

The Effect of Dynamic, Innovation, and Alliances Capability on Sustainable Competitive Advantage in the Digital Disruption Era for Incumbent Telecommunication Firm

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Abstract

The purpose of this study is to examine the effect of dynamic capabilities (DC), innovation capabilities (IC) and alliances capabilities (AC) on sustainable competitive advantage in digital disruption era for incumbent telecommunication firm in Indonesia, due to the phenomenon of incumbent companies that fail to maintain business sustainability. New entrants could bring new innovations with cheaper, simple and efficient technology. This phenomenon referred to as Disruptive Innovation. Then the incumbents have to find new ways to stay competitive. The study is conducted by cross sectional quantitative method. The unit of analysis is telecommunication firm in Indonesia with management of these firms as the observation unit. The sample taken from the population is as many as 100 respondents from Senior Leader in Indonesia telecommunication firm. The analytical approach and the solution technique that is used as the analysis tool in this research is Partial Least Square (PLS). The result of hypothesis testing shows that DC, IC, and AC affects sustainable competitive advantage (SCA) of Indonesia's incumbent telecommunication firm in digital disruption era, where IC has more dominant influence than AC and DC in increasing SCA. This research has implications for both the management of telecommunication firm in Indonesia in maintaining and improving sustainable competitive advantage in the digital disruption era, as well as the contribution to science and further research.

Keywords

Dynamic Capability, Innovation Capability, Alliances Capability, Sustainable Competitive Advantage, Digital Disruption.

1. Introduction

1.1 Research Background

Christiansen (1996) in his book "Innovator Dilemma" had studied the phenomenon of incumbent companies that fail to maintain business sustainability because of the emergence of new entrants that bring new innovations with cheaper, simple and efficient technology. This phenomenon by Christiansen hereinafter referred to as Disruptive Innovation. One of differences of disruptive change between digital and traditional is related to the dynamic of competition that can be divided into two things; namely the rapid change in the digital age so that innovation becomes the key to the company's business sustainability, and the significant investment necessary to maintain business continuity. The investment is the answer to the fulfillment of the gap between the main competencies possessed by the market needs that require the fulfillment of these competencies. Hence in this disruptive era, many business partnerships need to be done in order to meet the market targets both by borrow (cooperation) and acquisition.

Newcomers with innovation in the form of new technology and business models are able to create new markets and newcomers against incumbent companies. As in the case of Kodak that lose out to compete with digital camera companies (Christensen, 1997), in telecommunications companies the emergence of VoIP and Internet-based applications such as blackberry and WhatsApps threaten the existence of voice and text services business (Short Messaging Services - SMS). Likewise, internet services create new business model and market such as those that occur in air travel, hotels via airbnb, or transportation services like Gojek, Grab, and Uber that threaten the leadership of the incumbent company that has been leading the market. Then the question is how incumbent companies maintain their business sustainability and competitive advantage over the long term?

The telecommunication network sector, facing severe pressure in financial aspect. They require substantial investment, and it takes time to build the internal capabilities to cope with change due to disruptive innovation. So that incumbent firm cannot stand alone in facing the changes that occur and need business alliance to complement their capabilities. One of the advantages of the AC proposed by Kleyn, Kitney, Atun (2007) is that it can enhance and develop interactions between technical skills from different disciplines and enable the interlinking of different groups in a common goal and transfer ideas from other industries. On the other hand, business alliances prove to be related to the IC. This is demonstrated by Khorakian & Salehi (2015) who developed models that demonstrate the key organizational components including the five main enablers namely leadership, innovation, people, partnership and resources, and innovation processes. On the other hand, Surin, Edward, Hussin, & Ab Wahab (2017) found that human capital and business environment significantly moderate the relationship between strategic business networks and business performance

Several literature studies have shown that the incumbent firm is resistant in responding the change because it has the existing business that became the market leader of its time (Levinthal & March, 1993, Berner & Turshman, 2002, Christensen & Bower, 1996). In addition, the determinants of market changes are cognitive (Tripsas & Gavetti, 2000) especially from leaders or actors of organizations that drive organizations. The incumbent company's response to the disruptive innovation ever undertaken is through the size of the incumbent company, and collaborative strategy (Sandrom et al. 2009), upstream and downstream innovation (Adner and Kapoor, 2010), and application set capabilities (Sosa 2009).

Thus, the temporary allegation relating to the effort to gain competitive advantage in the incumbent company is to increase the IC. Referring to Tidd & Bessant (2013), innovation management includes: Product innovation - changes in products / services offered; process innovation, changes in the way products or services are shaped and delivered, position innovation, changes in the context in which products / services are introduced; and paradigm innovation, a change in the mental model that frames what the organization does.

On the other side, IC assumed to related to human resource as the main driver of innovation. The ability of company's member is needed to adjust their competency with environmental change and to continually reconfigure the resources to produce a competitive product, namely DC. Refer to Wang & Ahmed (2007, p.35) in Ambrosini & Bowman (2009,32-33), DC as 'a firm's behavioral orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities, and most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage'.

Based on the background, this research will examine the effects of DC IC and AC on sustainable competitive advantage of incumbent telecommunication firm in Indonesia in today's digital disruption era. The methodology used the qualitative method based upon literature study and questioners from 100 sampling of Senior leader of Indonesia Telecommunication firm. Due to limitation of sample, the study used PLS statistical tool to analyse the result. The result found that three variable DC, IC and AC has positive effect to SCA of Indonesia Telecommunication firm where IC has the

most influence effect to SCA compare to DC and AC. This paper will start from literature review, methodology, result and discussion, and conclusion and finalise further result and implication to scholar and business practice.

1.2 Research Objective

Based on the background above, thus the research aims to examine the effects of DC to SCA, effect IC to SCA and effect AC to SCA, and also the effect of three variable of DC, AC, and IC to SCA at incumbent telecommunication firm in Indonesia in today's digital disruption era.

2. Literature Review

2.1. Dynamic Capabilities

DC theory addresses the lock-in issue associated with the rigidities of firm-specific strategic resources and the formation of core competences; it has been used extensively in the extant literature for diagnosing the management of company resources and competitive advantages" (Ordanini and Rubera, 2008; Smart et al., 2007, Witcher and Chau, 2008, p.540). Teece et al. (1990, p. 11) and then later Teece et al. (1997, p. 516) in Thomas (2011), defined DC as "...the firm's ability to integrate, build, renew and reconfigure internal and external competencies to address rapidly changing environments so as to achieve congruence with the changing business environment by adapting, integrating, and reconfiguring internal and external organizational skills, resources, and functional competencies...".

Wang and Ahmed (2007, p.35), and Ambrosini & Bowman (2009, p.33), have defined DC as a firm's behavioral orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities and, most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage. Hence the effect of DC will contribute positive impact to SCA in telecommunication industry impact to the following hypothesis below:

H₁: Dynamic capabilities affects sustainable competitive advantage of incumbent telecommunication firms in Indonesia in the digital disruption era

2.2 Innovation Capability

Christensen and Bower (1996) argue that although incumbents have innovation capabilities, they fail to sustain business when disruptive technologies emerge due to resource allocation and organization, and the process of innovation is not appropriately allocated to the target of customers. Tidd and Bessant (2013) argue that innovation is generally driven by the ability to see relationships, opportunities and take advantage of those opportunities. Companies that get their market share and increase their profitability are innovative. Based on his opinion, innovation capabilities include: Product innovation - changes in the things (products/services) that an organization offers; Process innovation - changes in the ways in which they are created and delivered; Position innovation - changes in the context in which the products/services are introduced; and Paradigm innovation - changes in the underlying mental models which frame what the organization does. According to Tidd and Bessant, the IC has influence and positive impact to SCA, therefore the hypothesis on effect IC to SCA in Indonesia Telecommunication industry can be constructed as follow:

H₂: Innovation capability affects sustainable competitive advantage of incumbent telecommunication firms in Indonesia in the digital disruption era

2.3 Alliances Capability

Sandstroms (2014) studied that the fall of the incumbent caused by two things: (1). In the case of resource allocation, the incumbent can not anticipate some heterogenization that occurs as in the organizational system and leadership is mainly related to incentives and competencies, and (2) incumbent unable to anticipate changes occurring in the environment. To anticipate that, Sandstroms (2009) suggests that incumbents can survive in a disruptive environment through collaboration and acquisitions or by partnering. Meanwhile, Hitt, Ireland, Hoskisson (2015) explain that the company is collaborating with one other companies or more to expand its operations. Strategic alliances are divided into several types:

1. Joint Venture, where two or more companies create a new, legally independent company to share some of its resources and capabilities for the development of competitive advantage.
2. Equity Strategic Alliance, where two or more companies form a new company to combine resources and capabilities for the development of competitive advantage with different percentage ownership.
3. Non Equity Strategic Alliance, where two or more companies share some of their resources and capabilities for the development of competitive advantage without forming a new company. This type of alliance is not formal, but it can provide value for the company.

Those strategic Alliance has positive effect to SCA, hence the hypothesis constructed in Indonesia telecommunication firm as follow:

H₃: Alliances capability affects sustainable competitive advantage of incumbent telecommunication firms in Indonesia in the digital disrupton era

2.4 Sustainable Competitive Advantage

Barney (1991) argue that competitive advantage can be built through the development of strategies in response to opportunities from the outside environment and reduce the risks of competing threats (Porter, 1980, 1985, 1988). It can also be built by strengthening internal capabilities and building weaknesses (Hofer and Schender 1978). Prahalad and Hamel (1994) define sustainable competitive advantage as the capability of core competences as a bundle of skill and technological capabilities not as a capability of its nature a discrete of skills and technology, but rather as an aptitude of managers who become actors in running a business that competitors can not imitate. Barney (1991) defines sustainable competitive advantage as the implementation of value creation strategies that are not simultaneously implemented with competitors, and competitors are not able to imitate in the long run. Based on the comparative dimension of sustainable competitive advantage, and adapted to the characteristics of the telecommunication industry in Indonesia, the sustainable competitive advantage in this study is measured by dimension of customer value, differentiation, and organize. In construction of hyphothesis, the study will exam the effect of DC, IC and AC on SCA in Indonesia Telecommunication industry, and formulate the hyphotesis as follow:

H₄: Dynamic capabilities, innovation capabilites, and alliances capabilities simultaneously affect the sustainable competitive advantage of incumbent telecommunication firms in Indonesia in the digital disruption era.

3. Methodology

This is a quantitative study with a cross sectional observation. The unit of analysis is the telecommunication network firm in Indonesia with the observation unit is the management of the firm. The observation unit used as the respondent is the managers or the management of the telecommunication network firm in Indonesia. The population is a combination of all elements that have a set of similar characteristics (Malhotra, 2010, p.371). The target of sample is as many as 100 respondents. The analytical approach and the solution technique that will be used as the analysis tool in this research is Partial Least Square (PLS). The PLS method is used to explain the presence of relationships between latent variables and it has advantages such as: the data does not have to be multivariate normal distribution (indicators with category scale, ordinal, interval and ratio can be used on the same model) and sample size should not be large. Besides, refer to Vinzi (2008), small population for 20-100 recommended to uses PLS.

Respondents participated in this research are persons held managerial position in telecommunication industry, which are divided into three groups based on busines portfolio, mobile, fixed and broadband and international. The distribution of respondents are as follows:

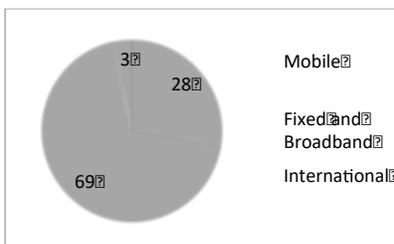


Figure 1. Number of Respondents Based on Business Portfolio

4. Result and Discussion

4.1 PLS Results

4.1.1 Test of Inner Model

Analysis of inner model shows the relationships between latent variables. Inner model is evaluated by using the value of R square on endogenous constructs and Q square (Prediction relevance) or known as Stone-Geisser's. The value of Q square obtained 0.02 (minor), 0.15 (medium) and 0.35 (large), and only used for the endogenous construct with reflective indicator. Refer to Chin (1998), the value of R square amounted to 0.67 (strong), 0.33 (medium) and 0.19 (weak). Table 1 gives the R square value in the SCAs endogenous variables is in strong criteria (> 0.67 = strong), and Q square values are in large criteria, so it can be concluded that the research model is supported by the empirical condition or model is fit.

Table 1 Test of Inner Model

Variable	AVE	Composite Reliability	R Square	Cronbachs Alpha	Q square
Dynamic Capability	0.783	0.970		0.965	0.781
Innovation Capability	0.805	0.971		0.965	0.797
Alliance Capability	0.890	0.960		0.938	0.876
Sustainable comp. Advantage	0.819	0.964	0.866	0.956	0.803

Source:SmartPLS 2.0

Based on the research framework, obtained a structural model as follow:

$$\eta_1 = 0.191\xi_1 + 0.615\xi_2 + 0.220\xi_3 + \zeta_1$$

η_1 = Sustainable Competitive Advantage

ξ_1 = Dynamic Capability

ξ_2 = Innovation Capability

ξ_3 = Alliance Capability

ζ_1 =Residual

4.1.2 Test of Outer Model

Analysis of outer model shows the relationship between manifest variables (indicators) and each latent variable. Validity and reliability test is used to measure the latent variables and the indicators in measuring the dimension that is constructed. Cronbachs Alpha's value is used to measure the reliability of dimension in measuring variables. Table 1 show the value of Cronbachs Alpha bigger than 0.70 (Nunnaly, 1994) indicates that the dimensions and indicators as reliable in measuring variables. Composite reliability and Cronbachs Alpha > 0.70 shows that all of variables in the model estimated fulfill the criteria of discriminant validity. Then, it can be concluded that all of variables have a good reliability. Table 1 shows the values of Cronbachs Alpha > 0.7 and Composite Reliability > 0.7, so it can be concluded that all variables have reliable dimensions and indicators.

Second Order usage in this research model cause the loading factor obtained is able to explain the relationship between latent variables-dimensions and dimensions-indicators. Table 2 show the result of outer model for each dimension on indicators.

Table 2 Loading Factor of Laten Variable-Dimension-Indicator

Variable-Dimension	Indicator-Dimension	λ	SE(λ)	t-value	Conclusion
		λ			
Dynamic Capability (-> Integration of Resources and Capability)		0.964	0.006	172.941	valid
	X11 <- Integration of Resources and Capability	0.951	0.009	102,807	Valid
	X12 <- Integration of Resources and Capability	0.950	0.010	97.383	Valid
Dynamic Capability (-> Reconfiguration of Resources)		0.973	0.005	213.701	Valid
	X21 <- Reconfiguration of Resources	0.935	0.013	71.983	Valid
	X22 <- Reconfiguration of Resources	0.942	0.012	81.208	Valid
	X23 <- Reconfiguration of Resources	0.959	0.008	115.699	Valid
Dynamic Capability (-> Creation of Resources)		0.972	0.007	148.736	Valid
	X31 <- Creation of Resources	0.917	0.015	60.738	Valid
	X32 <- Creation of Resources	0.916	0.015	59.328	Valid
	X33 <- Creation of Resources	0.839	0.033	25.671	Valid
Dynamic Capability (-> Up Grade of competency)		0.763	0.040	19.099	Valid
	X41 <- Up Grade of competency	1.000	-	-	Valid
Innovation Capability -> Product		0.940	0.012	78.445	Valid
	X51 <- Product	0.975	0.008	117.603	Valid
	X52 <- Product	0.976	0.008	128.649	Valid
Innovation Capability -> Process		0.962	0.009	110.514	Valid
	X61 <- Process	0.939	0.010	93.238	Valid
	X62 <- Process	0.931	0.015	61.938	Valid
Innovation Capability -> Position		0,954	0.011	88.403	Valid
	X71 <- Position	0.959	0.008	118.282	Valid
	X72 <- Position	0.957	0.009	102.887	Valid
Innovation Capability -> Paradigm		0,905	0.018	49.274	Valid
	X81 <- Paradigm	0.954	0.009	111.393	Valid
	X82 <- Paradigm	0.941	0.016	60.311	Valid
Alliance Cap. -> Joint venture		0,944	0.014	67.964	Valid
	X91 <- Joint venture	1.000	-	-	Valid
Alliance Cap. -> Equity strategic		0.953	0.012	80.882	Valid
	X101 <- Equity strategic	1.000	-	-	Valid
Alliance Cap. -> non equity strategic		0.932	0.013	72.455	Valid
	X111 <- non equity strategic	1.000	-	-	Valid
Sustainable comp. advantage -> Customer Value		0.945	0.010	97.928	Valid
	Y11 <- Customer Value	0.968	0.008	127.821	Valid
	Y12 <- Customer Value	0.970	0.007	148.077	Valid
Sustainable comp. advantage -> Differentiation		0.940	0.012	77.968	Valid
	Y21 <- Differentiation	0.945	0.012	79.992	Valid

	Y22 <- Differentiation	0.942	0.014	68.701	Valid
Sustainable comp. advantage -> Organize		0.961	0.009	105.249	Valid
	Y31 <- Organize	0.952	0.009	102.226	Valid
	Y32 <- Organize	0.948	0.012	80.681	Valid

Outer model of dimensions by its indicators shows that the indicators are valid which the value of t value < 1,985 (t table at $\alpha = 0.05$). The result of outer model of latent variables on their dimensions shows to what extent the validity of dimensions in measuring latent variables.

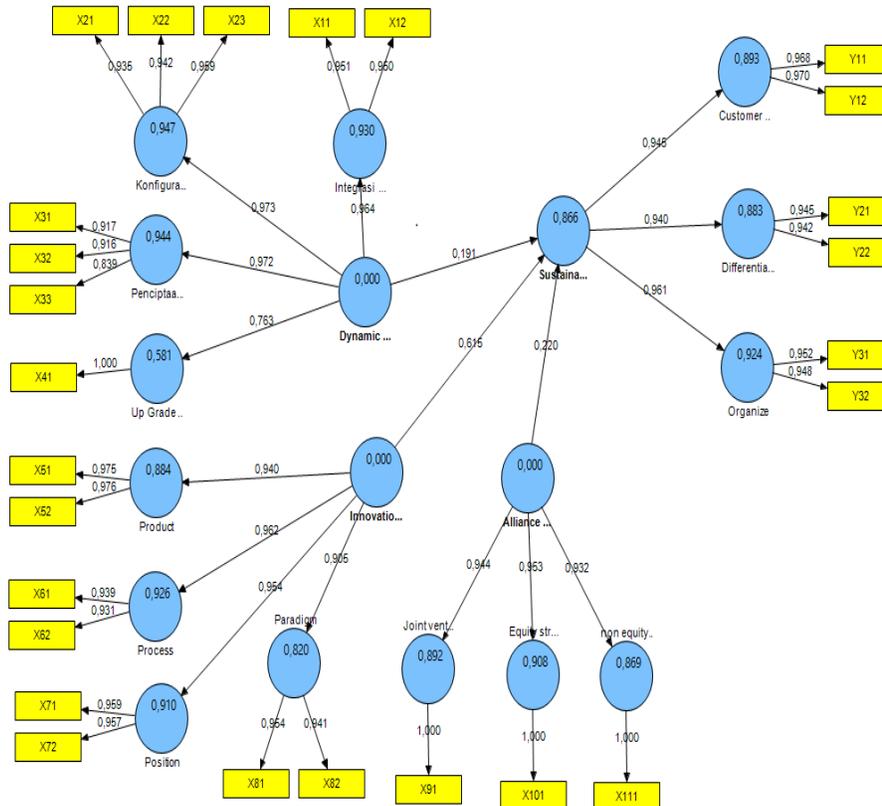


Figure 2 Complete Path Diagram of Research Model

a. Hypothesis Testing

Below is the result of hypothesis testing both simultaneously and partially.

Table 3 Testing of Hypothesis

	Hypothesis	γ	SE(γ)	t	R ²	Conclusion
1	Dynamic Capability -> Sustainable Competitive Advantage	0.191	0.058	3.290*	0.137	Hypothesis accepted
2	Innovation Capability -> Sustainable Competitive Advantage	0.615	0.086	7.179*	0.553	Hypothesis accepted
3	Alliance Cap -> Sustainable Competitive Advantage	0.220	0.090	2.448*	0.176	Hypothesis accepted
4	Dynamic, Innovation, and Alliance Capabilities	-	-	206.81**	0.866	Hypothesis accepted

-> Sustainable Competitive Advantage					
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* significant at $\alpha=0.05$ (t table =1.985)
** significant at $\alpha=0.05$ (F table =2.69)

The Table 3 show that partially DC, AC IC influential significantly to SCA which is IC has a greater influence ($R^2=55.3\%$). Within the degree of confidence of 95% ($\alpha=0.05$), simultaneously there is the influence of DC, IC and AC to SCA amounted to 86.6%, while the rest of 13.4% is affected by other factor did not examined.

Based on the results of hypothesis testing, can be described a research finding as follow :

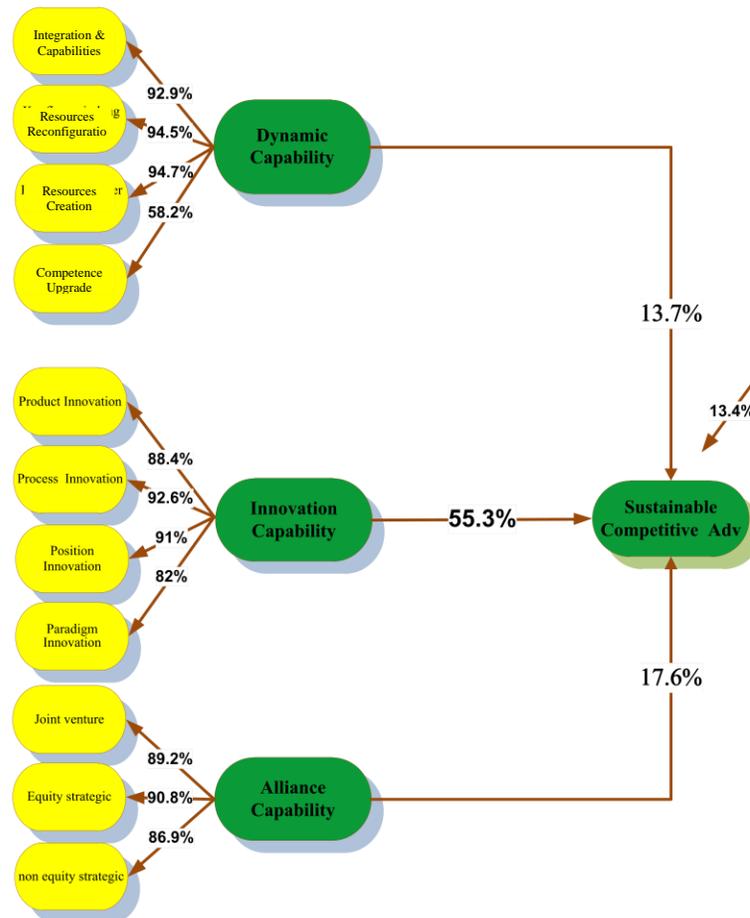


Figure 3 Research Finding

The findings of this study show that the all of dynamic, innovation, and alliance capabilities have significant effect on sustainable competitive advantage of incumbent telecommunication firm in Indonesia in today's digital disruption era. The variables that have dominant influence on the improvement of sustainable competitive advantage is innovation capability (55.3%), followed by alliance capability (17.6%), and dynamic capability (13.7%).

Innovation capability have a very dominant influence compared to alliance and dynamic capabilities . It shows that innovation capability can improve *sustainable competitive advantage* in *customer value, differentiation,* and *organize* that supported by alliance and dynamic capabilities.

Hence, the finding is in line with earlier study about the effect of innovation on sustainable competitive advantage as showed by Bharadwaj (1993) who examines the organizational resource differentiator and organizational skills in the context of sustainable competitive advantage in the service industry and the moderating impact of service characteristics, service industries and enterprises where innovation impacts sustainable competitive advantage

5. Conclusion and Recommendation

Based on the hypothesis testing, found the conclusion and recommendation as follow:

5.1 Conclusion

The finding of study supported the hypothesis that the dynamic, innovation, and alliance capabilities affect to the sustainable competitive advantage of incumbent telecommunication firms in Indonesia in the digital disruption era, where the innovation capability has a dominant effect than alliance and dynamic capabilities in improving the sustainable competitive advantage.

5.2. Implication, limitation and further research

The result of this study is expected to gives implication to the management of telecommunication firms in Indonesia, that in the current digital disruption era, to continue to develop sustainable competitive advantage, the firm must prioritize the development of innovative capabilities, in line with the rapid development of information and communication technology. Real actions that could be taken by telcos for example, strengthening innovation resource in terms of budget, human resource and organization structure. In addition, for the academic community, it is expected that the finding of this study can be the basis for preparing the premise for further research about the effort in increasing competitive advantage in the telecommunication network industry in particular, and generally in industry related to the information and communication industry

Due to limitation of scope and sampling during the study, the further result can be expanded into larger sample that may the sample taken beyond Indonesia telecommunication market. Further more the study can be further improve to provide framework and strategy model for incumbent Telecommunication firm in facing digital disruptive era.

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