suggests that researchers should have a wider sight on what kind of behavior that yields invisible college. Researchers can assess whether a communication act (exchanging printed article or face-to-face communication) of acquaintance can be considered as invisible college. Researchers can also develop a measurement to observe the invisible college using the specific method of field study.

Lievrouw (1989) also suggests the usage of field study method, ethnography communication. An example is using the rarely used method of participant observation and interview to understand the special feature of scientific processes like mentoring, co-authorship, and collegiality. Ethnography method in communication study can help researchers to make a stronger interpretation of quantitative analysis of communication artifacts (similar to bibliometric analysis on the published works). He also suggests the use of discourse analysis method from a face-to-face conversation, phone call, or presentation of a professional meeting to reveal invisible college. This method will make it possible to identify the communication patterns that differ between each specialty (Lievrouw, 1989).

#### **4. Conclusions**

Based on the explanation has been the author explained, it is concluded that there are some things related to the study of invisible college that potential to be further developed in the field of communication science study. This article focuses only on the explanation of the potential development of invisible college study, but this article becomes the starting point of invisible college study in Indonesia. The development of invisible college studies in Indonesia will further be undertaken in several forms of research.

Research about invisible college has been conducted in several disciplines, such as anthropology, education, labor and industrial relationship, and library science. Even so, the topic is rarely touched in the study of communication science. Whereas, the communication science in several places, for example, university, surely have a tendency in the direction of the specialty that can be traced using invisible college, so even the influential theory or paradigm can be found. It serves as a proof that invisible college is a topic that has potential to be researched in communication science, even more towards the various ideas from figures of communication scholars in Indonesia that surely have tendencies to the certain paradigm. The low number of research about invisible college can also serve to increase study focus so that there will be more varied topic in communication study. The research can be started by unveiling patterns, relations, or domination of study and figures of communication science in Indonesia.

The discovering of invisible college can be achieved using methods like bibliometric and social network analysis. Bibliometric is a method to look at the citation behavior of the scholars toward published works (journal, book, or other scientific articles) of another scholar. Social network analysis is a method to look at the background information (social, politic, economy, and intersected study) of an individual from a certain group of scholars, and then analyze the pattern and relation that were formed between the scholars.

It's also suggested to use the method of field study, like ethnography communication. It can be done by conducting participant observation and interview that is rarely used to understand the special feature of scientific processes, such as mentoring, co-authorship, and collegiality. It can help the researchers to make a stronger interpretation of the quantitative analysis of

communication artifacts. It's also suggested to use discourse analysis from a face-to-face conversation, phone call, or presentation of professional a meeting. This method enables the researchers to differentiate between each specialty of the scholar.

## 5. Further Research

The development of invisible colleges in Indonesia using social network analysis, bibliometric, ethnography, discourse analysis. Some of the research we will do include explaining the network of communication science scholars in Indonesia. First, examine the spread of communication science scholars in Indonesia based on educational background. Secondly, other research that we will do relates to the relationships between students and supervisors. Thirdly, another research we are working on is doing bibliometric studies in communication journals in Indonesia. The studies will contribute to the development of the invisible college study in communication science studies in Indonesia.

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## THE INFLUENCE OF DISPLAY ADVERTISING CAMPAIGN TOWARDS INTENTION TO BUY FROM TELKOMSEL SUBSCRIBERS (STUDY IN DISPLAY ADVERTISING CAMPAIGN PT. TELKOMSEL 2017)

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**Abstract** : This research aims to investigate the impact of display advertising to purchase intention of PT Telkomsel's subscribers. The independent variable used in this research is Attitude toward Online Ads, Ability to Recall Online Ads, and Frequency of Clicking Online Ads. While the dependent variable used for this study is intention to buy. Data is collected from 94 sampled respondents using questionnaires that were distributed to customers during the first semester of 2017. The results of this study indicate that all independent variables positively influence - partially as well as simultaneously - intention to buy. For regression estimation results, the variable Ability to Recall Online Ads has the highest and significant standardized coefficients of 0.394.

**Keyword** : *attitude toward online ads, ability to recall online ads, display advertising, intention to buy*

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### 1. Introduction

Since 1994 growth of internet advertising have faster growth (Chandon et al, 2002). Later on, web become a strong power due to the internet in term of targeting and interaction (Hoffman and Novak, 1996; Bezjian et al., 1998; Lendrevie, 2000). In response to the era of online advertising, PT. Telkomsel is currently developing digital advertising services of its own via mobile internet. One of the types of digital advertising being developed is the so-called display advertising, where Telkomsel subscribers who access a web site from handsets will get product information promotion from advertisers. However, the use of the display advertising service until now is still in early stage compared to the use of other messaging media (SMS or MMS). The low use of display advertising media campaign service is represented by the low Click-through rate which is widely used to assess the effectiveness of banner advertising. Click-through is the average number of times a viewer clicks on a pop-up ad and is then exposed to the target web site (Dreze and Hussherr, 2003; Faber, et al., 2004).

Learning from previous research, the most common measures used in studies the effectiveness of online advertising are Attitude towards Banner Ads, Ability to Recall Banner Ads and Brand Awareness (Danaher and Mullarkey, 2003; Dreze and Hussherr, 2003; Gong

and Maddox, 2003; Lim et al. 2011). This study takes three measures that are Attitude towards Banner Ads, Ability to Recall Banner Ads and Frequency of Clicking Banner Ads to be used to evaluate the effectiveness of online advertising and their impact on consumers' online purchase decision and behavior. (Lim Y.M., Ching S.Y., dan Teck C.L., 2011).

## **2. Literature Review**

### **2.1 Mobile Advertising**

Mobile advertising is new way for advertiser to promote their product. With mobile advertising, subscriber will get information from advertiser about service price, product promotion, and detail info related with their product (Barutçu, 2008: 274). According to Nielsen, nearly two-thirds of people in Indonesian have own smartphones. That number is expected to increase. Marketers need to capitalize on these user tendencies and begin to focus campaigns on mobile advertising. The data is clear: Indonesian love smartphones. All you need to do is adapt your campaign to fit that. Another benefit for mobile advertising is deterministic matching, each mobile device contains a unique profiling subscriber that can be directly tied to the offline and online consumer habits of that mobile user. (Elden, 2009: 550).

Mobile advertising has facilitated large-scale experiments with user-level randomization of advertising exposure. Though purchase data remain rare, these experiments often measure survey outcomes or online outcomes like site visits and conversions. In the past, field experiments have been uncommon even in online display advertising due to the high costs of setting up experiments and purchasing control ads (Gluck, 2011)

### **2.2 Display Advertising**

Strategic placement of display ads is critical. Placing them on sites that are already enjoying wide patronage of advertiser target market can make the ads relevant, personalized and timely. Display ads give advertiser the control to creatively personalize online advertisements so that advertiser can efficiently zero in their market by geographic location. (Hallerman, 2009).

Focusing on online display ads, meta-studies of field experiments have begun to uncover some facts about the medium's effectiveness. Goldfarb & Tucker (2011) study almost 3,000 tests averaging 900 survey-takers each and find that targeted and obtrusive ads increase purchase intent, but the two combined do not. Bart et al. (2014) examine 54 studies with 740 users on average and show that mobile display advertising is effective for low involvement products. Lewis (2010) documents heterogeneity in ad frequency effects on clicks using a natural experiment with 30 studies and an average of 40 million users. Lewis & Nguyen (2015) use the same natural experiment to examine the competitive effects of banner advertising on online consumer search.

### **2.3 Intention to Buy**

Intention to buy is a mental statement of the consumer that reflects the intention plan of a product on certain brands. Basically someone if intending to buy is usually influenced by factors such as encouragement and certain considerations (Cobb-Walgren, Ruble, and Donthu, 1995).

Indicators inention to buy (Schiffman dan Kanuk, 2001) are interesting to get the information about the product, want to know the product, want to try the product, considering to buy the product, want to buy the product.

## **2.4 Attitude Toward Online Ads**

A positive attitude can make customers loyal to our brand, changing an attitude is not impossible, but sometimes difficult. If an ads can successfully create a consumer awareness of a brand, customers can form a positive attitude toward the brand and may appear to buy the brand (Wells, Burnet, and Moriarty, 1988).

Schlosser (1999) conducted a survey of 400 respondents, and found that there was no opinion that the majority of respondents were related to the use of advertising on the internet, the opinions of the respondents were divided into 3 parts (likes, dislikes, and normal behavior) on advertising receipts. Another thing that is found is that internet users generally assume that advertising on the internet has informative characteristics but less entertaining, and it makes internet users do not make purchases of promoted goods even they do not think it increases the value of the product. Finally, in a study conducted by Newman (2004), attitudes toward was a congruence between the banner ads and the website. A congruency condition is achieved when there is a match between the banner ad and the type of website. For example, a Samsonite ad placement (luggage campaign) is suitable if shown on aircraft sites.

## **2.5 Ability to Recall Online Ads**

Dreze and Hussherr (2003) examine the effectiveness of advertising characteristics in recall ads, influencing factors such as animated content, banner ad form and frequency of repetition, other important notes are that banner sizes have no effect on recall ads. Goldsmith and Lafferty (2002) found a significant relationship between positive responses to ads appearing on the web, and the possible recall ads of an advertised brand. In the same study it was reported that in general, research shows that customers who have a positive attitude toward advertising are better able to remember the ads that are displayed than those with negative attitudes.

Finally, Menon and Soman (2002) have investigated the power of curiosity about the ads that appear on the internet. The results of their research resulted in the fact that curiosity about an ad will improve the quality of customer search aimed at getting information from a particular product.

## **2.6 Frequency of Clicking Online Ads**

The supporting factors of CTR according to Baltas (2003) are the size of the banner, the animation, the length of the ad duration and the logo, the number of host websites, all of which affect the immediate response of the customer in terms of measuring the effectiveness of CTR.

Based on research conducted by Derez and Hussherr (2003) using "eye-tracking" equipment to analyze the attention of customers related to advertisements displayed in a web or site accessed by players, it was concluded that low CTR values were caused by customers avoiding the ads that appeared in such a website or website because the advertisements shown are not relevant to the characteristics of the customer. The CTR ad banner analysis is believed to be the most common way to attract customers and engage them in the selection of brands or products from advertisers. CTR measurements have become important for advertisers to measure the effectiveness of the website (Cho, 2003).

## **3. Research Methodology**

### **3.1 Sample / Data**

Data is gathered by distributing questionnaires to 103 sample respondents in a self administered manner. All 103 respondents are Telkomsel's subscriber. Only 94 out of 103

returned questionnaires are qualified for data analysis. The screening criteria being the ability of respondent to understand the situation surrounding the display advertising campaign.

### 3.2 Instrument and Measure

The survey tool of the current study addresses three purposes. First is to analyze the relationship between attitude toward online ads and intention to buy of Telkomsel subscriber. Second, to analyze the relationship between ability to recall online ads and intention to buy of Telkomsel subscriber. And third, to analyze the relationship between frequency of clicking online ads and intention to buy of Telkomsel subscriber.

Five point Likert scale is applied, with 5=always, 4=mostly, 3=frequently, 2=occasionally, 1=never.

**Table 1:** Variables and scales.

Variables	Reference	Instrumen	Scale
<i>Attitude toward online ads (X1)</i>	Korgaonkar and Wolin (2002).	Feel the benefits (usefulness) of display advertising.	Ordinal
		Preferred advertisements on display advertising compared with advertising in conventional media (tv , magazine , radio)	Ordinal
		More important to get advertising promoted in display advertising compared with advertising in conventional media (tv, magazine, radio).	Ordinal
		Cost of product in display advertising is more cheaply compared with advertising in conventional media (tv, magazine, radio).	Ordinal
<i>Recall ads (X2)</i>	Danaher and Mullarkey (2003).	Advertising in online advertising is in confirmy with subscriber profiling.	Ordinal
		Repetition advertising appear done by periodically	Ordinal
		Duration advertising appear to be a major factor in remembering products shown in the ad	Ordinal
<i>Frequency of clicking online ads / CTR (X3)</i>	Baltas (2003)	The form of display advertising (video, banner advertising, etc.) are major cause for customers in clicking advertising published.	Ordinal
		An advertising measure is a major cause for customers in clicking advertising published.	Ordinal
		Advertisement positioning is major cause for customers in clicking advertising published.	Ordinal
		The use of the right words (wording) should comply with advertising material which is displayed	Ordinal

### 3.3 Hypotesis

The followings are the hypotheses of the study:

H1: Attitude Toward Online Ads has a a significant influence on intention to buy of PT. TELKOMSEL subscribers.

- H2: Ability to Recall Online Ads has a significant influence on intention to buy of PT. TELKOMSEL subscribers.
- H3: Frequency of clicking online ads has a significant influence on intention to buy PT. TELKOMSEL subscribers.

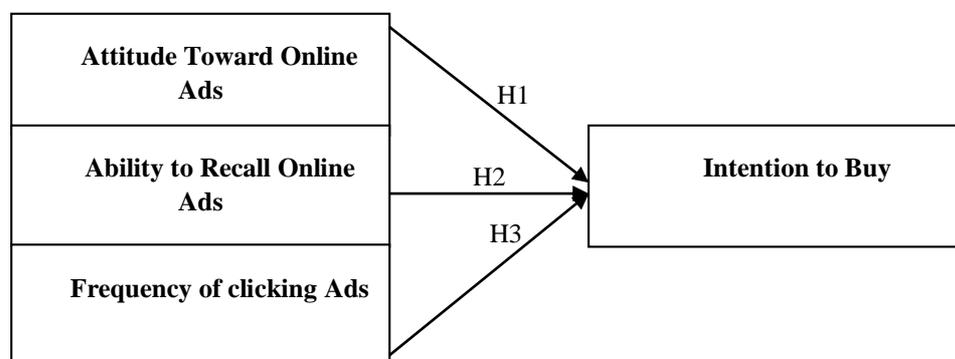


Figure 1. Theoretical Framework

## 4. Result and Discussion

### 4.1 Descriptive Data

Description characteristics of respondents of this research include gender, education, marital status, Telkomsel segment, and the amount of monthly billing are depicted in Table 2.. The significant percentage of respondents education is bachelor degree (S1 in Indonesian education term), while the proportion of gender is close to balanced. The respondents are majority married (77%), with annual expenses below Rp.100,000.- (55%), and a significant simpati SIM card holders (39%).

Table 2: Characteristics of Respondent

Characteristics of Respondent		Amount of Responden	Percentage of Responden
Gender	Male	55	58.51%
	Female	39	41.49%
Highes Education	Elementary School	2	2.13%
	Junior High School	14	14.89%
	Senior High School	20	21.28%
	Diploma	17	18.09%
	Bachelor	32	34.04%
	Master	9	9.57%
	Doctor	0	0.00%
Marital Status	Not yet married	21	22.34%
	Married	73	77.66%
	Widow	0	0.00%
	Widower	0	0.00%
Segment Telkomsel	Kartu Halo	19	20.21%
	Simpati	37	39.36%

Characteristics of Respondent		Amount of Responden	Percentage of Responden
	Kartu AS	27	28.72%
	Loop	11	11.70%
The Amount of a Billing for Each Month	< Rp. 100.000	52	55.32%
	Rp. 100.000 – Rp. 300.000	21	22.34%
	Rp. 300.000 – Rp. 500.000	15	15.96%
	> Rp. 500.000	6	6.38%

#### 4.2 Validity Analysis

The research tool was pilot tested using 30 respondents resulting good validity figures as shown in Table 3.

Table 3: Validity Analysis

<b>Item</b>	X11	X12	X13	X14	
r count	0.571	0.724	0.661	0.656	
r tabel	0.361	0.361	0.361	0.361	
Criteria	Valid	Valid	Valid	Valid	
<b>Item</b>	X21	X22	X23		
r count	0.485	0.403	0.449		
r tabel	0.361	0.361	0.361		
Criteria	Valid	Valid	Valid		
<b>Item</b>	X31	X32	X33	X34	
r count	0.656	0.559	0.496	0.435	
r tabel	0.361	0.361	0.361	0.361	
Criteria	Valid	Valid	Valid	Valid	
<b>Item</b>	Y11	Y12	Y13	Y14	Y15
r count	0.487	0.413	0.426	0.762	0.607
r tabel	0.361	0.361	0.361	0.361	0.361
Criteria	Valid	Valid	Valid	Valid	Valid

#### 4.3 Reability Analysis

Using 30 respondents, the reliability test is shown in Table 4. The test results show good reliability of the questionnaire whose Cronbach's alphas if item deleted being above 0.7.

Table 4: Reability Analysis

Item	Cronbach's Alpha if Item Deleted	Cronbach's Alpha	Note
X11	0.7245	0.6000	Reliabel
X12	0.7209	0.6000	Reliabel
X13	0.7208	0.6000	Reliabel
X14	0.7246	0.6000	Reliabel
X21	0.7337	0.6000	Reliabel
X22	0.7360	0.6000	Reliabel

Item	Cronbach's Alpha if Item Deleted	Cronbach's Alpha	Note
X23	0.7330	0.6000	Reliabel
X31	0.7238	0.6000	Reliabel
X32	0.7279	0.6000	Reliabel
X33	0.7304	0.6000	Reliabel
X34	0.7354	0.6000	Reliabel
Y41	0.7294	0.6000	Reliabel
Y42	0.7343	0.6000	Reliabel
Y43	0.7319	0.6000	Reliabel
Y44	0.7171	0.6000	Reliabel
Y45	0.7268	0.6000	Reliabel

#### 4.4 Variabel Correlation

Table 4 shows the correlation matrix of the variables in the study. All the correlation coefficients were significant at Sig. (2-tailed)  $\leq 0.05$ , and pearson correlation is ranging from 0.337 to 0.599.

Table 5: Variabel Correlation

		Y	X1	X2	X3
Y	Pearson Correlation	1	.337**	.250*	.599**
	Sig. (2-tailed)		0	0.02	0
	N	94	94	94	94

Hypotesis for this variable is: There is a significant relation between variables X (X1, X2, and X3) on variables Y.

H0 :  $r = 0$ , It means there are no significant relation between variables X (X1, X2, and X3) on variables Y.

H0 : Sig. (2-tailed)  $\geq 0.05$ , It means there are no significant relation between variables X (X1, X2, and X3) on variables Y.

H1 :  $r \neq 0$ , It means there are a significant relation variables variable X (X1, X2, and X3) on variables Y.

H1 : Sig. (2-tailed)  $< 0.05$ , It means there are a significant relation between variables X (X1, X2, and X3) on variables Y.

Step of testing:

- With  $r \neq 0$  ( $r_1 = 0.337$ ;  $r_2 = 0.250$ , and  $r_3 = 0.599$ ) it means H0 rejected and H1 accepted, thus hypothesis proved to be true.
- All of Sig. (2-tailed) values is  $< 0.05$  it means H0 rejected and H1 accepted, thus hypothesis proved to be true.

Coefficient of Determination ( $r^2 \times 100\%$ ):

- $X1 = 0.337^2 \times 100\% = 11.36\%$
- $X2 = 0.250^2 \times 100\% = 06.25\%$
- $X3 = 0.599^2 \times 100\% = 35.88\%$

The use of online ads in making purchase decision was moderately correlated with ability to recall (06.25%), and quite strongly correlated with both the attitudes towards online advertising (11.36%) and the frequency of clicking online ads (35.88%).

#### 4.5 Multiple Regesion Analysis

From the calculation results, obtained the regression equation as follows:

$$\hat{Y} = -0.338 + 0,319 X1 + 0,394 X2 + 0,376 X3$$

Sig.        0,000        0,000        0,001

Adjusted  $R^2$  : 0.631

Table 6: Multiple Regresion Analysis

Variabel	Estimate Coefficient	T	Sig.	Note
Y	-0.338			
X1	0.319	3.784	0.000	H1 accepted
X2	0.394	3.916	0.000	H2 accepted
X3	0.376	3.401	0.001	H3 accepted

Explanation of above table is:

- Estimate Coefficient for variabel Y is -0.338, this coefficient value is negative, by mathematically it means indicate when all of variables X have 0 value, and it will give implication to a decrease in a variable Y.
- All the three measures of variables X were found to be the significant influence, with this detail below :
  - Estimate Coefficient for variabel X1 is 0.319, this coefficient value is positive, by mathematically it means indicate when another variables X have constant value, and it will give implication to an increase intention to buy of subscriber by 0.319.
  - Estimate Coefficient for variabel X2 is 0.394, this coefficient value is positive, by mathematically it means indicate when another variables X have constant value, and it will give implication to an increase intention to buy of subscriber by 0.394.
  - Estimate Coefficient for variabel X3 is 0.376, this coefficient value is positive, by mathematically it means indicate when another variables X have constant value, and it will give implication to an increase intention to buy of subscriber by 0.376.
- The model was significant with Adjusted  $R^2$ : 0.631. It means that 63.1% of the intention to buy of subscribers could be explained by the three independent variables.

#### 5. Conclusion and Suggestion

From all of testing scenario, all of independent variables such as attitude toward online ads (X1), ability to recall online ads (X2), and frequency of clicking online ads (X3) have positively influence either partially (using t analysis) or multiply (using F analysis) to intention to buy from Telkomsel subscribers (variable Y). Regarding the results of multiple regression analysis where the biggest regression coefficient value obtained from the variable ability to recall online ads (coefficient value 0.394), and the biggest question item from the variable ability to recal online

ads is customer profiling conformity (average value 3.62) so it's needed a special strategy from the company to increase profiling customers PT. Telkomsel is in accordance with the characteristics of customers who get display advertising services.

However, this research uses sampling technique in the of non-probability quota sampling with population limited to respondents in Jakarta city. The use of probability stratified sampling techniques from larger areas and more amount of respondents more accurate and more general results. Besides that, this study only discusses the influence of attitude toward online ads, the ability to recall online ads, and frequency of clicking online ads on decision of intention to buy for PT. Telkomsels subscriber. These three factors have not been able to represent all the factors that influence consumer switching behavior.

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## OPEN DATA ANALYTICAL MODEL FOR HUMAN DEVELOPMENT INDEX OPTIMIZATION TO SUPPORT GOVERNMENT POLICY

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**Abstract:** The transparency nature of *Open Data* is beneficial for citizens to evaluate government work performance. In Indonesia, each government bodies or ministry have their own standard operation procedure on data treatment resulting in incoherent information between agent and likely to miss valuable insight. Therefore, our motivation is to show the advantage of *Open Data* movement to support unified government decision making. We use dataset from data.go.id which publish official data from each government bodies. The idea is by using those official but limited data, we can find important pattern. The case study is on *Human Development Index* value prediction and its clustered nature.

We explore the data pattern using two important data analytics methods classification and clustering procedure. Data analytics is the collection of activities to reveal unknown data pattern. Specifically, we use *Artificial Neural Network* classification and *K-means* clustering. The classification objective is to categorize different level of *Human Development Index* of cities or region in Indonesia based on *Gross Domestic Product*, *Number of Population in Poverty*, *Number of Internet User*, *Number of Labors* and *Number of Population* indicators data. We determined which city belongs to four categories of Human Development stated by UNDP standard. The clustering objective is to find the group characteristics between *Human Development Index* and *Gross Domestic Product*.

**Keywords:** *Human Development Index; Open Data; Classification; Clustering; Artificial Neural Network; K-Means.*

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### 1. Introduction

*Open data*, especially open government data, is a tremendous resource that is yet fully utilized in many countries. *Open data* have many advantages both for citizens or government itself, for example the citizens could be more aware about what their government work performances or the government services could be significantly improved as operational data becomes available to improve business processes and

shorten delivery times. Inconsistency in policy and utilization of data storage in Indonesia detain development synergy by government. According to the agenda of the *Millennium Development Goals* (MDGs) by the *United Nations Development Program* (UNDP) on the goal to 2017 'Strengthen the means of implementation and revitalize the global partnership for sustainable development' points to 2018 stated that in 2020, all developing countries are expected to increase significantly the availability of high-quality, timely and reliable data (United Nations, 2016). In Indonesia case, each government bodies have their own standard operation procedure on data collecting, that makes incompatibility data about a particular case. For example, in the case of Indonesian food reliability strategy, we need high quality, reliable, accurate, and timely manner data that can describe and predict the when the food shortage will happen, what area need to be strengthened of, what strategy to keep the balance of food availability, and other issues (Tempo, 2016). This is corroborated by the statement of the President of the Republic of Indonesia and Coordinating Minister for the Economy (CNN Indonesia, 2016). This condition led policies by government to missteps. The unity of the data can be done if the quality of the data from each government bodies is adequate by applying the regulations to fix the infrastructure data management and public information services of government, yet this still not optimized by government (Kebebasan Informasi, 2016).

*Human Development Index* (HDI) is a to measure and evaluate Indonesia government policy (Biro Pusat Statistik, 2016). According to the UNDP, human development is defined as expansion option for citizen to have choices. It means as the efforts towards "expansion options" as well as the extent achieved from these efforts. At the same time the human development is as the formation of human capabilities through improved level health, knowledge, and skills; as well as utilization ability/skills. The concept of development over much broader sense than the concept of economic development that emphasizes the growth (including economic growth), basic needs, community welfare, or human resource development (Alkire, 2010).

Data Analytics is collection of methods to measure human characteristic or behavior based on available data or the digital trace left in the internet (Liu, 2009). There are many method to finding human behavioral pattern, one of them is data mining. Data mining provide many model to fit the data pattern such as regression, classification, association, outlier detection, time series, clustering, and many other models. However, since the nature of Indonesia *Open Data* is limited, in this case is incomplete data, then we can only explore on limited models, which are classification and clustering.

In this paper, we show how we can predict HDI value and finding pattern of HDI grouping pattern with *Gross Domestic Product* (GDP). We use the best and suitable classification and clustering technique to the Open Data limited format. The techniques are *Artificial Neural Network* (ANN) classification and *K-Means* clustering. ANN is used because the ability to find all the possibilities for relations between all variables or indicators measured. K-means is used because of its simplicity and effectiveness to find clusters in data.

## **2. Theoretical Background and Data Characteristic**

Data mining is the exploratory process and analysis from large quantities of data. Data source can come from database, data warehouse, web, other information repository, and data streaming (Han et al, 2012). Two data mining model used in this paper are classification and clustering model. Classification model is grouping the data based on historical behavior of the previous data. The observed variables are labeled to support the automation classification process (Tan et al, 2014). Clustering models refers to data grouping process into classes of similar data. The similarity procedure done by

unsupervised fashion, there are methods such as distance to measure the similarity automatically (Larose, 2015).

*Artificial Neural Network* (ANN) is a classification technique that imitate the way of human nervous system working. They use for a wide variety of task, from relatively simple classification problems to speech recognition and computer vision (Kriesel, 2005). *K-means clustering* algorithm is a simple and effective algorithm for finding cluster in data. *K-means* split data into *k* cluster that have been predetermined in advance (Larose, 2015).

We use *Open Data* that provide free datasets about many variables measured in connection with Indonesia development. The datasets are available to download in One Data Indonesia project on the [www.data.go.id](http://www.data.go.id) website. One Data Indonesia is an Indonesian Government project to make centralized and open website that contains data from all ministry departments in Indonesia as a part of government commitment on *Open Government Partnership*. At this moment One Data Indonesia is still a pilot project, Indonesia Government targeting the website are fully ready by 2018. Preview of the data can be seen in Figure 1. Here we can see that the data is incomplete or missing for certain measurement indicators, and for some time stamp measurement (yearly). Because of this obstacle, we use only the complete data for model construction shown in Table 1.

Area Name	Indicator Name	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bandung, Kota	Length of Province Road: Fair (in km) (BPS Data, Province only)										
Bandung, Kota	Length of Province Road: Good (in km) (BPS Data, Province only)										
Bandung, Kota	Length of Province Road: Gravel (in km) (BPS Data, Province only)										
Bandung, Kota	Length of Province Road: Light Damage (in km) (BPS Data, Province only)										
Bandung, Kota	Length of Province Road: Other (in km) (BPS Data, Province only)										
Bandung, Kota	Literacy Rate for Population age 15 and over (in % of total population)	98.91	99.58	99.57	99.63	99.54	99.65	99.09	99.72	99.56823	99.96
Bandung, Kota	Monthly Per Capita Household Education Expenditure (in IDR)	31319	33672	36037		69869	65738	88087	60105	96346.31	120040.05
Bandung, Kota	Monthly Per Capita Household Health Expenditure (in IDR)	50986	77050	14952		19397	19786	30317	32602	53186.06	14608.01
Bandung, Kota	Monthly Per Capita TOTAL Household Expenditure for The Poorest 20 percent (in ID)	167069	200046	214100		295634	319378	316424	293811	383063.6	389530.58
Bandung, Kota	Morbidity Rate (in %)	22.45014	16.29512	24.29832	28.826	32.57811	31.88825	21.76866	24.25203174	26.8817693	
Bandung, Kota	Net Enrollment Ratio: Junior Secondary (in %)	71.2	75.14	66.47	70.16	71.82	60.27	72.76	71.43	89.093385	89.85
Bandung, Kota	Net Enrollment Ratio: Primary (in %)	89.19	90.41	92.07	89.97	97.466	93.93	89.16	92.92	97.576813	97.95
Bandung, Kota	Net Enrollment Ratio: Senior Secondary (in %)	51.43	58.99	58.05	59.22	45.4	54.43	52.8	62.67	51.177273	59.76
Bandung, Kota	Number of Doctors	1091			1171			1265			
Bandung, Kota	Number of hospitals	25						29			
Bandung, Kota	Number of Midwives	357		417				537			
Bandung, Kota	Number of people employed			915047	952752	998227	948124	1012946	1067721	1055422	
Bandung, Kota	Number of people employed in agriculture, forestry and fishery			10652	13705	10996	9778	3381	10524	7460	
Bandung, Kota	Number of people employed in construction sector			5593	33476	42083	47658	39887	51259	58544	
Bandung, Kota	Number of people employed in electricity and utilities sector			702	4770			3307	6090	17840	
Bandung, Kota	Number of people employed in financial services sector			36506	45345	38750	38959	55033	72117	56381	
Bandung, Kota	Number of people employed in industrial sector			180680	194333	198714	174309	251166	263893	250268	
Bandung, Kota	Number of people employed in mining and quarrying sector					1516	1860	1947	3762	3536	6401
Bandung, Kota	Number of people employed in social services sector			181167	220646	231828	261553	230375	210292	199134	
Bandung, Kota	Number of people employed in trade, hotel and restaurant sector			367605	383787	370811	346110	369161	378926	392918	
Bandung, Kota	Number of people employed in transportation and telecommunication sector			81832	63899	103185	64103	60179	71084	57376	
Bandung, Kota	Number of people in labor force			1095456	1124411	1251180	1079477	1129744	1177291	1185474	
Bandung, Kota	Number of people live below the poverty line (in number of people)	84600	95200	87200	106800	110300	118600	116900	111100	117700	114999
Bandung, Kota	Number of people underemployed			93000	121812	85370	114175	95651	109307	109678	
Bandung, Kota	Number of people unemployed			180569	171659	152953	131353	116798	109570	130052	
Bandung, Kota	Number of Puskesmas and its line services		1								
Bandung, Kota	Number of schools at junior secondary level		80								
Bandung, Kota	Number of schools at primary level		242		116				244		
Bandung, Kota	Number of schools at Senior Secondary level		804		502				837		
Bandung, Kota	Number of Student: Junior Secondary Level (in number of people, 2009 data only)		202			8			232		
Bandung, Kota	Number of Student: Primary Level (in number of people, 2009 data only)						17031				
Bandung, Kota							210793				

Figure. 1. Open Data datasets preview

Table. 1. The indicator used for classification and clustering model constructions

Variable	Years		
	2010	2011	2012
Human Development	√		√
Gross Domestic Product	√		√
Number of Population in	√		
Number of Internet	√		
Number of Labors	√		
Number of Population	√		

For classification model, we use Human Development Index (HDI), Gross Domestic Product (GDP), Number of Population in Poverty (NPP), Number of Internet Users (NIU), Number of Labors (NL), Number of Population (NP). These indicators have complete data only in 2010, the reason is because the census to collect some indicator data conducted every 10 years. Meanwhile for the clustering model, we use HDI and GDP. The objective is finding new characteristics whether there are places with high HDI even though they have low GDP or the other way around. The clustering model is useful to uncover hidden pattern behind the data.

We use 2012 data for clustering model, because the factor completeness and novelty of published data comparing to 2010 data. For the information, indicator NPP, NIU, NL, NP are constructor of HDI indicator. NIU or Number of Internet Users reflect whether a country considered as a developing or a developed country (Pratama and Al-Shaik, 2012). The proper use of Internet usage has positive correlation with HDI (Ssewanyana, 2011). NP and NL affected the NPP (Tambunan, 2011) (Hardini, 2011) (Mirza, 2012).

### 3. Model Construction and Result

In this section, we show the workflow to construct Classification model based on ANN and Clustering model based on K-means in Figure 3. Comparing to other famous classification based model such as Decision Tree, K-nearest neighborhood, Naïve Bayes, and others, ANN is chosen because the nature of the data and dynamic indicators proportion to predict HDI value.

After we collect the data, both of models need to do preprocessing data. For Classification, we get the best ANN model by iterate for 10 times for each the numbers of neurons in hidden layer with variation of 10 neurons, 13 neurons, 16 neurons, and 20 neurons to get the best model with the lowest mean error, which will be the best classification model. We perform classification to predict which city that fall into 4 categories of HDI. According to UNDP (Human Development Report, 2010), they are Low HDI, Medium HDI, High HDI, Very High HDI. We predict HDI class using 5 other data as the predictors/inputs using the best ANN Classification model. The final stage, we perform prediction to measure the model performance. The ANN visualization can be seen in Figure 4.

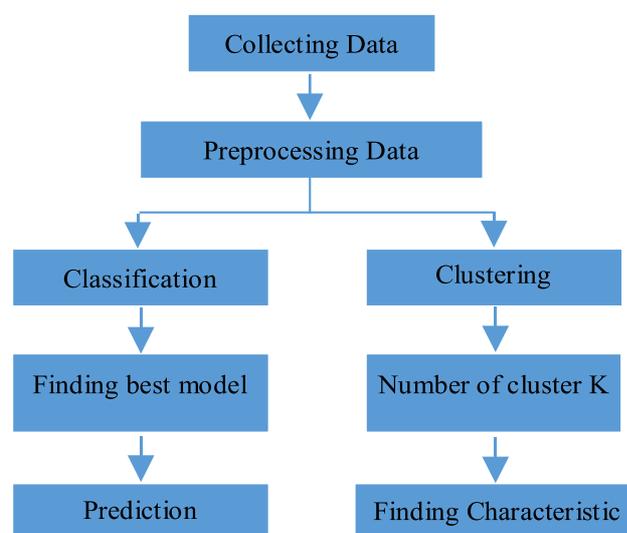


Figure 3. Research Process Flowchart

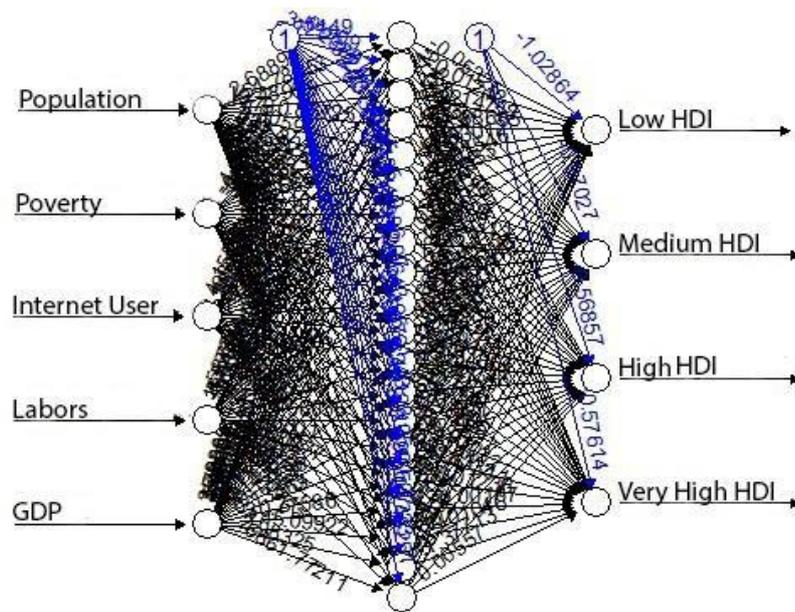


Figure 4. The result of Artificial Neural Network

Our ANN classification model construction result is the lowest mean error is 7.6596, which coming from the highest number of neurons in the experiment, which is 20 neurons. The mean error for 10 neurons, 13 neurons, and 16 neurons models are 10.53145, 12.12073, 8.380923 respectively.

Clustering model use HDI and GDP to find interesting clustering pattern between both indicators. We do lot of preprocessing step in this step, which are data noise removal, and transform into appropriate data format. The final data consists of 495 cities in Indonesia. K-means clustering calculations HDI and GDP begins by determining the number of  $k$  cluster. In this study, we use  $k=4$  based on HDO and GDI Indonesia cities in 2012.

Looking at Figure 5. Cluster 3 has average HDI value of 72.39, which belong into the High HDI category. Cluster 1 has average HDI value of 52.30, which belong to Low HDI category. Cluster 4 has average HDI value of 76.82, which belong to High HDI category. At last, cluster 2 has average HDI value of 67.80, which belong to Medium HDI category. The HDI range value is distinctively separated between clusters, while in some GDP range value is overlap between clusters, especially when GDP value is below 40.

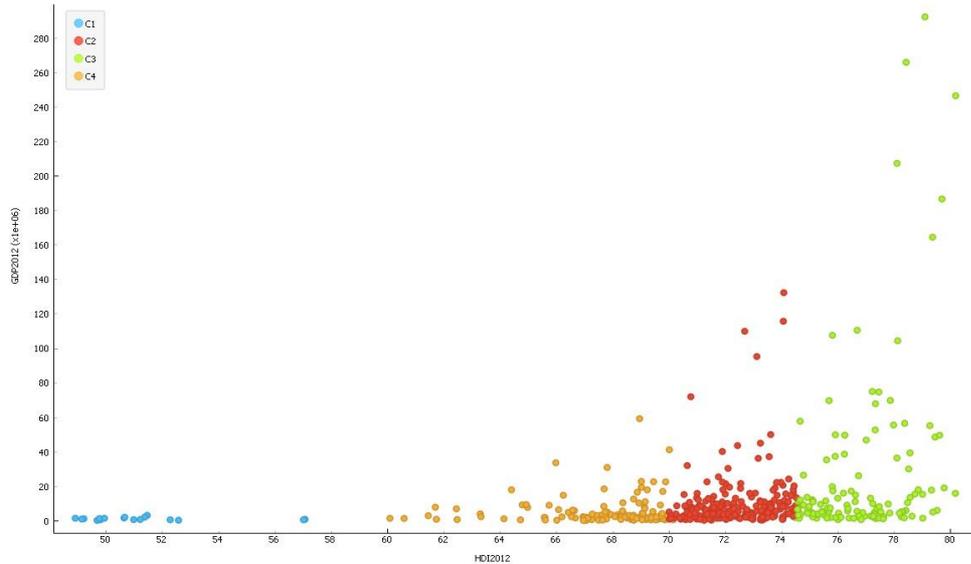


Figure 5. The Result of K-Means clustering model of HDI and GDP data in 2012. C1 is cluster 1, C2 is cluster 2, C3 is cluster 3, and C4 is cluster 4.

#### 4. Model Evaluation, Analysis, and Conclusion

To evaluate the accuracy of classification model we use confusion matrix, which basically a matrix to describe the performance of classifier. The confusion matrix can be seen in Figure 5. The result is from 99 data, we predicted 90 data is correctly predicted and 9 misclassification data. The ANN classification model with 5 inputs, 20 neurons, and 4 outputs configuration or (5:20:4) have 9.09% prediction error. For the K-means clustering model evaluation based on 4 clusters construction, we are able to predict all new data into the right cluster. In short, we have 100% accuracy for clustering model.

	High Human Development	Medium Human Development	Low Human Development
High Human Development	88	1	0
Medium Human Development	7	2	0
Low Human Development	1	0	1

Figure 5. The confusion matrix to measure the performance of ANN classification model

For the analysis, Classification models able to classify the HDI status of any Indonesia city with high accuracy based on 5 indicators: GDP, NPP, NIU, NL, and NP. In practical usage, we can learn HDI class from the value of 5 indicators. In some cases, we can predict future HDI value in real time based on today indicators value. Clustering models able to separate different cluster characteristics based on HDI and GDP indicators. In Figure 5. show the different characteristic of each cluster. By this visualization, we know

exact the condition of each city by their HDI and GDP value. For example, cities in cluster 3 and 4 have High HDI value that means they good value of health aspect and life expectancy, education aspect, and income aspect. In those clusters, most cities have low level of GDP, only handful of city have high level of GDP. This shows that HDI not only determined by GDP value, but mostly because of the regional government efficiency to make high HDI value happen.

The conclusion is that by having a good and systematical effort to support *Open Data* movement to collect rigorous data, then citizen and government can evaluate the government program or policy to boost any government project to increase citizen welfare. From the HDI case study, we learn that we are able to make such predictions even with the condition of limited data. The possibility of having many models is unlimited with the availability of complete data supported by *Open Data* movement. We can perform deeper, complex analysis, and verification-examination by different model available. In the end, government will have unified voice based on data analytical process in making policy or program.

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## THE ACCESS GAP AT EMPLOYEE DIVISION ON AGATE STUDIO BANDUNG

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**Abstract:** Internet gives positive impact, which is to improve business development in the digital era that bring up the term Electronic Business (E- Business). One company that implement E-business is Agate Studio Bandung, a start up company that produces games. This research was conducted to know the ability of the Internet Access in Agate Studio Bandung. There are several assessment factors : material access, skills access, motivational access, and usage access.

The purpose of this study is to analyze factors of internet access namely material access, skills access, motivational access, and usage access which are owned by Agate Studio Bandung. In addition, researchers want to know which factor has the highest value of internet access. This research is done by analyzing internet access on the whole company and analyze at every division of work.

The results of this study indicate the value of each internet access's factor. Agate Studio Bandung employees are considered to be able to use internet access very well because they have adopted a good attitude towards internet, master the ability related to internet usaga, have the opportunity and means to access the internet, and can use the internet to complete a job. Serious Game Division and Entertainment Division has the highest internet access value so it is considered to have the ability to operate the internet in completing their work. The Holdings division is considered capable of utilizing internet access for business activities. But Material Access in the Entertainment Game and Serious Game Division needs to be improved to support other internet access factors.

**Keywords :** *E-business;internet; internet access, startup*

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### 1. Introduction

As the present time, internet technology has spread over Indonesian people. Internet has a positive impact in many aspect of life, including corporations. Internet is a source of information which is mostly used by corporation because it can reach all region, potentially helpful, fast to deliver information universally, qualified and almost cost-less. [1]

In the developing business at this digital era, appear this Electronic Business (E-Business) terminology which is a proses where corporations do their business in an electronic networking line. E-business make it possible to integrate business process and configured it through internet, intranet, and extranet. With E-Business, corporations run the business more effectively and efficiently. [2]

One of the corporations who applied E-Business is game industry. In 2015, revenue from this industry is \$321 M. Internet has given a very specific contribution in Indonesia gaming industry. [3] Without a great internet access, it can be assured this game industry would never grow like its conditions nowadays. It is because whole activity, from production to distributing games is using internet. [3] But, not every person in this industry having enough knowledge about internet access. It is caused by several factors, such as skill, motivation, material, usage. [4]

Internet usage is a thing to look forward to by e-business participants because of this usage and utilize can bring many great benefits in the competitive business industry. Corporations who can implement information technology to their company is the one can survive the competition. [5]

Implementation of information technology is to improve business transformation, precision, and efficiency of information exchange. Therefore, human resources holding the key to achieve corporation's objective. [6] Employee's optimum performances is one of the organization's goal to achieve high productivity. [7]

## **2. Literature Review**

### **2.1 Entrepreneur**

Entrepreneur is an inovator who has a instinct to seek for opportunity, has a enthusiasm, ability, and mind to defeat the slow thinking and laziness. [8]

### **2.2 Internet**

Internet is a wide network which connect every computer from business organization, government, schools from overseas directly and fast. [9]

### **2.3 Electronic Business (E-Business)**

Electronic Business (E-Business) is an exchange of information fully on electronic media, within an organization and or external stakeholders supported the business process. [10]

### **2.4 Internet Access**

Internet Access have 4 factors, they are motivational access, material access, skills access, and usage access. [4]

#### **2.4.1 Motivational Access**

Motivational access is the desire to have access to ICT technologies and connection to the internet. [14] The main concept of motivation is defined as a reason that made a person access, use, connected to ICTs. [13] Motivation access is build by reaction to technology. Reaction is considered as a certain object but motivation is considered as a specific objective. Someone has to have a chance and a facility to access the internet. [5] After a technology been spreading widely, motivation to get a computer and reach the internet access highly rise. [12] The factors explaining mativational access divide could be both of a social or cultural and a mental or psychological nature (e.g., low levels of income, low levels of education, computer anxiety, and lack of time). [15] In some country, the common obstacle of motivation access is computer anxiety and technophobia, especially in elderly, low level of education, and half of women population. [12]

### **2.4.2 Material Access**

Material Access is succeeded by having motivational access to ICTs and is also known as accessibility. [14] The concept of material access comprises physical access and other types of access that are required to reach complete disposal and connection such as conditional access (subscription, accounts, and pay-per-view). [15] Someone has to have the chance and facility to access the internet. [4] Material access needs a physical access or internet connection, whether it's home or anywhere else, cost for hardware, software, and services. [13] Different material is obvious from the hardware which is used to access the internet and how much hardware are being used to access the internet. [4] Access the internet at home giving so much freedom than when accessing in internet center. [3] The major contributing factors to material access can include: income, education, and occupation. [15] Another aspect to be considered of is the technical characteristics from the internet access such as the speed of the connection. Technical differences like speed of the connection, quality, software version and hardware capacity affect the advantages of internet access user get. [2]

### **2.4.3 Skills Access**

After someone have motivation to use computer and several kind of physical access, they have to study how to use hardware and software through try and error work with ICTs [12][15] Medium-related skill needs operational skill which is a basic skill to operate internet and formal skill which is a competencies that related to internet hyperlink structure navigation. Content-related skills consist of information skills means skill to search for information, strategic skills which means direct solution of goal-achieving with the most optimum and efficient way. [4] Education is a critical factor that can affect skills access. [15] One possible reason for this educational effect is the likelihood that highly educated individuals hold service-industry jobs, where ICT use is common in the workplace. [16] Those who have a higher education perform better on all skills compared to those with a lower educational background. [14] Problem of skills access can be solved if someone has already mastered skills access. [12]

### **2.4.4 Usage Access**

Usage access refers to the differential use of applications in daily practices and also includes: time and frequency, how active or creative internet use is, and quality of internet (e.g. broadband or dial up). [14] Active of creative use of ICT is about contributions to internet (e.g publishing a personal website, creating a weblog, posting a contribution on an online bulletin board, newsgroup or community). [16] Internet use is largely defined in terms of frequency, duration of internet usage, or the types of activities performed online. [4] Usage is largely linked to technical connection and demographic characteristic od users such as: social class, education, age, gender, ethnicity, and effectiveness of the connection. [14] A person with a lower level of education is likely to spend more time online in his spare time compared to people with higher education levels and doi it various ways, such as being more often involved in social and gaming interactions than for educational purposes, seeking information, or work-related reasons, or collectively referred to as "capital enhancing activities. [4] The perception that the internet is an important source for information and news has a significant effect on the usage of the internet. [12]

## **3. Access Gap & Digital Divide**

Gaps in four access areas (motivational, material, skills, and usage) can cause digital divide [15]. Digital divide means the uneven distribution of access to, and the asymmetric utilization of ICTs. [16] Digital Divide referred to the inequality of technological opportunities, in terms of gap between those who do and those who do not have access to information technology. [15] Gradually, Digital Divide became understood as the gap between individuals, household, business, and geographical areas at different socio-economic levels with regard

to both their opportunities to access information and communication technology and to their use of Internet for a variety of activities. [15] Here is a figure of Internet Access Gap Model. [14]

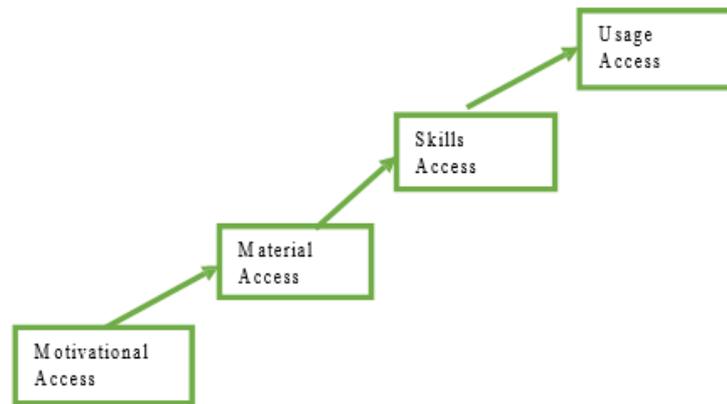


Fig. 1.1 Access Gap Model

The model of Access Gaps explains the cumulative role of four types of access gaps including motivational access, material access, skills access, and usage access in shaping digital divide. [14] This model provides an appropriate theoretical grounding for linking access gaps to digital divide. [15]

#### 4. Method

Population in this research is employees of Agate Studio Bandung. Based on the results of interviews with one of Agate Studio Bandung Employees, the number of employees amounted to 75 people who are entirely made into population in this study.

This research uses Nonprobability Sampling technique. Nonprobability Sampling is a sampling technique that does not provide equal opportunity for each element of member of the population to be selected to be sampled. Type of Nonprobability Sampling used is Saturated Sampling. Saturated Sampling is a research technique where all the members of the population used as sample. This technique often applied when the population is relatively small, or the research wants to generalize with a very small error. [11]

In order to know the descriptive of the respondents about the variable used in this study, it is necessary to do questionnaire measurement. Each questionnaire question is accompanied by five answer that have to be chosen according to the respondent's opinion. The answer then compiled the rating category for each item according to the question percentage and value level with the steps as follows [11]:

1. Cumulative value is the sum of the value of each question item from 75 respondents (employees of Agate Studio Bandung). Furthermore, the percentage of the cumulative value is divided by its frequency value then multiplied by 100%.
2. The number of respondent is 75 people. With the largest scale measurement value is 5, while the smallest scale value is 1. The largest cumulative number is obtained =  $75 \times 5 = 375$ , and the smallest cumulative number =  $75 \times 1 = 75$ .
3. As for the smallest percentage value =  $(75:375) \times 100\% = 20\%$ . The range value category for each question determined based on the following formula :

Percentage of rating category is obtained as shown in table 2.1 :

Table 2.1 Percentage of Rating Category

No	Persentase	Kategori Penilaian
1	20% - 36%	Not Very Good
2	>36% - 52%	Not Good
3	>52% - 68%	Good enough
4	>68% - 84%	Good
5	>84% - 100%	Very Good

Source : Data processed by Researches (2017)

Calculation of total indicator scores, average variable scores, percentage of indicator variables, and percentage of average is as follows :

1. Total score indicator variable :

Total Score variable = (number of respondents who answered strongly agree x 5) + (Number of respondents who answered agree x 4) + (Number of respondents who answered strongly disagree x 1).

2. Average variabel scores

Average variabel scores = (total score of total indicator variable) / (Number of variable indicator).

3. Percentage indicator variable

Percentage variable score = (total score of total indicator variable) / (ideal score).

4. Average percentage of variables :

Percentage of indicator variable = (Number of percentage indicator variable x 100%) x (Number of indicator variable).

To determine the category of the total score of each variable, the continuum line is used as follows:

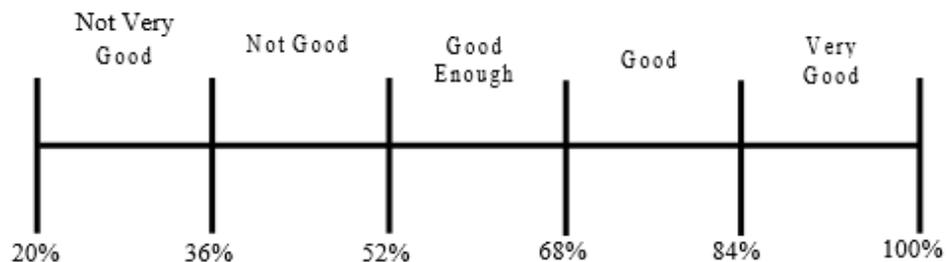


Fig. 2.2 Continuum Line

## 5. Results and Discussion

### 5.1 Internet Access Analysis in Overall

By gender, female respondents have a percentage of 35%, while male respondents have a percentage of 65%. The duration of internet usage is dominated by time > 2 years with 87% percentage, then 2 years with 4% percentage, 1 year with percentage of 2%, and 6 month with 7% percentage. Based on the age of respondents, age 20-24 has a percentage of 41%, age 25-29 of 36%, age 30-34 have 11% percentage, and age 35-39 have percentage of 12%. All 75 respondents with 10 percentage choose “yes” in the use of the internet work, so there is no respondents to do not use internet in work.

The majority of respondents use the internet at the office with a percentage of 48%. Then the home is the second place selected to use the internet in working with a percentage of 29%. Respondents who choose cafe have percentage of 19% and other options have percentage of 4%. The internet media that most used by respondents in the work is email with 54% percentage. Then social media becomes the second most selected to work with 35% percentage. Blogs are used by 7% of respondents and microblogs are used by 4% of respondents.

Table 3.1 Average Score Percentage

No	Sub Variable	Average Score
1	Material Access	78%
2	Skills Access	93%
3	Motivational Access	80%
4	Usage Access	87%
<b>Total</b>		338%
<b>Average Percentage</b>		84,5%

Based on table 3.1, the average of Material Access is 78%, the average of Skills Access is 93%, the average of Motivational Access is 80%, and the Average of Usage Access is 87%. The average of all sub variables is 84,5%. This is the internet access assesment category on the continuum line :

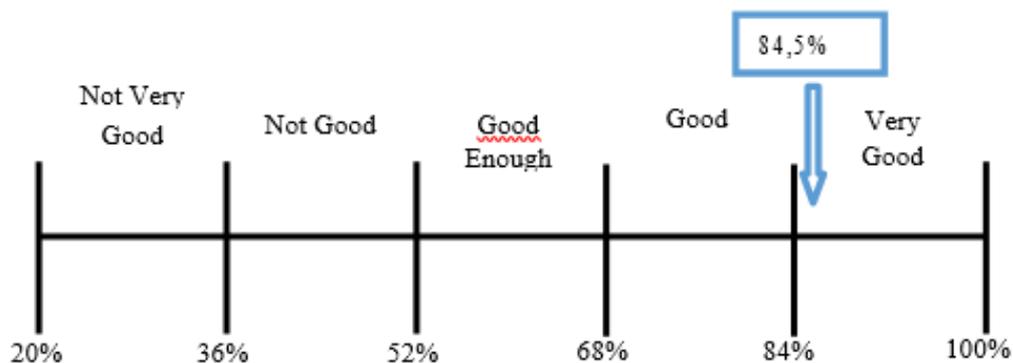


Fig. 3.1 Garis Kontinum Rata-rata faktor *internet access*

Fig. 3. shows that the average percentage of Internet Access score is in the “Very Good” category with the percentage of 84%. So from this average result indicates that respondents have a good understanding of internet access related to the utilization of internet access in the work.

Skills access ranks first in the percentage table of average research scores with percentage of 93%. One learns more about this skills by training through some trials and error than through formal education. [4] In addition, the demands of the surrounding environment as well as the various task and jobs provided from work environment can make the internet user experience that can make someone improving his skills. This is directly proportional to the results of the questionnaire analysis which states all respondents use the internet in work and the majority of respondents with 87% percentage have been using the internet for more than 2 years, causing Agate Studio employees to have good skills access because they have a lot of experience in using internet.

Usage Access ranks second in the percentage table of average scores with 87% percentage. People with low education use the internet more for entertainment than for serious application while higher education tend to use the internet for serious use which has a positive effect on capital and resources (work, career, science, social participation, etc than for entertainment. [ ] This is in accordance with the results of respondents' analysis which states that 90% of respondents said the internet can disseminate job information to co-workers more quickly, 89% of respondents said the internet provides convenience to communicate with colleagues. So it can be concluded that Agate Studio Bandung employees can utilize the internet well in doing their work.

Motivational Access ranks third in the percentage of average score with 80% percentage.

Motivational factors shaped by one's attitude towards internet. Attitude can be interpreted as specific objects whereas motivation is more regarded as a specific goal. [4] Based on the results of questionnaire analysis, respondents have an interest in finding information about jobs through the internet and feel that their knowledge increases after using internet. Agate Studio Bandung employees have a good motivation in using the internet because they have been utilizing internet in searching for information and finish the work.

Material Access ranks last in the percentage of average score with percentage of 78%. Individual must have the opportunity and means to access the internet. Someone who has computers, laptops, tablets, and smartphone that can connect to the internet anywhere has a better chance to access the internet. [4] Material Access has low value in accordance with the respondents' answer on question of use of more than one smartphone in everyday use that has the lowest value than the other question with 62% percentage.

Material Access has the lowest value when compared with skills, usage, and motivational. However, this factor does not give big impact to the Internet Skills which has the biggest percentage than the other sub-variables. Because Agate Studio Bandung employees can still have good skills, usage, and motivational using one type of material access as long as they can still connect to the internet.

## **5.2 Levelling of Internet Access on Company Division**

In Agate Studio Bandung there are three divisions of work, namely Holdings Division (Management), Entertainment Division, and Serious Game Division. This following figure shows in what position of each division on access gaps model :

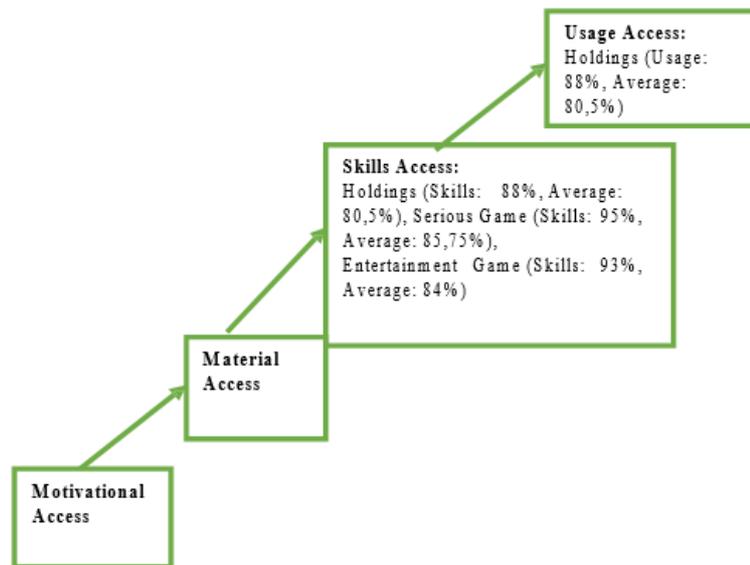


Fig. 3.2 Access Gaps on Agate Studio

The successive aspect of the model suggests that the effective access to technology is dependent on four types of access including motivational access, material access, skills access, and usage access. [15] Holdings division occupies in usage access and skills access, which means Holding division become the best division that utilize internet access. Because usage access is also succeeded by the motivation to use ICT, material access, and having appropriate skills. [15] Serious Game and Entertainment Game occupy in Skills Access because both divisions have the highest value in skills. Being employed in service-industry increases the odds of ICT exposure developing both positive attitudes and digital skills and literacy. [16] Serious Game and Entertainment Game Division need to improve motivational and material access in order to utilize internet access to the maximum and reduce the internet gaps in the company.

The comparison of the average internet access score on each division can be seen in table 3.1 :

Table 3.2 Comparison of Internet Access Average on Each Division

No	Sub Variable	Average of Holdings (Manajemen) Division	Average Entertainment Game	Average of Serious Game
1	Material Access	69%	76%	82%
2	Skills Access	88%	93%	95%
3	Motivational Access	77%	80%	80%
4	Usage Access	88%	87%	86%
<b>Total</b>		322%	336%	343%
<b>Average Percentage</b>		80,5%	84%	85,75%

Based on table 3.2, the average of serious game division has the greatest value with percentage of 85,75%. The second highest average is the average of Entertainment Game Division with 84% percentage. The smallest average is held by Holdings Division with the percentage of 80.05%. The following categories of internet access analysis on each division on the continuum line

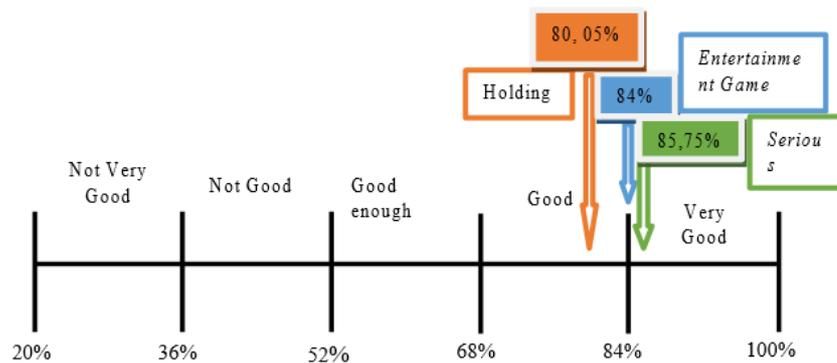


Fig. 3.3 Continuum Line

Fig. 3. shows that on the continuum line, Holdings Division is in the “Good” category”, Serious Game Division is in “Good” category, and the Serious Game Division is in “Very Good” category. In material access variables, the highest score division is Serious Game (82%), the second highest score is Entertainment Game Division (76%), and the lowest score is Holdings Division (69%). To have material access, a person needs physical avness and internet connection to access the internet. [4] Entertainment Game and Serious Game division has the highest material access value because this division is the game developer so that it must have the device and good internet access for producing games. While the Holdings division still can be said to have a good material access although it has the lowest value (69%) when compared with other divisions.

Comparison of Skills Access variable shows that the highest score is held by Serious Game Division (95%), the second highest is Entertainment Game Division (93%), and the lowest is Holdings Division (88%). Skills access divided into two types: Medium- related skills related to operational capability and formal ability to access internet, and content-related skills related to information ability and strategic ability to achieve specific goal. [4] Serious Game and Entertainment Game Division are having good value because they are required to use and utilize internet access in completing their job.

In Motivational Access variable, Entertainment Game and Serious Game Division have the same value that is 80% while Holdings has the lowest value of 77%. Someone has to adopt a good attitude towards the internet in order to have good motivational access [4]. Attitude is defined as a specific object while motivation is more considered as positive goal. Entertainment Game, Serious Game, and Holding division have an average grade of the same “Good” category on the continuum line.

The highest rank of Usage Access is owned by Holdings Division with 88% percentage. The second highest ranking is Entertainment Game (87%) and the last rank is Serious Game (86%). Internet use is largely defined in terms of frequency, duration of internet use, or types of activities performed online. [4] Internet use in business can result in customer relationships, dealing with suppliers, and internal operation of company. [13] The Holdings Division has the greatest percentage can be attributed to the type of activity that is done using the internet in a long time to find employment information and complete the work.

## 6. Conclusions

This study aims to find out how the ability of the internet access on employees of Agate Studio Bandung by using factors from internet access that is Material Access, Skills

Access, Motivation Access, and Usage Access. Based on the results of research and the discussion that has been done, then the conclusions obtained are as follows:

1. Based on the results of average score of internet access, it can be concluded that the ability of internet access at Agate Studio Bandung has category "very good". This is supported by the results of analysis on each factor of internet access which all have a good value. Therefore, Agate Studio Bandung employees are considered capable of applying internet access properly, such as adopting good attitude towards internet, mastering ability related to internet usage, having opportunity and means to access internet, and can use internet to complete a job.
2. The factor that has the highest value of analysis is skills access which categorized as "very good". These factors are analyzed using several statements relating to the experience of users in the internet use related to the work. Respondents were able to master operational, formal, information, and strategic skills in using internet.
3. The usage access factor ranks second and categorized as "very good". The usage access factor analysis is done by using some related statements in internet usage as one of the most important sources of information or news. Respondents use the internet frequently and long periods of time and perform various activities during online.
4. The motivational access factor ranks third and categorized as "good". Motivational access factor analysis is done by using several related statements in motivation on each individual in using internet to find information or do their work. Respondents adopt a good attitude towards the internet and have a motivation with specific purpose when using the internet.
5. Material access factor ranks the lowest and categorized as "good". Material access factors analysis is done by using some statements related to the tools of internet usage such as having computer, laptop, smartphone, or software/application. Respondents have the opportunity to access the internet, have devices and connections to access the internet.
6. On all four internet access factors analyzed, the Serious Game Division has the highest average score among the other divisions, Entertainment Game Division has the second highest average, while the Holdings Division has the lowest average value. On Internet Access Model, Holdings Division occupies in both usage access and skills access while Entertainment Game Division and Serious Game Division are occupy in skills access. Eventhough all Divisions of Agate Studio Bandung occupy in usage access and skills access, it does not mean that they have no material and motivation access. Otherwise, it shows that motivational and material access are the first level they need to gain access. Internet access factor with the lowest value owned by Serious Game Division is Motivational Access. However, it does not affect other internet access factors because the division already has skills access with the highest score among other divisions. So the Serious Game Division is considered to have the ability to operate the Internet in completing work.
7. Entertainment Game Division has material access with the lowest value and the highest score is the skills access factor. Entertainment Game Division is considered capable of operating the internet but need to improve material access because it can affect a person's opportunity to access the internet which will affect the skills access he has. By improving material access, it can improve the access skills of the Entertainment Game Division.
8. In the Holdings Division, the value of Usage Access has the highest value compared to other divisions, so that the Holdings Division is considered capable of utilizing internet access for business activity such as connecting with consumers and operating the company. However, material access in this division has the lowest value compared to other divisions so that it needs to be improved in order to support the use and utilization of internet access.

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## FACTORS OF ABSORPTIVE CAPACITY AT SPANISH BEVERAGE COMPANIES

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**Abstract:** Following the process-based definition of absorptive capacity, this article tries to identify factors that play role as critical components in the environment of Spanish beverage companies. We explored the existing theory of absorptive capacity and processed our questionnaire using factor analysis method to provide descriptive understanding. Data from a multi-informant survey conducted in 111 industrial firms show that sensitivity to change, collecting information, understanding of roles, exposure and product experience are the factors of absorptive capacity that lead to performance. This result seem to correspond with existing theories of absorptive capacity which comprise of knowledge creating (acquisition) capabilities, knowledge assimilation, knowledge transformation and knowledge exploitation

**Keywords :** *absorptive capacity, organizational innovation, beverage company*

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### 1. Introduction

Innovation is a widely discussed topic in the field of entrepreneurship. Organizational creation is important for the process of innovation (Van de Van et al., 2015). A company that embraces innovation acclimatizes information and advances that have been created somewhere else, while in the same time viewed as new approach to the company (Damanpour and Gopalakrishnan, 2001). This idea is consistent with the distinction made between exploration and exploitation mentioned in several organizational learning literatures.

Innovation is also an important function of management because it is linked to business performance, as has been demonstrated in many studies, for example in Damanpour and Evan (1984). The findings indicate that there is a positive and direct relationship between innovation and performance. Innovation is becoming increasingly important for survival instead of merely for business growth. This is essential to face intense competition and environmental uncertainty (Gronhaug and Kaufmann 1988).

According to Rosenbusch et al. (2011), innovation–performance relationship are controlled by a few components:

1. Fostering an innovation orientation has more positive effects on company performance than creating innovation process outcomes such as patents or innovative products or services.
2. When the performance implications of dedicating more resources to innovation process inputs (e.g., budget for research and development) is compared to innovation process outcomes, the outcomes often lead to a greater increase in performance, especially for

small-medium enterprises (SMEs). The finding by Rosenbusch et al. (2011) underlines the importance for entrepreneurs and SMEs towards the smart management of innovation. Being aware of the importance of innovation and subsequently dedicated substantial resources to the innovation task might not be sufficient, since there is always possibility that expected performance implication might not corroborate.

3. Innovation also has a stronger impact in younger companies than in more established SMEs. The finding by Rosenbusch et al. (2011) suggests that the often cited liability of newness of younger companies can also be an asset for new companies.
4. Last but not least, internal innovation projects increase the performance substantially while innovation projects that involve external collaborations have no significant effect on performance

As rivalry escalates and the pace of progress quickens, companies need to recharge themselves by both maximizing existing skills and investigating new ones (Floyd and Lane 2000). The notion of exploration and exploitation (March 1991) has developed as a fundamental topic in research on innovation and business enterprise (Shane and Venkataraman, 2000).

Innovation is a complex process of knowledge exploration and exploitation (Dosi, 1988). Companies need to combine the results of their internal efforts with those of other companies and research organisations in innovation systems (Edquist, 2010). According to Cohen and Levinthal (2015), the capacity to grasp external knowledge for the sake of innovation is called “absorptive capacity”.

This study aims to add more perspective in the topic of absorptive capacity. In this research, we analyzed 111 beverage companies based in Spain to learn more about which aspects of absorptive capacity are really rooted in their organizations.

## 2. Literature Review

Volberda et al. (2009) describe absorptive capacity as “the ability to identify, assimilate, and exploit knowledge from the environment”. In short explanation, absorptive capacity is needed to gather external knowledge in order to smoothen innovation process (Cohen & Levinthal, 1990). Within a company, absorptive capacity is conducted in an assortment of ways. Inquire about demonstrates that organizations that lead their own particular R&D are better ready to utilize remotely accessible data. This suggests absorptive capacity might be made as a side effect of an association's R&D speculation (Cohen & Levinthal, 2015).

Absorptive capacity refers to a firm's ability to value, assimilate, and apply new knowledge received from external sources, such as customers, suppliers, or alliance partners. Besides, absorptive capacity refers to a firm's ability to recognize the value of new external knowledge as well as assimilate and commercialize it. Absorptive capacity involves a collection of routines to manage knowledge and the cumulative influences of continuous learning in the firm (Jansen et al., 2006).

Although formalization contributes to a unit's realized absorptive capacity as predicted by Jansen et al. (2006), it does not decrease a unit's potential absorptive capacity. One main reason could be that acquisition and assimilation may be formalized to some extent. Well-designed rules and procedures capture prior experiences that may enable employees to search for, and assimilate, new external knowledge (Adler & Borys, 1996).

Secondly, the study of Jansen et al. (2006) confirms that routinization negatively influences a unit's potential absorptive capacity. However, contrary to our prediction, it also shows that routinization negatively influences transformation underlying a unit's realized absorptive capacity

Absorptive capacity also enables market knowledge creation based on a firm's prior related-knowledge, effective learning routines, and rich communication (Damanpour and Gopalakrishnan, 2001). Recently, scholars characterized absorptive capacity as a crucial dynamic capability in knowledge creation and utilization in knowledge-based competition, which can help the firm gain and sustain competitive advantage .

By effectively redefining and deploying the firm's knowledge-based assets, the firm with high absorptive capacity would be amenable to change, thus reshaping its operational capabilities to improve performance (Jansen et al. , 2006).

To develop an effective absorptive capacity, gin terms of general knowledge, problem-solving or learning skills, it is insufficient merely to expose an individual briefly to the relevant prior knowledge (Cohen & Levinthal, 2015). In order to work as “innovation hubs” (Youtie and Shapira, 2008) and help the knowledge absorption capacities of the companys they interact with, research organisations need to share with them the same linguistic and cultural codes. Unexpectedly, the company's connections with different business performing artists, described by a moderately higher subjective and institutional nearness, increment the company's ability to assimilate outer information independently from the nationality of the accomplices. As such, even in the globalization domain, national science-innovation connections are as critical as overall business-to-business relations to expand the company's involvement of outside learning (Franco et al., 2012).

Following this debate, absorptive capacity has been shown to be the result of a manifold learning process involving antecedents and competences of different kinds (Fosfuri and Tribó, 2008). Some interpretative mechanisms have been identified. However, their actual measurement and empirical testing still require further investigation (Volberda et al., 2010).

More recently, Zahra & George (2002) as updated in Zahra et al. (2015) introduced four dimensions of absorptive capacity, namely knowledge acquisition, knowledge assimilation, knowledge transformation and knowledge exploitation. They are the key aspects of a enterprise's absorptive capacity, which are built on each other (Zahra et al., 2015)

- a. *Knowledge acquisition capability.* – Knowledge acquisition is an important part of the process of increasing absorptive capacity, because that is the way to bring in new knowledge into an enterprise (Krstic & Petrovic, 2011; Zahra & George, 2002)
- b. *Knowledge assimilation capability.* – Besides the knowledge acquisition capability, knowledge assimilation capability is essential. Assimilation means understanding of knowledge as economic resource for generating a value and innovations. Assimilation is a process where information (knowledge) gets a certain meaning (Krstic & Petrovic, 2011; Zahra & George, 2002)
- c. *Knowledge transformation capability.* – Knowledge transformation stands for the ability to complete a set of different knowledge that has previously been segmented and scattered or to combine elements of knowledge in a new way. To sum up, knowledge transformation includes joining previously scattered sets of knowledge and their recombining (Krstic & Petrovic, 2011; Zahra & George, 2002)
- d. *Knowledge exploitation capability.* - Knowledge exploitation capability means that a firm is able to incorporate it in its operations and processes. Exploitation emphasizes a certain application of creative, that is, extended knowledge in an enterprise. The result of the knowledge transformation process is integrated knowledge as interrelated fields of knowledge, which could be used for commercial ends launching prototypes of products, ideas for products or patent application (Krstic & Petrovic, 2011; Zahra & George, 2002)

### 3. Research Methodology

In the analysis of the impact of absorptive capacity on innovation, the company's human capital and the training investments through which it is built up have been instead less investigated. Human capital is rather generally treated as an additional proxy of absorptive capacity (Franco, 2012), which works along with R&D as a "radar" to let external knowledge reach the company. On the contrary, the role of human capital for its actual integration and assimilation in the company has not been addressed.

As researchers, with this topic we would like to put special attention in our empirical investigation. The integration of external knowledge within the company is a complex process, of both organisational and individual nature. Not only does it require the existence of organisational devices (such as, for example, a cross-divisional quality circle), which create links between organisation members for the sake of knowledge-sharing (Zahra and George, 2002). It also requires a qualified kind of interaction among them.

The estimation of the transmitted learning should be fundamentally assessed on an individual premise, comprehended lastly mingled, instead of essentially "scattered". Consequently, according to Damanpour & Gopalakhrisnan (2011), the laborers' aptitudes and their social capacities should be strengthened, for instance, through the appropriation of particular preparing projects and practices of Human Resources Management (HRM).

In short, both social and human-capital based could be expected to moderate the absorptive capacity impact on innovation.

Let us see how it works in the empirical section of the paper. The questionnaire was developed from the four dimensions of absorptive capacity proposed by Zahra and George (2002)., which are knowledge acquisition, knowledge assimilation, knowledge transformation and knowledge exploitation

CODE	STATEMENTS
AB01	Our company maintains frequent contacts with other companies to acquire new knowledge
AB02	The employees of our company meet regularly with employees of other companies
AB03	We collect information about the industry through informal means (eg meals with fellow industries)
AB04	We hardly visited other companies
AB05	Our company regularly organizes meetings with clients or third parties to acquire new knowledge
AB06	Our employees contact third parties (consultants, accountants, consultants etc.) to obtain new knowledge
AB07	We are slow to recognize changes in our market (eg competition, regulation, demographics)
AB08	Our company quickly recognizes new opportunities to serve our customers
AB09	We quickly analyze and interpret changes in demand
AB10	Our company regularly considers the consequences of changes in demand for new products and services
AB11	Employees record and store new knowledge for future reference
AB12	Our company recognizes the usefulness of new external knowledge for existing knowledge
AB13	Our employees hardly share their experiences
AB14	Our company meets periodically to discuss the effect of market trends and product development

CODE	STATEMENTS
AB15	We know clearly how activities should be carried out in our company
AB16	Customer complaints are not heard in our company
AB17	Our company has a clear division of roles and responsibilities
AB18	We constantly consider how we can better exploit our knowledge
AB19	Our company has difficulties in developing new products and services
AB20	Our employees have a shared understanding of our products

Table 1: Conceptualization of Absorptive Capacity Components

The questionnaire was distributed online to 111 companies from total population of 520 Spanish wineries based on the survey we have conducted. For this research, we received responses from 111 directors of the firms.

#### 4. Result and Discussion

Factor analysis is a technique used to look for factors that can explain the relationship or correlation between the various independent indicators observed. The method is known as an extension of the main component analysis. It is also used to identify a relatively small number of factors that can be used to describe a large number of interrelated variables (Thompson, 2004).

According to Fox (1983), factor analysis is a statistical technique to identify the relatively small number of factors that can be used to describe the relationship among several variables are interrelated. By factor analysis, indicator of the variables in the research instrument categorized or grouped. This method is used to summarize the information available in a number of variables that many reduced to a number of factors

We use a sample of Spanish wineries to conduct our analysis as they represent a population of firms where both quality and growth are salient performance dimensions. After the data was collected, the data was processed using factor analysis technique with the help of statistical software SPSS VERSION 22. In the factor analysis techniques, the validity of the test was not done separately. Validity test can be done by measuring the value of KMO, the value of KMO is a part in the process of factor analysis. According to Fox (1983), to test the accuracy of the factors formed Barlett test used statistical tests Sphericity with significant values of  $< 0.05$  and Kaiser Mayer Olkin (KMO) to determine the feasibility of factor analysis. If the index values ranged from 0.5 to 1, a factor analysis feasible. On the contrary, if the KMO value is below 0.5, then the factor analysis is not worth doing.

Testing Bartlett's test of Sphericity can be used to test the accuracy of the model factors. KMO is useful to measure the feasibility of the sample.

**KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.825
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	1239.522
	190
	.000

Table 2: KMO and Bartlett's Test

The table above showed KMO and Bartlett's test. The output shows the number KMO and Bartlett's test was 0.825 was significantly above 0.5 with 0.000 is below 0.05 then the variables and sample it deserves to be analyzed further. Data on 20 variables derived from the answers of 111 respondents were analyzed in the anti- image correlation, indicating criteria MSA figure above 0.5. which means that the variable can still be predicted to be further analyzed (Santoso, 2015). From the above test results, all variables that have fairly high correlation with other variables, making it feasible to proceed with the analysis include all the variables.

Communalities is essentially the amount of variance (can be in percentage) of a first variable that can be explained by factors that exist. (Santoso 2002). For example, the variable 01, which is coded as 'AB01' (Our company maintains frequent contacts with other companies to acquire new knowledge), the rate of 0.670 means that 67% variance of variable fineness can be explained by factors formed, as with other variables. All variables can be explained by factors formed with the greater communalities provisions of the increasingly close relationship variables concerned with factors formed. It can be seen in table below:

	Initial	Extraction
AB01	1.000	.670
AB02	1.000	.677
AB03	1.000	.572
AB04	1.000	.586
AB05	1.000	.698
AB06	1.000	.564
AB07	1.000	.642
AB08	1.000	.755
AB09	1.000	.774
AB10	1.000	.681
AB11	1.000	.539
AB12	1.000	.468
AB13	1.000	.722
AB14	1.000	.621
AB15	1.000	.738
AB16	1.000	.662
AB17	1.000	.627
AB18	1.000	.561
AB19	1.000	.645
AB20	1.000	.689

*Table 3: Communalities*

According to Fox (1983), total variance explained tables show how many factors formed with regard to the value of eigenvalues. From Fig.1 belowshows that only five valid indicator, because these five factors have eigenvalues value > 1. Factors those have eigenvalues value < 1 is not maintained.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.616	33.079	33.079	6.616	33.079	33.079	3.527
2	2.201	11.005	44.084	2.201	11.005	44.084	3.385
3	1.654	8.272	52.357	1.654	8.272	52.357	2.281
4	1.337	6.686	59.043	1.337	6.686	59.043	1.868
5	1.083	5.413	64.456	1.083	5.413	64.456	1.829
6	.917	4.583	69.039				
7	.779	3.897	72.936				
8	.702	3.512	76.448				
9	.629	3.145	79.593				
10	.573	2.866	82.459				
11	.545	2.723	85.181				
12	.496	2.482	87.664				
13	.470	2.349	90.013				
14	.379	1.893	91.906				
15	.356	1.782	93.687				
16	.342	1.712	95.399				
17	.305	1.523	96.922				
18	.278	1.391	98.313				
19	.198	.991	99.304				
20	.139	.696	100.000				

Table 4: Total Variance Explained

The percentage of variance in contributions a factor obtained by dividing the corresponding eigenvalues (of the factors concerned) with the number of indicators and multiplying by 100%. Since there were 18 original indicators, all the sums are divided by 18.

Donations variants of each of the factors, among others:

Factor 1:  $6.616 / 20 \times 100\% = 33.079\%$

Factor 2:  $2.201 / 20 \times 100\% = 11.005\%$

Factor 3:  $1.654 / 20 \times 100\% = 8.272\%$

Factor 4:  $1.337 / 20 \times 100\% = 6.686\%$

Factor 5:  $1.083 / 20 \times 100\% = 5.413\%$

Total sum = 64.455%

Of a total of five factors can explain / contribute to 64.455% of the variability of all 20 of the original indicators. From the table above, we have found that there are five formed factors.

Component Matrix<sup>a</sup>

	Component				
	1	2	3	4	5
AB10	.738	-.166	.255	-.115	-.175
AB09	.707	-.433	.233	.020	-.179
AB08	.703	-.406	.237	.015	-.200
AB05	.683	.396	.179	.206	-.011
AB11	.682	-.023	.033	-.218	.159
AB14	.668	-.059	.293	.203	-.210
AB15	.640	.023	-.193	.517	.150
AB06	.636	.395	-.060	-.005	.014
AB12	.628	.089	.075	-.242	.039
AB20	.577	-.109	-.119	.233	.525
AB18	.546	-.348	.117	-.113	.340
AB17	.540	.202	.142	.444	.278
AB02	.536	.532	-.145	-.293	-.024
AB03	.532	.502	-.027	-.179	-.065
AB19	-.486	.365	.313	-.115	.406
AB07	-.410	.594	.093	.330	-.061
AB01	.522	.525	.013	-.219	-.272
AB13	-.284	.028	.800	-.007	-.017
AB16					
AB04	-.322	.103	.644	-.237	.278
	-.372	.118	.286	.508	-.305

Table 5: Component Matrix

Once we know that the maximum factors that can be formed are five factors, then we make the determination of each independent variable will go into factor 1, factor 2, factor 3, factor 4 or factor 5. How to determine it is to see Component Matrix table as follows: (Santoso, 2006).

Rotated Component Matrix<sup>a</sup>

	Component				
	1	2	3	4	5
AB09	<b>.830</b>	.082	.183	.195	-.080
AB08	<b>.824</b>	.107	.169	.175	-.077
AB10	<b>.712</b>	.343	.138	.195	.004
AB14	<b>.655</b>	.291	.315	-.092	-.011
AB01	.157	<b>.799</b>	-.020	-.045	-.064
AB02	-.013	<b>.791</b>	.074	.184	-.108
AB03	.071	<b>.737</b>	.128	.071	-.045
AB06	.148	<b>.644</b>	.324	.084	-.125
AB05	.292	<b>.606</b>	.483	-.106	.021
AB12	.341	.478	.147	.319	.007
AB17	.175	.255	<b>.726</b>	-.054	.034
AB15	.250	.176	<b>.714</b>	-.004	-.368
AB20	.140	.063	<b>.699</b>	.401	-.125
AB04	-.021	-.221	.028	<b>-.718</b>	.142
AB07	-.484	.132	.075	<b>-.595</b>	.173
AB18*	.412	.007	.328	.529	.066
AB11*	.364	.393	.243	.438	-.024
AB16	-.111	-.078	-.105	.025	<b>.795</b>
AB13	.150	-.134	-.105	-.289	<b>.766</b>
AB19	-.535	-.029	-.005	-.040	<b>.597</b>

Table 6: Rotated Component Matrix

In table 6, there are five factors that represent the 20 indicators. Grouping indicators into a factor obtained from tables 5 component column (top to bottom) the greatest value for each row. In determining the dominant factor, the factor considered is the value of the largest eigenvalues.

The grouping of the five new factors then can be seen from the tables below:

<b>FORMED FACTOR 1: SENSITIVITY TOWARDS CHANGE</b>	
AB09	We quickly analyze and interpret changes in demand
AB08	Our company quickly recognizes new opportunities to serve our customers
AB10	Our company regularly considers the consequences of changes in demand
AB14	Our company meets periodically to discuss the effect of market trends and product development

Table 7: Formed factor 1: Sensitivity towards change

Formed factor number 1 is indicated by the four elements which mostly involve changes from outside the organization. This corresponds with the acquisition dimensions proposed by Krstić & Petrović (2011) and Zahra & George (2002), which also comprise of prior investment and prior knowledge with the connection of speed and quality of learning.

<b>FORMED FACTOR 2: COLLECTING INFORMATION</b>	
AB01	Our company maintains frequent contacts with other companies to acquire new knowledge
AB02	The employees of our company meet regularly with employees of other companies
AB03	We collect information about the industry through informal means (e.g lunch with fellow industry friends)
AB06	Our employees contact third parties (consultants, accountants, consultants etc.) to obtain new knowledge

Table 8: Formed factor 2: Collecting Information

Formed factor number 2 is indicated by the four elements which mostly involve information gathering. This corresponds with the assimilation dimension proposed by Krstić & Petrović (2011) and Zahra & George (2002), which also comprise of understanding, comprehension and learning.

<b>FACTOR 3: UNDERSTANDING OF ROLES</b>	
AB17	Our company has a clear division of roles and responsibilities
AB15	We know clearly how activities should be carried out in our company
AB20	Our employees have a shared understanding of our products

Table 9: Formed factor 3: Understanding of Roles

Formed factor number 3 is indicated by the three elements which mostly involve information gathering. This corresponds with the assimilation dimension proposed by Krstić & Petrović (2011) and Zahra & George (2002), which discusses synergy and recodification.

<b>FACTOR 4: EXPOSURE</b>	
AB04	We hardly visited other companies
AB07	We are slow to recognize changes in our market (eg competition, regulation, demographics)

Table 10: Formed factor 4: Exposure

Formed factor number 4 is indicated by the two elements which both talk about the relationship with outside parties. This corresponds with the transportation and assimilation dimensions proposed by Krstić & Petrović (2011) and Zahra & George (2002).

<b>FACTOR 5: PRODUCT EXPERIENCE</b>	
AB16	Customer complaints are not heard in our company
AB13	Our employees hardly share their experiences
AB19	Our company has difficulties in developing new products and services

Formed factor number 2 is indicated by the three elements which mostly involve product experience. This corresponds with the exploitation dimension proposed by Krstić & Petrović

(2011) and Zahra & George (2002), which discusses about implementation of core competencies.

## 5. Conclusion

There are five factors that play role in the absorptive capacity of the employees of 111 wineries in Spain, namely: sensitivity to change, collecting information, understanding of roles, exposure and product experience. Sensitivity towards change factor is the most dominant. Hence, for further future research there is opportunity for more deeper study on sensitivity towards change.

Krstic & Petrovic (2011), as previously demonstrated by Zahra & George (2002) agreed that knowledge creating (acquisition) capabilities, knowledge assimilation, knowledge transformation and knowledge exploitation capabilities are the key determinants of the volume of an enterprise's absorptive capacity. While in this research, we have discussed and confirmed the statement by conducting our own factor analysis, which results in the five new factors with similar characteristics.

This study has limitations that the scope of the subject and object of research as well as the variables used. This limitation has the potential for future research related to absorption capacity from macro perspective, gradually and use the variables that vary, more upto date and fits with the global context.

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## IMPLEMENTATION OF ISO 9001 QUALITY MANAGEMENT STANDARD FOR NON-PROFIT ORGANIZATION (CASE STUDY OF YAYASAN PENDIDIKAN TELKOM)

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**Abstract:** All this time ISO 9001 is identical with the company's efforts to use quality assurance as an attractive power for its users which is consumers or customers so that the product or service it offers can attract the market with the result that it is used and lead to the birth of income for the company. Therefore, the ISO 9001 is widely applied by commercial enterprises such as companies that are oriented to the market and profit.

However, it does not mean that non-profit companies do not require a management standards system because even without profit-oriented the organization exists because it has services to be provided for its users. This happens to non-profit organizations, such as Yayasan Pendidikan Telkom, the foundation that has 52 educational institutions, ranging from the level of Early Childhood Education to Higher Education.

To maintain the consistency of its service quality, YPT started ISO 9001 quality management standard since 2015 which is full of efforts to gain recognition from the third parties, namely the Registrar Board, to obtain ISO 9001 certification. This paper aims to describe the preparation, execution and quality audit process that has been run by YPT since 2015, and also the benefits that have been obtained. At the end of this paper will be described significant lesson-learned which can be taken by non-profit service organizations' experiences in the implementation of ISO 9001 quality management standards.

**Keywords:** ISO 9001:2008, Quality Management Systems (QMS), Telkom, Non-profi

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### 1. Introduction

One of the quality standards that has been recognized by many businesses is ISO 9001. ISO was first issued by International Organization for Standardization (ISO) based in Geneva, Switzerland<sup>[1]</sup>. The ISO published thousands of technical standards, but the ISO 9001 quality management series is the most famous set of standards having a significant impact on international trade<sup>[6]</sup>. ISO requirements are based on certain quality management principles which are: Customer Focus, Leadership, Worker Involvement, Process Approach, System

Approach to Management, Continuous Improvement, Factual Approach to Decision Making, and Mutually beneficial Supplier Relationships, in general, the ISO standards focus on managing core value added processes to deliver quality<sup>[7]</sup>. Benefits from this standards are improvement of "procedures," increase of the "customer satisfaction" and the decrease of "production costs" among others<sup>[2]</sup>. It is good practice to implement the quality management system being documented as the documentation is developed, although this may be more efficient in larger firms, in smaller companies, the quality management system is often implemented all at once throughout the organization<sup>[7]</sup>.

Yayasan Pendidikan Telkom (YPT) is not an organization which is directly related to its educational service users but is an organization of educational service providers. The one who is directly linked to educational service users is educational institutions<sup>[3]</sup>. Until 2017, the foundation already has 52 educational institutions, with a complete level, starting from Early Childhood Education to Higher Education, located in 30 cities and 33 provinces in Indonesia<sup>[4]</sup>. However, this condition does not mean that the organization does not require quality management, but it has a significant role in guiding the applicable quality system all over its educational institutions<sup>[3]</sup>.

Therefore, all YPT activities are established and documented to meet the requirements contained in ISO 9001 standards; this procedure is always reviewed and refined. In the preparation of this procedure, all parties related to the preparation of procedures are involved to create a better quality management system<sup>[3]</sup>. Objectives or ways of applying the ISO 9001 Yayasan Pendidikan Telkom is: a) for quality control purposes, the foundation takes this standard as a quality guide. B) Ensure the foundation can continually produce services as promised to customers. One of the fundamental parts of an effective quality assurance system is the process, which is a work method that must be implemented to maximize quality. First, the organizational structure of the foundation, the relationships between departments, duties, and obligations of each employee by its position must be reviewed continuously<sup>[3]</sup>.

Since 2015, the YPT starts to implement the ISO 9001 quality management system, with four primary services: Planning, Policy, Monitoring and Consultancy<sup>[3]</sup>. The quality procedures at Yayasan Pendidikan Telkom cover these four core services and some procedures as a support for the services provided, as well as compulsory procedures in accordance with ISO 9001: 2008 standards: Document Control, Internal Quality Audit, Quality Record Control, Non-Conformity Control, Management Review, and Correction and Prevention<sup>[3]</sup>. Yayasan Pendidikan Telkom already has a Quality Manual that explains the elaboration of the relationship between the organizational structure of Yayasan Pendidikan Telkom, the quality assurance organization structure, quality policy, quality objectives and Quality Assurance System internally in Yayasan Pendidikan Telkom. The system is covered by ISO quality management standard includes four directorates and three units, following picture of the organizational structure of Yayasan Pendidikan Telkom<sup>[3]</sup>.

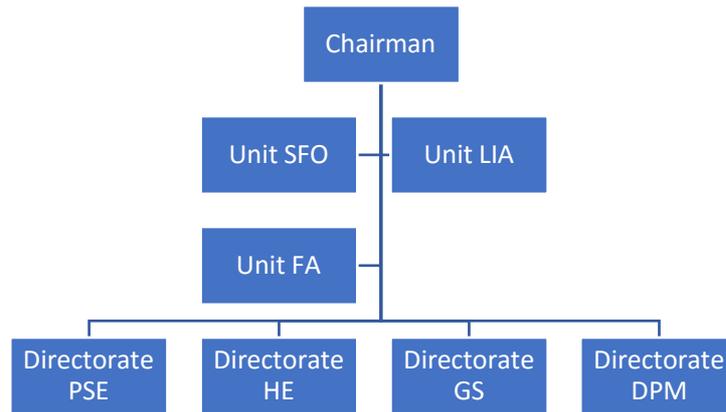


Fig. 1 Organization Structure<sup>[3]</sup>

To mark the consistency of its service quality, Yayasan Pendidikan Telkom received recognition from a third party, the Registrar Board, to obtain ISO 9001: 2008 certification. This certification presents the evaluation internal and external organizational impact of a company that has adopted a total quality management system, based on a case study, supported by bibliographic references in an organization structure<sup>[8]</sup>. Getting a certified ISO 9001 brings many organizational impacts and leads to overall the company improvement, as the management capacity and overall relationships, increase the customers and suppliers numbers and improved company image<sup>[8]</sup>. This certificate indicates that Yayasan Pendidikan Telkom has been assessed and the results have met the requirements by the standards ISO. ISO 9001: 2008 not only a guarantee of product quality but also the entire production process from selection, human resources, facilities, and infrastructure but also customer feedback. This paper aims to describe the process of preparation, implementation and quality audit, which has been implemented by YPT since 2015 as well as benefits that have been obtained. At the end of the paper will be described an important lesson that can be drawn from the experience of nonprofit services organizations in implementing ISO 9001 quality management standards.

## 2. Literature Review

Quality management system is one of the most useful tools for companies to increase competitiveness<sup>[8]</sup>. The consistency of ISO 9001 is done by following PDCA cycle or Plan, Do, Check and Action for all processes<sup>[1]</sup>. PDCA cycle is also known by Deming cycle, this is a tool for continuous improvement, and it is an instrument for an ongoing effort to improve product, service or processes<sup>[6]</sup>. The plan is setting goals and processes the necessary one to deliver results according to customer requirements and organizational policies. Do is the implement the process. A check is monitoring and measuring processes and products against policies, goals and requirements for the product and report the results. The action is to take action to improve the performance of the process on an ongoing basis. Based on PDCA cycle, if the change did not work, begin the cycle again. This effort can seek incremental improvement over time or breakthrough improvement all at once for whole process<sup>[6]</sup>. The whole process can be seen in Figure 2 below.

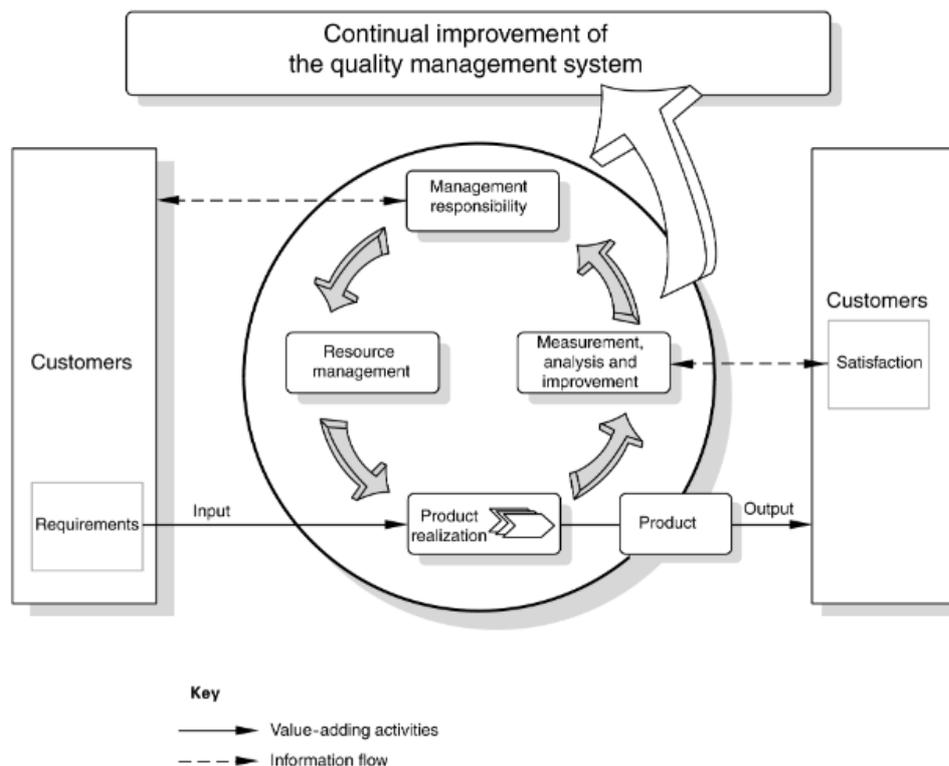


Fig. 2 Model of Quality Management System Based on Process<sup>[1]</sup>

Based on Fig. 2

- a. Customers, Customer referred by the scheme above is the person who gives input about what to do by Directorate.
- b. Management Responsibility, Management's responsibility indicates that there is a management commitment to the quality of the resulting service.
- c. Resource Management, an important part of the implementation is to determine who will do what. The person assigned to perform activities related to quality must have the ability to do so
- d. Product realization, Product awareness involves making goods and / or services
- e. Measurement, analysis and improvement measurement. Measurement data is very important to make decisions based on reality

The scope of management requirement system ISO 9001: 2008 consists of the following clauses<sup>[1]</sup>:

1. Clause 1. The extent of this clause in standard conditions has been emphasized to meet customer satisfaction.
2. Clause 2. The normative reference to this clause contains only the references that the contractor must prepare: Government regulations and Quality guide books.
3. Clause 3. Terms and definitions, this clause states that the terms and definitions given in ISO 9001: 2008 establish, document, implement, maintain the steps for the implementation of the ISO 9001: 2008 quality management system and the need for continuous improvement.

4. Clause 4. General Quality Management System requires to lead and operate an organization needs systematically and in an appropriate way.
5. Clause 5. Management Responsibility, this clause emphasizes the commitment of top management (top management commitment). In the case of customer focus, the top management should ensure that customer requirements have been set and fulfilled with the purpose of increasing customer satisfaction.
6. Resource Management clause. The provision of resources an organization must establish and provide the necessary resources appropriately to establish and maintain an ISO 9001: 2008 quality management system as well as improve its effectiveness continuously and improve the customer satisfaction.
7. Clause 7. Product realization regarding organizational achievement planning shall ensure that the product realization process is under control to meet product requirements
8. Clause 8. Measurement analysis and improvement  
The general requirements in clause eight on measurement of analysis and improvement, in which the organization shall establish plans and develop the processes of measurement, monitoring, analysis, and development necessary to ensure the suitability of the product

Implementing Quality Management System effectively influences organization performance positively, the organization focus on providing more value for their customers and improving the efficiency of processes<sup>[9]</sup>. Benefits implementing quality management system ISO 9001:2008<sup>[10]</sup> :

1. Well defined and documented procedures improve the consistency of output, this process is described in clear and easily understandable way for all employees, and that leads to the main idea of this standard do all things right at first time and easier for a new employee to follow.
2. Quality is consistently measured, that gives information to the top management whether all processes are running as it was defined.
3. Procedures ensure corrective action, defect caught earlier and corrected at a lower cost.
4. Defect rates decrease if the company identifies and understands their problems and defines appropriate preventive actions.
5. Organizations retain or increase market share, increasing sales or revenue.
6. Lower production costs because of fewer nonconforming products, less rework, lower rejection rates, streamlined processes and fewer mistakes.
7. ISO 9001 certificate, some markets require ISO 9001 certificate and some markets favor companies with ISO 9001 certificate.

### **3. Research Objectives**

- a. To investigate the effect of Top Management Commitment in the implementation ISO standards in an organization.
- b. To investigate the effect of Internal Audit in the implementation of ISO standards in an organization.
- c. To establish how quality training affects the implementation of ISO standards in an organization.

#### 4. Conceptual Framework

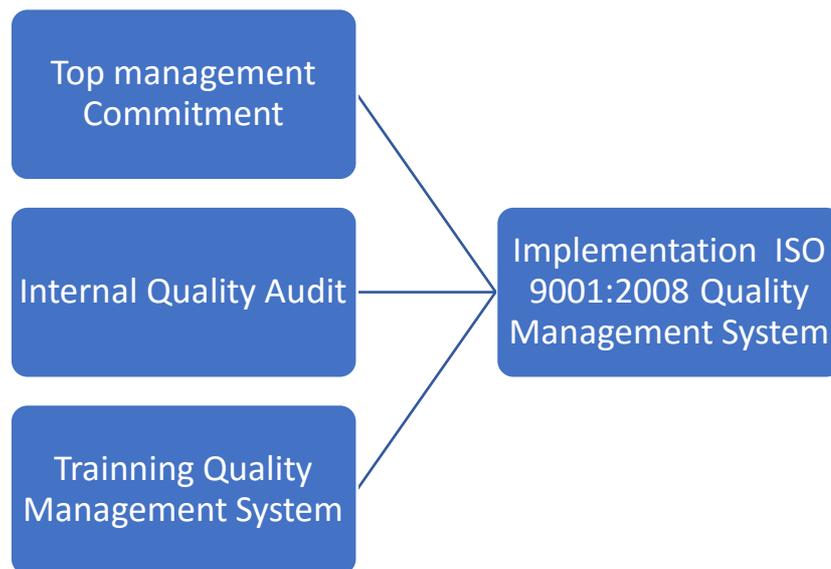


Fig. 3 Conceptual Framework

#### 5. Top Management Commitment

In preparing to start adopting a quality management system in the Foundation, it is done through a fairly tough process, especially in the course of identifying key services. In mapping the core process, the most prominent constraint is the view that most business processes that have been done are the critical and major processes, so that the core business process is recorded in large numbers, so it must be selected into some of the primary business processes, from other business processes, which are viewed as derivatives, which process involves the involvement of all employees of the Foundation.

Determination of quality guidelines carried out by top management in this case the Chairman of YPT, where employees apply in the process of implementation of daily activities were also organized in the procedure. Where the business process of the primary service of Yayasan Pendidikan Telkom is mapped in Figure 2. First, we identify the inputs and outputs resources for the resulting services, once this is known, then we can determine the required services and services that the Yayasan Pendidikan Telkom can provide.

The working relationships with external parties embrace to the principle of mutually beneficial cooperation in a transparent manner by paying attention to business ethics so that transactions can increase the value for each side. Supplier management with QCDS principles of Quality (Quality), Cost Efficient (Cost), On Time (Delivery), Responsible Source (Source)<sup>[2]</sup>. The level of supplier satisfaction is evaluated periodically to measure the business effectiveness of the process of providing goods and services.

To create the consistency of the quality of each process, then compiled the process standard of activities that provide a significant effect on the service quality of the YPT. Some of the important considerations that are applied in the preparation of process standards are:

1. Determine the processes required by the quality management system.
2. Each process is owned by one unit, and the unit acts as the person in charge of the implementation of the process, from the beginning to the end of the process.
3. Each process has activities that may involve other units/directorates.
4. The process owner, who is also responsible for the related process, initiates and terminates the process.

5. The fulfillment of relevant specifications or relevant standards existing and required in the process is controlled by the process owner

The implementation of ISO 9001: 2008 ensures that Yayasan Pendidikan Telkom has measurable and well-planned performance. However, Top Management regularly reviews management for continuous improvement and discusses customer feedback or complaints. This process involves all stakeholders in achieving common goals, and decision-making based on ISO 9001: 2008 quality management system<sup>[2]</sup>.

## 6. Internal Quality Audit

The process of implementing the quality system should be aimed at sustainable times, and from time to time have to be developed, because of course market demands will be dynamic and growing. To be consistent with the application of quality standards, regular monitoring and evaluation processes are required, in which the ISO 9001 standard is known as the Internal Quality Audit. AMI process must be able to be done by private party, as a form of self-assessment. Implementation of Internal Quality Audits is planned on a regular basis to determine whether the quality assurance system by proposed arrangements to the requirements of the quality management system established and It has been implemented and maintained by clause required. The findings of AMI from year to year decrease, respectively starting from 2015 were 67 findings, this is the first time the application of ISO 9001: 2008 in Yayasan Pendidikan Telkom, after getting the certification and the procedure is executed in accordance with the guaranteed proven that the audit results In the second year the number of findings decreased very large, then in 2016 the number of conclusions to 22 findings, and in 2017 the number of conclusions decreased, which amounted to 13 findings<sup>[4]</sup>. Which can be seen in figure 3 below.

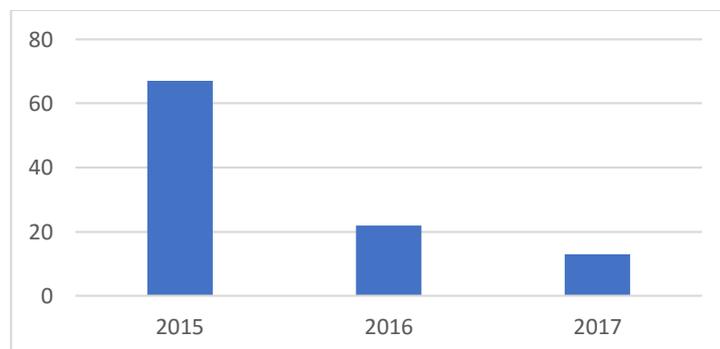


Fig. 4 Auditor Findings<sup>[4]</sup>

In the course of applying the quality system, the Foundation is faced with a changing environment, both directly related to the quality assurance system, and others. Related to the changing demands of ISO requiring all organizations / institutions which adopting ISO 9001, are needed to use the latest ISO 9001 standards, such as ISO 9001: 2015, of course, it will affect the standard procedures owned by the Foundation. Besides, the dynamics within the organization of the foundation as a whole changes and developments.

## 7. Training Quality Management System

In supporting the implementation process of the quality system of the Foundation which refers to ISO 9001, the role of Human Resource as executor is critical and play a key role. For that, it must be ensured that all employees from the leadership to staff, should have the knowledge and skills required. Knowledge and skill training has been started since the preparation process of implementation, by introducing the role of the quality system

management system, awareness about ISO 9001, Preparation and Document Control, and Internal Quality Audit. The training during the preparation process is carried out in two forms, the lectures performed during the first time the training is held. The training was held by inviting a professional instructor who masters the knowledge of ISO 9001 standard. The second form of training is the training which is accompanied by the practice of preparing the documents. In this training, instructors are used as a consultant in the preparation of process standard documents. The second form of training is done to directly apply the training into the process of development of procedures. After the process of drafting the document has been completed, the next training is about Internal Quality Audit. Training on AMI is conducted more than once, to finalize an understanding of the need for monitoring and evaluation processes in the application of ISO 9001 standards and to complete skills in implementing AMI.

## **8. Lesson Learned**

Implementation of ISO 9001: 2008 requires commitment from top management, then all stakeholders of the company are also committed to realizing the working atmosphere as it has been standardized. This implementation process is not easy and cheap, getting certified is not the end of the implementation of ISO, but all parties in the company must always implement the agreed procedures and make improvements in all things for the common interest. Also, increased knowledge is advisable for example by engaging employees in ISO training, sharing knowledge with ISO-related employees, and presenting consultants to get better input.

## **9. Conclusion**

Implementation ISO 9001 quality management system in Organization should be monitored by the unit in charge, to ensure the quality management system according to standard. This implementation not just to get certified, but the activities meet customer needs, reducing costs and waste, there should be the commitment of all managers from all levels of an organization and employees in general. Before get certification, the organization must be organized internal quality audit, and proven by numbers of findings from the beginning till now is decreases. This activity shows commitment from all employees implementing a quality management system and increased knowledge about employees implementing standard by held in quality training.

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## THE INFLUENCE OF CUSTOMER PARTICIPATION ON INDIHOME BRAND LOYALTY IN SOCIAL MEDIA

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**Abstract:** It can't be denied that in this digital era, social media takes a significant role as a corporate communication media. In the midst of competition and declining revenue due many customers had been withdraw the services, Telkom in needs to use social media in order to increase customer loyalty to its products, especially Indihome. This study was conducted to determine the effect of customer participation on Indihome brand loyalty in social media. Especially Indihome customers who use facebook page @Indihome3play and youtube channel @Indihomefiber as a communication media.

The research method using quantitative method with descriptive and verificative research, sampling technique are random to Indihome customers who become follower in facebook page Indihome fiber or subscriber in youtube channel @Indihome3play. The method of analysis used for this paper is mediation regression of analysis.

Having conducted a survey of 250 respondents, the results of data processing showed that involvement has a positive effect on customer participation, and customer participation has a positive effect on brand loyalty. Also showed that participation is a variable mediation partly of the variable involvement to brand loyalty variable.

**Keywords :** *brand loyalty, customer participation, involvement, social media.*

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### 1. Introduction

In the digital era like today, the internet has been used by societies for their life. Not only as a communication media, searchin and sharing information media, but also can create a new environment, for example for online business globally. Surveys by wearesocial.com in the period of January 2016 found that internet penetration in the world reached 46% of the world's 7.395 trillion people. Most of the internet users, or as 67%, are active social media users. Especially for Indonesia, from 259.1 million inhabitants, internet penetration reached 34%, of which 90% of them are active users of social media

In 2014, Telkom has launched product with brand "Indihome" which is a triple play service consisting of telephony, internet and IPTV. Indihome is a brand of bundling product which is previously single products, consist of telephony with brand "POTS" (Plain Ordinary Telephone System), internet with brand "Speedy", and IPTV with brand "UseeTV". The decision to use a new brand is actually at high risk, especially in terms of introducing the new brand to the public.

That's because the brand has an important role in the process of determining whether the customer will use the product or not.

Competition is also higher, competitors who have the same products as Indihome, Firstmedia, MNC Play, and My Republic are starting to take a position on Fixed broadband market. By the end of 2016, Firstmedia has built 1.83 million Homepass, while My Republic has built 500 thousand homepass and MNC Play built 1 million homepass. For comparison, Telkom revenue share compared to other competitors in May 2017 is 69.34%. If seen from Indihome revenue in period of 2015 to mid 2017, Indihome's revenue has been decreased, and with the development of infrastructure that is being intensified by competitors, Telkom revenue will gradually decrease.

After Telkom decided to replace the Speedy brand with Indihome, the brand value already owned by Speedy, has decreased in value. This can be seen from the decrease value obtained after becoming the brand Indihome at Top Brand Awards in the category of Internet Service Provider (ISP). Even at the end of 2016, the category for Indihome turned into pay TV with a value of 8.8%, so far from Indovision which has a value of 50%.

## **2. Problem Statement**

From the exposure of the background of the problem, then the problem formulation of this study are as follows:

- a. Communication that occurs between organizations and customers, especially in the digital era is very easy to do in the form of conversations through social media.
- b. A product's brand is one of the most valuable marketing assets for an organization. Therefore it is very important to build brand loyalty, especially for newly launched brands like Indihome. Brand management is intended to influence customer loyalty to a product so that it can form consumer engagement (Individuals who are ready to buy) to Indihome products.
- c. Based on previous research, this study wants to measure the effect of involvement to participation, and then measure the effect of participation to brand loyalty in social media communication.

## **3. Research Framework**

### **3.1 Marketing Communication**

the usefulness of marketing communication by John Rossiter and Larry Percy (in Kotler and Keller, 2016: 586) is to form the need for a category, build brand awareness, build attitudes toward brands, and influence intention to buy a brand. Integrated Marketing Communication can produce stronger message consistency and help build brand equity and create greater sales impacts (Kotler and Keller, 2016: 601)

### **3.2 Consumer Behavior**

Attitudes by Hawkins and Mothersbaugh (2013: 384) depicted that attitude has 3 (three) components of cognitive (trust), affective (feeling) and behavioral (tendency response). The cognitive component consists of the consumer's trust in an object. The more positive the brand-related beliefs are, the easier it will be for an individual to remember the brand, and it can be expected that the cognitive component will get better as well. Then, since all components of an attitude are usually consistent, the overall attitude will be better. (Hawkins and Mothersbaugh, 2013: 385)

### **3.3 Consumer Participation**

Consumer involvement on the product, will help a brand in managing its customers. Consumers involved will sell other goods and services easily, can attract other consumers to buy goods and services (Barutcu, 2008 in Enginkaya and Esen, 2014: 107). In a virtual community, the form of consumer engagement can be broadly divided into two types: posters and consumers who do lurking (Nonnecke and Preece, 1999 in Liao and Chou, 2012: 448). Consumers who post actively participate in discussions in virtual communities and are willing to help others (Huvila et al, 2010; Wasko and Faraj, 2000 in Liao and Chou, 2012: 448), whereas people who perform lurking play a passive, read information presented but rarely posts (Nonnecke and Preece, 1999 in Liao and Chou, 2012: 448)

### **3.4 Brand**

Brand is essentially an identifier with two main elements, namely (1) the market offering it represents and (2) the market's trademark communication and brand promise. As an identifier, brands can be corporate brands, product brands, or mixed / dual brands (Tjiptono, 2014: 23). Brand loyalty relates to the user's actions to make repeat purchases with positive emotions, on product brands, rather than other alternative options (Jagdish and Sheth, 1974 in Sasmita and Mohd Suki, 2014: 278). In other words, consumers are loyal to the product brand which is preferable and will persist in familiar brands (Manrai et al, 2001 in Sasmita and Mohd Suki, 2014: 278).

### **3.5 Framework of thinking**

The framework of this research is based on the relationship between variables with the explanation of the relationship as follows:

#### **3.5.1. Relationship between involvement and participation**

Cognitive engagement will lead consumers to seek information about the product (Bloch and Richins; 1983; Beatty and Smith; 1987; Mittal; 1987 in Shang; Chen and Liao 2006: 401). Affective engagement is caused by an expression of individual values that focus on emotional or aesthetic appearance to express a person's image (Park and Young; 1983 in Shang, Chen and Liao, 2006: 402). Consumers with high affective level will focus more on the symbols and image dimensions of a brand and will tend to process information related to their image, and may be more concerned about issues of brand or product.

**Hypothesis : Involvement in a brand will have a positive effect on the act of participation in the virtual community of a brand**

#### **3.5.2. Relationship between participation and brand loyalty**

Interpersonal communication within the consumer community can influence the attitudes of community members and the choice of brand or purchasing decisions (Bickart and Schindler; 2001 in Shang, Chen and Liao 2006: 403). Consumer understanding of the product/brand will increase during this communication process. The consumer's expectation of the product/brand will be more likely to be in line with true performance, this will increase customer satisfaction and strengthen consumer loyalty to the brand or product (Shang, Chen and Liao 2006: 403). The time and effort given to participate in the community will make the customer's commitment to the brand and end in loyalty (Iwasaki and Havitz; 1998 in Shang, Chen and Liao 2006: 403)

**Hypothesis :**

- Participation in the virtual community of a brand will have a positive effect on brand loyalty
- Participation mediate the influence of involvement on brand loyalty



Fig.1 Research Model

Based on the theoretical framework that has been described above, then the hypothesis in this study are:

H1 : involvement has a positive effect on participation

H2 : participation has a positive effect on brand loyalty

H3 : participation mediate the influence of involvement to brand loyalty

#### 4. Methodology

the method that used in this research is quantitative method which is descriptive and verification research. The method of quantitative research by Cooper & Schinder in Indrawati (2015: 184) is a research method that attempts to accurately measure behavior, knowledge, opinions, or attitudes. Quantitative research methods are widely used in various studies because of their compatibility to test models or hypotheses (Chew, 2007 in Indrawati, 2015: 184).

##### 4.1 Measurement Scale

Questionnaires use Differential Semantic Scale to measure respondents' attitudes and 5 choices Likert scale to find out positive and negative responses.

##### 4.2 Mediation Regression Analysis

Regression analysis is used to describe the line that shows the direction of relationship between variables, and used to make predictions. This analysis is used to examine the relationship between two or more variables, especially to trace patterns of relationships whose models are not yet fully known.

Mediation Regression Analysis is used when there are mediation variables in the research model that connect the independent variable to dependent variable, because this research consist of two independent variable that is involvement (X) and participation (Y) and one dependent variable that is brand loyalty (Z) and variable participation (Y) mediates the influence of variable involvement (X) on brand loyalty variable (Z), so the mediation regression analysis is done to answer the problem formulation appropriately.

#### 5. Data Processing and Discussion

##### 5.1. Validity and Reliability Test

The validity test is conducted with respect to the precision of the measuring instrument to the measured concept so that it actually measures what should be measured (Riduwan & Kuncoro, 2008: 2016). Meanwhile reliability test is usemake sure that data collection tool are accurate (Riduwan & Kuncoro, 2008: 220). The instrument reliability test is using Alpha Cronbach formula.

Table 1. Result of validity and reliability test of Involvement variable

No Item	<i>Product Moment Pearson</i>	Result	Validity	<i>Alpha Cronbach</i>	Result	Reliability
1	0,760	0,361	Valid	0.935	0,700	Reliabel
2	0,824	0,361	Valid			
3	0,762	0,361	Valid			
4	0,768	0,361	Valid			
5	0,783	0,361	Valid			
6	0,739	0,361	Valid			
7	0,799	0,361	Valid			
8	0,815	0,361	Valid			
9	0,882	0,361	Valid			
10	0,840	0,361	Valid			

The result indicates that all items of variable involvement question have been valid and the questionnaire measurements made to measure the involvement variables have been reliable.

Table 2. Result of validity and reliability test of participation variable

No Item	<i>Product Moment Pearson</i>	Result	Validity	<i>Alpha Cronbach</i>	Result	Reliability
1	0.870	0,361	Valid	0,843	0,700	Reliabel
2	0.728	0,361	Valid			
3	0.815	0,361	Valid			
4	0.880	0,361	Valid			

The result indicates that all items of variable participation question have been valid and the questionnaire measurements made to measure the participation variables have been reliable.

Table 3. Result of validity and reliability test of brand loyalty variable

No Item	<i>Product Moment Pearson</i>	Result	Validity	<i>Alpha Cronbach</i>	Result	Reliability
1	0.679	0,361	Valid	0,929	0,700	Reliabel
2	0.762	0,361	Valid			
3	0.796	0,361	Valid			
4	0.788	0,361	Valid			
5	0.760	0,361	Valid			
6	0.782	0,361	Valid			
7	0.812	0,361	Valid			
8	0.764	0,361	Valid			
9	0.780	0,361	Valid			
10	0.730	0,361	Valid			
11	0.809	0,361	Valid			

The result indicates that all items of variable brand loyalty question have been valid and the questionnaire measurements made to measure the brand loyalty variables have been reliable.

## 5.2 Hypothesis Result Test

The mediation regression analysis is done through several steps to see how the mediation variable (participation) affects the indirect relationship between the involved variables and the brand loyalty. Prior to analysis, the questionnaire data is first transformed from ordinal data to

interval data as a prerequisite for regression analysis as given in the appendix. After transformation, mediation regression analysis process can be started by doing regression analysis of independent variable to mediation variable, regression analysis of independent variable to dependent variable and regression analysis of mediation variable to dependent variable. After these three processes were done, regression analysis of the independent variables and the variables of the mediation variables were done to see how the mediation effect in the equation.

### 5.2.1 First Regression Model Analysis

Table 4. Regression Analysis of Involvement to Participation

R	R Square	Adjusted R Square	Standar Error
0.789	0.623	0.621	1.729

Based on Table 4, it shows that the Participation can be explained by Involvement variable of 62.30%, while the remaining 37.70% can be explained by other variables outside the Involvement variable.

Table 5. Regression Analysis of Involvement to Participation

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	Standar Error	Beta		
<i>Constant</i>	2.167	0.578		3.747	0.000
<i>Involvement</i>	0.344	0.017	0.789	20.239	0.000

Based on Table 5, it can be concluded that Involvement has significant effect on Participation.

### 5.2.2 Second Regression Model Analysis

Table 6. Regression Analysis of Participation to Brand Loyalty

r	R Square	Adjusted R Square	Standar Error
0.816	0.666	0.665	4.056

Based on Table 6, it shows that the Brand Loyalty can be explained by Participation variable of 66.60%, while the remaining 33.40% can be explained by other variables outside the participation variable.

Table 7. Regression Analysis of Participation to Brand Loyalty

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	Standar Error	Beta		
<i>Constant</i>	10.006	1.276		7.844	0.000
<i>Participation</i>	2.035	0.091	0.816	22.249	0.000

Based on Table 7, it can be concluded that Participation has significant effect on Brand Loyalty.

### 5.2.3 Third Regression Model Analysis

Table 8. Regression Analysis of Involvement to Brand Loyalty

R	R Square	Adjusted R Square	Standar Error
0.885	0.783	0.783	3.267

Based on Table 8, it shows that the Brand Loyalty can be explained by Involvement variable of 78.30%, while the remaining 21.70% can be explained by other variables outside the involvement variable.

Table 9. Regression Analysis of Involvement to Brand Loyalty

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	Standar Error	Beta		
<i>Constant</i>	5.667	1.093		5.187	0.000
<i>Involvement</i>	0.963	0.032	0.885	29.957	0.000

Based on Table 9, it can be concluded that Involvement has significant effect on Brand Loyalty.

### 5.2.4 Forth Regression Model Analysis

Table 10. Regression Analysis of Involvement and Participation to Brand Loyalty

r	R Square	Adjusted R Square	Standar Error
0.906	0.820	0.819	2.983

Based on Table 10, it shows that the Brand Loyalty can be explained by Involvement and Participation variable of 82.00%, while the remaining 18.00% can be explained by other variables outside the involvement and participation variable.

Table 11. Regression Analysis of Involvement and Participation to Brand Loyalty

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	Standar Error	Beta		
<i>Constant</i>	3.981	1.026		3.882	0.000
<i>Involvement</i>	0.695	0.048	0.639	14.543	0.000
<i>Participation</i>	0.778	0.110	0.312	7.101	0.000

Based on Table 11, it can be concluded that Involvement and Participation has significant effect on Brand Loyalty.

## 6. Conclusion and Suggestion

### 6.1 Conclusion

- Based on the descriptive analysis can be seen that the customer provides a high assessment of the need for Indihome with a percentage of 80.14%. The participation variable that gets the highest score is posting on Indihome when actively participating, with percentage value of 79,96%. While in the highest brand loyalty variable is using Indihome brand although there are promos for other brands, with the percentage of 80.05%
- Involvement variables significantly influence the participation variables.
- Participation has significant effect on brand loyalty variable
- participation is a mediation variable partly influence of involvement variable to brand loyalty variable.

### 6.2 Suggestion

- For the involvement variable, the lowest value lies in the customer feeling that Indihome is important. It may also mean that content in Indihome has not been perceived as important by customers, so it becomes an input for Telkom to continue to innovate content development for Indihome products, tailored to customer needs segmentation.
- In the participation variable, which gets low score is the customer often posting at the time he does not need information about Indihome, so the suggestion for Telkom is to provide other information that is not directly related to Indihome, so that the customer is still interested to participate by posting although he is not looking for information on Indihome.
- For brand loyalty variables, the lowest value is that customers find it important to use Indihome over other brands. So authors suggest Telkom that Indihome can be considered important for customers, by completing the content, improving the quality and giving the choice of packages according to customer needs segmentation
- This research is a research that had previously been done and the variables used were not different from the research. In order to get more benefit from this research, it is advisable to add other important variables, such as quality of service, price consideration and content choice that may increase brand loyalty to Indihome customers

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## ANALYSIS FACTORS OF EXCESS RETURN ON EQUITY (EROE) AND RETURN ON EQUITY (ROE) ON BANKING INDUSTRY IN INDONESIA

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**Abstract** : The national GDP growth found decreased during the period 2012 to 2016. On the other hand, the position of BI rate in 2016 which dropped to the level 4.75% should be able to show the growth of the GDP and affecting the lower bank third parties funds. In addition, OJK says that the banking third parties funds yearly increased by 8.40% in 2016. The more banking third parties funds comes in, the more bank should be able to increase the revenue from interest income. But in fact, ROA actually shows a decline throughout the year 2012 to 2016, which of ROA decreases can also result in a lower ROE. This research was conducted to determine whether there is a influence of GDP growth, inflation, money market rate, stock market volatility, stock market development, lending/GDP, log of total assets, bank size, credit risk, liquidity, taxation, capitalization, cost efficiency, non-traditional activity, labour productivity, c(3), banking sector development, and competition to EROE and ROE. This study was conducted in 6 commercial banks, 3 state-owned and 3 private banks, which has the largest stock market capitalization of 2016 in Indonesia. Panel data analysis is used in this study. Where the estimation method used in this study is FEM. For hypothesis testing, it's done simultaneously using F-test and partially using t-test. Based on the results of this study, it was found and concluded that the variable money market rate, stock market volatility, stock market development, concentration 3, banking sector development, and competition affects the EROE and ROE significantly.

**Keywords:** *banking, excess return on equity, return on equity*

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### 1. Pendahuluan

Referred by Indonesia Investments (2017)<sup>1</sup>, that Indonesia National GDP growth is observed tends to decline throughout 2012 to 2016. But on the other hand, the BI rate of 2016 was dropped into level of 4.75%. This event should be able to shows relation that growth in GDP affecting on decreasing of bank Third-Party Funds (TPF). The basic idea of TPF level is determined by interest rate level which positive relation will happen between them (Sunariyah

2011 : p.84)<sup>2</sup>. Indonesian Financial Service (OJK-Otoritas Jasa Keuangan) stated that in 2016, the TPF level is 8.40% annually which tends to increase compared with previous year which caused by tax amnesty program (Setiawan, 2016)<sup>3</sup>. Increase on TPF should have a positive impact on bank funding activities that can be viewed from its LDR. LDR shows how much banks use depositors' money to lend to their customers (Pandia, 2012: p.118) 4. As the LDR shows an increase, this may indicate that the bank has not used the TPF properly. Cash inflows on TPF should also be able to increase bank revenue from interest income (Pandia, 2012: p.11). Bank receipts in this case ROA, it shows a decrease throughout the year 2012 to 2016, which if ROA down can also lead to a decrease in ROE (Darmawi, 2011: p.204-205)<sup>5</sup>.

This study is quantitative conclusive, ie research that will only give understanding on which variables are the causes and which variables are the result and also to see the nature of the relationship between the causal variable and the result variable, whether positive or negative. In addition, this study aims to determine the effect of GDP growth, inflation, money market rate, stock market volatility, stock market development, lending / GDP, log of total assets, bank size, credit risk, liquidity, taxation, capitalization, cost efficiency, non-traditional activity, labor productivity, c (3), banking sector development, and partial competition on EROE and banking ROE in Indonesia period 2012-2016.

## **2. Theoretical Framework**

### **2.1 Gross Domestic Product (GNP)**

GDP growth<sup>6</sup> is a measure of total economic activity in a country, with GDP growth expected to impact on various factors one of which is related to increasing demand and supply of bank deposits and loans, so it is also possible to positively impact the level of bank profitability.

### **2.2 Inflation**

Inflation describes the circumstances in which the price of goods increases and the value of the currency weakens (Fahmi, 2011: p.186) <sup>7</sup>. Inflation<sup>8</sup> leads people's interest in saving, or investing and producing less. In addition, inflation also has the potential to hoist credit interest. The increase in loan interest will inevitably hamper credit growth itself. While the small income from the credit sector impact on profitability of the bank concerned.

### **2.3 Money Market Rate**

When money market rate<sup>9</sup> or interbank rates increase, it indicates that the bank is short of money to lend to customers, besides this condition also can lead to decreased bank performance.

### **2.4 Stock Market Volatility**

Stock price volatility<sup>10</sup> is a statistical measure for fluctuations in stock prices in a given period. If the stock market is getting volatile<sup>9</sup>, then the condition indicates that the performance or performance of the bank will be better.

### **2.5 Stock Market Development**

Stock market development<sup>11</sup> or the development of a good stock market can help increase saving and help allocate capital or capital effectively which is then used for more productive investments. Not only that stock market development also affect the level of domestic saving which then can increase additional capital, especially for banking institutions.

### **2.6 Pengertian Lending/GDP**

*Lending/GDP*<sup>9</sup> adalah rasio perbandingan antara kredit yang disalurkan oleh bank dengan total GDP. Semakin tinggi rasio ini mengindikasikan bahwa total pinjaman yang diberikan oleh bank kepada nasabah dari waktu ke waktu semakin meningkat. Selain itu, kondisi tersebut juga mengindikasikan bahwa kinerja bank ikut meningkat.

## **2.7 Log of Total Assets**

The log of total assets<sup>9</sup> is the logarithmic calculation of the total assets of the banking industry. The log of total assets is used as an indicator of the level of development of the banking sector. The higher the total assets of the banking industry, indicating that the higher the likelihood that banks will perform better or better.

## **2.8 Bank Size**

According to Halim (2015: p.113, 123, 125)<sup>12</sup> the financial structure shows how the company finances its assets. The financial structure of an enterprise can be influenced by one factor, ie firm size. The larger the size of the company, it means the greater the funds needed to support the company's operational activities.

## **2.9 Credit Risk**

Mangani (2009: p.28)<sup>13</sup> state that credit risk is the risk of non-repayment of loans in accordance with the contract, such as delays, reduction of interest and or principal payments, or not paying the loan at all. It can be said that credit risk is a risk arising from the unpaid credit that has been given by the bank to its customers.

## **2.10 Liquidity**

Liquidity according to Sastradipoera (2001: p.34)<sup>14</sup> is the ability of a bank to provide tools smoothly to pay back matured entrust and lend to customers who need it. Meanwhile, liquidity according to (Leon & Ericson, 2007: p.81) <sup>15</sup> is defined as the ability of banks to meet credit demand by using total assets owned by banks.

## **2.11 Taxation**

According to Waluyo (2011: p.3)<sup>16</sup> taxes is a form of contribution to the state treasury and can be forced by not getting kontraprestasi. Taxation<sup>17</sup> or tax factors is a form of financial emphasis on the bank can reduce the performance of the bank.

## **2.12 Capitalization**

According to Riyanto (2008: p.281- 282)<sup>18</sup> capitalization is the amount of capital owned by a company which includes the amount of long-term debt or foreign capital consisting of bonds or other similar long-term debt and own capital which includes capital shares and surplus in all its forms.

## **2.13 Cost Efficiency**

Cost efficiency<sup>9</sup> is the ratio between the operational costs incurred by the bank and the total or total assets owned by the bank. According to Darmawi (2011: p.132)<sup>5</sup> operational costs or overhead costs of each bank varies, the bank employing few employees but has many branches forced to use a lot of manpower, whereas not all branches can generate profits. This shows the low level of cost efficiency.

## **2.14 Non Traditional Activity**

Non traditional activity<sup>19</sup> is an alternative to traditional activity derived from interest income and needs to be considered in an effort to maintain the level of profitability and competitiveness of banks. Income from non traditional activity is non interest income, where non interest income is more important than operating income.

### **2.15 Labour Productivity**

According to Nilasari and Wiludjeng (2006: 112) productivity is the relationship between the results or output of the amount of goods and services produced with the source or input in the form of labor, capital, and so forth. There are two types of productivity measures, namely total and partial productivity measurement. According to Sinungan (2000: p.23) labor productivity is partial productivity because the measurement only comes from one measured input, ie labor.

### **2.16 Concentration 3**

According to<sup>9, 22</sup> concentration 3 or c (3) is the ratio between the total assets of the three largest banks with the total assets of the banking industry. The concentration<sup>22</sup> variable is used to find out the relationship of concentration 3 with the bank's performance, especially in case of bank failure or systemic banking failure. It is also explained that the higher bank concentration indicates the lower the likelihood of a crisis or bank failure.

### **2.17 Banking Sector Development**

Banking sector development<sup>23</sup> is an interrelated process including improvements in the quantity and quality of financial services. The dimensions included, among others, savings mobilization, lending, and risk management. The level of banking sector development in each country is measured through the ability of each country to perform its functions efficiently.

### **2.18 Competition**

The level of competition between banks<sup>9</sup> can be seen through the comparison of lending rate with deposit rate. According to Mahardika (2015: p.72)<sup>24</sup> lending is the activity of channeling of funds, banks impose credit interest to borrowers who borrow funds from banks. While the deposit is the activity of raising funds through interest expense or called funding, the bank provides deposit interest to depositors who put their funds in the bank.

### **2.19 Excess Return on Equity (EROE)**

Excess Return on Equity (EROE)<sup>25</sup> is an advantage in equity derived from market exploitation by incumbent bank power, or due to the emergence of more efficient or innovative incumbents in the production and distribution of financial services.

### **2.20 Pengertian Return on Equity (ROE)**

According to Fahmi (2012: p.99)<sup>26</sup> ROE ratios reflect the extent to which firms use their resources to provide return on equity. According to Darmawi (2011: p.204)<sup>5</sup> the purpose of banking business is to earn a profit, ie profit for the owner of the company. The amount of profit for the common owner is measured by the ROE indicator (Return on Equity equals return on equity).

## 2.21 Research Framework

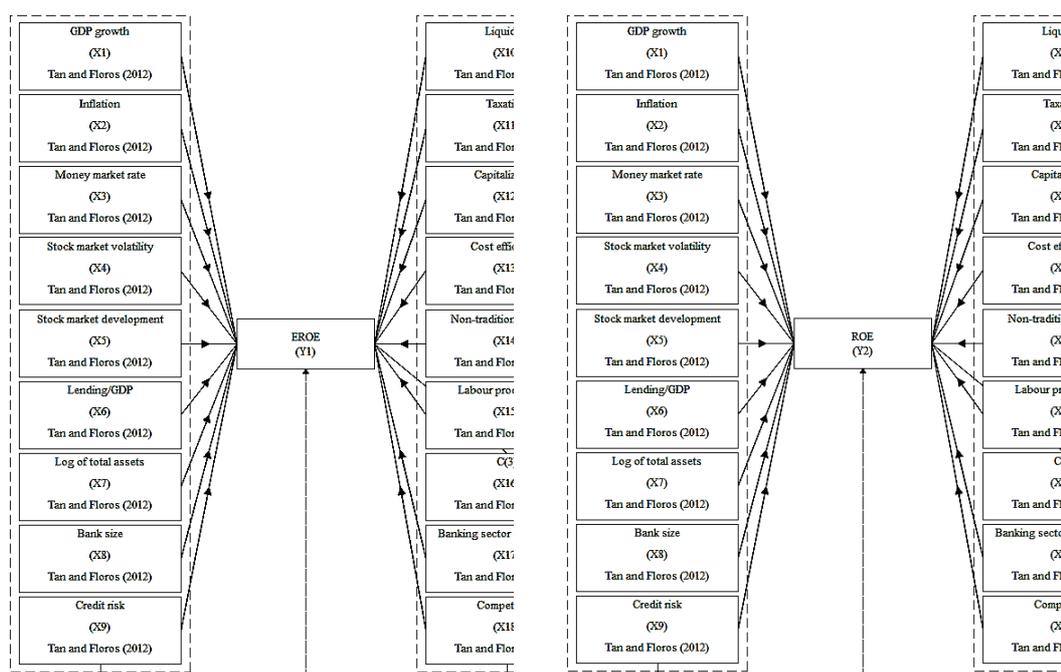


Figure 2.1 Research Framework

Source: (Tan & Floros, 2012)

- > = Partially influence on EROE dan atau ROE  
 - - - - -> = Simultaneously influence on EROE dan atau ROE

## 3. Research Methodology

### 3.1 Population and Sampling

Population in this research is banking in Indonesia in period 2012-2016. There are six bank were chosen that suit for the criteria, which consist of three state owned banks and three private banks, namely Bank Rakyat Indonesia (BRI), Bank Mandiri, Bank Negara Indonesia (BNI), Bank Central Asia (BCA), Bank Danamon Indonesia, and Bank OCBC NISP.

### 3.2 Analysis Technique

The panel data regression model is used as the method of analysis in this study. So the equation can be written as follows:

$$Y^1_{it} = \beta_0 + X^1_{it} \beta_1 + X^2_{it} \beta_2 + X^3_{it} \beta_3 + \dots + X^{18}_{it} \beta_{18} + e_{it} \quad (3.1)$$

$$Y^2_{it} = \beta_0 + X^1_{it} \beta_1 + X^2_{it} \beta_2 + X^3_{it} \beta_3 + \dots + X^{18}_{it} \beta_{18} + e_{it} \quad (3.2)$$

Where:

$Y^1$  = EROE bank unit  $i$  at time  $t$

$Y^2$  = ROE bank unit  $i$  at time  $t$

$\beta_0$	= Constanta
$\beta_1, \beta_2, \beta_3, \dots, \beta_{18}$	= Coefficient on each variable
$X^1_{it}, \dots, X^{18}_{it}$	= In order variables of <i>GDP growth, inflation, money market rate, stock market volatility, stock market development, lending/GDP, log of total assets, bank size, credit risk, likuidity, taxation, capitalization, cost efficiency, non-traditional activity, labour productivity, c(3), banking sector development, dan competition unit i dalam kurun waktu t</i>
$e$	= <i>Error terms</i>

### 3.3 Selection of Panel Data Regression Estimation Technique and Hypothesis Testing

Hypothesis testing is do by using fixed effect estimation model, where according to Nachrowi and Usman (2006: p.318)<sup>27</sup> if the panel data owned has the amount of time or t greater than the number of individuals or N, it is recommended to use fixed effect model. Because in this study the number of individuals or N is smaller than the amount of time or t, then the estimation model used is fixed effect. As for how to test the hypothesis used simultaneous test (F-test) and partial test (t-test).

In addition, the coefficient of determination ( $R^2$ ) is also used to determine the extent to which the precise or suitability of regression lines is formed in representing the observed data group. The greater the value of  $R^2$  or near 1, the accuracy is said to be better (Setiawan & Kusriani, 2010: p.64-65)<sup>28</sup>.

## 4. Result and Discussion

### 4.1 Estimation Result on *Fixed Effect Model* $Y_1$ dan $Y_2$

**Table 4.1 Hasil *Fixed Effect Model*  $Y_1$  dan  $Y_2$  Model**

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11.68912	15.76180	-0.741611	0.4601	C	4.767960	3.230526	1.475908	0.1432
X1	41.14250	7.557060	5.444247	0.0000	X1	0.189783	1.548889	0.122529	0.9027
X2	-0.641795	0.979430	-0.655274	0.5139	X2	0.473588	0.200743	2.359175	0.0203
X3	7.840631	1.736200	4.515972	0.0000	X3	0.731659	0.355850	2.056088	0.0425
X4	-0.272399	0.125811	-2.165152	0.0329	X4	0.088118	0.025786	3.417282	0.0009
X5	-3.232226	1.231516	-2.624591	0.0101	X5	-0.626064	0.252410	-2.480342	0.0149
X6	0.605007	1.055363	0.573269	0.5678	X6	-0.478358	0.216306	-2.211482	0.0294
X7	1.281718	1.135102	1.129165	0.2616	X7	-0.142129	0.232650	-0.610913	0.5427
X8	-0.460529	0.498220	-0.924348	0.3576	X8	-0.171610	0.102115	-1.680561	0.0961
X9	-0.019690	0.043777	-0.449776	0.6539	X9	-0.035642	0.008973	-3.972300	0.0001
X10	0.130987	0.427385	0.306485	0.7599	X10	0.039829	0.087596	0.454685	0.6504
X11	-0.535482	0.448266	-1.194562	0.2352	X11	-0.802017	0.091876	-8.729317	0.0000
X12	-0.800182	0.552206	-1.449063	0.1506	X12	-0.354850	0.113180	-3.135277	0.0023
X13	-0.091833	1.287779	-0.071311	0.9433	X13	0.148923	0.263942	0.564225	0.5739
X14	-0.075933	0.048332	-1.571069	0.1195	X14	-0.043936	0.009906	-4.435306	0.0000
X15	0.000000	0.000000	-0.677541	0.4997	X15	0.000000	0.000000	0.872023	0.3854
X16	-15.49574	2.685802	-5.769503	0.0000	X16	0.957319	0.550480	1.739064	0.0852
X17	0.702833	0.281543	2.496362	0.0143	X17	0.040875	0.057705	0.708352	0.4804
X18	-0.151176	0.057649	-2.622371	0.0102	X18	-0.017825	0.011816	-1.508556	0.1347
Effects Specification					Effects Specification				
Cross-section fixed (dummy variables)					Cross-section fixed (dummy variables)				
R-squared	0.716138	Mean dependent	0.132512		R-squared	0.945425	Mean dependent	0.200487	
Adjusted R-squared	0.648130	S.D. dependent var	0.172573		Adjusted R-squared	0.932350	S.D. dependent var	0.080667	
S.E. of regression	0.102368	Akaike info	-1.543627		S.E. of regression	0.020981	Akaike info	-4.713517	
Sum squared resid	1.006005	Schwarz criterion	-0.986129		Sum squared resid	0.042261	Schwarz criterion	-4.156018	
Log likelihood	116.6176	Hannan-Quinn	-1.317225		Log likelihood	306.8110	Hannan-Quinn	-4.487114	
F-statistic	10.53013	Durbin-Watson stat	1.573731		F-statistic	72.30677	Durbin-Watson stat	1.800150	
Prob(F-statistic)	0.000000				Prob(F-statistic)	0.000000			

Source: data processed

### 4.2 Discussions

#### 4.2.1 The role and Influence of *GDP growth, inflation, money market rate, stock market volatility, stock market development, lending/GDP, log of total assets, bank size, credit risk, liquidity, taxation, capitalization, cost efficiency, non-traditional activity, labour productivity, c(3), banking sector development, and competition* to EROE dan ROE

Based on the observation result, it is known that p value on the F or Prob test for ( $Y_1$ ) and ( $Y_2$ ) is 0.000000 where  $\alpha < 5\%$ , so that means that variable GDP growth, inflation, money market rate, stock market volatility stock market development, lending / GDP, log of total assets, bank size, credit risk, liquidity, taxation, capitalization, cost efficiency, non-traditional activity, labor productivity, c (3), banking sector development, similarly affects EROE and banking ROE in Indonesia with a confidence level of 95%.

#### 4.2.2 The Effect of Growth Growth Partially on EROE and ROE

Based on the result of t test, the influence of GDP growth variable with the significance value 0.0000 to ( $Y_1$ ) and 0.9027 to ( $Y_2$ ) with 5% alpha value partially significant effect to EROE but no significant effect to ROE, thus  $H_{11}$  and  $H_{02}$  are accepted.

#### **4.2.3 The Effect of *Inflation Secara Parsial* on EROE and ROE**

Based on t test result, the influence of inflation variable with significance value of 0.5139 to (Y<sub>1</sub>) and 0.0203 to (Y<sub>2</sub>) with a 5% alpha value partially has no significant effect on EROE but has significant effect on ROE, thus Ho<sub>3</sub> and H1<sub>4</sub> are accepted.

#### **4.2.4 The Effect of *Money Market Rate* on EROE and ROE**

Based on the result of t test, the influence of money market rate variable with the significance value 0.0000 to (Y<sub>1</sub>) and 0.0425 to (Y<sub>2</sub>) with the 5% alpha value partially significant effect to EROE and ROE, thus H1<sub>5</sub> and H1<sub>6</sub> accepted.

#### **4.2.5 The Effect of *Stock Market Volatility* on EROE and ROE**

Based on the result of t test, the effect of stock market volatility variable with value of significance of 0.0329 to (Y<sub>1</sub>) and 0.0009 to (Y<sub>2</sub>) with 5% alpha value partially significant effect to EROE and ROE, thus H1<sub>7</sub> and H1<sub>8</sub> are accepted.

#### **4.2.6 The Effect of *Stock Market Development* on EROE and ROE**

Based on the result of t test, the effect of stock market development with the value of 0.0101 to (Y<sub>1</sub>) and 0.0149 to (Y<sub>2</sub>) with the 5% alpha value partially significant effect on EROE and ROE, hence H1<sub>9</sub> and H1<sub>10</sub> accepted

#### **4.2.7 The Effect of *Lending/GDP* on EROE and ROE**

Based on the result of t test, the influence of lending / GDP variable with significance value of 0.5678 to (Y<sub>1</sub>) and 0.0294 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect to EROE but significantly influence to ROE, thus Ho<sub>11</sub> and H1<sub>12</sub> be accepted.

#### **4.2.8 The Effect of *Log of Total Assets* on EROE and ROE**

Based on t test results, the effect of log of total assets with significance value 0.2616 to (Y<sub>1</sub>) and 0.5427 to (Y<sub>2</sub>) with a 5% alpha value partially no significant effect on EROE and ROE, thus Ho<sub>13</sub> and Ho<sub>14</sub> are accepted.

#### **4.2.9 The Effect of *Bank Size* on EROE and ROE**

Based on t test result, the effect of bank size variable with significance value 0.3576 to (Y<sub>1</sub>) and 0.0961 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect on EROE and ROE, hence H1<sub>15</sub> and Ho<sub>16</sub> accepted.

#### **4.2.10 The Effect of *Credit Risk* on EROE and ROE**

Based on t test result, the effect of credit risk variable with significance value 0.6539 to (Y<sub>1</sub>) and 0.0001 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect to EROE but significant to ROE, hence Ho<sub>17</sub> and H1<sub>18</sub> be accepted.

#### **4.2.11 The Effect of *Liquidity* on EROE and ROE**

Based on the result of t test, the influence of liquidity variable with significance value 0.7599 to (Y<sub>1</sub>) and 0.6504 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect on EROE and ROE, thus Ho<sub>19</sub> and Ho<sub>20</sub> accepted.

#### **4.2.12 The Effect of *Taxation* on EROE and ROE**

Based on the result of t test, the influence of taxation variable with value of significance of 0.2352 to (Y<sub>1</sub>) and 0.0000 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect to EROE but significant effect to ROE, thus Ho<sub>21</sub> and H1<sub>22</sub> accepted.

#### **4.2.13 The Effect of *Capitalization* on EROE and ROE**

Based on the result of t test, the influence of capitalization variable with value of significance of 0.1506 to (Y<sub>1</sub>) and 0.0023 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect to EROE but significant to ROE, hence H<sub>023</sub> and H<sub>124</sub> accepted .

#### **4.2.14 The Effect of *Cost Efficiency* on EROE and ROE**

Based on t test result, the effect of cost efficiency variable with significance value of 0.9433 to (Y<sub>1</sub>) and 0.5739 to (Y<sub>2</sub>) with a 5% alpha value partially has no significant effect on EROE and ROE, thus H<sub>025</sub> and H<sub>026</sub> accepted.

#### **4.2.15 The Effect of *Non-Traditional Activity* on EROE and ROE**

Based on the result of t test, the influence of non-traditional activity variables with significance value of 0.1195 to (Y<sub>1</sub>) and 0.0000 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect on EROE but have significant effect to ROE, hence H<sub>027</sub> and H<sub>128</sub> are accepted.

#### **4.2.16 The Effect of *Labour Productivity* on EROE and ROE**

Based on t test result, the effect of labor productivity variable with significance value 0.4997 to (Y<sub>1</sub>) and 0.3854 to (Y<sub>2</sub>) with 5% alpha value partially no significant effect on EROE and ROE, thus H<sub>029</sub> and H<sub>030</sub> accepted.

#### **4.2.17 The Effect of *C(3)* on EROE and ROE**

Based on t test result, the effect of c (3) with significance value 0.0000 to (Y<sub>1</sub>) and 0.0852 to (Y<sub>2</sub>) with 5% alpha value partially significant effect on EROE but not significant to ROE, hence H<sub>131</sub> and H<sub>032</sub> accepted.

#### **4.2.18 The Effect of *Banking Sector Development* on EROE and ROE**

Based on the result of t test, the influence of banking sector development variable with significance value of 0.0143 to (Y<sub>1</sub>) and 0.4804 to (Y<sub>2</sub>) with 5% alpha value partially significant effect to EROE but no significant effect to ROE, thus H<sub>133</sub> and H<sub>034</sub> be accepted.

#### **4.2.19 The Effect of *Competition* on EROE and ROE**

Based on the result of t test, the influence of the competition variable with the significance value of 0.0102 to (Y<sub>1</sub>) and 0.1347 to (Y<sub>2</sub>) with the 5% alpha value partially significant effect on the EROE but no significant effect on ROE, thus H<sub>135</sub> and H<sub>036</sub> accepted.

#### **4.3 Coefficient Determinant**

The results of this study indicate that the value of determinant coefficient (Y<sub>1</sub>) is 0.648130 and (Y<sub>2</sub>) 0.932350. The results show that 64.81% of EROE and 93.23% of ROE are influenced by GDP variable growth, inflation, money market rate, stock market volatility, stock market development, lending / GDP, log of total assets, bank size, credit risk, liquidity, taxation capitalization, cost efficiency, non-traditional activity, labor productivity, c (3), banking sector development, and competition. While the rest that is equal to 35.19% and 6.77% influenced by other variables that not currently observed in this research.

### **5. Conclusion**

**First**, the results show that simultaneously, GDP growth, inflation, money market rate, stock market volatility, stock market development, lending / GDP, log of total assets, bank size, credit risk, liquidity, taxation, capitalization, cost efficiency, non-traditional activity, labor productivity, c (3), banking sector development, and competition significantly influence EROE and ROE in banking in Indonesia period 2012-2016. **Second**, the result of the research shows that partially

GDP growth, money market rate, stock market volatility, stock market development, c (3), banking sector development, and competition have significant effect on EROE in banking in Indonesia period 2012-2016. Third, the result of the research shows that partially inflation, money market rate, stock market volatility, stock market development, lending / GDP, credit risk, taxation, capitalization, non-traditional activity have significant effect on ROE in banking in Indonesia period 2012-2016.

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## COLLABORATION FOR INDONESIA DISASTER MANAGEMENT THROUGH INFORMATION SYSTEM

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**Abstract:** Disaster is an event or series of events that threaten and disrupt people's lives and livelihoods caused by both natural and/or non-natural factors and human factors resulting in the occurrence of human casualties, environmental damage, property loss, and psychological impact. One of the challenges in disaster management is how disaster management conducted that include distribution of disaster relief can be done quickly, effectively and efficiently and also channeled to disaster victims. Moreover, when conducting disaster management, the authority often faced several problems such as the process of distributing disaster relief often encountered barriers, disaster victims received late disaster assistance or even can not receive disaster assistance in accordance with their needs. Therefore, information system application is needed to help the process of distribution, coordination, management, and monitoring of disaster relief. The information system designed to improve the performance of disaster management that can be used by all parties including Government, NGO, private parties, even the public. The information system is expected to be use as a collaboration tool and coordination medium that can integrate all parties involved effectively and efficiently, and transparently in the process of disaster relief management and captivity.

**Keywords:** disaster management; information system; coordination; distribution; monitoring.

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### 1. Introduction

Disaster is an event or series of events that threaten and disrupt people's lives and livelihoods caused by both natural and/or non-natural factors and human factors resulting in the occurrence of human casualties, environmental damage, property loss, and psychological impact. The impact of a disaster is not just the onset of many casualties, but property losses, infrastructure damage, and psychological impact are inevitable. Indonesia has geographical, geological, hydrological, and demographic conditions that make Indonesia one of the most vulnerable countries related to natural disasters.

This disaster management is needed in the event of a disaster. Disaster management includes the process of distributing logistic assistance for disaster victims, where in the implementation of this distribution must be at the right time, appropriate location, on target and in accordance with the needs of disaster victims. In conducting disaster management various actors involve i.e. government, NGOs, community, and private parties. All parties involved should conduct this disaster management in an integrated manner. One of the challenges in disaster management is how disaster management that include disaster relief distribution can be done quickly, effectively and efficiently and also channeled to disaster victims. When conducting disaster management, the authority often faced several problems such as the process of distributing disaster relief often encountered barriers, disaster victims received late disaster assistance or even can not receive disaster assistance in accordance with their needs.

In humanitarian-relief operations, many parties involved not only limited to government engagement but also other parties. Other parties such as public can participate as donors or volunteers, private companies also can involve as collectors or providers depend on their expertise and interest. In order to give disaster victims receive disaster assistance in accordance with their needs, collaboration among all parties are necessary to implemented. Moreover, accurate and effective information is an important aspect for early warning and monitoring (before disasters) and during and after disasters. In order to managed the information it is necessary to involved and coordinate with all parties in delivery of relief assistance, monitoring, and evaluation relief operations. Information system can be used to managed the information by developing tracing and monitoring system to provide concise information on disaster assistance, and clearly indicating the distribution process and the disaster relief needs by the victims.

This paper aims to propose information system as collaboration system for disaster management to help the process of distribution, coordination, management, and monitoring of disaster relief. The collaboration system through information system is expected to be use as a coordination medium that can integrate all parties involved effectively and efficiently, and transparently in the process of disaster relief management and captivity.

The rest of the paper is organised as follows. The related literatures are reviewed in Section 2, while the conceptual framework used to develop an information system is presented in Section 3. The design of collaboration system is explained in Section 4. The conclusions are given in Section 5.

## **2. Literature Review**

### **A. Disaster Management**

Disaster management defines as a process to managed disaster relief in order to address and implement better responses due to the characteristics of disaster relief are considerable uncertainty and complex [1]. Van Wassenhove [2] states that logistics is the one that makes the difference between successful and a failed operation. This situation make the awareness of the crucial role of logistics in humanitarian relief operation are increase [3]. Therefore, logistic point of view is needed in disaster management to ensure efficient and effective delivery, such that the appropriate commodities and people reach the victims of the emergency.

Kovács and Spens [4] mention that there are four stages of disaster management known as disaster management cycle: (1) Mitigation refers to mechanisms that reduce social vulnerability; (2) Preparation refers to various operations during the period before a disaster strikes; (3) Response refers to the various operation after a disaster occurs; and (4) Reconstruction refers to the various operations that implemented after a disaster occurs. Those disaster stages involved planning, implementing and controlling logistics process in mobilizing people, resources, skills and knowledge to help vulnerable people affected by disaster [2].

This paper will focus on two stages of disaster managements, which are preparation stage, and response stage. Preparation stage is crucial because it is the one in which the physical network design, information and communications technology systems, and the bases for collaboration are developed. In the response stage, coordination and collaboration are conducted among all the parties involved in the humanitarian emergency.

## **B. Information System for Disaster Management**

Information plays an important role in disaster management in handling the situations and in preparing the disaster relief. The information is used range from authority, health sector, social service organizations, military, etc. Shibin and Janardhanan [5] state there are three categories of information in disaster management i.e. (1) Pre-disaster relates to risk assessment, prevention, mitigation and preparedness; (2) During disaster relates to emergency response; and (3) Post-disaster relates to rehabilitation, response, and reconstruction. Therefore, the information can be used for information system for disaster management in (1) Preparedness planning; (2) Mitigation; and (3) Response & recovery [6].

Disaster relief operation involved a large number and variety parties, each with different missions and interests [7]. In the implementation of disaster relief operations an alignment between organizational readiness can be conducted through information systems [8]. The role of information systems become very important to support the activity of emergency response and disaster relief operations which includes the delivery of medicines and medical personnel activities, distribute the equipment and special rescue teams, as well as food and drink into the distribution center of the affected areas can be done as quickly and as precisely as possible. Oktarina and Gustamola [9] state that disaster relief operations should be supported by an adequate information system in order to: (1) Improve the ability to plan the disaster relief operations; (2) Support the emergency goods distribution activities; and (3) Provide the accurate and actual information to all parties involved.

q main groups: government, providers, collectors, and donors. Government is the only player that has a role as activators of humanitarian logistics stream after a disaster strikes since they have the power to authorize operations and mobilize resources. In Indonesia the government can be divided into central government, local government, and aid agencies that managed by government known as Indonesian National Board for Disaster Management (BNPB). The government also has a fundamental role to make protocols and take action for involvement of other countries and the international community.

Providers have a role to guarantee the necessary material and resources available for operational needs and support [12]. Providers are requires making the distribution of disaster relief more efficient. As a provider, a company can offer its goods, services, and their expertise for free (in-kind donation). Several companies that has a role as provider i.e. transportation companies as logistics companies give their delivery/pick up service and expertise, hospital can become providers by offer their health expertise or health goods, communication offer their communication services to help coordination and monitoring run smoothly, and other companies. Military also appertain as provider by offer their expertise to help government in preparation and response stage.

Collectors are the company or Non-Governmental Organization (NGOs) to collect the fund aid or disaster relief. Collectors role are needed in order to increase speed and efficiency of relief efforts as the partners of humanitarian organizations. The collectors also have a role as assistance to providers during distribution process. Various companies belongs to collectors groups i.e. banking companies to collect fund aid from donors, warehouse companies as logistics companies to collects different type of disaster relief from donors. In this study the collectors and providers must be authorized by the government or BNPB in order to maintain

the transparency of information, ease coordination process, and simplify the process of disaster relief received for the victims.

Donors are the ones who donate disaster relief. In general, donors give financial means (in-cash donations) to support humanitarian operations or providing goods and/or services for free (in-kind donations). Van Wassenhove and Martinez [13] state that the frequent problems of donations are that donors often donated unsolicited donations of old goods and perishables. This happen due to donors only donates what they want to donate not based on the disasters victims needs.

### **C. Process**

Information system in this study is developed to help distribution process of disaster relief to the victims. More over, the information system is developed to integrated and coordinates different players in humanitarian relief operations. The information system will be control and managed by BNPB. The information system is used as real time monitoring system by central government as information dashboard, ease government on making the report, and also used as alert the real time condition of the victims needs. Each party involved has different role and has different access whether to update the information or only can seen the information in BNPB Applications (Website or Android).

### **3. Design of Collaboration System**

There are four parties involved as mention previously government (local, central government, and BNPB), providers, collectors, and donors. Description for each party characteristic can be seen in Table 1. The outline of the information system for distribution disaster relief in this study can be in Figure 1.

Using BNPB Applications (Website or Android) donors can seen the information related to what kind of disaster reliefs needs by the victims, the stock level, and target inventory needed. This information is necessary in order to reduce donors donating unnecessary goods. Donors also can find where the authorized collectors location. This information will help donors decide to which collectors they will send the disaster relief. Based on that donors only can see the information in BNPB Apps. The donors cannot change or add the information in BNPB Apps. The donors can choose what type of disaster relief they will give such as financial contributions, food or nutrition, water supply, clothing, etc. based on the information from BNPB Apps.

As collectors they responsibility are to collect all disaster relief from donors and update the information in BNPB Apps. The information is related to inventory information such as type of disaster relief needs, stock level, etc. Collectors location also update if the location of collectors changes. Inventory information and location information also needed by providers to organize pick up process from collectors to the victims. Therefore, providers through BNPB Apps can access inventory information and collectors' location information. Providers can access BNPB Apps not only to get collectors information but also update the information related to pick up process such as transportation network and transportation information (type of transportation mode, delivery schedule, etc.). Other companies (ex. hospitals) as providers can update the information related to their services such as numbers of volunteers, information related to drug/health aspects, and etc.

Table XIV. Characteristics of Different Parties in Collaboration System of Disaster Relief Management

User	Responsibilities	Access Rights
BNPB	Manage user Manage victims information Manage disaster location information Manage disaster relief information Manage other information Make report	Add, modify, delete data associated with the master data Make update information Maintain the applications Give alert to government, collectors, and providers Create report
Government	Make decision related to disaster	Create report
Donors	-	View update information
Collectors	Manage inventory information Manage location information	Add, modify, delete data associated with level of inventory and location Make update information Give alert to providers
Providers	Manage transportation information Manage information related to their services Manage number of volunteers information	Add, modify, delete data associated with pick up process Add, modify, delete data associated with their services Make update information Give alert to BNPB and local government

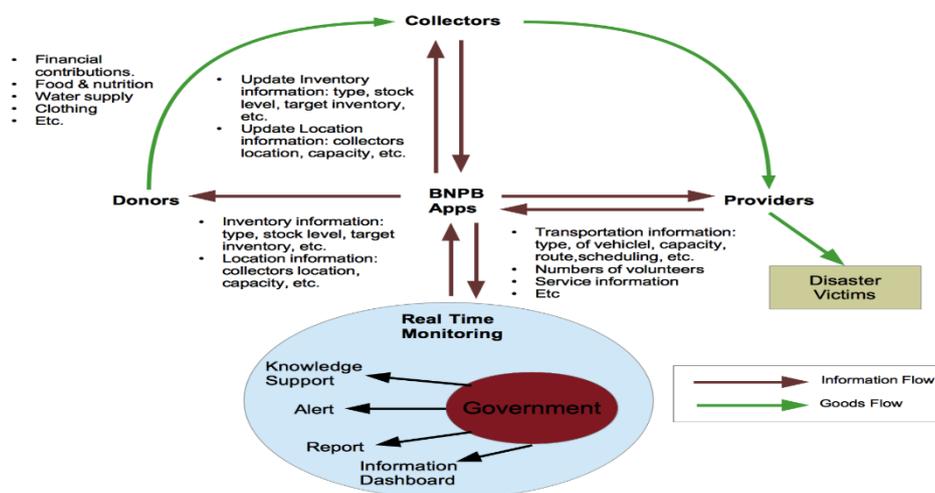


Fig. 1. Design of Information System for Distribution Disaster Relief

Collectors can give notification and alert to providers when the best time or possible time disaster relief can be taken by providers. Providers also can give notification and alert to collectors when they will be picked up for disaster relief, what type of disaster relief will be picked up, and numbers of disaster relief that will be picked up. BNPB can give notification and alert to collectors and providers through BNPB Apps regarding the urgency of disaster relief needs by the victims. Providers also can give local government and BNPB notification as the authority in disaster location when they will deliver disaster relief, what type of disaster relief will be delivered, and numbers of disaster relief that will be delivered. Through BNPB Apps, government uses all the information as an information dashboard to organize and handle the situation more efficiently and effectively. The notification and alert from BNPB, collectors, and providers are also used to take action immediately according to the real-time situation. Interaction among parties in this information system is described as a Use Case Diagram in Figure 2.

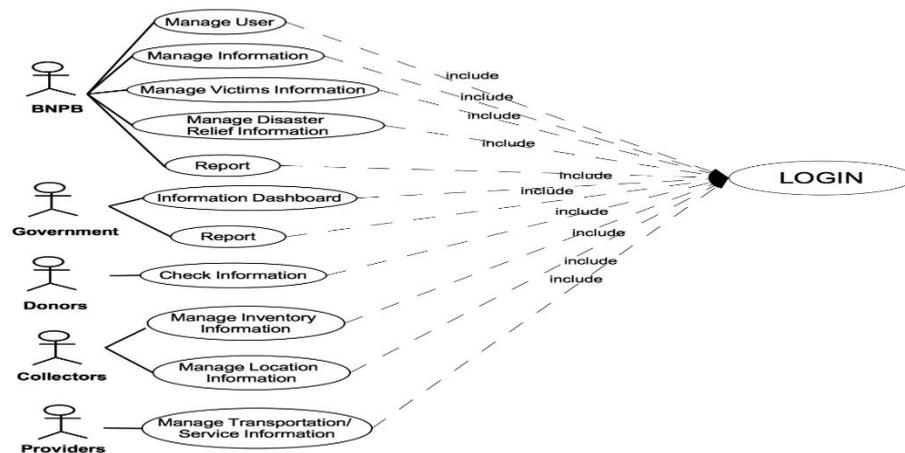


Fig. 2. Use Case Diagram of Information System for Distribution Disaster Relief

#### 4. Conclusions

Accurate and effective information is important during disasters and helps coordination and monitoring of the distribution disaster relief process. Many parties are involved in humanitarian relief operations, such as government, donors, collectors, and providers. Each party has different roles, purposes, interests, and expertise. In this paper, an information system is used to manage information, to help the process of distribution, coordination, management, and monitoring of disaster relief.

This paper provides insight into the development of a conceptual framework for an information system design as a collaboration system to help disaster management be done quickly, effectively, and efficiently. All parties involved will use the information system as a collaboration tool, where each party has different responsibilities and different access rights depending on their role in humanitarian-relief operations. This information system is expected to reduce unsolicited donations, provide real-time information, facilitate the coordination process, and can be used by all parties anywhere.

#### 5. Acknowledgment

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## THE INFLUENCE OF FINANCIAL KNOWLEDGE, FINANCIAL ATTITUDE AND EXTERNAL LOCUS OF CONTROL ON PERSONAL FINANCIAL MANAGEMENT BEHAVIOR (STUDY OF PRODUCTIVE AGE SOCIETY IN BANDUNG)

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**Abstract :** The high population of productive age in Indonesia is not compensated by any interest or knowledge of society toward the financial product and long-term financial planning. On the other hand, Indonesian people tend to be increasingly consumptive each year, consumptive culture continues to grow, but the culture of saving and long-term financial planning decreased over the last three years. This research is conducted to determine the influence of financial knowledge, financial attitude, and external locus of control toward personal financial management behavior on productive age population in Bandung.

It is performed by distributing questionnaires to 400 people aged 15-34 years in the city of Bandung. Questionnaires and documents are used as a means of collecting data. Product moment correlation is used to examine the validity of the research questionnaire and Cronbach Alpha is used to test the reliability of the instrument statements. To find out the influence is done by using multiple linear regression test. T-Test is used to verify the hypothesis partially, while the F-Test is used to examine the hypothesis simultaneously.

The result of this research showed that the financial knowledge and financial attitude have significant influence toward personal financial management behavior while the external locus of control did not significantly influence personal financial management behavior.

**Keywords :** *financial knowledge, financial attitude, external locus of control, personal financial management behavior.*

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## 1. Introduction

Most productive age populations available in Indonesia are not matched by the interest or knowledge of young adult communities in terms of financial products and long-term financial planning. According to the Financial Services Authority (OJK) it is explained that community knowledge of financial industry products is still low, or only about 43%. People who are knowledgeable about the products of the financial industry are still dominated by formal workers which is 45.62%.

Therefore, the education and consumer protection sector of the Financial Services Authority (OJK) continues to educate the knowledge of financial products at productive ages between 15-40 years to increase the interest and knowledge of the productive age community on services and financial products. In recent years, financial management practices among young people have received more attention from organizations, such as governments, groups of financial institutions, universities and others [4]. This concern is to increase knowledge of financial products.

**Table 1 Percentage of Indonesian Population**

	Percentage of total population combined (%)	Men (absolut)	Woman (absolut)
Age 0-14	27,3	34,165,213	32,978,841
Age 15-64	66,5	82,104,636	81,263,055
Above 65	6,1	6,654,695	8,446,603

On the other hand, the Indonesian people tend to become more consumptive each year, as reflected by the decline in Margin Propensity to Save (MPS) and the increase of Margin Propensity to Consumption (MPC) over the last three years since 2015, based on data from World Bank show that the culture of public consumption Indonesia continues to increase but the culture of saving continues to decline for the past 3 years.

Research Question :

1. How is financial knowledge, financial attitude, external locus of control and personal financial management behavior in society of productive age in Bandung?
2. Is there any influence between financial knowledge, financial attitude and external locus of control with personal financial management behavior?
3. Is there any influence between financial knowledge on personal financial management behavior?
4. Is there any influence between financial attitude toward personal financial management behavior?
5. Is there any influence between external locus of control on personal financial management behavior?

## 2. Basic Theory

### 2.1 Personal Financial Management Behavior

*Personal financial management* is defined as a set of behaviors regarding planning, implementation, and evaluation involving cash, credit, investment, insurance, and retirement finances [4].

One's personal financial health can be said to be high when a person is satisfied with his financial situation, has a positive financial attitude, and shows a healthy financial behavior. [12].

## 2.2 Financial Knowledge

*Financial knowledge* is the learning ability to manage income, expenditure, and savings in a safe way [6]. To have financial knowledge it is necessary to develop financial skill and learn to use financial tools. Financial skills are a way of making decisions in personal financial management. Starting from preparing a budget, choosing an investment, and using credit are examples of financial skills. While financial tools are forms and charts used in personal financial management decision making [3].

### **Financial Attitude**

Financial ethics is a person's beliefs and values related to personal finance concepts, such as whether one believes in the importance of saving money [11]. In other words, financial attitude as a state of mind, opinion and financial judgment [5]. Financial attitude shapes the way a person spends, deposits, and accumulates his finances [4].

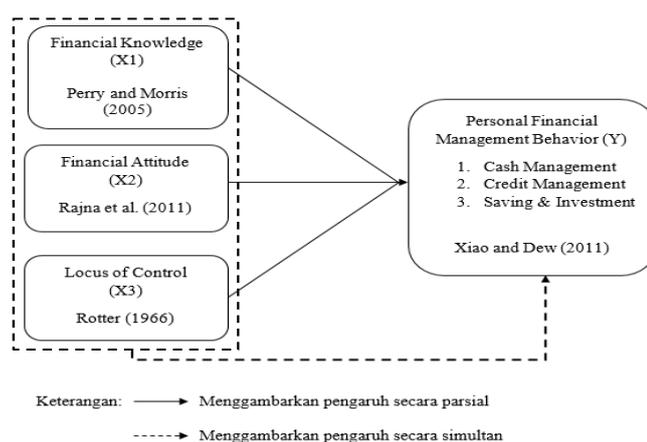
### **Locus of Control**

*Locus of Control* is a person's perspective on an event whether the person is capable or not to control the events that happen to him / her. Or as a concept that refers to individual beliefs related to events that occur in his personal life [1].

Rotter divides the locus of control into two parts, namely the internal locus of control and the external locus of control. Where someone with an internal locus of control believes that skills, abilities, and effort can determine what they gain in life. While someone who has more external locus of control believes that forces from outside themselves such as destiny, fate, fortune, and others in power that can determine their lives [8].

### **Frame of Work**

Based on the theory above, we can see the frame of thought as follows:



**Picture 1**

### **Frame of Work**

Source : data that has been processed

## Research Hypothesis

Based on previous research and from the framework, the research hypothesis is as follows:

1. Financial knowledge, financial attitude, and external locus of control affect the personal financial management behavior.

2. There is influence between financial knowledge and personal financial management behavior.
3. There is influence between financial attitude and personal financial management behavior.
4. There is influence between external locus of control and personal financial management behavior

### 3. Research Methodology

#### 3.1 Sample and Population

In this study, the selected population of researchers is a group of productive age communities in Bandung with the age range between 15-34 years, amounting to 938,226 people (BPS data of Bandung city per year 2014). Sampling technique used in this research is probability sampling technique by using simple random sampling. Samples taken by the researchers are as many as 400 people obtained using the slovin formula of the total population.

#### 3.2 Analytical Technique

In this study using multiple linear regression analysis. The data used is cross section data type. Where cross section data is data collection done in one period, then data is processed, analyzed and then drawn conclusion.

The test used in this study is:

1. Classic Assumption Test
  - a. Normality Test
 

The normality test is to see whether the residual value is normally distributed or not. A good regression model is to have a normally distributed residual value [9].
  - b. Heteroscedasticity Test
  - c. Heteroscedasticity Test is to see whether there is an inequality of variance from the residual one observation to the other. A regression model that meets the requirements is that there is a similarity of variance from the residual one observation to another fixed observation, or so-called homoscedasticity [9].
  - d. Multicollinearity Test
 

The multicollinearity test is to see whether or not there is a high correlation between the independent variables in a multiple linear regression model [9].
2. Multiple linear regression
 

Multiple regression analysis is a tool for analysis of forecasting value of influence of two independent variables or more to related variables to prove the presence or absence of functional relationship or causal relationship between two independent variables or more with one dependent variable[7].
3. Hypothesis testing
  - a. T-Test (Partial Test)
 

Partial test is conducted to determine the significant or not significant each regression coefficient value individually to the dependent variable Researchers determine the significant level of 0.05 ( $\alpha = 5\%$ ) [10].
  - b. F-Test (Simultaneous test)
 

This test involves all the independent variables against the dependent variable in testing the presence or absence of a significant influence simultaneously [10].

Researchers determine a significant level of 0.05 ( $\alpha = 5\%$ ). Withdrawal of conclusions based on probability (significance) with the following decision criteria:

Probability  $\geq 0,05$  ; Then H0 accepted  
 Probability  $< 0,05$  ; Then H0 Rejected.

#### 4. Coefficient of Determination

The coefficient of determination (R<sup>2</sup>) essentially measures how far the ability of the model in explaining the variation of the dependent variable [2].

### 4. Hasil Penelitian

#### 4.1 Descriptive Analysis

Tabel 2 Descriptive Analysis

No	Variabel	Sub-Variabel	Percentage of Variables	Explanation
1	<i>Financial Knowledge</i>		63,13%	Good
2	<i>Financial Attitude</i>		79,09%	Good
3	<i>External Locus of Control</i>		56,28%	Not Good
4	<i>Personal Financial Management Behavior</i>	<i>Cash Management</i>	73,69%	Good
		<i>Credit Management</i>	46,69%	Not Good
		<i>Saving and Investment</i>	69,66%	Good

From table 2 above can be seen that the percentage of variable Financial Knowledge of 63.13%, so that the average score of perception belonging to either category. It shows that financial knowledge of the respondents is good. The percentage value of the Financial Attitude variable is 79.09%, so the average score of perception is good. It shows that the respondents' thoughts, opinions and judgments on their finances are good. In other words, respondents have good thoughts on financial practices on the statements in the questionnaire. The percentage value of External Locus of Control variable is 56.28%, the average score of perception is not good. The tendency of respondents to the internal locus of control, where respondents believe that things that happen or that will happen is caused by themselves. The percentage value of Personal Financial Management Behavior variable is 64.54%, so the average score of perception is good. That means the respondent has done a good financial practice.

The percentage value of Cash Management sub-variable is 73.69%, so the average score of perception is good. It shows that respondents can manage their cash properly. The percentage value of Credit Management sub-variable is 46.69%, the average score of perception is not good. It shows that respondents do credit management badly. Saving & Investment sub-variable percentage value is 69,66%, perception average score is good. It

shows that respondents do savings activities for both short and long term and invest for the future well.

#### 4.2 Classic Assumption Test

##### a. Normality Test

**Tabel 3 Normality Test**

One-Sample Kolmogorov-Smirnov Test

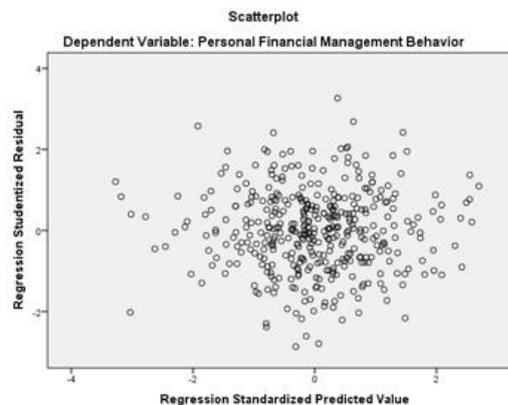
		Unstandardized Residual
N		400
Normal Parameters <sup>a,b</sup>	Mean	,0000000
	Std. Deviation	,35397879
	Absolute	,030
Most Extreme Differences	Positive	,030
	Negative	-,025
Kolmogorov-Smirnov Z		,595
Asymp. Sig. (2-tailed)		,870

a. Test distribution is Normal.

b. Calculated from data.

Based tabel 3 above, Known that the calculation is 0.870. Where is  $0.870 > 0.05$ , then from the data of this study is normal distribution.

##### b. Heteroscedasticity Test



**Picture 2 Heteroscedasticity Test**

Based on Picture 2, it is known that the points in the graph do not form a certain pattern and appear to spread. So it can be concluded that there is no heteroskedastcity in this study.

##### c. Multicollinearity Test

**Tabel 4 Multicollinearity Test**

Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	,916	,142		6,465	,000		
1							
Financial Knowledge	,396	,029	,545	13,882	,000	,859	1,164
Financial Attitude	,245	,037	,261	6,653	,000	,861	1,161
External Locus of Control	-,044	,027	-,059	-1,619	,106	,990	1,010

a. Dependent Variable: Personal Financial Management Behavior

The result of data processing in table 4 shows that the tolerance value for Financial Knowledge variable is 0,859, for Financial Attitude variable 0,861, and for External Locus of Control variable 0,990. While the VIF value for Financial Knowledge variables are 1.164, variable Financial Attitude 1.161, and External Locus of Control variable 1.010. From these data, the tolerance values of the three variables are more than 0.10 and the VIF value is less than 10. So it can be concluded that there is no multicollinearity problem in the regression model.

### 4.3 Multiple Linear Regression Analysis

Tabel 5 Multiple Linear Regression Analysis

Model	Coefficients <sup>a</sup>				t	Sig.
	Unstandardized Coefficients		Standardized Coefficients	Beta		
	B	Std. Error				
(Constant)	,916	,142			6,465	,000
Financial Knowledge	,396	,029	,545		13,882	,000
1 Financial Attitude	,245	,037	,261		6,653	,000
External Locus of Control	-,044	,027	-,059		-1,619	,106

a. Dependent Variable: Personal Financial Management Behavior

Based on the results in table 5, we can obtain the form of multiple linear regression equation as follows:

$$Y = 0,916 + 0,396X_1 + 0,245X_2 + (-0,044X_3)$$

From the multiple linear regression equation above obtained value of constant equal to 0,916. That is, if the dependent variable Personal Financial Management Behavior (Y) is not affected by the three independent variables, X1, X2 and X3 = 0, then the average Personal Financial Management Behavior will be worth 0.916.

The coefficient of independent variables marks indicates the direction of the corresponding variable relationship to the Personal Financial Management Behavior variable. In the variable of Financial Knowledge (X1) the regression coefficient is positive, it indicates a direct relationship between Financial Knowledge and Personal Financial Management Behavior. The regression coefficient of the Financial Knowledge (X1) variable is 0.396. This means that each additional Financial Knowledge of one unit will lead to an increase in Personal Financial Management Behavior of 0.396.

Koefisien regresi untuk variabel *Financial Attitude* (X<sub>2</sub>) memiliki nilai positif, menunjukkan adanya hubungan yang searah antara *Financial Attitude* dan *Personal Financial Management Behavior*. Nilai koefisien regresi variabel *Financial Attitude* (X<sub>2</sub>) adalah sebesar 0,245, ini diartikan bahwa setiap penambahan *Financial Attitude* sebesar satu satuan maka akan menyebabkan peningkatan *Personal Financial Management Behavior* sebesar 0,245.

While the regression coefficient on External Locus of Control (X3) variable is negative, indicating that there is an opposite relationship between External Locus of Control (X3) and Personal Financial Management Behavior. The value of the regression coefficient variable External Locus of Control is equal to -0.044, this means that each addition of External Locus of Control for one unit will cause the decrease in Personal Financial Management Behavior of 0.044.

#### 4.4 Pengaruh *Financial Knowledge*, *Financial Attitude* dan *External Locus of Control* terhadap *Personal Financial Management Behavior*.

Tabel 6 ANOVA  
ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	45,371	3	15,124	119,792	,000 <sup>b</sup>
1 Residual	49,995	396	,126		
Total	95,367	399			

From result uotput data processing above, obtained F count equal to 119,792. because F arithmetic > F table (ie 119.792 > 2.627) then H0 is rejected. So the conclusion is the financial knowledge, financial attitude and external locus of control affect the personal financial management behavior simultaneously.

#### 4.5 Influence between financial knowledge and personal financial management behavior

Value t arithmetic greater than the value of t table on the variable financial knowledge that is 12.882 > 2.249, then H0 rejected. It can be concluded that there is significant influence between financial knowledge variable to personal financial management behavior partially.

#### 4.6 Influence between financial attitude and personal financial management behavior

Financial attitude variable has t value bigger than t value of table that is 6,653 > 2,249, then H0 is rejected. It can be concluded that the variable of financial attitude has significant effect on personal financial management behavior partially.

#### 4.7 Pengaruh antara *external locus of control* dan *personal financial management behavior*

The value of t arithmetic on the external locus of control variable has a smaller value compared to t table, wich is -1,619 < 2,249 so that H0 is accepted. Then it can be concluded that the external locus of control variable partially has no significant effect on personal financial management behavior.

#### 4.8 Determination Coefficient Analysis

The coefficient of determination is calculated to determine the magnitude of the effect of financial knowledge, financial attitude, and external locus of control variable on personal financial management behavior. From result of data processing, obtained R2 or R Square is equal to 0,476. The coefficient of determination is then calculated using the following formula:

$$\begin{aligned} KD &= R^2 \times 100\% \\ &= 0,476 \times 100\% \\ &= 47,6\% \end{aligned}$$

From the results mentioned above, the value of determination coefficient of 47.6%. It means that the variable of financial knowledge, financial attitude, and external locus of control give effect of 47,6% to personal financial management behavior. While the remaining 52.4% is explained by other variables.

## 5. Conclusion

Based on the results of research conducted to the society of productive age in Bandung about the influence of financial knowledge, financial attitude, and external locus of control to personal financial management behavior, it can be drawn conclusion as follows:

1. Financial knowledge from productive age society in Bandung included in good category, financial attitude of productive age society in Bandung included in good category, external locus of control productive age society in Bandung included in category not good, and personal financial management behavior society productive age in Bandung included in good category.
2. Financial knowledge, financial attitude, and external locus of control affect the personal financial management behavior.
3. Financial knowledge has significant effect on personal financial management behavior.
4. Financial attitude has a significant effect on personal financial management behavior.
5. External locus of control has no significant effect on personal financial management behavior..

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## APPLYING LEARNING ORGANIZATION CONCEPT IN SMALL AND MEDIUM ENTERPRISES TOWARDS SUSTAINABILITY: AN EVIDENCE FROM BANDUNG, INDONESIA

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**Abstract:** The existence of Micro, Small and Medium Enterprises (MSMEs) in Indonesia cannot be underestimated. Along with their development, MSMEs have been delivering important contributions to the Indonesian national economy. However, MSMEs certainly have many challenges to survive in facing the fierce competition in present era. Learning organization is absolutely necessary in an effort to achieve the sustainability of a business. Only MSMEs those are willing to continue learning and improving themselves who can remain exist and survive. Applying the concept of learning organization, a business is continuously required to do self-evaluation and identify the problems it faces so as to find solutions for its sustainability. Using a qualitative method, this paper aims to describe how MSMEs try to maintain their existence. This research was conducted with case studies at Binongjati Knitting Industry Center, Bandung, Indonesia which consists of MSMEs. Data collection was done through interviews with business actors in the industrial center. The output of this research is the identification of problems faced by MSMEs in the knitting industrial center and the possible solutions to overcome those problems so as to maintain the business sustainability.

**Keywords :** *learning organization, small and medium enterprises, sustainability*

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### 1. Introduction

The micro, small and medium enterprises (MSMEs) are economic sectors that cannot be ignored in Indonesia. According to the Minister of Finance of the Republic of Indonesia, efforts to develop MSMEs have currently been included in the main agenda of Indonesia's economic development (Kementerian Keuangan Republik Indonesia, 2015). A lot of achievement records have been gathered by MSMEs for the national welfare. Based on data recorded by the Ministry of Cooperatives and MSMEs of the Republic of Indonesia, the contribution of SMEs to Indonesia's gross domestic product (GDP) has increased quite rapidly within the last five years. It was previously recorded at 57.84 percent in 2011, but currently it has increased to 60.34 percent in 2016. In addition to contributing to Indonesia's GDP, MSMEs also play an important role in efforts to alleviate poverty and reduce unemployment (CNN Indonesia, 2016). The ability of MSMEs to provide sufficient employment for local communities is the reason why MSMEs

are considered to have a significant social and economic contribution in developing countries (Tambunan, Development of small and medium enterprises in a developing country: The Indonesian case, 2011).

However, behind the great achievements and contributions to the national economy and prosperity, MSMEs in Indonesia are still experiencing various problems that need to be addressed to achieve better development in the future. The constraints faced by MSMEs in Indonesia are mostly lack of capital, low productivity and utilization of technology, and poor product quality. These things are often barriers for MSMEs to grow, causing their growth to run stagnant (Bhasin & Venkataramany, 2010). Difficulties and lack of finance, marketing, raw materials, business information, high cost transportation, long bureaucratic procedures are also obstacles that hinder most MSMEs in Indonesia (Tambunan, Export-oriented small and medium industry clusters in Indonesia, 2009). The lack of entrepreneurship in Indonesia is often the main reason for the slow growth of the Indonesian economy compared to some other countries in Asia. Therefore, the Indonesian government is currently taking the strategy to grow entrepreneurship through development of MSMEs (Tambunan, Development of SMES in a developing country: the Indonesia story, 2007)

This article aims to identify the specific problems faced by MSMEs in Indonesia, particularly in the Binongjati Knitting Industry Center, Bandung. Identifying the existing problems will help the MSMEs to find solutions for the development towards sustainability.

## **2. Literature Review**

The industrial restructuring and advancement of information technology have built a market that demands organizations to learn in ways far beyond the experiences they have undergone (Lee & Bannet, 2000). The concept of learning organization should be applied in simple ways and various forms of training because it adapts to the reality of the organization (Mumford, 1995). Implementation of learning organization in small businesses is strongly influenced by internal resources and external environment (Kelliher & Henderson, 2006). The comparison of organizational learning systems can be done through typical characteristics those are able to meet the demands of the internal and external environment (Yeo, 2005).

The function of learning is very important as an effort to achieve good growth for businesses run by MSMEs. The function of learning should be able to be depicted by managers and must be continually enhanced and supported through the understanding and mastery of managers on basic knowledge of business and management. It also requires supports from social system in all aspects. (Zhang, 2000). It is in accordance with the concept on sustainable development. People are able make changes in their various roles as employees, managers, customers, and citizens. The sustainable value must be applied in life on a personal, organizational, and societal level. This can be achieved by an effective and efficient management process in pursuing a balance between economic welfare, social equalization, and environmental awareness (Garvare & Isaksson, 2001).

Learning organization needs to be done by developing new skills, ideas, and interests to improve the quality of life and provide benefits and show a meaningful existence in life (Choppin, 1997). A learning-oriented organization will be successful in its organizational change program and will be able to achieve the long-term vision that it sets out (Pearn, 1994).

## **3. Methodology**

This research was conducted by applying a qualitative approach with a case study method at Binongjati Knitting Industry Center, Bandung, Indonesia. Data collection was done through interviews with business actors in the industrial center. The respondents are knit industry

entrepreneurs, store owners of knitted fashion products, and chairman of the community of youth knitting craftsmen. It is a descriptive research that will result the identification of problems faced by MSMEs in the knitting industrial center and the possible solutions to overcome those problems so as to maintain the business sustainability.

#### **4. Overview of MSMEs in Bandung, Indonesia**

The existence of MSMEs in Indonesia is regulated in Law no. 20 Year 2008 on Micro, Small and Medium Enterprises (MSMEs). MSMEs aim to grow and develop the business in order to build a national economy based on a justice in economic democracy. The criteria for such business groups are: (1) having maximum net assets of Rp 50,000,000.00 (excluding land, building, and place of business) for micro business, Rp 50,000,000.00 - Rp 500,000,000, 00 for small business, and Rp 500.000.000,00 - Rp 10.000.000.000,00 for medium business; (2) obtaining maximum revenue of Rp 300,000,000 for micro business, Rp 300,000,000.00 - Rp 2,500,000,000.00 for small business, and Rp 2,500,000,000.00 - Rp 50,000,000,000 for medium business .

Bandung is a city in Indonesia that is very famous for the growing variety of creative industries. Bandung is one of the cities in Indonesia that is very concerned about the development of MSMEs. The economic growth of Bandung city is strongly supported by the existence of MSMEs. According to Central Bureau of Statistics (BPS), Bandung currently has about three hundred thousand MSMEs. The data is presented by the official site of West Java province (Pemerintah Provinsi Jawa Barat, 2017). Those MSMEs spread across seven industrial centers in Bandung. The seven industrial centers are Binongjati Knitting Industry and Trade Center, Cigondewah Cloth Trade Center, Cihampelas Jeans Trade Center, T-Shirt Industry Center, Cibaduyut Shoe Industry Center, Cibuntu Tahu & Tempe (food made from soybeans) Industry Center, and Sukamulya Sukajadi Doll Industry Center. This research was conducted with the subject of research is the businessmen in Binongjati Knitting Industry and Trade Center.

#### **5. Description of Binongjati Knitting Industrial Center**

Binongjati Knitting Industry was established in 1943 and passed on from generation to generations. However, there are some major problems faced by knitting business at Binongjati those need to be solved to get the sustainability. Through observations and interview with the entrepreneurs of knitting industry and the chairman of Binongjati youth community of knitting craftsmen, there are some problems those urgently need to be solved to get sustainability of the knitting industry in Bandung.

The main problem is about the financial matter in terms of cash flow. A very tight cash flow due to the payment of employee wages in every 5 days in which the pay day in every week is on Saturday so that the production of goods must be in large scale and immediately distributed so that money can circulate and return back again. Currently, this problem can be solved by the cooperation of payroll system with BRI. The matter of tight cash flow then leads to the problem of difficulty in getting additional capital to develop the business. The interest rate of bank loan is very high, it is approximately 8%. It is a very hard condition for MSMEs at Binongjati knitting industrial center due to the tight cash flow. Actually the government has supported the MSMEs through Program Kemitraan dan Bina Lingkungan (PKBL) that gives loan to MSMEs in relatively low interest rate, at about 6%. However, PKBL is only suitable for start-up business because the program will only grant the loan for maximum Rp 100 million per partner. So that the businesses that have been in the developing stage are facing difficulties to get additional capital.

Entrepreneurs at Binongjati knitting industrial center requires simple book-keeping training for daily business skills, such as for calculating Cost of Goods Sold (COGS), posting costs, segregating business financial records and private household financial records. It also needs to be assisted by academicians in terms of knowledge transfer of financial skills.

The other problem is related with regeneration to continue the business. The regeneration of the knitting business at Binongjati does not work well. Along with the time, the number of craftsmen keeps decreasing. It happens due to the younger generation (successors) prefer to work in other sectors such as in the bank, or they choose to open shop / outlet in the malls because those are more prestige. It is also caused by the mindset of previous generations, they send their children to higher education or college, they hope their children will not follow the footsteps of their parents who became knitting entrepreneurs, but they prefer to gain prestige by having their children work in banks or in other sectors, so it is feared that the knitting industry will not be sustainable and extinct.

The regeneration problem will also affect to the capitalizing system. Since the parents did not prepare the next generation to learn how to do the business and how to manage the capital, therefore the business run by the younger generation will be increasingly difficult to obtain additional capital from the bank. It is because the business under the management of younger generation is regarded as a start-up business and has not been bankable yet because the bank account and the business track record look still new, whereas the business has been established since tens of years ago.

Human resource does matter in the Binongjati knitting industrial center. It is difficult to find craftsmen who do the production due to the fierce competition between the knitting businessmen in the center of knitting industry at Binongjati. The employee turnover is very high. They keep moving around because of the lump-sum wage system. They are lazy to work on products with high difficulty level because it will decrease the number of products that they can produce in a day and it will also affect the amount of income they receive, then they will move to work with other knitting business owners whose products are not too difficult to do.

The other main problem faced by Binongjati knitting industry is in terms of marketing. The downstream marketing of Binongjati knitting industry does not run very well. Currently, it merely relies on collectors and on mass production in large quantities. It has not worked on customized for premium products that can be sold at high prices so as to cover production costs. It should be thought about how to better promotion, good branding, etc. It needs help from academicians in terms of marketing knowledge to resolve this matter. It is also expected that one day the conditions will be changed in which it is done through 75% online-marketing and 25% offline-marketing.

The location of Binongjati industrial center of knitting is difficult to access. It is located in a small and narrow alley which is crowded and has limited parking lot. The plank at the gate that shows the signpost of Binongjati Industrial Center of Knitting is too small that only few people know the existence of knitting center in that area. People who have already known are reluctant to come back there because of the difficult road conditions, access, and parking. These problems should be considered to be addressed soon, so it can support the marketing of Binongjati knitting industry through the industrial center tourism.

## **6. Conclusion**

The MSMEs at Binongjati knitting industrial center are facing some problems that can be concluded into two big problems, i.e financial and marketing matters. They need to get sufficient knowledge regarding those matters. Applying learning organization concept, the entrepreneurs at Binongjati knitting industrial center need help and supports from many parties, including academicians. Academicians can deliver favors to them by sharing and transferring knowledge

in terms of financial and marketing skills through community service program. Not only to be organized incidentally, but the community service program must be run continuously to achieve sustainable development for MSMEs in Indonesia.

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## ANALYSIS OF CONSUMER PREFERENCES ON ELECTRONIC NEWSPAPER IN INDONESIA

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**Abstract:** The development of the internet today has an impact on all aspects, including the mass media industry, which can be seen through the growth of online mass media in Indonesia such as detik.com, liputan6.com, Kompas.com, Okezone.com. Back then people consumed day to day news only through print media such as newspapers, magazines and electronic media such as television, radio. Today people can access the news quickly any time and anywhere from the mass media online using their mobile devices such as smartphones, tablets, etc. Therefore, the online mass media are competing to provide the best service to their readers.

This study aims to determine the preferences of the mass media from Detik.com, Liputan6.com, Kompas.com, Okezone.com based on electronic service quality. The assessment in this study is based on previous research, which is task-appropriate information, customized communication, visual appeal, innovation, emotional appeal, ease of use, trust, consistent image, response time, and relative advantage (Sajadi and Ghachem, 2015).

Method of data collection is done by distributing questionnaires to 400 respondents in Indonesia who has accessing and reading the electronic newspaper. The data analysis technique used is the Conjoint Analysis (Hair et al, 2010).

The result shows that the respondent preference in using electronic newspapers is the website that provides information as needed, possibility to interact, a good visual website design, user friendly website in finding information, trustworthy website for its information & innovation.

**Keywords:** *Preferences, Conjoint, Electronic Newspaper, Electronic Service Quality*

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### 1. Introduction

Human life today is in the age of globalization or can also be called the era of modernization. In this modernization era, humans are very dependent on technology. Less than the last 10 years, mobile phone technology that was originally just a wireless communication device has been developed into a communication tool that can take photos, record videos, play music, and access the internet in seconds <sup>[1]</sup>.

The number of internet users in Indonesia is increasing every year. A survey conducted by the Boston Consulting Group (BCG) showed that the number of internet users in Indonesia is dramatically increasing over the last 6 years, i.e. 70 million new users. Whereas within the period 2006 to 2009, the internet users were only increased by about 13 million users; 20 million

users in 2006 grew into 33 million users in 2009. In 2015, an estimated number of internet users in Indonesia had exceeded over 100 million users [2].

A survey conducted by MarkPlus Insight in 2015 proved that most Indonesian people use the internet to access social media. In the second and fourth positions, Indonesian people use internet as a media to access and find out the latest information through the online mass media [3].

Currently, there has been a considerable displacement in terms of information distribution media. Another survey conducted by MarkPlus Insight revealed that only 55.3 percent of the internet citizens who have ever read a printed newspaper in 2013. In addition, 98 percent of respondents had access to TV and internet in the last six months. The survey also revealed that the Indonesian internet citizens mostly search for information such as news (54.2%), entertainment (16.3%), movies (10.2%), sports (8.7%), and music (8,5 %). The rest included political news (7.4%), cinema TV (6%), celebrity news (5.5%), gossip (5.2%), and educational content (5%) [2].

The rising trends of online media that affect the decline in the number of readers of printed media is confirmed by the Press Company Association. The number of online media readers increase significantly ranging from 50 percent to over 100 percent every year. Along 2015, some printed media decided to stop the printed newspaper and switched into digital media. Some printed media that must be closed by 2015 include; Sinar Harapan, Harian Bola, Jakarta Globe, and Koran Tempo Minggu. Some of them revealed that there was no balance between the sale profits and the production cost in which they could not avoid losses. The Nielsen Company Indonesia Ltd. reported in 2015, among the 117 newspapers monitored, 16 media units have gone out of business, 38 magazines have also suffered the same situation. There are merely 132 magazines left that can still survive [4].

Blogoooblog.com (Blogger and Technology) conducted a small-scale research on top 15 online mass media in Indonesia. They were sorted by Alexa.com ranking per October 20, 2015. Afterwards, they were analyzed using Statshow. The analysis results showed a summary of the estimated revenue generated by the top 15 online mass media in Indonesia. The results showed that detik.com as online mass media earned the biggest revenues from Google, followed by Kaskus, Kompas, Liputan6, and Tribunnews [5].

Based on Alexa.com, the most popular online mass media per February 5, 2016 were detik.com, kompas.com, liputan6.com, and okezone.com. This is the reason why the author picked those sites as research objects to be studied. As the most popular websites, however, they had the grievances felt by the users related to the e-service quality on each website. Those grievances were commonly conveyed by users through social media; one of them is via Twitter. On Twitter, a lot of users complained about the website appearances which displayed too many ads making it difficult to read the news. Some complained about the website contents which were considered not based on the facts occurring in the public. Some also considered that the media were impartial and unneutral in presenting the news.

Taking a look at the facts and data collected, it can be proved that the presence of online media in Indonesia is increasingly competitive. In addition, the needs and demands of the community is also increasing. This is because the community can be said they have felt comfortable in accessing online media. The operators of online media should always be able to provide the right electronic services quality on their websites and exactly fit the users' preferences. It can be considered as one of the important things that must be concerned in order to retain customers and prevent the shift of consumers because the competition among media businesses can anytime attract their consumers.

Therefore, this study aims to determine the preferences of e-service quality of online mass media using conjoint analysis.

## 2. Theoretical Background

### Marketing management

Marketing management is a social process that includes necessary activities to enable individuals and organizations get what they need through exchange with other parties and to develop a continuous exchange relation <sup>[6]</sup>.

### Service Marketing

Service marketing is regarded intangible actions or deeds that may be offered by one party to another and do not lead any form of ownership. Despite, service products can still be associated with physical products, because there is a pure service product (such as child care, psychological consultation, management consultation). In addition, there are also services that require physical products as the essential requirements (e.g. ships in navy, plane in flight service, and foods in restaurant). There are five characteristics that distinguish the goods and services and how to market both of them, namely: intangibility, inseparability, heterogeneity, perishability, and lack of ownership <sup>[6]</sup>.

### Service Quality

The dimensions of service quality that is mostly used recently include: physical evidence, reliability, assurance, responsiveness, and empathy. These five dimensions are the result of minimization through research of ten basic dimensions of service quality <sup>[7]</sup>.

### Quality of Electronic Services

The quality of electronic services in the study have nine attributes, namely: informational fit-to-task, tailored communication, visual appeal, innovativeness, emotional appeal, ease of use, trust, consistent image, and relative advantage. Those attributes are adopted from WebQual attributes that initially supply 13 attributes as research material. The nine attributes that will be examined have two sub-attribute (level) for each as its development <sup>[8]</sup>.

Table 1  
Attribute and Level of Research

Attribute	Sub-attribute (Level)
Informational fit-to-task	The information in the website is useful
	Information is needed
Tailored Communication	Website enables users to interact
	Website has interactive features
Visual Appeal	Homepage of the website is interesting
	Website design is visually satisfying
Innovativeness	The website is very innovative
	There is creativity in the website
Emotional Appeal	Rigid websites make users dissatisfied

Attribute	Sub-attribute (Level)
	Friendly website makes users feel cheerful
Ease of Use	It's not easy to access information
	It's easy to find information
Trust	The information is reliable (images, text, etc.)
	Website is able to keep personal information
Consistent Image	Website and company image are consistent
	Website is in accordance with user views
Relative Advantage	Virtual agents make it easy for users
	Website loading time is slow

### Mass Media Online

Online mass media is internet media, such as websites, blogs, and other forms which are published/aired in cyberspace, that can be read and viewed on the internet. Online media is distinctive and one of the popular types of mass media. Its distinctiveness lies on the necessity to have technology and information network and the use of computer equipment, as well as the knowledge of computer programs to access information/news. The advantage of online media is that the information/news is up to date, real time, and practical <sup>[9]</sup>.

### Theoretical Framework

Below is the theoretical framework of this study:



Figure 1

Theoretical Framework

## 4. Research Method

### Conjoint Analysis

This study uses conjoint analysis technique with full profile presentation method. The author provides the profiles of research objects; afterwards, the consumers provide a rating/ranking for each of them. The objective of this analysis is to determine the consumer

preferences and provide ideal profiles. In this step, the consumers must provide ratings for each of the existing profiles. Having conducted the analysis, these data can be determined the consumers' preferences viewed from some values and utilities appearing. Implementing SPSS created 12 profile cards which are assessed by the respondents. Afterwards, the respondents should provide an assessment using metric rating with value of 1 - 5 in any given profile; and the scale used is a Likert scale. In conjoint analysis, the data input can be either qualitative (non-metric) or quantitative (metric). In this research, data input is quantitative (metric), so that the respondents are asked to provide a rating evaluation of the profile stimulus. Rating is considered more pleasing for respondents and easy to analyze.

## **5. Discussion**

### **Characteristics of Respondents**

Before conducting data processing, respondents were selected in advance by the author based on certain characteristics. 400 respondents were collected. Meanwhile, samples were selected from the respondents who knew the characteristics of online mass media of Detik.com, Liputan6.com, Kompas.com, and Okezone.com, and have visited all four online mass media websites.

The respondents that had been surveyed were mostly young adults, i.e. 257 respondents were 21 - 30-year-old, 60 respondents were 31 – 40-year-old, 40 respondents were 15 – 20-year-old, and the rest were the respondents at age of 40-year-old. In addition, they were also categorized into some groups based on their job where most respondents were high-school or college students i.e. 227 respondents, followed by 83 respondents of private sector employees, 57 respondents of SOE employees, 17 respondents of civil servants, and 16 respondents of other job types.

Data of respondents' gender showed that 225 respondents are male, and 175 respondents are female. Data of respondents' domicile showed that 190 respondents are from Java, 63 respondents are from Sumatra, 51 respondents are from Kalimantan, 37 respondents are from Sulawesi, 33 respondents are from Bali, and 16 respondents are from Maluku, Nusa Tenggara, and Papua.

### **Measuring the Accuracy of Prediction**

Measuring the accuracy of prediction on conjoint analysis can be seen from correlation value and significance generated in this study. It is conducted to know how far primary data collected from questionnaires have similarity with real condition in the field.

The correlation output generated through Pearson's (0.985) and Kendall's tau (0.809) has a relatively strong value. This shows that the estimated value and actual value at the field are categorized into very high group because it has a value above 0.8. Meanwhile, the value of significance shows the number of 0.000 which means below the maximum standard value of 0.005. Therefore, it can be said that the results of the significance value can be accepted. Based on these data, we can conclude that these results are valid and reliable and acceptable to describe consumer preferences in choosing online media in Indonesia.

### **Measuring the Utilities and Relative Importance**

Utility value comprehensively describes the samples of this study. The calculation of the utility value of samples which used SPSS 20 are as follows:

Table 2  
Total Utility Value

		Utility Estimate	Std. Error
<i>Informational_fit_to_task</i>	The information in the website is useful	-.004	.007
	Information is needed	.004	.007
<i>Tailored_Communication</i>	Website enables users to interact	.002	.007
	Website has interactive features	-.002	.007
<i>Visual_Appeal</i>	Homepage of the website is interesting	-.013	.007
	Website design is visually satisfying	.013	.007
<i>Innovativeness</i>	The website is very innovative	.003	.007
	There is creativity in the website	-.003	.007
<i>Emotional_Appeal</i>	Rigid websites make users dissatisfied	-.010	.007
	Friendly website makes users feel cheerful	.010	.007
<i>Ease_of_Use</i>	It's not easy to access information	-.036	.007
	It's easy to find information	.036	.007
<i>Trust</i>	The information is reliable (images, text, etc.)	.002	.007
	Website is able to keep personal information	-.002	.007
<i>Consistent_Image</i>	Website and company image are consistent	-.035	.007
	Website is in accordance with user views	.035	.007
<i>Relative_Advantage</i>	Virtual agents make it easy for users	.024	.007
	Website loading time is slow	-.024	.007
(Constant)		3.711	.007

(Source: Results of Data Processing conducted by the author, 2016)

Table 2 shows the results of utility values of nine attributes, namely: Informational fit-to-task, Tailored Communication, Innovativeness, Visual Appeal, Ease of Use, Emotional Appeal, Trust, Consistent Image, and Relative Advantage. Each attribute has two levels and has different utility values. This comparison of utility values explains the level of choice between levels in a variable. A positive sign indicates a more selected level, whereas a negative sign indicates a less selected level.

Table 3  
Overall Relative Importance Value

Importance Values	
Informational_fit_to_task	10.933
Tailored_Communication	10.127
Visual_Appeal	11.064
Innovativeness	10,091
Emotional_Appeal	11.716
Ease_of_Use	11.560
Trust	10.841
Consistent_Image	11.921
Relative_Advantage	11,747

(Source: Results of Data Processing conducted by the author, 2016)

Table 3 shows the results of overall importance value in the use of online media in Indonesia. It can be seen from the table that an attribute with the highest importance value is Consistent Image with a value of 11.92 and the selected sub-attribute is the website is in accordance with the user views (value = 0.35). The second important attribute is the Relative Advantage with a value of 11.75 and the selected sub-attribute is Virtual agents make it easy for users (value = 0.24), followed by Emotional Appeal with a value of 11.72 and the selected sub-attribute is friendly website makes users feel cheerful (value = 0:10). Furthermore, the results show that the value of Ease of Use is 11.56 and the selected sub-attribute is It's easy to find information (value = 0.36). The fifth ranked attribute is visual Appeal with a value of 11.06 and the selected sub-attribute is Website design is visually satisfying (value = 0:13). The next variable is Informational fit-to-task with a value of 10.93 and the selected sub-attribute is Information is needed (value = 0.04). In 7<sup>th</sup> ranking is Trust with an importance value of 10.84 and selected sub-attribute is reliability of information in text, images, etc. (value = 0.02). Tailored Communication is in 8<sup>th</sup> position with an importance value of 10.13 and the selected sub-attribute is Website enables users to interact (value = 0.02). The attribute that has the smallest importance value is Innovativeness with an importance value of 10.09 and the selected sub-attribute is the website is very innovative (value = 0.03). Therefore, it can be concluded that the respondents who access the online mass media websites are very attentive to the condition of the image from a website before accessing.

#### Best combination of Respondents' Choice

Beyond the best combination that has been processed by SPSS 20, there are some combinations that have been given a score rating by respondents. This led to combination ranking that can be selected by the clients of Radio Ardan when they want to make an event at Radio Ardan. Questionnaire scores are obtained from the total score given by respondents in

any combination. The combination with the highest score has the highest ranking because it illustrates that the respondents have a high rate of agreement with the combination. The data processing generated the utility value and importance value of each sub-attribute. Afterwards, the best values are selected and become a combination that is considered to be consumer preference.

Table 4  
Results of the Best Combination of Respondents' Choice

Variables	Concept
Information is needed	High
Website enables users to interact	High
Website design is visually satisfying	High
The website is very innovative	High
Friendly website makes users feel cheerful	High
It's easy to find information on the website	High
Reliability of information (text, images, etc.)	High
Website is in accordance with user views	High
Virtual agents make it easy for users	High

(Source: Results of Data Processing conducted by the author, 2016)

Table 4 shows the combination obtained based on the best utility value of each sub-attribute available. The combination that becomes the respondents' preferences in accessing online mass media is a website that provides information as needed, allowing for interaction, website design is visually satisfying, website has the innovation in itself, user friendly website which make users feel cheerful, website which greatly facilitates the users in search of information, website which has reliable information, website which is in accordance with the view/hope/expectations of users, and virtual agents of the website which allows users to search for information easily.

## 6. Conclusions and Recommendations

The objective of this study is to determine consumer preferences for e-service quality of online mass media in Indonesia. It can be concluded that the combination that becomes the respondents' preferences in accessing online mass media is a website that provides information as needed, allowing for interaction, website design is visually satisfying, website has the innovation in itself, user friendly website which make users feel cheerful, website which greatly facilitates the users in search of information, website which has reliable information, website which is in accordance with the view/hope/expectations of users, and virtual agents of the website which allows users to search for information easily.

Consistent Image is the most selected preference by consumers. Therefore, the business of online mass media should be able to form and create a good image of the website. In order to know the views and expectations of the users, it is recommended that the company should conduct a consumer survey at a certain time regularly. Knowing the views and expectations of users is essential since it can create satisfaction and make users return to access the websites. Relative Advantage becomes a preference in the second ranking. Therefore, it is recommended that the website provides a virtual agent that works optimally to help facilitate the users in search of information. Furthermore, Emotional Appeal becomes a preference in the third ranking. Thus, it is suggested that the website does not have excessive contents. The navigation and layout of the website should look well-arranged to avoid users confused. Everything that will make the users feel uncomfortable should be avoided since it will create dissatisfaction.

It is suggested to narrow down the sample population into specific area only to know consumer preferences more demographically specific. It is also suggested to reduce the number of variables by conducting focus group research with online mass media businesses to determine the most appropriate variables that can be further investigated.

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## THE INFLUENCE OF RETURN COMPOSITE STOCK PRICE INDEX (CSPI) AND INFLATION ON CREDIT SPREADS RATE INDOSAT'S BONDS IN INDONESIA PERIOD 2011-2015

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**Abstract:** This study aims to find the relationship between composite stock price index, rate of inflation and credit spread rate. In bond investment decision, investor should not only find the benefit in her investment but also has to calculate for its risks. Investor will face some risks, namely market risk and credit risk. Market risk can be seen through interest rate, rate of return, market price, and inflation rate, while credit risk can be seen through yield spread. In this study the relationship between the market risks and credit risk will be investigated through the return composite stock price index and rate of inflation with yield or credit spread from the spread between corporate's yield and government yield. According to Rizal et.al (2018) this linkage is applicable since that the asset price can be linked to those market risks and credit risks. Data collection in this study is using secondary from the data of government bonds (FR Series Code) and corporate bonds in Telecommunication subsector, from 2011 to 2015. The data analysis techniques used multiple linear regression analysis with descriptive statistics and classical assumption test. The result is obtained from 14 variations of credit spreads rate variables, which is divided into three parts by date of length. The result gives that all variables affect the credit spreads rate simultaneously, but only inflation rate affects credit spreads rate, partially.

**Keywords :** *Inflation; Yield to Maturity; Credit Spreads Rate*

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### 1. Introduction

In bond investments, an increase in inflation will lead to a declining of the interest income value that earned by investors during the lifetime of bonds (Tandelilin, 2010). Aisah (2014) also states that the inflation rate has a positive effect on bond yield. This positive relationship is caused by the increasing of inflation, where it also tends to increase the interest rate. The inflation rate will affect the market price level, the bond price and the bond yield. Therefore, if the rate of inflation increases, it will affect the interest rate to increase where it will cause the decreasing in bond prices and increasing in bond yield.

Bond in Indonesia is growing rapidly according to Iwan Jaya Azis as a Head of the Asian Development Bank's Regional Economic Integration Office, he said that Indonesia's bonds experienced the largest growth in Asia by 2013 at 6.8% by the end of the IV Quarter of 2013 up 20.1% from 2012 ([www.kemenkeu.go.id](http://www.kemenkeu.go.id)). Also the director of IBPA (Indonesia Bond Pricing Agency), Wahyu Trenggono says that many issuers throughout 2016 will issue more bonds. Herdi Ranu Wibowo as Head of Fixed Income Security BCA also says that bond gives a prospective trends because macroeconomic conditions in Indonesia are quite good. This statement is also stated by Rizal et.al (2018) that the prospect of the growth of corporate bonds is very good in Indonesia.

Table 1. Issuance of Government and Corporate Bonds (\* Trillion)

Year	Corporate*	Government*
2011	126,65	45,08
2012	159,59	69,39
2013	235,78	58,43
2014	274,39	45,07
2015	349,94	62,75

Generally, bond issuance is affected by the new issuers, since they tend to make another new funding resources. Therefore new issuers may lead to pose some risks. According to Zubir (2012), unsecured bonds have a greater risk than secured bonds or it can be stated also that corporate bonds are more risky than government. To protect the investor, corporate bonds are bundled up by independent rating agencies as a benchmark for paying liabilities.

According to Sari and Abudanti (2015) the level of bonds yields received by investors will change along with changes in macro or micro economic conditions. And the change in yield can affect the price level of bond market. To find the value of bond at a certain point, investor needs to know the amount of remaining period for yield to maturity (YTM). The higher the YTM level will lead to the lower rate of change of bond price (Samsul, 2006).

Based on Fig. 1 and 2, it shows that YTM Indonesian government bonds over the past five years. It can be seen that the lowest point occurred on February 10, 2012 with a value of 4.80%, while the highest point on September 30, 2015 with a value of 9.47%. The lowest point occurred on December 3, 2012 with a value of 7.64%, while the highest point on September 30, 2015 with a value of 10.74%.

According to Putri (2013) the risk can be seen through corporate's yield spreads. The greater the yield will lead to the greater the risk of the corporate. In the bond market, the yield spread or credit spread is calculated from the difference between the corporate's YTM and government's YTM. Credit spreads can serve a risk measurements that show the yields for investors gain. Credit spread of bonds can be affected market risks (Rizal et.al, 2018). Interest rates can be influenced by inflation. Inflation is the increment in the price level of goods and services in a general period of time. A persistent increment in inflation can lead to an overall price increase. According to Adriana (2015) market risk includes the risk of loss from market price movement. In this study the return composite stock price index (CSPI) will be used to determine the effect of credit spread.



Fig. 1. YTM Government Bonds 2011-2015



Fig. 2. YTM Corporate Bonds 2011-2015

In this study, the credit spread of bonds will be studied, where the return of composite stock price index and the rate of inflation will be the measurement variables to see how much they will influence the credit spread rate. The Indosat bond will be used in here since it has passed the sample criteria's which will be given in following sections. The data period that will be used here is the data from 2011-2015. Data acquisition is obtained from IBPA. Based on the above description, this study will be entitled with: "*The Influence of Return Composite Stock Price Index (CSPI) and Inflation on Credit Spreads Rate Indosat's Bonds in Indonesia Period 2011-2015*". The research questions will be:

1. How the Return Composite Stock Price Index (CSPI) and Inflation will influence simultaneously the Credit Spreads Rate Indosat's Bonds in Indonesia Period 2011-2015?
2. How the Return Composite Stock Price Index (CSPI) will influence partially on the Credit Spreads Rate Indosat's Bonds in Indonesia Period 2011-2015?
3. How the Rate of Inflation will influence partially on Credit Spreads Rate Indosat's Bonds in Indonesia Period 2011-2015?

## 2. Literature Review

Stock market is the place where seller and buyer meet to perform financial trading. According to Zubir (2012), bonds are the form the debt-structure that issued by the government or corporate to get funding. According to Zulfikar (2016:32), the form of bonds are: corporate bonds, government bonds, and municipal bonds. Bond is knows as a security which has fixed rate and low risk of security (Aisah and Haryanto, 2012). Yet, the risk still should be measured, especially for bond issued by corporate and also depend on type and issuers.

The investor will receive income in the form of yield and coupon. According to Sari and Abudanti (2015) , bonds are influenced by the economic condition. As a result of yield bonds is also to reflect the performance of a bond in decision-making by investors. The interest rate that prompted the market for bonds called yield to maturity (YTM) (Ross, et al in Siti, 2014). In other words, yield to maturity (YTM) is internal rate of return (IRR) of bonds where it is held until the maturity date.

According to Guinan (2009) the credit spreads is the difference between government bonds and non-government which is identical in all aspects of the quality of ranking. According to Choudry (2001) the credit spread difference between YTM the corporations and YTM the

government as a standard thing that can be measured or valued. Generally, the calculation of the credit spreads in the market bonds with YTM corporate bonds and YTM government bonds. Credit spreads can be used as the measurement of risk that shows the yield to be obtained investors. In this study, the measurement of credit spreads rate is using the corporate bonds of Indosat and the fixed rate of government bonds with a series of FR, and the calculations of credit spreads rate (CSR) will be as follows:

$$CSR = YTM_{corporate} - YTM_{government} \quad (1)$$

Description:

$YTM_{corporate}$  : The results issued by corporate.

$YTM_{government}$  : The results issued by government.

Factors that affect the credit spread rate are market risks such as interest rates and inflation, therefore the corporate bonds according to Rizal et.al (2018) are connected with the market risks and credit risks. According to Andriana (2015), market risks and the risks of loss, come as the result of the market price movement. This study is using composite stock price return to see its influence to the bond credit spreads rate. Cui et al. (2013) studied that there is a positive influence of CSI 300 index to the credit spread rate in China The return of CSPI will be calculated as follows:

$$Return\ CSPI = \frac{Close_t - Close_{t-1}}{Close_{t-1}} \quad (2)$$

Description:

$Close_t$  = The price cap stocks CSPI the day.

$Close_{t-1}$  = The price cap stocks CSPI the day before.

In the other way around, the study of Aisah (2014) said that the rate of inflation has a positive effect to yield of bonds. A positive relationship was marked if the inflation is increasing then it will affect the interest rate to increase, and the increasing of interest rate will cause a decreasing bond price and an increasing in its yield.

### 3. Research Method

At this stage of the research, the first step is to find secondary data from each research object. This study obtained secondary data from the website [www.ibpa.co.id](http://www.ibpa.co.id) for bond data and yield to maturity. After the data is obtained, then the calculation of credit spreads of each existing object will be obtained. The Operational variables that will be used further are described in table 2.

Table 2. Operational Variable

No	Variable	Indicator	Scale
1	Return CSPI ( $X_1$ )	$R_{cspi} = \frac{C_t - C_{t-1}}{C_{t-1}}$	Ratio
2	Inflation ( $X_2$ )	Bank Indonesia	Ratio
3	Credit Spreads Rate ( $Y$ )	$CSR = YTM_c - YTM_g$	Ratio

The steps to do this study first of all is to test the normality of data using the classical assumption. The population that is used here are the government bonds and corporate bonds

in telecommunication subsector in Indonesia for 2011-2015. The sampling technique to be used here is the nonprobability sampling with purposive sampling method.

Sample criteria that is used in this study will be explained through table 3 where it can be seen that there is a distinction between the corporate bonds and the government bonds. First of all, there are 26 corporate bonds that are listed on the Indonesia Stock Exchange and the data is available on the site of Indonesia Bond Pricing Agency. The sample chosen are only the one with fixed rate and already reach its maturity, where it gives only 14 bonds left. Second of all there are 96 government bonds with rupiah currency, and they are reduced by the fixed rate bonds, and the one with maturity beyond the time maturity of corporate bond, so that the sample chosen for government bonds are only 10 left. After that we match for each of 14 corporate bonds with 10 government bonds to find its credit spread rate, so that there 140 group of credit spreads that will be measured. After 140 group of credit spreads rate found, then we check its normality test, and reduce the one with less than one year data. Then it comes up with only 14 group of credit spreads rate that have passed the test.

Table 3. Sampling Criteria

Sampling Criteria	Corp.	Gov.
Corporate bonds in the telecommunications companies were listed on the Indonesia Stock Exchange and IBPA.	26	
Corporate bonds which are not the type of Fixed Rate Bond and outside time period of 2011-2015.	(8)	
Corporate bonds with a Fixed Rate Bond and outstanding from a year 2011-2015.	18	
Corporate bonds that have not reached the maturity	(4)	
Corporate bonds that have reached the maturity	14	
Government bonds with Rupiah currency.		96
Government bonds which has not used serial code FR.		(56)
Government bonds with the serial code FR		40
Government bonds with time period beyond 2011 and 2015		(30)
Government bonds with Fixed Rate Bonds outstanding from a year 2011-2015		10
The data of Yield to Maturity (YTM) of Corporate bonds between Government bonds during the year of 2011-2015.	14	10
Credit Spreads Rate data of YTM with Corporate bonds and the Government.	14x10 = 140	
Credit Spreads Rate data did not qualify a test of Normality (1).	(76)	
Credit Spreads Rate data that passes a test of Normality (1).	64	
Credit Spreads Rate data that does not exceed one (1) year.	(40)	
Credit Spreads Rate data that exceeds one (1) year.	24	
Credit Spreads Rate data that don't pass the test of classical assumptions	(10)	
Credit Spreads Rate that successfully passed the test of classical assumption (Total Samples).	14	

Those 14 samples of credit spreads rate are given in the following table:

Table 4. List of Samples

No	Gov's Bonds	Corp's Bonds
04 June 2015		
1	FR0059	ISAT01DCN2
2	FR0064	
3	FR0070	
4		ISAT01ECN2
5	FR0071	ISAT01DCN2
05 August 2015		
6	FR0073	ISAT01ACN1
7		ISAT01BCN1
8		ISAT01CCN1
9		ISAT01DCN1
10		ISAT01DCN2
11		ISAT01ECN2
12		ISAT08A
13		ISAT08B
12 December 2014		
14	FR0071	ISAT01DCN1

This measurement is using the technique of data analysis and hypothesis testing as for its conclusion. According to Sugiyono (2006:142), the data analysis is used to classify data based on variable and type of respondents; to tabulate data based on variables from all respondents; to present the data of each of the examined variables; and to do a calculation to test hypothesis have been proposed. This analysis is using statistical tools with multiple linear regression analysis where the classical assumption will be included into this measurement, since that we assume that the data is a normal distribution data.

According to Hamdi and Bahruddin (2015:114), test of normality aims to test whether the data has a normal distribution or not. To figure it out, the techniques namely the *Kolmogorov-Smirnov* will be used. Using this test first we will check the *Asymp* value. If the *Asymp* value is bigger than 0.05, it means that the data has a normal distribution. After this value is checked then the multicolinearity test will be done. The purpose of using this test is to figure out if there is a perfect relationship between the independent variables, Ghazali (2011:105). Beside those test we also have to check the Multicollinearity between those variables where it can be seen from the value of tolerance which is bigger than 0.10 or the value of Variance Inflation Factor (VIF) that should be smaller than 10.

After Multicollinearity test has been done, then the heteroscedasticity test will be done. According to Ghazali (2011:139), heteroscedasticity test aimed to see whether there is an inequality residual variance that occurs from one observation to another observation on the

regression model. Because a good regression should be free from heteroscedasticity. To see whether it has heteroscedasticity or not it can be seen from the value of the significance where it should be bigger than 0.01. If this value is bigger than 0.01 then it means that there is no heteroscedasticity and H0 is accepted

Next test is autocorrelation test. According to Ghozali (2011:110) this test aims to see whether there is a correlation between period  $t$  with period  $t-1$ . If there is one period has correlation, it is called with autocorrelation. A good regression should be free from autocorrelation. To find out that out, we have to use Durbin-Watson. The value for having a non-autocorrelation is:  $dU$  (durbin upper)  $< d$  (durbin watson)  $< (4-du)$ , then H0 accepted.

All those test that mention above is called with a classic assumption test. After those all done than it should be followed by multiple linear regression analysis. According to Sugiyono (2016:210) multiple linear regression analysis was intended to see how the relationship between the independent variable and the dependent variable. The formula for multiple regression analysis can be seen as follows::

$$Y = a + b_1X_1 + b_2X_2 \quad (3)$$

Decision:

Y : Credit Spreads Rate

a : Constant

X<sub>1</sub> & X<sub>2</sub> : Return of CSPI & Inflation

b<sub>1</sub> & b<sub>2</sub> : Constant of Return CSPI & Constant of Inflation

Multiple linear regression analysis has two test, they are F-test and t-test. According to Ghozali (2011:98) F-test is aimed to find out how big the influence of the independent variables on the dependent variables. This F-test can be determined using the level of significant ( $\alpha$ ) which is equal to 5%, and hypotheses  $H_1:b_1=b_2 \neq 0$  which means that Return Composite Stock Price Index and Inflation will be simultaneously significance to the credit spreads rate. This can be seen that the value of significance should be smaller than 0. As for the t-test, it is aimed to test whether one independent variable will have an effect to the dependent variable. The hypotheses will be  $H_{a1}:b_1 \neq 0$ ;  $H_{a2}:b_2 \neq 0$  which means that Return Composite Stock Price Index or Inflation will effect partially against the Credit Spreads Rate and it can be seen from the significance value that also should be smaller than 0.05.

## 4. Result And Discussion

### 4.1 Research Result

Based on the classical assumption test and analysis of multiple linear regression obtained, there are 14 variations of credit spreads rate that can be tested, and those are will be given as follows:

1. CSR10 : FR0059 (RI State Bonds Series FR0059) - ISAT01DCN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series D).
2. CSR66 : FR0064 (RI State Bonds Series FR0064) – ISAT01DCN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series D).
3. CSR108 : FR0070 (RI State Bonds Series FR0070) – ISAT01DCN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series D).
4. CSR110 : FR0070 (RI State Bonds Series FR0070) – ISAT01ECN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series E).
5. CSR122 : FR0071 (RI State Bonds Series FR0071) – ISAT01DCN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series D).
6. CSR127 : FR0073 (RI State Bonds Series FR0073) – ISAT01ACN1 (Sustainable Bonds I Year 2014 Phase I Indosat Series A).

7. CSR129 : FR0073 (RI State Bonds Series FR0073) – ISAT01BCN1 (Sustainable Bonds I Year 2014 Phase I Indosat Series B).
8. CSR132 : FR0073 (RI State Bonds Series FR0073) – ISAT01CCN1 (Sustainable Bonds I Year 2014 Phase I Indosat Series C).
9. CSR135 : FR0073 (RI State Bonds Series FR0073) – ISAT01DCN1 (Sustainable Bonds I Year 2014 Phase I Indosat Series D).
10. CSR136 : FR0073 (RI State Bonds Series FR0073) – ISAT01DCN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series D).
11. CSR138 : FR0073 (RI State Bonds Series FR0073) – ISAT01ECN2 (Sustainable Bonds I Year 2015 Phase II Indosat Series E).
12. CSR139 : FR0073 (RI State Bonds Series FR0073) – ISAT08A (Indosat Bond VIII Series A Year 2012).
13. CSR140 : FR0073 (RI State Bonds Series FR0073) – ISAT08B (Indosat Bond VIII Series B Year 2012).
14. CSR121 : FR0071 (RI State Bonds Series FR0071) – ISAT01DCN1 (Sustainable Bonds I Year 2014 Phase I Indosat Series D).

#### 4.1.1 Descriptive Analysis of CSPI Return, Inflation, and Credit Spreads Rate Variable

Descriptive analysis is using a statistics data analysis between independent variables (return composite stock price index and inflation) and dependent variable (credit spreads rate). In this explanation, the descriptive analysis of variable credit spreads rate have different date i.e. 04 June 2015, 05 August 2015, and 12 December 2014, all gives 14 samples.

*The following data taken will be following the credit spread rate and will be separated between time interval, which are June 4<sup>th</sup> 2015, August 5<sup>th</sup> 2015 and December 12<sup>th</sup> 2014.*

Table 5. Descriptive Statistics 04 June 2015

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
CSR10	140	1.238499	2.044174	1.60882628	.213546632
CSR66	140	-.176505	.875615	.49262967	.277702914
CSR108	140	1.382745	2.220240	1.76242309	.204527532
CSR110	140	1.515501	2.385095	1.94088322	.225834837
CSR122	140	1.175590	2.072212	1.57670164	.219692630
RET_CSPI	140	-.039720015	.045519369	.00070693765	.012936095991
INF	140	.0335	.0726	.061464	.0136834
Valid N (listwise)	140				

Based on Table 5. for period of 04 June - 30 December, 2015 the explanation will be given as follows:

1. Inflation has the lowest value of 0.0335 and the highest value of 0.0726 with average 0.061464 and with the standard deviation of 0.0136834.

- Return CSPI has the lowest value of -0.039720015 and the highest value of 0.045519369 with average value of -0.00070693765 and with the standard deviation of -0.012936095991.
- Credit Spreads Rate has 5 variations and the author gives one example at CSR10, which has the lowest value 1.238499 and the highest 2.044174 with an average 1.60882628 and std. deviation 0.213546632.

Based on Table 6. For period of the 05 August - 30 December 2015 will be given as follows:

- Inflation has the lowest value of 0.0335 and the highest value of 0.0718 with average value of 0.57026 and with standard deviation of 0.0139008.
- Return CSPI has the lowest value of -0.039720015 and the highest value of 0.045519369 with average value of -0.00030165463 and with standard deviation of 0.014204934726.
- Credit Spreads Rate has 8 variations and the author gives one example at CSR127, which has the lowest value 0.092163 and the highest 0.900216 with an average 0.52964930 and std. deviation 0.192286102.

Table 6. Descriptive Statistics 05 August 2015

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
CSR127	100	.092163	.900216	.52964930	.192286102
CSR129	100	.489123	1.509722	1.02721317	.23224818
CSR132	100	1.123528	1.731422	1.45844149	1.45778755
CSR135	100	1.326434	1.996402	1.63983398	.164098177
CSR136	100	1.164729	1.775355	1.46914883	.13598528
CSR138	100	1.354834	2.032113	1.64496957	.155658704
CSR139	100	.991613	1.928430	1.487994367	.199822410
CSR140	100	1.122852	1.646152	1.39527041	.105055533
RET_CSPI	100	-.039720015	.045519369	-.00030165463	.014204934726
INF	100	.0335	.0718	.057026	.0139008
Valid N (listwise)	100				

Table 7. Descriptive Statistics 12 December 2014

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
CSR121	256	1.332437	2.553293	1.96353481	.312176784
RET_CSPI	256	-.039720015	.045519369	-.00039067223	.010811324709
INF	256	.0335	.0836	.065334	.0115252
Valid N (listwise)	256				

Based on Table 7. on the 12 December 2014 - 30 December 2015 is explained as follows:

- Inflation has the lowest value of 0.0335 and the highest value of 0.0836 with average value of 0.065334 and with standard deviation of 0.0115252.
- Return CSPI has the lowest value of -0.039720015 and the highest value of 0.045519369 with average value of -0.00039067223 and standard deviation of 0.01811324707.

- There is only on Credit Spreads Rate in this period and it has the lowest value of 1.332437 and the highest 2.553293 with average 1.96353481 and std. deviation 0.312176784.

#### 4.1.2 Classical Assumption Test

The classical assumption test is used before performing a regression test.

Table 8.The Classical Assumption Test Results

No	Variable	Normality	Multicollinearity	Heteroscedasticity	Autocorrelation
1	CSR10	0.078	Tolerance: 0.989 VIF: 1.012	$X_{1(RET\_CSPI)}$ : 0.632 $X_{2(INF)}$ : 0.640	DW: 0.078
2	CSR66	0.161	Tolerance: 0.989 VIF: 1.012	$X_{1(RET\_CSPI)}$ : 0.648 $X_{2(INF)}$ : 0.000	DW: 0.176
3	CSR108	0.171	Tolerance: 0.989 VIF: 1.012	$X_{1(RET\_CSPI)}$ : 0.245 $X_{2(INF)}$ : 0.244	DW: 0.423
4	CSR110	0.339	Tolerance: 0.989 VIF: 1.012	$X_{1(RET\_CSPI)}$ : 0.283 $X_{2(INF)}$ : 0.135	DW: 0.478
5	CSR122	0.599	Tolerance: 0.989 VIF: 1.012	$X_{1(RET\_CSPI)}$ : 0.928 $X_{2(INF)}$ : 0.841	DW: 0.215
6	CSR127	0.641	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.038 $X_{2(INF)}$ : 0.035	DW: 0.348
7	CSR129	0.748	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.579 $X_{2(INF)}$ : 0.018	DW: 0.404
8	CSR132	0.372	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.442 $X_{2(INF)}$ : 0.319	DW: 0.244
9	CSR135	0.239	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.535 $X_{2(INF)}$ : 0.137	DW: 0.305
10	CSR136	0.767	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.569 $X_{2(INF)}$ : 0.263	DW: 0.269
11	CSR138	0.144	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.739 $X_{2(INF)}$ : 0.476	DW: 0.323
12	CSR139	0.281	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.441 $X_{2(INF)}$ : 0.204	DW: 0.223
13	CSR140	0.874	Tolerance: 0.989 VIF: 1.011	$X_{1(RET\_CSPI)}$ : 0.838 $X_{2(INF)}$ : 0.168	DW: 0.575
14	CSR121	0.135	Tolerance: 0.996 VIF: 1.004	$X_{1(RET\_CSPI)}$ : 0.439 $X_{2(INF)}$ : 0.988	DW: 0.097

Based on the classical assumption test results, the credit spreads rate above are the one that have normal distribution, indicate by the value of Asymp. Sig. bigger than 0.05. Also there are no multicollinearity, heteroscedasticity, autocorrelations between independent variables. Under these results, the regression model is qualified to use.

#### 4.1.2 Multiple Linear Regression Analysis

This regression test is using F-test (simultaneous-test) and t-test (partial-test) to see the influence between independent variables and dependent variable.

Table 9. Results and Models of Multiple Regression

No	Variable	F Test	t Test	Models
1	CSR10	0.000	X <sub>1</sub> : 0.706; X <sub>2</sub> : 0.000	CSR10= 0.993 + 0.412X <sub>1</sub> + 10.025X <sub>2</sub>
2	CSR66	0.004	X <sub>1</sub> : 0.497; X <sub>2</sub> : 0.002	CSR66= 0.825 + 1.206X <sub>1</sub> – 5.396X <sub>2</sub>
3	CSR108	0.000	X <sub>1</sub> : 0.159; X <sub>2</sub> : 0.000	CSR108= 1.189 + 1.508X <sub>1</sub> + 9.348X <sub>2</sub>
4	CSR110	0.000	X <sub>1</sub> : 0.150; X <sub>2</sub> : 0.000	CSR110= 1.195 + 1.480X <sub>1</sub> + 12.158X <sub>2</sub>
5	CSR122	0.000	X <sub>1</sub> : 0.136; X <sub>2</sub> : 0.000	CSR122= 1.047 + 1.848X <sub>1</sub> + 8.635X <sub>2</sub>
6	CSR127	0.000	X <sub>1</sub> : 0.908; X <sub>2</sub> : 0.000	CSR127= 1.041 + 0.122X <sub>1</sub> – 8.996X <sub>2</sub>
7	CSR129	0.000	X <sub>1</sub> : 0.296; X <sub>2</sub> : 0.000	CSR129= 1.772 + 1.074X <sub>1</sub> – 13.054X <sub>2</sub>
8	CSR132	0.001	X <sub>1</sub> : 0.211; X <sub>2</sub> : 0.000	CSR132= 1.238 + 1.223X <sub>1</sub> + 3.871X <sub>2</sub>
9	CSR135	0.000	X <sub>1</sub> : 0.266; X <sub>2</sub> : 0.000	CSR135= 1.186 + 0.979X <sub>1</sub> + 7.958X <sub>2</sub>
10	CSR136	0.001	X <sub>1</sub> : 0.279; X <sub>2</sub> : 0.000	CSR136= 1.263 + 0.985X <sub>1</sub> + 3.627X <sub>2</sub>
11	CSR138	0.000	X <sub>1</sub> : 0.389; X <sub>2</sub> : 0.000	CSR138= 1.234 + 0.734X <sub>1</sub> + 7.212X <sub>2</sub>
12	CSR139	0.003	X <sub>1</sub> : 0.110; X <sub>2</sub> : 0.000	CSR139= 1.722 + 2.181X <sub>1</sub> – 4.080X <sub>2</sub>
13	CSR140	0.000	X <sub>1</sub> : 0.005; X <sub>2</sub> : 0.000	CSR140= 1.639 + 1.684X <sub>1</sub> – 4.266X <sub>2</sub>
14	CSR121	0.000	X <sub>1</sub> : 0.204; X <sub>2</sub> : 0.000	CSR121= 1.002 + 1.946X <sub>1</sub> + 14.735X <sub>2</sub>

Based on the regression results in table 9, we will take one example to interpret the meaning of the finding model. The regression model of CSR 10.

$$\text{CSR10} = 0.993 + 0.412X_1 + 10.025X_2$$

the interpretation is as follows: if *Return CSPI* ( $X_1$ ) increases for 1 (one) unit, then the CSR10 will increase 0.412 unit. And if *Inflation* ( $X_2$ ) increased by 1 (one) unit, then the CSR10 will increase by 10.025 unit.

#### 4.1.3 Coefficient of Determination

This coefficient is used to measure how big the overall independent variables will influence the dependent variables, in percentage. In other words, the *R-square* value can indicate how big the regression model in explaining the dependent variable. If *R-square* is getting bigger, it will be interpreted that the dependent variable is influenced, as big as the number of R-square, by the independent variable.

Table 10. Coefficient of Determination

No	Variable	R Square	R Square (%)
1	CSR10	0.410	41%
2	CSR66	0.077	7.7%
3	CSR108	0.387	38.7%
4	CSR110	0.536	53.6%
5	CSR122	0.289	28.9%
6	CSR127	0.421	42.1%
7	CSR129	0.625	62.5%
8	CSR132	0.141	14.1%
9	CSR135	0.450	45%
10	CSR136	0.140	14%
11	CSR138	0.410	41%
12	CSR139	0.114	11.4%
13	CSR140	0.397	39.7%
14	CSR121	0.296	29.6%

Based on Table 10, we will interpret the *R-square* value obtained for CSR10. It can be seen that R-square is 41%, it means that the independent variable Return CSPI and Inflation affect the credit spreads rate for 41%, while the rest of 59% are affected by other variables outside of the model.

## 5. Conclusion And Recommendation

Based on the result of this research, it can be inferred that the return composite stock price index and inflation has a positive influence on credit spreads rate. This is demonstrated by the significant value of CSR that less than significant level of 0.05.

From the simultaneous point of view it is only the return of CSPI which has no significantly affect the CSR. This is shown with the significance value that is bigger than 0.05. However, there is one return of CSPI that has a positive and significant influence, and it is CSR140

From partial point of view of rate of inflation, they all have positive and significant influence towards CSR.

Based on the results of the research, it can be seen that the macroeconomic factor such as inflation, and it is indeed giving the significance change of credit spreads rate. Therefore, changes to the rate of inflation is unstable. The outcome could affect to the higher borrowing costs. Investor doesn't know when inflation will rise, so it's good to always pay attention to economic conditions from time to time as well. Whenever the inflation increases, the price of good will also increase and so does the yield of bond. And if the bond yield is increasing then it will decrease the price of goods. Also if the inflation rate is rising, the interest rate will be increasing too. Rising interest rates will automatically affect the increase in value of the bond yield. If the value of the yield rises, it can lead to an unexpected risks for a big value of investing. So if the inflation is increasing the investors shouldn't have to purchase. As for the corporate, the higher yield will lead to the risk of bankruptcy.

For further research, the other macroeconomic factors beside the rate of inflation and rate of CSPI can be added.

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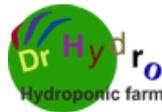
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