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Technology Readiness Acceptance Model Analysis on Project Management Operations

R. Panday[1]*, B. Rachmat[2]

[1] Faculty of Economics, Department of Management, Universitas Bhayangkara, Jakarta Raya, Indonesia.
[2] Faculty of Economics, Department of Management, STIE Perbanas Surabaya, Indonesia.

***Corresponding Author**

Abstract: *To run the information system at the project, needs the skilled person who is executing the system as well, readiness and accept the information technology. The purpose of this research is to analyze the level of technology readiness and technology acceptance and its effect on the implementation of information systems by implementing TRAM. This research was conducted at PT.DENKI, one of the contracting companies, located in the Bekasi city, Indonesia. Data was collected using a questionnaire of TRAM. As the respondent was an employee of PT DENKI, as many as 275 respondents. After data was collected, data were processed using path analysis in Amos version.18. The results showed that technology readiness indicated the high level and technology acceptance variables have indicated very high and actual use indicate high level. The behavior of technology readiness gave its contribution to technology acceptance, and technology acceptance had a contribution to actual use. Optimism had a significant effect on perceived ease of use and perceived usefulness. Innovativeness had a positive significant effect on perceived ease of use. Insecurity had a negative significant effect on perceived ease of use. The discomfort had a positive significant effect on perceived usefulness. Perceived ease of use had a significant effect on Perceived usefulness. Perceived ease of use had a significant effect on actual use. Based on those results, the company should be a plan for regularly training concerning the information technology used at the project for their employees, in order to increase the technology readiness and technology acceptance of the employees.*

Keywords: *Technology Readiness, Technology Acceptance, Path Analysis.*

INTRODUCTION

The progress of technology has pushed the development of the industry to become industrial 4.0. Industry 4.0 is the name of the latest automation and data exchange trends in factory technology. This term includes cyber-physical systems, the internet of thing, cloud computing, and cognitive computing. It is a combination of the physical world and the digital world. Industry 4.0 produces "smart factories". In smart modular structures, cyber-physical systems oversee physical processes, create copies of the physical world virtually, and make decisions that are not centralized. Through the Internet of thing (IoT), cyber-physical systems communicate and cooperate with each other and humans simultaneously. Through cloud computing, internal and cross-organization services are provided and utilized by various parties in the value chain. With changes to industry 4.0. need workers who understand and can use various applications and technology related to the digital world.

The development of Industry 4.0 is in line with the development of the IT world. IT development is so rapid, has an impact on every human activity and organization so that IT is used almost in every organization either partially or completely. (Panday, 2015b). IT is a technology that inevitably humans must use it, if they do not want to be left behind in everything, especially in the company. IT is a system used in input-process-output systems, so IT works for all of these parts. At the input stage, structured data is needed in a systematic system, making it easier for the process stage, and ultimately providing the output that is useful for decisions maker or policies. By using IT is expected to improve the effectiveness and efficiency, and the results are more accurate, delivered quickly and satisfactorily (Panday, 2015c). The use of IT in project management helps many activities in the project such as: such as managing project financial, project human resources, materials control, project time schedule, etc. Two kinds of project, physical project, and nonphysical project. A physical project such as building, toll road, dam, airport, harbor, town, etc, and nonphysical project such as education, training, health, culture, etc.

By definition, the project is the activities to build or making something that gives benefit for organization or people, which use a limited budget, time and referred to certain specification (Kerzner, 1998; Meredith, Jack and Mantel, 1995; Nicholas, 1990; Kirsi Hyttinen, 2017) To accomplish the project, it is needed project management knowledge. Project management as the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project (Pmbok Guide, 1996).

IT will support the operational management of the project, and it hopes the activities of the project manager effective and efficient. However, IT still depends on the skilled person who operates the IT instrument, known as technology readiness and technology acceptance of the person.

PT. DENKI is one of a contractor company in mechanical and electrical engineering, located at Bekasi city, conducted project management, used IT, for supporting project data processing such as construction drawing, making project schedules, project financial flows, recording incoming and outgoing goods, and communicating electronically using email.

For this reason, the company needs IT personnel who are deft in using their computers and software.

Actually in the execution of project, IT usage is still not optimal, because of slow project report, data processing is also still slow, there is still technological literacy, using software is slow, using IT is still not comfortable, because they usually used manual methods, it is still slow self- transformation from employees to work manually into work using IT. At least there are two things that cause the situation to occur, namely the internal factors of employees and external factors of employees. Personal internal factors, related to technology, have been discussed by Parasuraman and Davis in their theory of technology readiness and technology acceptance. The purpose of this study to analysis is the technology readiness and technology acceptance influence the implementation of IT technology at PT.DENKI? How are the level of technology readiness and technology acceptance at PT. DENKI? This research may give benefit to the company to improve technology readiness and technology acceptance at PT. DENKI, and finally to improve the quality of work in using IT on project activities.

Literature review and hypotheses development

This study confirms previous findings that Technology Readiness and Technology Acceptance can capture its relationship with the behavior of technology use. This study also extends previous research by investigating the impact of technological readiness and Technology Acceptance on employee competencies in using IT on projects. Technology readiness describes a person's likelihood to use and appreciate new technologies and technology acceptance describes a person's likelihood to accept new technology at their work-place. This study also seeks to explain user behavior when faced with various IT linked to the computer by not only predicting but also explaining why one system can be accepted or rejected.

Technology Readiness, first introduced in the field of marketing, how consumers interact with technology-based products. Because consumer knowledge about a new technology is limited, which may be caused by the

lack of information about new technology evenly distributed, the information of the new technology is incomplete, not even to consumers, From information obtained by consumers, consumers react whether they are ready to accept the new technology in the sense that each consumer can use the new technology, and whether it can accept the existence of the new technology in terms of ease of use and the benefits of the new technology. Technology Readiness was first introduced by Parasuraman and Colby, while Technology acceptance was introduced by Davis. After that a lot of research using the theory of technology Readiness for various new technologies used by consumers related to the field of marketing. In this study, researchers used the TRI theory to explain the behavior of accepting technology in operational management that uses information technology, because the information technology used is operated by individuals who understand it using it so this research can be said as empirical research that applies the TRI theory outside the marketing field. Few studies have used the TRI theory in operational management. Basically personnel dexterity in using computers, according to Parasuraman, the ability of someone in using technology, can be influenced by 4 dimensions of character namely Optimism, Innovativeness Discomfort and Insecurity.

- Optimism is defined as "a positive view of technology and a belief that offers people increased control, flexibility, and efficiency in their lives" (Parasuraman, A., & Colby, 2001). It generally captures positive feelings about technology.
- Innovativeness is defined as "a tendency to be a technology pioneer and thought leader"(Parasuraman, A., & Colby, 2001). This dimension generally measures to what degree individuals perceive themselves as the forefront.
- Discomfort is defined as "a perceived lack of control over technology and a feeling of being overwhelmed by it"(Parasuraman, A., & Colby, 2001). This dimension generally measures the fear and concerns people experience when confronted with technology.
- Insecurity is defined as "distrust of technology and skepticism about its ability to work properly" (Parasuraman, A., & Colby, 2001). This dimension focuses on concerns people may have in the face of technology-based transactions.

Optimism and Innovativeness are drivers of technology readiness (TR). A high score on these dimensions will increase overall technology readiness. Discomfort and Insecurity, on the other hand, are inhibitors of technology readiness. The high score on these dimensions will reduce overall technology readiness (Parasuraman, 2000). Results show that the four dimensions are fairly independent, each of them making a unique contribution to an individual's technology readiness (Parasuraman, A., & Colby, 2001).

Most researcher in the field of marketing, education, business, and community has done studies related to TRI. which used IT, such as:

- The study to assist e-Insurance marketers in developing a research-based foundation on which to make strategic decisions related to technology/Internet implementation by (Steven A. Taylor, Kevin Celuch, 2014)
- The study in Constructing a Technology Readiness Scale for Sports Center RFID Door Security System Users by (Mu-Cheng Wu, Chao-Chien Chen, 2014)
- The study examines the influence of the Technology Readiness Index (TRI) to use self -service technology to complete retail transactions by (Kevin M. Elliott., 2009)
- The study of factors influencing technology adoption together with technology readiness, and the role of alternative technology by (Chien-Hung Chen, 2014)
- The study to understanding potential customers' technology readiness and their perceptions concerning certain products and services by (Ahmet Emre Demirci, 2014)
- Jonas Matthing, Per Kristensson, and Anders Gustafsson have the aim of their paper is to explore the identification of innovative customers and the effectiveness of employing such customers to generate new service ideas in a technology-based service setting (Jonas Matthing, Per Kristensson, 2014)

- The study investigates the technology readiness of rural community in Malaysia, based on the gender groupings, as strategies to contribute for sustainable future of ICT-based initiatives by (Wan Abdul Rahim, 2014)
- The research to Customers' technology readiness, play a lead role in predicting the perception and behavior of consumers, is tested within Greek culture and particularly higher education students by (Manos Roumeliotis., 2014)
- In the research about Technology Readiness on Egyptians' Attitude towards E-Shopping by (Gad, 2012)
- (Lee, 2001) In his paper discusses the measures in building appropriate human capacities for the adaptation of new technologies in developing countries by focusing on the education strategies of East Asian economies.
- (Liljander, 2006) investigates the effects of TR on customers' (1) attitudes towards using SST (Self-service technology) for airline check-in, (2) adoption of self-service check-in, and (3) evaluations of a new self-service check-in on the Internet.
- (Chen, 2011), In his/her Research, to assess how the direct effects of technology readiness, satisfaction, and electronic word-of-mouth on consumers' loyalty and the indirect effects of technology readiness on loyalty via satisfaction and electronic word-of-mouth.
- (Rose & Fogarty, 2010), did the research which the four technology readiness dimensions, Optimism, Innovativeness, Discomfort, and Insecurity were combined with the five technology adoption segments, showed mature consumers were less likely to be an early adopter (explorers and pioneers) and more likely to adopt at the late growth stage or decline (skeptics and laggards). This is evidence from this study suggests that the mature consumer market is heterogeneous and should no longer be viewed as one market.
- (Janelle Rose, 2014), his study examines the association between cognitive age and technology readiness and adoption of technologies among mature consumers. The inclusion of cognitive age in this study has provided an alternative insight into the mature consumer market.
- (Mohammad Mobarezi, 2014), their study aims to establish relationships between information technology (IT) effectiveness, technological readiness, and IT flexibility. The results indicate that there is a positive and significant relationship between technological effectiveness and technological readiness and also its dimensions of optimism and innovativeness. Also, the results revealed that there is no significant relation between IT effectiveness and insecurity feeling dimension of technological readiness.
- (Oketch, 2013) , the study results showed that there is no significant relationship between age, gender, and level of education on e-Learning readiness. However, the study results indicate that technological readiness is the most important factor followed by culture readiness in eLearning readiness.
- (Panday & Purba, 2015) have used technology readiness in using Academic Information System by student and lecturer at X University.

Based on the review literature above, in the field of marketing, education, business, and community, it has adopted, combining, and adapting the technology readiness and IT with each area studies. Even combined with demographic variables such as age, gender, status, and occupation along with the segmentation of the consumer as the respondent.

The next are some TR research in the field of operation management:

- The research Readiness for banking technologies in developing countries by (A.D. Berndt, 2014)
- The investigation of the technology readiness of staff of a multi national chemical company operating in Iran by (Asgharpour, 2006)

- The paper proposed a model of VLE (Virtual Learning Education) readiness in higher education institutions by (Abdirahman Abdulahi Ahmed. et al., 2014)
- The research of the readiness of teacher in using the technology in teaching in the classroom by (Jones, 2014)

In the discussion of technology readiness in the field of operational management, show that TRI theory can be applied out of the field marketing. In operation management, the persons who use and applied IT are as human capital and must have personal capacity in the field of IT when working use IT system. Operational management can't run properly if the IT person not capable in term have low technology readiness and low of technology acceptance.

Another theory used in this study is the technology acceptance model (TAM), which introduced by (Davis, 1989); In TAM there are two central determinants: Perceived usefulness, which refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989); and perceived ease of use, which refers to "the degree to which a person believes that using a particular system would be free of effort"(Davis, 1989). TAM was designed specifically to explain computer usage behavior, but it can be used to explain for another technology usage which embedded the computer or software or the technology related to the computer or software for specific job/work. It is an adaptation of (Fishbein, M., & Ajzen, 1975) Theory of Reasoned Action (TRA), which has been successful in predicting and explaining behavior in general (Malhotra, Y., & Galletta, 1999). Following the theoretical basis of TRA, these perceived characteristics are expected to influence intentions to use a system, which in turn influence actual system usage (Davis, D., Bagozzi, R. P., & Warshaw, 1989). Furthermore, perceived ease of use is hypothesized to influence perceived usefulness. This hypothesis follows from the logic that improvements in ease of use of a system contribute to increased perceived usefulness due to the saved effort (Davis, D., Bagozzi, R. P., & Warshaw, 1989). The TAM has received considerable support over the years and continue in development. It has been validated over a wide range of systems, and perceived usefulness and perceived ease of use have proven to be reliable and valid cognitive dimensions (Burton-Jones, A., & Hubona, 2006; King, W. R., & He, 2006). Research using the TAM theory has been carried out. Same with TRI, TAM in its development is widely used in the field of marketing related to products that use technology which related to the computer system and software, and then began to try to be used in the field of operations management wherein its operations using technology.

In this study used TRI integrated with TAM, which "people's propensity to embrace and use new technologies to accomplish goals in home life and at work" will predict to technology acceptance, and the next will influence to behavior intention which represents by actual use or the frequency of use. The integrated model was named as TRAM (Technology Readiness-Acceptance Model). This integrated model has been used by researchers such as (Lin, C.-H., Shih, H.-Y., Sher, P. J., 2005). , and, (Venkatesh, 2000), and ;(Schepers, J., & Wetzels, 2007). (Li, Shih-Chih Chen, 2010) , they study devoted effort for developing an integrated model designed to predict and explain an individual' s continuous use of e-service based on the concepts of Technology Readiness (TR). Technology readiness has significantly influence on attitude, subjective norm and perceived behavioral control. (Ethel Claffey, 2014) , did the research that suggests a new model for understanding consumers" technology acceptance of technology-based services. It integrates Parasuraman"s (2000) taxonomy of technology readiness (TRI) and a modified Unified Theory of Acceptance and Use of Technology (UTAUT). TRAM also has been used by many researchers such as :(Kuang-Ming Kuo, 2013), with their research on mobile electronic medical record systems operated by nurses;(Murat Esen, 2014), their research on E-HRM; (Anders Husa, 2009), their research on Social Media Context; (Mimin Nur Aisyah, Mahendra Adhi Nugroho, 2013), their research on application computer at UMKM (Micro Small Medium Entrepreneur);(Yen, 2014), (Nadine Guhr, Tai Loi, Rouven Wiegard, 2013), their research on M(mobile)-Payment; (Rita Walczucha, Jos Lemmink, 2006), with their research title: The effect of service employees'

technology readiness on technology acceptance; (Yen, 2014), with research title: Perspectives from the TRAM Model on Adopting e-Learning: An Analysis of the Chain and Franchise Industry in Taiwan; (Panday, 2015c) used TRAM to test the model on the Academic Information System. (Panday, 2015a) also used TRAM to test the model on Geodesy student in data processing of Geographic Information system data, and last, (Panday, 2015b) has used TRAM on project management data processing at PT. Pembangunan Perumahan. All research by R.Panday, showed different result each other, cause TRAM implemented in different condition and different subject.

To see the related research, the reported study in this paper is the implementation of TRAM to the electrical and mechanical project at Contractor company, to see the level of technology readiness and technology acceptance of employee, and their influence, which is different condition compare to previous studies. In the discussion of TRAM literature review, mostly TRAM has applied in many human activities in the field of operational management. Based on the literature have reviewed, it can be concluded that as general, technology readiness has the influence to technology acceptance. Also, technology readiness has a contribution to technology acceptance. Most research show that Optimism and Innovativeness have great influence and contribution to technology acceptance.

The TRAM model in this research show in Figure 1.

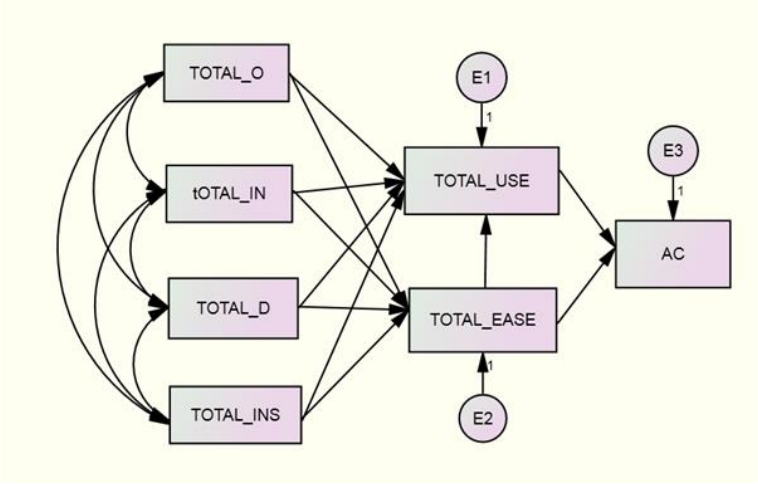

Figure 1: TRAM research model

Note of simbols:	
Total_O =	Optimism
Total_IN =	Innovativeness
Total_D =	Discomfort
Total INS =	Insecurity
Total_EASE =	Perceived ease of use
Total_USE =	Perceived usefulness
AC =	Actual use

Refer to (Parasuraman, A., & Colby, 2001). and (Tsikriktsis, 2004) and Figure 1., the hypothesized can be stated as follows:

H1. Optimism is positively related to perceived usefulness.
H2. Innovativeness is positively related to perceived usefulness.
H3. Optimism is positively related to perceived ease of use.
H4. Innovativeness is positively related to perceived ease of use.
H5. Discomfort is not significantly related to perceived usefulness.

H6. Discomfort is negatively related to perceived ease of use.
H7. Insecurity is negatively related to perceived usefulness.
H8. Insecurity is negatively related to perceived ease of use.

The effects of perceived ease of use contributes to perceived usefulness have done by (King, W. R., & He, 2006), (Lin, C.-H., Shih, H.-Y., Sher, P. J., 2005), [(King, W. R., & He, 2006), Lin, (Lin, C.-H., Shih, H.-Y., Sher, P. J., 2005), (McFarland, D. J., 2006), (Schepers, J., & Wetzels, 2007), (Venkatesh, 2000), (Yang, H.-D., & Yoo, 2004)]. Based on the assumptions that some user-friendly applications could be perceived as useful, but not all useful applications are user-friendly. Thus, researchers hypothesize:

H9. Perceived ease of use is positively related to perceived usefulness.
According to[(Davis, 1989)] and [(Schepers, J., & Wetzels, 2007)]. Thus, researcher hypothesizes:
H10. Perceived usefulness is positively related to actual use.
H11. Perceived ease of use is positively related to actual use

Research Method and Instruments

This study used a quantitative method. As sample size, using Slovin formula. As respondents are an employee of PT.DENKI. The total employee is 850. Referred to Slovin formula, used sample error 5%, the sample size is 272 respondents. For taking the data using questionnaires, which is done some adjustment of the questionnaires made by Parasuraman and Davis. Technology readiness was assessed through the use of the 36-item Technology Readiness Index (TRI) scale developed by Parasuraman (2000). The TRI is a Likert type scale with responses ranging from ―Strongly Agree (5) to ―Strongly Disagree (1). The TRI helps explains how and why the employee adopts the technology. The TRI does this by looking at both forces that attract and repel individuals away from new technology. Technology acceptance was assessed through the use of 6 items for perceived usefulness, 6 items for perceived ease of use and 1 question for actual use, which asked the frequency in using IT. In this survey, questionnaires were distributed to 350 respondents. The questionnaire that was responded to and filled out properly and correctly was 275 pieces.
After data tabulated, tested the validity and reliability, using Pearson correlation and Cronbach coefficient, processing is performed using SPSS version 24. And for TRAM, using path analysis, conducted by AMOS 18.

Empirical Results and Discussion

Before path analysis is carried out, the validity and reliability of the questionnaire are first tested. The results of the validity in Table 1. Technology readiness has 36 indicators, consists of Optimism has 10 indicators, Innovativeness has 7 indicators, Discomfort has 10 indicators, and Insecurity has 9 indicators. Technology acceptance has 12 indicators, consists of 6 indicators for Perceived ease of use, and 6 indicators for perceived usefulness.

Table 1: Results of the Technology Readiness and Technology acceptance Validity

Pearson Correlation									
O1	O2	O3	O4	O5	O6	O7	O8	O9	O10
.555**	.659**	.489**	.641**	.612**	.567**	.675**	.605**	.667**	.628**
IN1	IN2	IN3	IN4	IN5	IN6	IN7			
.759**	.830**	.758**	.756**	.698**	.713**	.783**			
D1	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**	**D8**	**D9**	**D10**
.704**	.699**	.668**	.718**	.771**	.831**	.680**	.723**	.749**	.728**
INS1	INS2	INS3	INS4	INS5	INS6	INS7	INS8	INS9	

.721**	.854**	.745**	.825**	.752**	.834**	.734**	.802**	.775**	
USE1	USE2	USE3	USE4	USE5	USE6				
.670**	.683**	.677**	.663**	.681**	.643**				
EASE1	EASE2	EASE3	EASE4	EASE5	EASE6				
.733**	.731**	.732**	.827**	.774**	.662**				

From the results of the validity computation, all indicators of the variables Technology Readiness and Technology Acceptance show significant values at a significant level at 0.01, so that conclude that the questionnaires are valid. The results of the reliability computation for Technology Readiness and Technology acceptance variables are showed in Table 2, that the Cronbach alpha value is greater than 0.6 so that it can be said the questionnaires used are reliable.

Table 2: Reliability result calculation

Cronbach's Alpha					
Optimism	Innovativeness	Discomfort	Insecurity	Perceive usefulness	Perceive ease of use
.811	.876	.901	.921	.751	.838

The average value of each Technology readiness and acceptance technology variable are shown in Table 3. The average value of Optimism variable is 4.16, it is meant to be very high, meaning that the respondent's view on the technology used is positive and they believe it will improve control, flexibility, and efficiency in their lives. The average value of the Innovativeness variable is 4.16, it said to be very high, meaning that the respondents have a tendency as technology pioneers and think forward. Because these two variables can be said to be very high, the two variables are a powerful driver of technology readiness of each respondent. The average value of the discomfort variable is 2.65 meant as the moderate level they still have fear when confronted with IT and still concerns with people experience. The average insecurity value is 2,71, meant as moderate level, they still have a distrust of IT and much skepticism about its ability to work properly. Each average value can be said to be moderate; this is meaningful, the inhibitor variable from technology readiness is moderate, thus will reduce the value of overall technology readiness. These two values should have a low or very low average value (below 2) if want to high technology readiness. As overall, technology readiness at PT. DENKI is high.

Table 3: Average value of technology readiness and technology acceptance variables

Average value					
Optimism	Innovativeness	Discomfort	Insecurity	Perceive ease of use	Perceive usefulness
4.16	4.16	2.65	2.71	4.25	4.32
Very High	Very High	Moderate	Moderate	Very High	Very High
Explanation of the average value scale					
0	1	2	3	4	5
Very low	Low	Moderate	High	Very high	

While the technology Acceptance value is stated by the average value of the perceived ease of use variable and perceived usefulness variable, respectively 4.25 and 4.32. The average value can be said to be very high, meaning that the respondent's technology acceptance is very high. The meaning of the very high value of perceived ease of use is they very believed that using IT system would be free of effort, and the meaning of the high value of perceived usefulness is they very believed that using IT would enhance their job performance.

Frequency response to the use of technology has an average value of 4.16, can be said to be high based on the scale in Table 4.

Table 4: Range Scale actual use

1	2	3	4	5	6	7
Very low	Low enough	Low	High	High enough	Very high	

Path analysis

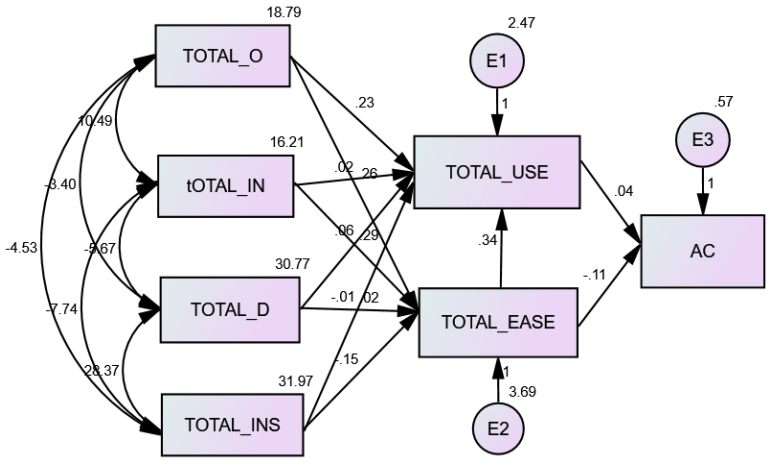

Figure 2. Regression weights calculation results

The results showed in Table 5 and Table 6, that Optimism had a positive significant effect on perceived ease of use as much as 36,9 % and perceived usefulness as much as 41,2 %, Innovativeness had a positive significant effect on perceived ease of use as much as 38,4%, Insecurity had a negative significant effect on perceived ease of use as much as -27,1%, Discomfort had no significant effect to perceive usefulness, Perceive ease of use had positive significant effect on Perceive usefulness as much as 43,1, and perceived ease of use and perceived usefulness had no significant effect on actual use.

Table 5: Results of Regression Weights calculations

			Estimate	S.E.	C.R.	P	Label
Perceived ease of use	<---	Optimism	.262	.034	7.808	***	H3 Supported
Perceived ease of use	<---	Innovativeness	.293	.038	7.702	***	H4Supported
Perceived ease of use	<---	Discomfort	.020	.050	.396	.692	H6 not supported
Perceived ease of use	<---	Insecurity	-.147	.050	-2.949	.003	H8 supported
Perceives of usefulness	<---	Optimism	.231	.030	7.614	***	H1 supported
Perceives of usefulness	<---	Innovativeness	.015	.034	.453	.651	H2 not supported
Perceives of usefulness	<---	Discomfort	.058	.041	1.420	.156	H5 supported
Perceives of usefulness	<---	Insecurity	-.013	.042	-.303	.762	H7 not supported
Perceives of usefulness	<---	Perceived ease of use	.341	.049	6.903	***	H9 supported
Actual use	<---	Perceives of usefulness	.040	.026	1.583	.113	H10 not supported
Actual use	<---	Perceived ease of use	-.105	.020	-5.212	***	H11 not supported

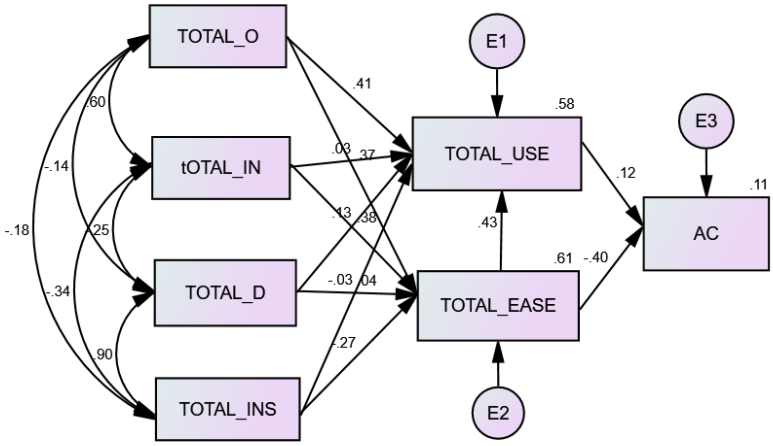

Figure 3: Results of calculation of Standardized Regression Weights

Table 6: Results of calculation of Standardized Regression Weights

			Estimate	
Perceived ease of use	<---	Optimism	.369	H3
Perceived ease of use	<---	Innovativeness	.384	H4
Perceived ease of use	<---	Discomfort	.035	H6
Perceived ease of use	<---	Insecurity	-.271	H8
Perceives of usefulness	<---	Optimism	.412	H1
Perceives of usefulness	<---	Innovativeness	.026	H2
Perceives of usefulness	<---	Discomfort	.131	H5
Perceives of usefulness	<---	Insecurity	-.029	H7
Perceives of usefulness	<---	Perceived ease of use	.431	H9
Actual use	<---	Perceives of usefulness	.123	H10
Actual use	<---	Perceived ease of use	-.405	H11

Referred to Table 7, the contribution of technology readiness variables on perceived ease of use as much as 60,9 %, while the contribution of technology readiness variables on perceived usefulness as much as 58,2 %. It is meant that technology Readiness much contribution to technology acceptance. The Contribution of technology acceptance on actual use as much as 11,1 %.

Table 7: R square

	Estimate
TOTAL_EASE	.609
TOTAL_USE	.582
AC	.111

This research is research in the field of operational management, especially in project management that uses IT. TRAM's research in operational management has also been carried out by (A.D. Berndt, 2014)(Asgharpour, 2006) (Abdirahman Abdulahi Ahmed. et al., 2014) dan (Jones, 2014) (Panday, 2015c)(Panday, 2015a)(Panday, 2015b). Use of technology at PT. DENKI, in this case, computer technology

and software, based on this research, the technology readiness of its employees has a characteristic of Optimism, Innovativeness, Discomfort, and Insecurity. Very high of Optimism and Innovative are as the driving factors for a high level of technology readiness, while a moderate level of Discomfort and Insecurity factors are as moderate inhibitor factors for the level of technology readiness. Employees in this project in general, still have Discomfort in using technology, and also still have Insecurity in using technology. Therefore the company must be able to provide comfort to its employees in using technology, such as using computers and software basically simplify and make it easy to work, no fear, no distrust. Likewise, the company must be able to provide security to its employees, such as giving an explanation that data that has been processed, can be stored safely, and do not need to worry if the data will be lost or damaged. Although have the inhibitor factors are moderate at technology readiness, the contribution of technology readiness to the perception of ease in using technology is high as much as 60,9% and the contribution to the perceived of the usefulness of technology is high at 58,2%. Of course, the high contribution of technology readiness to the perceive ease of use and perceive of usefulness is a contribution from very high behavior optimism and innovativeness. Furthermore technology acceptance of PT. DENKI employee, in this case, the perception of the ease of use the technology is very high, as well as perceptions of the usefulness of the technology. The intensity of technology use at PT. DENKI is high, although the intensity of the use of technology is the contribution of technology acceptance as much as 11.1 %. The high intensity of technology use in the project is not caused by very high technology acceptance factors. This means that high intensity is caused by other things, such as being able to the situations that force employees to work using computer technology and software. Thus in this study, there is a deviation from the TRA theory, which states that the high intensity of technology use is caused by high technology acceptance.

Conclusion and implication

PT. DENKI has implemented IT in operation of the project as to specific in the mechanical and electrical project. This study as a study in operational management, to reveal how the related and the effect of technology readiness on technology acceptance in using IT as a tool supported to the activity project. Based on the analysis, it can be concluded:

1. Technology readiness and technology acceptance at PT. DENKI are a high influence on implementation IT at the project but less contribution to frequency using IT.
2. Optimism had a significant effect on perceived ease of use and perceived usefulness
3. Innovativeness had a positive significant effect on perceived ease of use
4. Insecurity had a negative significant effect on perceived ease of use
5. The discomfort had a positive significant effect on perceived usefulness
6. Perceive ease of use had a significant effect on Perceive usefulness.
7. Perceive ease of use had a significant effect on actual use.
8. The contribution of technology readiness variables on perceived ease of use is high, as much as 60,9 %
9. The contribution of technology readiness variables on perceived usefulness is high, as much as 58,2%
10. The contribution of technology acceptance on actual as much as 11,1 %.

Implication

Based on the discussion above, PT.DENKI, should be plan some actions to overcome the Discomfort and Insecurity variables at an employee by giving them some training related to the kind of technology that they use as regularly. For example, to set training how to use the IT system and some software such as software Excel more effectively by using many commands that already in the software, training how to use project management software in an arrangement the schedule of work for more efficient with the planning cost of the project and person in charge in handling certain of work, etc. Besides, PT, DENKI, must be supervised to the

employee, when they are using the IT technology, to convince that technology is comfortable and secure. And the last, PT.DENKI always introduce to the employee of the newest of IT technology, in order for the PT.DENKI employee always leading in using the newest IT technology.

To be able to increase Optimism, PT. DENKI must improve the ability of the IT system, such as:

1. To increase the degree of the ability of a system for providing freedom from constrains, difficulties, and troubles
2. To increase the degree of the ability of a system to connect successfully with other systems
3. To increase the degree of the system achievement to produce an output compared to the resources needed to achieve the output
4. To increase the degree of the system capability to achieve its utilization goals
5. To increase the degree of the system support for producing output compared to the resources needed to produce the output

To be able to increase Innovativeness, PT. DENKI must improve the ability of the IT system, such as:

1. To increase the degree of the system support for finding solutions to problems
1. To increase the degree of the system ability to support its users free from the controls or influences
2. To increase the degree of the system support to successfully deal with or achieve something within a difficult situation or problem
3. To increase the degree of the system support to encourage something to happen, develop, or improve
4. To increase the degree of the ability of a system to support the users to be more successful than their competitors

To be able to reduce discomfort, PT. DENKI must decrease the negative ability of the IT system, such as:

1. To decrease the degree of the system features that confusing or difficult to be understood
2. To decrease the degree of the condition of a system which it is unable to be operated easily
3. To decrease the degree of the condition of a system which needs the other parties to operate it
4. To decrease the degree of a system which it does not have any, or enough, of the support in its operation
5. To decrease the degree of the state of being inappropriate

To be able to reduce Insecurity, PT. DENKI must reduce the ability of the IT system, such as:

1. To decrease the degree of the possibility that a system unpleasant or dangerous might happen
2. To decrease the degree of the system situation that could cause harm or danger
3. To decrease the degree of the system implementation which makes human interactions become less in size, amount, and importance
4. To decrease the degree of the system utilization gets attention and prevents people from concentrating on something else
5. To decrease the degree of the degree related to the system hesitation of its utilization

Beside of increasing and decreasing the technology readiness variables above, PT. DENKI also consider the quality of information or output which resulted by IT system, the quality of IT system and service quality of IT system. For quality of information, PT. DENKI should be meet the criteria such as:

1. The produced information by the system with its real standard
2. The information processing of the Information System at the planned time duration
3. The information by the Information System to be whole or without nothing missing part
4. The Information System to still demonstrate the same information within operations, services, maintenances, or qualities

5. The produced information by the Information System with its subject matters

For quality of IT System should be met the quality system such as:

1. IT system freedom from constrains, difficulties, and troubles during its usages
2. IT system easy in its maintenance.
3. IT system quick response in responding its user commands
4. IT system should be operated appropriately to the planned requirements
5. IT system has invulnerability from the unexpected attacks, harms, or damages

For service quality of IT system at PT. DENKI should be increased in term of responsiveness, flexibility, security, functionality, and extension. Responsiveness is related to the quick response of IT person to serve its users within the suitable way, time and situation. The flexibility is related to the adaptation of IT person serve its user appropriate to the required demands. Security is related to the safety of the IT system to serve its user safely from attack, harm, or unexpected damage. What its meant of functionality is the scope of IT system service, which is appropriate to the functional requirements. And the last, what its meant of extension is the scope of additional service of IT system which exceeds the functional. Thus, technology readiness does not only concern personal behavior but also related to the quality of IT systems, quality information and quality of service from IT systems. For executing that implication of managerial, PT. DENKI should make a plan of action so that the IT system will has achieve the best performance.

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