

MEASUREMENT GAP OF COMPETENCY IN PREPARING EMPLOYEES FOR A DIGITAL COMPANY (A CASE STUDY OF A TELECOMMUNICATION COMPANY IN INDONESIA)

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Abstract— One of the telecommunication companies in Indonesia has a hope of becoming a digital company in order to adapt to today's business challenges. Being a digital company means to open an opportunity for a sustainable competitive growth. The first step to realize this vision is by preparing capable human resources who have digital competencies. The digital savvy employees are those who master the digital world and adept at utilizing the digital world to support the smoothness of working processes. The employees must also be able to transform and upgrade their digital competencies in accordance with the needs of the company. Before doing such development model, it is necessary to first perform the assessment to measure the employees' digital competencies.

The purpose of this study is to measure and analyse the digital competencies gap amongst the employees of a telecommunication company in Indonesia and to produce a digital competencies tool which can be used as a reference for measuring digital competencies. The standard of competencies is obtained by interviewing the experts, while the competencies gap is measured through *self-assessment* after formulating the standard of competencies taken from the experts. The experts are the professionals from digital businesses and human resource managements. On the other hand, 93 employees, the total population of this company, were taken as the object of the study. The areas measured include the competencies in Information, Communication, Content creation, Safety and Troubleshooting/problem solving.

The study result shows that in general there are still 4 areas of competencies needed to be developed. Consequently, this telecommunication company must immediately draw up the appropriate steps if they want to immediately transform themselves becoming a digital company.

Keywords: *Digital Competencies*

INTRODUCTION

The rapid technological developments have changed the way people move. Initially, all the activities were carried out manually, but nowadays the majority of the activities have been technology-based. Digitalization has also changed a lot of activities in businesses. Therefore, in anticipation of business demands that lead to digitization, one of the telecommunication companies in Indonesia is presently taking a part to prepare themselves to become a digital company. The vision of becoming a digital company aims at building a sustainable competitive growth, so that the company can still grow competitively and sustainably in the future. In order to realize it, the first step taken is to prepare capable human resources with digital competencies. Since employees are the frontliners who run the company in accordance with the objectives to be achieved, therefore the employees have a very crucial role in the process of digitalization.

A digital company must be built by employees who have digital blood, meaning that the employees have a strong digital foundation, in the form of digital competencies. Ferrari, Neža Brečko, & Punie (2013) explained that digital competency is the creative capability in using Information Society Technology (IST) for work, leisure, learning and communication. Thus, a digital company must be supported by the employees who are savvy in the digital world and adept at utilizing it to support the smoothness of the working processes.

The demand of becoming a digital company has some consequences for the employees and the company in which they must be able to transform and upgrade their competencies into the digital competencies according to the needs of the company. Changing the competencies of the company into digitization will be more effective if the

assessment to measure the digital competencies gap is firstly done.

Measuring the competencies gap will not only provide benefits for the training and development to be more effective, but it will also provide input for the development of other HR systems. Obtaining accurate information about the digital competencies gap will change the recruitment policy and exit system of the company. If the gap is too significant and the analysis shows that through training, the gap will not effectively be reduced quickly, the company has an opportunity to think about an early exit/pension and recruitment program for the right new employees to fulfill the digital competencies required immediately.

In addition to changing the pension and recruitment systems, the company should also consider other systems such as the reward system, performance appraisal, career and development. Therefore, the measurement of digital competencies gap becomes very crucial to be done for a company declaring itself to be a digital enterprise.

Up to the present time, the company has not got an overview about the digital competencies of their employees. Hence, through this study the measurement of digital competencies gap will be done as well as to create a tool that can be used for measuring digital competencies gap in the future.

Measuring competencies gap must be preceded by measurement of the competency standard that should be owned. The absence of a competencies standard will not depict the magnitude of the gap, since there is no reference that can be used to measure the gap. Digital competencies are relatively new to be developed in Indonesia. There are not many experts who discuss and measure the appropriate digital competencies standard for companies in Indonesia, especially for telecommunications companies. Therefore, the results of this study will be very useful for the company being researched to obtain information about the digital competencies gap. In addition, the results of this study can be utilized by other companies needing a reference about the competencies standard required for a digital company. Furthermore, this study can also be used by the academics who undertake further developments.

Problem Statement

In becoming a digital company, an enterprise must be supported by the employees who have digital competencies. In developing the digital competencies, in order to make the form of development and management of human resources to be done is right on target, it is necessary to have information about the standard of competencies which will become the reference and information about the condition of the current employee competencies. Such information will be the basis for measuring the competencies gap. Without the information about the competencies gap, the next steps to be taken by the company can be misdirected so that the activities to be

held or the decisions to be implemented will only be a waste of costs.

In the telecommunication company being investigated, there has never been any measurement of digital competency gap done. Therefore, it is crucial to assess the measurement of the competencies gap so that the result can be immediately used as a basis for designing a development program or other human resource management programs in order to become a digital company. Slowness in getting information about the competencies gap will preclude the digitization process of the company, whereas the ability for quick changes is key for the company to win the competition.

In general, this study aims to measure and analyze the digital competencies gap in a telecommunication company. In detail, this study aims to answer the following research questions:

- a) What is the level of digital competencies required for the employees of the telecommunication company in Indonesia?
- b) What is the level of digital competencies owned by the employees at the telecommunication company in Indonesia today?
- c) What does the digital competencies gap among the employees of telecommunication company in Indonesia look like?

Literature review

According to Spencer & Spencer (1993:9), the definition of competency is "an underlying characteristic of an individual that is casually related to criterion-referenced effective and / or superior performance in a job or situation". Spencer & Spencer (1993) further stated that competencies in predicting work are divided into two, namely threshold competencies which are the main characteristics one should have in order to carry out the work, and differentiating competencies which are the factors that distinguish the individual with high performance with the one with low performance.

Martin & Grudziecki (2006) specifically divided the digital competencies into three levels of development, namely basic competencies, professional and digital transformation. While, Bawden (2008) divided the digital competencies into four elements, namely undepinning, background, central competencies, and attitude and perspective.

In the next development, Ala-Mutka (2011) formulated digital competencies which broadly include skills, attitude, and knowledge. Furthermore, Janssen et al. (2013) conducted a survey that yielded 12 core competencies in digital businesses. Identification of digital competencies was also carried out by Ferrari (2012) in his research at the Joint Research Centre of the European Commission in 2012 with the aim to identify the digital competencies from the points of skills, knowledge and attitude necessary to become digitally competent, and to develop a roadmap of digital

competencies framework. Another aim was to identify, select and analyze the existing framework in the development of digital competencies of all resources. The research was completed in 2013 and generated a digital competencies framework that has been made from many sources of other researchers. The method used was the conceptual mapping, case study analysis, online consultation, and expert's workshop. From the study, it was successfully identified the key competencies of digital competencies consisting of five areas of competency and 21 indicators of competency. The five areas of competency include Information, communication, content creation, safety, and problem solving.

The result of competencies development conducted by Ferrari et al. (2013) is suitable to be applied as the competencies of telecom employees in Indonesia. Therefore, the five areas of competencies containing 21 indicators of competencies, after passing the validity and reliability tests before hand, then they were used as the basis for the competency test in one of the telecommunication companies in Indonesia.

The indicators were measured with a scale of 1-3 which depict proficiency level of each indicator of competencies. Proficiency Level is the level of competencies mastery required for a job. Each proficiency level is stated with a description of behavior expected which indicates the level of competencies for the execution of work according to the job. The proficiency levels are divided into three, namely:

- a. Level A: Foundation (being aware and having an understanding of ...), is the basic level of competencies.
- b. Level B: Intermediate (being Able to use ...), is the middle level of competencies and above the foundation level.
- c. Level C: Advanced (being actively involved in as a practice), is the highest level of competencies.

METHOD OF RESEARCH

Technique for Collecting and Processing Data

Data was collected using several methods, namely the study of literatures, interviews and surveys. The literature study was conducted to collect literature references related to digital competencies and references in the form of company's secondary data.

The interviews were conducted with 4 experts consisting of 3 experts from the field of digital business, and one expert from the field of Human Resource Management. Interviews were conducted to obtain information about the appropriate proficiency levels for each indicator of competencies required to carry out work in the telecommunication company. Each expert set proficiency levels of each indicator. Therefore, the average results from the four experts were counted, then reconfirmed to each of the experts. The confirmed results

become the final outcome which will become the reference of competency requirements.

The survey was conducted to collect data on current competencies using questionnaires. The respondents assessed their competencies within a questionnaire containing statements that describe the measurement of the respondent's competencies (self-assessment).

The questionnaires were sent to the respondents in two ways: offline and online. Off line: the questionnaires were distributed directly to the employees in hard copy. The online questionnaires were sent via google form, this way was more efficient but the chance for the questionnaire to be filled was smaller than the hard copy, in order to speed the process up the respondents must have been reminded via chats or emails.

The contents of the questionnaire as a whole were divided into 2 groups; the questions concerning the characteristics of respondents, ie gender, age, occupation, education, and length of work as well as the duration of the Internet use; The second group of questions were concerning the digital competencies being measured which covers five areas of competencies, namely Information, Communication, Content Creation, Safety and Problem Solving.

The sampling technique in this research uses the total sampling, which means that all population become the samples. The total samples were 93 people.

Data Analysis Technique

Data analysis technique in this research is descriptive statistics which is the technique used to analyze data by describing or depicting the data that has been collected. Competencies gap is measured by comparing the condition of the current competencies with the proficiency levels required for the job. Employee competencies gaps are grouped into three categories as follows:

- a. Meet Requirement (Fit), is when Current Competency = Competency Requirement. This is the ideal condition required by the company.
- b. Excellent is when Current Competency > Competency Requirement. This condition shows that the group of employees are already qualified more than enough to be the employees with digital competencies / digitally competent.
- c. Need development is when Current Competency < Minimum Competency. In this condition, it is necessary to take efforts to improve the digital competencies of the group of employees.

Validity and Reliability Tests

Validity and reliability tests were conducted prior to the questionnaire distributed to the respondents of the study. Content validity or logical validity was done to measure how far the items used were able to logically

measure the research variables according to what should be measured. Content Validity was done by interviewing some linguists and experts from the practitioners and academics in the field of Human Resource Management.

Construct Validity was conducted by examining the Pearson product moment correlation coefficient. The test is valid if the minimum correlation coefficient equals to the critical r in the table of product moment. The Construct Validity result of all questionnaire items was declared valid with the counted R value above 0.3 for the entire indicator (Hair, J.F, R.E, R.L, & W.C, 1998).

The Reliability Test was done using Alpha Cronbach measurement. Alpha Cronbach’s coefficient should be at least 0.70 to indicate that the questionnaire has a pretty good level of reliability (Hair, J.F et al., 1998). The reliability test result showed that the instrument was reliable with the Alpha Cronbach coefficient value of 1.092.

RESULT AND DISCUSSION

The respondent characteristics of this study can be seen in Table 1, as presented below:

Table 1 Characteristics of Respondents

Characteristics	F (%)	Explanation
Age		
<30 years old	19 (20.4%)	
30-<40 years old	14 (15.1%)	
40-50 years old	33 (35.5%)	The most
>50 years old	27 (29.0%)	

Characteristics	F (%)	Explanation
Gender		
Male	72 (77.4%)	The most
Female	21 (22.6%)	
Education		
D3 (diploma)	6 (6.5%)	
S1 (undergraduate)	50 (53.8%)	The most
S2 (Graduate)	36 (38.7%)	
S3 (Post Graduate)	1 (1.1%)	
Occupation		
Staff Officer	46 (49.5%)	The most
Manager/Senior Officer	42 (45.2%)	
Senior Manager	5 (5.4%)	
Length of working		
<5 years old	16 (17.2%)	
5-<10 years old	16 (17.2%)	
10-<15 years old	10 (10.8%)	
15-20 years old	24 (25.8%)	
>20 years old	27 (29.0%)	The most
Duration		
<5 hours	4 (4.3%)	
5-10 hours	50 (53.8%)	The most
11-15 hours	34 (36.6%)	
>15 hours	5 (5.4%)	

The results of the interviews with the experts generated proficiency levels for each indicator of digital competencies, as can be seen in Figure 1 below:

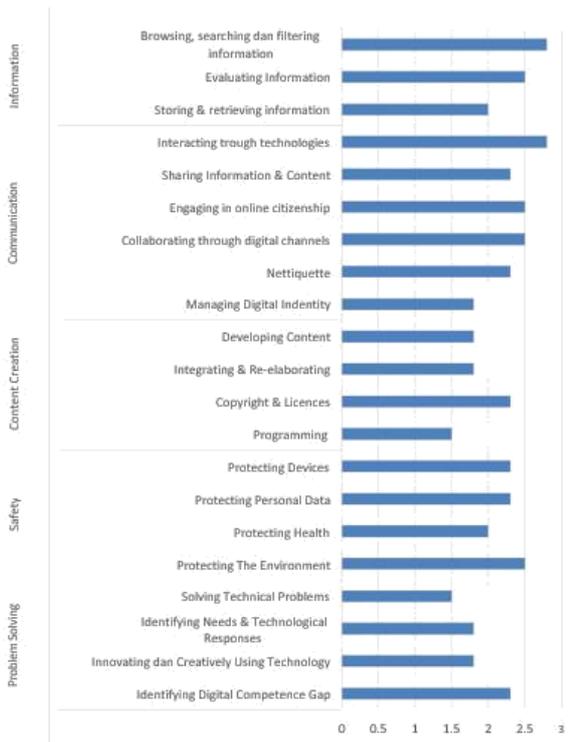


Figure 1 Required Proficiency Levels of Digital Competencies in Telecommunication Company

Based on figure 1. It appears that the area of information and communication has the highest proficiency level approaching advanced if compared to the other competency areas. This is because the two areas of competency are the basis for digital competencies in telecommunication companies. Therefore, the levels of competencies required for the employees to have should also be high.

While the results of the comparison between the current competencies with the proficiency levels represents a gap per indicator of competencies which can be seen in table 2 below:

Table 2 Gaps of Digital Competency Indicators

No	Indicator of Competencies	Current	Required Proficiency Level	Competency Gap	Category
1	Browsing, searching dan filtering information	2.6	2.8	-2	Need Development
2	Evaluating Information	2.2	2.5	-3	Need Development
3	Storing & retrieving information	2.2	2.0	+2	Excellent
4	Interacting trough technologies	2.4	2.8	-4	Need Development
5	Sharing Information & Content	2.0	2.3	-3	Need Development
6	Engaging in online citizenship	2.3	2.5	-2	Need Development
7	Collaborating through digital channels	2.4	2.5	-1	Need Development
8	Nettiquette	2.2	2.3	-1	Need Development
9	Managing Digital Identity	2.1	1.8	+3	Excellent
10	Developing Content	1.6	1.8	-2	Need Development
11	Integrating & Re-elaborating	2.0	1.8	+2	Excellent
12	Copyright & Licences	1.7	2.3	-5	Need Development
13	Programming	1.5	1.5	0	Meet Requirement
14	Protecting Devices	1.9	2.3	-4	Need Development
15	Protecting Personal Data	2.0	2.3	-3	Need Development
16	Protecting Health	2.3	2.0	+3	Excellent
17	Protecting The Environment	2.2	2.5	-3	Need Development
18	Solving Technical Problems	2.0	1.5	+5	Excellent
19	Identifying Needs & Technological Responses	2.3	1.8	+5	Excellent
20	Innovating dan Creatively Using Technology	1.9	1.8	+1	Excellent
21	Identifying Digital Competence Gap	2.1	2.3	-2	Need Development

The Overview of competency gaps in general per area of competencies is presented in Table 3 below:

Table 3 Gaps in Digital Competency Areas

No	Competency Area	Current	Required Proficiencies Level	Category
1	Information	2.34	2.43	Need Development
2	Communication	2.25	2.37	Need Development
3	Content Creation	1.71	1.85	Need Development
4	Safety	2.08	2.28	Need Development
5	Problem Solving	2.08	1.85	Excellent

The results of the study show that the competency area of problem solving is the only one in excellent category. While the other four areas of competencies namely the competency areas of information, communication, content creation and safety are in the category of need development. The competency areas of information and communication are the foundations of the digital competencies. These two areas of competencies are the absolute prerequisites for the other three areas of competencies. Therefore, these two areas of competencies have high proficiency levels compared to the other three areas.

Compared with other areas of competencies, the competency of information is the one with the highest competency requirement. Likewise in the case of current competencies, information is the highest competency area owned by the employees today. However, the information area of competency gap as a whole is still in the category of need development. The area of information competency

is the ability to search, select, store/save, and evaluate information. In digital businesses, the ability to manage the information is absolutely necessary since it is based on the valid information resources which will support more accurate business decisions. The area of Information competency can be developed through information management training in classical form, on the job training and coaching.

The area of communication competency is the area with the highest competency requirement after the competency area of information. The competency requirement and the current competency of communication are at Intermediate level. Communication is the competency to communicate in the digital world, cooperating and collaborating through digital means, as well as interacting and participating in the digital communities. In the digital businesses, the competency of communication is needed to ensure the flow of information to be transferred without distortion and to achieve the goals. This communication competency area can be developed among others by the tour of duty, so that each level and variety of assignments can be understood.

The competency area of content creation has a lower proficiency level compared to the other areas of competencies, which is at the foundation level. The results of the study show that the current level of the competency is at the level between foundation and intermediate. This is because this competency has a high enough level of difficulty so that not many people have high capabilities of content creation. Content creation is the ability to create and edit contents, integrate and elaborate the contents to generate creative expressions, and also capable of producing programming outputs. In the digital businesses, the competency of content creation is needed in the context to produce new products and new values from the existing products. The competency area of content creation can be developed among others by digital creative technical training through online media. Considering that this is a competency with a high difficulty level, then its development requires attention and seriousness of the company. The training is done gradually and continuously to update the skills and knowledge.

The area of safety competency has the competency requirement at the intermediate level range. Likewise, the result of current competency which is at the range of intermediate level. Safety is the ability for self protection in the digital environment, data and digital identity protection, and the use of healthy, safe and sustainable digital media. In the digital businesses, safety capability is necessary considering that the risks of the digital world if it was not well anticipated will seriously affect the personal and corporate. One example is the self-protection of copyright infringement and cyber bullying. This competency can be developed by learning, mentoring and

dissemination of relevant legislation rules of ethics in the digital world and is updated on an ongoing basis.

For the area of problem solving competency, the employees have currently been excellent. This is due to the specified competency requirement which is still at the range of foundation level, while the existing competency is already at the range of intermediate level. The employees are contemporarily considered to already have sufficient ability for problem solving, even so this competency should still be maintained and developed. This is because the company's needs will always evolve according to the business developments. Problem solving is the ability to solve technical issues in the digital world, help the environment in dealing with digital technical issues, capable to make solutions for personal and environmental digital needs and understand the needs of self and environmental competencies that must be developed. This competency can always be maintained and improved through learning by doing, coaching, and knowledge transfers.

Based on the discussion above, it can be seen that the company still needs to conduct a lot of developments in the digital competencies. This should be paid a special attention from the company because the company needs to accelerate the digital business which requires digital competencies for all of the employees. Based on interview with one of the experts of digital business in the company it was found that developing the digital competencies can be done in bulk but still efficient in the form of e learning in stages, besides it also can be done through practical digital activities in the operations of the company.

Aside from focusing on the development, the company also needs to pay attention to the other aspects, such as the characteristics of the employees. Data show that the majority of the respondents surveyed (64.5%) are the employees aged over 40 years. Toward the digitalization, it is not an easy effort to develop senior employees in the digital field. Alternatively, offering an early retirement to the employees aged over 40 years with high competencies gap is something to be done, and then look for new competent employees.

CONCLUSION

- a. The proficiency levels of the telecommunication company digital competencies are at two levels, namely intermediate and foundation. The competency areas at the intermediate level are information (2.43), communication (2.37), and safety (2.28). While the areas of competency at the foundation level are content creation (1.85) and problem solving (1.85).
- b. The current competencies of the employees in a telecommunication company in Indonesia are on the whole at the range of intermediate level in four areas of competencies; Information (2.3), Communication (2.2), Safety (2.1) and Problem Solving (2 , 1) whereas for the area of Content Creation competency is (1.7) which categorized into the range of foundation level.

- c. The results of digital competencies measurement in one of the telecommunication companies in Indonesia reveal that in general, the competencies still need to be developed. Only problem solving competency area that has met the excellent criteria.

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