

**MATURITY LEVEL ASSESSMENT ON INNOVATION CAPABILITY BY USING  
INNOVATION CAPABILITY MATURITY MODEL: A CASE STUDY AT PT.  
TELEKOMUNIKASI INDONESIA INTERNATIONAL (TELIN)**

**PENGUJIAN TINGKAT KEMATANGAN DALAM KEMAMPUAN  
BERINOVASI MENGGUNAKAN MODEL KEMATANGAN KEMAMPUAN  
BERINOVASI: STUDI KASUS DI PT. TELEKOMUNIKASI INDONESIA  
INTERNASIONAL (TELIN)**

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**Abstract**

Innovation is currently believed as company's long-term investment and creates growth in revenues and margins, as well as the growth of company's financial performance. 84% executives agree that innovation is a key of company's development strategy. Therefore, it is common for many global companies to have a spending on research and development in quite massive amount, expecting that the companies are able to create new innovation and become the most innovative firm compared with other peers, followed by the sustainable profit growth. However, besides the massive discussion regarding to the innovation, the ability to innovate is also an important factor for a company to innovate effectively.

According to the explanation above, this study aimed to measure the maturity of company's innovation capability, with the intention of a company to be able to discover the extent of their maturity. With quantitative research method, the results of data collection are then calculated and translated into a maturity position with level scale of 1 to 5. The case study of this research is a telecommunication firm named PT. Telekomunikasi Indonesia International (Telin).

**Keywords: Innovation, Innovation Capability, Innovation Capability Maturity Model, innovation Capability Maturity Level**

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**Abstrak**

Inovasi saat ini telah dipercaya sebagai investasi jangka panjang perusahaan dan dapat menciptakan pertumbuhan dalam pemasukan dan marginal, serta pertumbuhan performa finansial perusahaan. 84% eksekutif setuju bahwa inovasi merupakan kunci strategi untuk perkembangan perusahaan. Maka tak jarang banyak perusahaan dunia melakukan investasi dalam penelitian dan pengembangan dalam jumlah yang cukup masif, dengan ekspektasi perusahaan dapat menciptakan inovasi baru dan menjadi yang terinovatif dibandingkan perusahaan lainnya, yang kemudian diikuti dengan perkembangan laba yang berkelanjutan. Namun, di balik maraknya perbincangan mengenai inovasi, kemampuan dalam berinovasi menjadi faktor penting sebuah perusahaan dapat berinovasi dengan efektif.

Berdasarkan penjelasan di atas, penelitian ini bermaksud untuk mengukur kematangan kemampuan sebuah perusahaan dalam berinovasi menggunakan model kematangan kemampuan berinovasi, dengan tujuan perusahaan dapat melihat sampai mana tingkat kematangan mereka. Dengan metode penelitian kuantitatif, hasil pengumpulan data kemudian dihitung dan diterjemahkan ke dalam posisi tingkat kematangan dalam skala 1 sampai 5. Studi kasus untuk penelitian ini adalah perusahaan telekomunikasi bernama PT. Telekomunikasi Indonesia International (Telin).

**Kata kunci: Inovasi, Kemampuan Berinovasi, Model Kematangan Kemampuan Berinovasi, Tingkat**

## Kematangan Kemampuan Berinovasi.

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### 1. Introduction

Innovation, commonly associated with technology, is widely believed as the long-term investment for a company to grow and compete with their peers in the market. 84% of executives agreed that the key for company's growth strategy is in innovation segment (McKinsey & Company, 2010). By investing the capital into an R&D department with a huge amount of money, those corporates agreed with the power of innovation. However, there are times when the result they desired oppositely did not get a maximum output in accordance with the investment that had been made. Whether they already spent the revenue on R&D or not, it does not mean that they hold a better future than another one which would spend a lower amount of revenue in R&D (Corsi & Neau, 2015).

Corporates must consider a capability-based as the right approach in realizing the innovation and as the reason why the capacity must be specifically developed (Corsi and Neau, 2015), since organizational capability resembles the capability of a corporate to use and deploy its resources as its main assets (Prahalad and Hamel, 1990) in Björkdahl and Börjesson (2012). And to know the capability to innovate, firms are able to measure the innovation and organizational capability to innovate. A compatible set of measurement, aligning with project and innovation strategies, can be applied by corporates to assess the success or failure of development projects (Griffin and Page, 1996) in Nilsson *et al.* (2010). In this research, author use Innovation Capability Maturity Model adopted from Corsi and Neau (2015) to measure Innovation Capability Maturity of PT. Telekomunikasi Indonesia International (Telin).

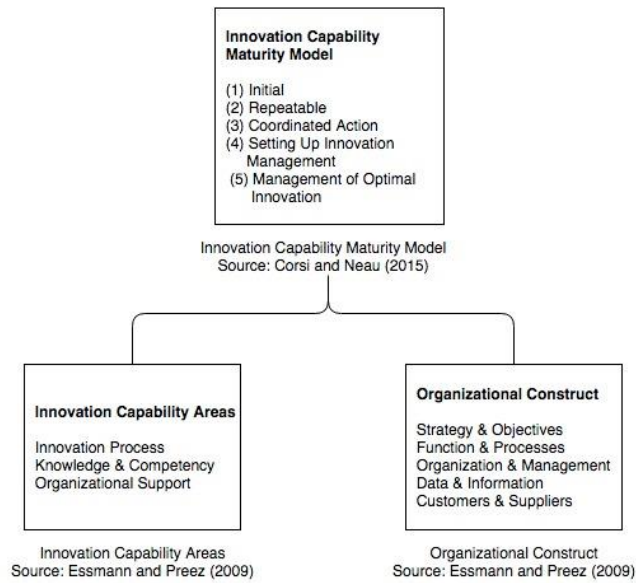
Telin, as International Telecommunication Service Provider, must adjust not only with its services/ solutions and technology but also its business strategy in order to compete globally. Came up with the business strategy in 2017, there was a vision transformation from "World Hub for T.I.M.E.S" to "Global Digital Hub". The formation in business transformation strengthens in the commercial, technology, and also innovation. However, more than 50% of Telin revenues known were gained from offering services to Telkom's client, and as for the position in a global environment, Telin still adapts with the market condition and market needs in each expansion country. Given the background and concerns presented above, it is important for companies to evaluate the current position of its internal capability maturity levels, notably in innovation aspect.

### 2. Literature Review

Figure 1 is the conceptual model for this research. A variable of Innovation Capability Maturity Model are included in this research. In identifying the aspects of Innovation Capability Maturity items, there are 2 constructs from Essmann and Preez (2009) that are used: Organizational Construct which refers to organizational aspects, that may measure the aspects of Innovation Capability of the variable, by Innovation Capability requirements (Essmann and Preez, 2009); and Innovation Capability Areas which refers to the highest-level components of innovation capability which were identified through studying best practices and by identifying high-level categorizations into which the best practices could be grouped (Essmann and Preez, 2009)[1].

Both constructs formed are used in order to identify Innovation Capability Maturity Model (Corsi and Neau, 2015)[2]. According to Corsi and Neau (2015), Innovation Capability Maturity Model helps Telin to be aware with current ability to innovate and it can help corporates improving the maturity regarding to the capability to innovate [2].

Figure 1. Conceptual Model (Essmann and Preez, 2009; Corsi and Neau, 2015)[1][2]



### 3. Research Methodology and Results

Research method that is used in this research is quantitative method. The purpose of quantitative approach is to apply an accurate measurement towards behavior, knowledge, opinion, or attitude (Cooper and Schindler, 2011) in Indrawati (2015:184)[3].

The source of data gained by distributing questionnaire. Population on this research is 370 employees of Telin. The amount of sample in this research uses Slovin’s formula in Widodo (2017)[4]. The formula is described as follow:

$$n = \frac{N}{1 + N(\delta)^2} = \frac{370}{1 + 370(0.1)^2} = 78.72 \text{ or equivalent to } 79 \text{ respondents}$$

Before collecting data from 79 respondents, author do Corrected Item-Total Correlation validity test and Cronbach Alpha reliability test to see whether the variables used are valid and reliable or not. Cronbach Alpha test conducted by collecting data from 30 respondents. Validity test is necessary as a test to validate whether the instrument that is developed in the questionnaire measures the right concept or not while Reliability is a test to know whether the measuring instrument that would measure whatever the concept it is measuring is consistent or not (Sekaran and Bougie, 2010)[5]. Friedenberg and Kaplan recommends 0.3 as the minimum score in Validity Test (Indrawati, 2015) while Guilford (1956) suggesting the minimum score is 0.4, and the minimum coefficient of 0.70 to acknowledge the good reliability of a questionnaire in using Cronbach Alpha (Hair *et al.*, 2010; Kaplan and Saccuzzo 1993; Nunnally and Bernstein, 1994; Pedhazur and Pedhazur, 1991) in Indrawati (2015)[3]. Here are table 1 of result in validity test and Table 2 of result in reliability test:

Table 1. Validity Test on Variables

Dimension	Respondent	Items	CITC	Result
Strategy & Objectives (SO)	30	OCSO1	0.613	Valid
Function & Process (FP)	30	OCFP1	0.550	Valid
Organization & Management (OM)	30	OCOM1	0.800	Valid
	30	OCOM2	0.758	Valid
Data & Information (DI)	30	OCDI1	0.543	Valid
	30	OCDI2	0.832	Valid
	30	OCDI3	0.504	Valid
Costumers & Suppliers (CS)	30	OCCS1	0.498	Valid
	30	OCCS2	0.602	Valid
Innovation Process (IP)	30	ICAIP1	0.755	Valid
Knowledge &	30	ICAKC1	0.628	Valid

Dimension	Respondent	Items	CITC	Result
Competency (KC)	30	ICAKC2	0.684	Valid
	30	ICAKC3	0.432	Valid
	30	ICAKC4	0.562	Valid
	30	ICAKC5	0.726	Valid
Organizational Support (OS)	30	ICAOS1	0.657	Valid
	30	ICAOS3	0.694	Valid
	30	ICAOS4	0.680	Valid

Source: Data Processed on SPSS (2020)

**Table 2.** Reliability Test on Variables

Variable	Respondent	Cronbach Alpha	Result
Organizational Construct (OC)	30	0.882	Reliable
Innovation Capability Areas (ICA)	30	0.886	Reliable

Source: Data Proceed on SPSS (2020)

The final score classified into 3 maturity categories adopted by Corsi and Neau (2015) and calculated by using Widodo (2017) formula: the minimum scale of theoretic score subtracted from the maximum scale of theoretic score, and then divided into 3 ( $5 - 1 = 4/3 = 1.33$ ) [3][4]. And the scoring is explained in Table 3 below:

**Table 3.** Maturity Scoring

Quadrant	Position	Maturity Score	Description
Initial & Repeatable	1-2	1 - 2.33	At present, innovation does not appear to be a priority for company's growth. A first development project may be envisaged (imagined).
Coordinated Action	3	2.34 - 3.67	The company is aware of the stakes of innovation and could strengthen the competitiveness of the firm by taking a proper approach to innovate.
Setting Up Innovation Management & Management of Optimal Innovation	4-5	3.68 - 5	Innovation is part of a business culture. The good practices could be improved due to implementation of new methods and tools, and more rigorous organization.

Source: Corsi and Neau (2015)

The Innovation Capability Maturity measured in 79 employees in PT. Telekomunikasi Indonesia International (Telin) with the total mean score of the research result of 4.18 which identified that the Maturity level of Innovation Capability in Telin is in level 4 to 5 that is in between quadrant Setting Up Innovation Management and Management of Optimal Innovation. The result presented in Table 4 below:

**Table 4.** Respondent Result on Organizational Construct and Innovation Capability Areas

No.	Item	Answer										Mean
		SA		A		N		D		SD		
		f	%	f	%	f	%	f	%	f	%	
1.	OCSO1	22	27.9	45	57	12	15.2	-	-	-	-	4.13
2.	OCFP1	46	58.23	30	38	1	1.3	2	2.53	-	-	4.52
3.	OCOM1	42	53.16	29	36.71	8	10.13	-	-	-	-	4.43
4.	OCOM2	26	32.91	39	49.37	12	15.19	2	2.53	-	-	4.13
5.	OCDI1	33	41.77	38	48.10	6	7.59	2	2.53	-	-	4.29
6.	OCDI2	27	34.18	44	55.7	7	8.9	1	1.26	-	-	4.23
7.	OCDI3	29	36.71	44	55.7	4	5.06	2	2.53	-	-	4.38
8.	OCCS1	34	43.04	39	49.37	5	6.32	1	1.26	-	-	4.34
9.	OCCS2	24	30.38	46	58.23	7	8.9	2	2.53	-	-	4.16

No.	Item	Answer										Mean
		SA		A		N		D		SD		
		f	%	f	%	f	%	f	%	f	%	
10.	ICAIP1	25	31.65	42	53.16	10	12.66	2	2.53	-	-	4.14
11.	ICAKC1	29	36.71	34	43.04	14	17.72	2	2.52	-	-	4.14
12.	ICAKC2	23	20.11	32	40.51	20	25.32	4	5.06	-	-	3.94
13.	ICAKC3	46	58.23	24	30.38	5	6.32	3	3.8	-	-	4.39
14.	ICAKC4	29	36.71	33	41.77	15	19	2	2.53	-	-	4.13
15.	ICAKC5	11	13.92	22	27.85	34	43.04	11	13.92	1	1.26	3.39
16.	ICAOS1	28	35.44	43	54.43	8	10.13	-	-	-	-	4.25
17.	ICAOS3	29	36.71	40	50.63	6	7.59	4	5.06	-	-	4.19
18.	ICAOS4	29	36.71	35	44.30	12	15.19	3	3.8	-	-	4.14
<b>Mean</b>											<b>4.18</b>	

*Source: Data Processed (2020)*

#### 4. Conclusions and Suggestions

##### a. Conclusion

The measurement material that conducted in this research had been conducted to 79 employees of Telin. The result of this research is that PT. Telekomunikasi Indonesia International (Telin) is an international telecommunication company with which its maturity position is from 4 to 5 for its Innovation Capability. And conducting new method in designing and planning its new service's feature and offering, and attempt to add more units in global branches which is responsible for competitive environment watch as well as innovating in terms of service offering plans in order strengthen firm position in the competition, or simply adding the responsibility to marketing unit of each branch is needed by Telin in order to be superior in competitive environment.

##### b. Suggestion

Derived from the discussion in previous chapters and conclusion stated above, certain recommendations related to the company and for further research are included as follow:

##### a. Practical Aspects

For improving Knowledge and Competency dimension in Innovation Capability Areas, PT. Telekomunikasi Indonesia International (Telin) should conduct further evaluation and observation regarding with service substitution. Telin should consider a new method in offering the service to eliminate substitution threats from peers, and it is necessary to evaluate Telin's strategy regarding to Intellectual Property Rights.

For other telecommunication corporates, this research can be a reference to improve innovation capability maturity in the company. However, focusing on the measurement itself would not be a complete approach unless the firm proceed with other methods suitable for the industry since there is particular difference between provider and product-based business enterprise. There would be biased in measurement result hence carefully translating the question in questionnaire or choosing the other suitable measurement is necessary.

##### b. Theoretical Aspect

For further research, designing the variable which would be suited with research object would gain more accuracy in measuring the capability. Telecommunication corporates might not have Research and Development team such as Telin since they do not need to develop product/ service they offer. In Telin case, Product/ Service Innovation and Development is in charge of selecting and acquiring solution which would be suited in competing with peers. However, because the service itself is not produced and developed by Telin, facing any substitutions from other competitors which provide the same service is quite unavoidable. In this research, Telin score in instrument item regarding to the product/service substitute is the lowest among all items impacting the overall maturity score. Finding the measurement model which suitably developed for telecommunication industry is especially recommended for higher research objectivity, and having deeper observation after measuring the maturity would be more worthwhile for both author and reader.

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