

## Digital leadership role in developing business model innovation and customer experience orientation in industry 4.0

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### CHRONICLE

### ABSTRACT

#### Article history:

Received: January 15 2019  
Received in revised format: May 15 2019

Accepted: June 17, 2019

Available online:

June 17, 2019

#### Keywords:

Industry 4.0

Digital transformation

Digital leadership

Customer experience orientation

Business model innovation

Industry 4.0 brings a new challenge for incumbent firms to anticipate new business model offered by emerging entries. The digital transformation is required by incumbent to develop innovation on product and service business model based on customer experience orientation. To support this transformation, strong digital leader is important to assure the development of this transformation. The study on the role of digital leadership on business model innovation and customer experience has not been explored, significantly. Hence, this research aims at assessing the role of digital leadership, whether it directly or indirectly influences the customer experience orientation in developing business model innovation. This study was conducted through survey to 88 senior leader respondents from Indonesia telecommunication firms, in which Smart-PLS application was used to analyze the data. The result show that digital leadership had direct and indirect impacts on customer experience orientation in developing business model innovation. The practical implications of these findings are recommended for the senior leader of management of telecommunications industries in Indonesia to strengthen digital leadership capability in conjunction with the development of business model innovation and customer experience orientation. Further research can be explored by expanding the sample, industry, statistical application and longitudinal study.

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## 1. Introduction

Industry 4.0 is influenced by digital technology, especially Internet of Things (IoT), cloud, mobile services, artificial intelligent (AI), and big data, has brought the new paradigm for the structure of all industries. This new paradigm is named Conceptual Age Era, or it is more popular with Industry Revolution 4.0 (Kagermann, 2015; Pink, 2005). Digital technology drives the change of customer and market; hence, incumbent firms need to transform their system through digitation to provide effective process (Gastaldi & Corso, 2012; Henfridsson et al., 2014; Rachinger et al., 2018; Wiljén & Khalaf Beigi, 2015). There are four key success factors in industry 4.0: innovation, collaboration, integration and interoperability (Bauer et al., 2015; Singh & Jayraman, 2013; Ibarra et al., 2017; Kiel et al., 2017). Digital transformation relies on how firms innovate their business model (Castorena et al., 2014; Prem, 2015; Dim & Ezeabasili, 2015; Wang & Lu, 2016; Harshan, 2017)

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New entries enter the market with an attractive business model, while the incumbent firms still rely on the existing business model as part of their cash cow business, while the market and customer change, the incumbent firms need to develop new capabilities and innovate their business model. The business model innovations are combination between structure, content and structure of innovation aim at creating firms' value (Amit & Zott, 2012, 2015; Zott & Amit, 2017). In digital disruption, customer is the main focus of study, and it becomes a customer journey to create customer experience (Lemon & Verhoef, 2016; Ramaswamy, 2011). The customer relationship is not only through human interaction but also through application makes the provisioning of the products and services faster and efficient (Parise et al., 2016; Weill & Woerner, 2015; Duru & Chibo, 2014; Purnama, 2014; Nazal, 2017; Taqi et al., 2018; Tanoos, 2017; Chowdhury et al., 2018). The study of Customer Experience Orientation (CEO) shows that telecommunication is one of the main sectors where the incumbent firms are significantly disrupted by new entries (Bradley et al., 2015). Meanwhile, in developing countries like Indonesia, the digital development is still at an early stage, but the innovation growth through the creativity industry and start-ups are growing rapidly (IMD, 2017). This creates a challenge for incumbent firms to build its digital infrastructure since it requires big investment, meanwhile, the return of investment could not be guaranteed due to the fastest changing of market and technology (Das et al., 2016; Nze et al., 2016; Kimengsi & Gwan, 2017; Cheng et al., 2018; CHE & Sundjo, 2018). The competition becomes tighter since new entries are able to offer customers solutions over the digital infrastructure that disrupts the incumbent firms. The founders of new entries have the entrepreneurship leader capability in exploring digital technology (King, 2017; Lester, 2017) and they have strong influence in disruptive era (Vecchiato, 2017; Wasono & Furinto, 2018).

Digital leadership is a combination between digital culture and digital competence. The study of digital leadership is the part of the study about leadership based on the Hambrick and Mason's Upper Echelon Theory (Hambrick & Mason, 1984). Zhu (2015) classifies the criteria of digital leadership into five characteristics: (1) Thought leader, having the capability to be tough in facing market and competition change; (2) Creative leader, having the creativity and innovation mind set to formulate the idea into reality; (3) Global Visionary Leader, being able to provide direction and become an orchestra in transforming the digital business transformation; (4) Inquisitive Leader, having learning capability to face complex and dynamic ecosystem due to volatility, uncertainty, complexity and ambiguity (VUCA) factors; (5) Profound Leader, having in-depth knowledge and comprehension to make interpretation, assumption and synthesizing of information in making decision.

Studies on the role of digital leadership to drive business model and customer experience orientation is still limited, especially for incumbent in emerging market like Indonesia. Therefore, this research aims at assessing the role of digital leadership in developing business model innovation and customer experience orientation through empirical study. This paper discusses the literature review of digital leadership, customer experience orientation, business model innovation, thus it discusses methodology, result and discussion, then the conclusion, limitation and future research.

## **2. Literature Review**

### *2.1 Industry 4.0 and Digital Transformation*

Impact on industry 4.0 to the telecommunication firm is described as digital transformation. This topic has been discussed intensively and resulted in Telco 2.0 concept (Yoon, 2007). The transformation model enables the telecommunication operator to have two sides model named Open Telco, where the partner or customer consists partner or customer (Raivio & Luukkainen, 2011) The concept of Telco 2.0 focuses on customer-centric and innovative organization to provide collaboration and open business model innovation. The basis of digital transformation is based on innovation framework (Tidd, 2015; Khan & Ali, 2017; Cossiga, 2018) where there are four types of digital transformation in telecommunication industry as follow:

1. Product or service transformation. This model is suitable to fulfil the untapped customers' needs, either partially or completely, to create innovative digital products and services, such as: Apple, Google, GO-JEK with GO-FOOD, GO-CLEAN, etc.
2. Business models/ innovation paradigms (named disruption) rely on customer experience, delivery model, and value propositions through digital technologies, such as: Uber, Amazon.com, Tokopedia and GO-JEK.
3. Business processes (named Lean Champion) increase value by leveraging the value chain through digital technologies to increase efficiency and productivity, such as: Walmart and shoopee.
4. All round positioning innovation. Its transformation is done through a combination of products, processes, and business models supported by digital technology to strengthen the position of the products and services, such as Tesla.

In telecommunication industry of established firm, the transformation could be done through integrated exploring innovation with existing core competences, there are four models of transformation for established Telco that has heavy in infrastructure investment (World Economic Forum, 2016), namely:

1. Future Connectivity provider focuses on the development ICT infrastructure to enable other enterprises and OTTs across the industry, by investing and virtualizing the network. This includes investment on software define network, cyber security and extended connectivity.
2. Beyond pipe, by integrating IoT and digital services to add value-added services. Capability in business model innovations is also required to generate new revenue in top existing infrastructure.
3. Redefining customer engagement is done through customer loyalty and mindshare to create better customer experience and to improve the service to match other industries.
4. Bridging the gap in innovation. It is done by transforming the capability of innovation model and by increasing talent capability to work in digital and collaborate to co-create value with stakeholders. This requires the capability of collaboration and co-creation partnership strategy to accelerate and leverage existing assets.

According to those elaboration on digital transformation in telecommunication industry, the innovation in business model, the customer orientation in customer experience and the role of talent development in the role of leader in assuring the transformation can play significant role in digital transformation.

## *2.2 Business Model innovation*

The main driver in industry 4.0 era is business model (Li, 2018; Prem, 2015). The digital technology enables to create business model innovation (Schwertner, 2017). Business model is complex structure involving organizations behavior to create, deliver and capture value. Business model is a process in creating value creation (Osterwalder, 2004). Business model innovation is the modification of business model to capture value creation. Business model innovations are broadly used in the value chain of businesses, including the process and integration with existing business processes (Frankenberger et al., 2013) as part of open innovation (Berglund & Sandström, 2013; Chesbrough, 2012) Business model innovations are also part of the implementation strategy in the context of sustainability for the incumbent firms (Massa & Tucci, 2014). Business model innovation plays significant role in digital economy (Lee & Vonortas, 2004) and a driver to provide two side model like Telco 2.0 digital model (Eksell & Harrestam, 2017). In addition, business model innovation has objective to create value and it is part of strategic implementation in strategic management framework (Amit & Zott, 2010, 2012; Zott & Amit, 2017). Business model innovation is a part of digital transformation, accomplished by rearranging business activities with greater value than the previous ones by optimizing new digital technology (Berman, 2012; Prem, 2015). Business model innovation is a new holistic, integrated and systematic way for organizations to provide the operation of innovations for automotive industry that has dynamic characteristics market (Abdelkafi et al., 2013)

In this study, the concept of business from Amit and Zott (2012) was used, where business model innovation is part of value creation model that has the following dimensions: content innovation, structure innovation, and governance innovation.

### *2.3 Customer Experience Orientation*

Customer experience orientation is part of incumbent firms in response to the disruptive innovation from new entries (Bradley et al., 2015). Customer experience brings the new ecosystem in industry 4.0, especially when it interacts with customer through omnichannel interaction (Weill & Woerner, 2015). In digital ecosystem, customer experience could bring significant influence on businesses as customers share on the digital platform. The customer experience has multilevel approach based on the different ecosystem and competition, which could be statistic and dynamic customer experience (Kranzbühler et al., 2018). Similar study on the size and shape of service shows that it had different impacts on customer experience (Schmitt et al., 2015). Mostly the study on customer experience will broadly combine the customer's cognitive, emotional, initial, social, and spiritual responses to all interactions with the company (Bolton, 2016; Brakus et al., 2009; Lemon & Verhoef, 2016). Since customer experience is a part of the personal cognitive, the development of personalization becomes an important aspect in digital disruption as impact of the technology implementation (Henfridsson et al., 2014). The customer experience is part of virtualization to encourage the customer experience and virtual social connectivity supported by digital technology (Parise et al., 2016).

Customer experience is different with customer relation (Meyer & Schwager, 2007). Customer Experience Management (CEM) includes multidimensional and personalized experiences to customers, as it is a multiple of experiences rather than a one-time experience, and it includes customer relation. Digital technology through virtualization can encourage customer experience (Parise et al., 2016). In retail business, customer experiences can be categorized along the lines of the retail mix (i.e., price experience, promotion experience) (Schmitt, 1999). Based on the aforementioned literature review, in this research, customer experience was measured by the dimensions that include price and promotion, CRM and data analytics, trust and personalization, and also brand performance.

### *2.4 Digital Leadership*

The role of leader is important in assuring and driving the transformation and propelling the change in Industry 4.0 (Li et al., 2016). Digital leadership is a combination of transformation leadership style and the use of digital technology (De Waal et al., 2016). Another study defines that digital leadership is a combination of digital competence and digital culture to drive the change and take the opportunity of digital technology (Rudito & Sinaga, 2017). According to Zhu (2015), there are five characteristics of digital leadership, namely: creative leader, though leader, global visionary leader, inquisitive leader and profound leader. The dynamic environment factor due to VUCA (volatility, uncertainty, complexity and ambiguity) factors, pushes the leader to be more creative and always thinking innovatively through in-built capability or collaboration (Sandell, 2013). The Global Visionary Leader is required to provide direction and to become an orchestra in transforming the digital business transformation. The digital technology is based on internet and cloud drive the knowledge base, hence, the leader has to have ability of inquisitive learning and has profound ability in knowledge and understand in-depth in learning and change. Therefore, based on the literature review, the dimension used for this research are creative, deep knowledge, global vision and collaboration, thinker, inquisitive.

The relationship between digital leadership and innovation in disruptive era show that digital leadership had influence on innovation (Kreutzer et al., 2017; Wasono & Furinto, 2018). The previous study found that digital leadership could influence on innovation, including developing business model. Based on this consideration, the proposed hypothesis is:

**Hypothesis 1:** Digital leadership has significant impact on business model innovation in the Indonesian telecommunication industry.

The relationship between digital leadership and customer experience shows that leadership had significant influence on customer experience (Cinquini et al., 2013; Ravichandran et al., 2016; Yoong, 2009).

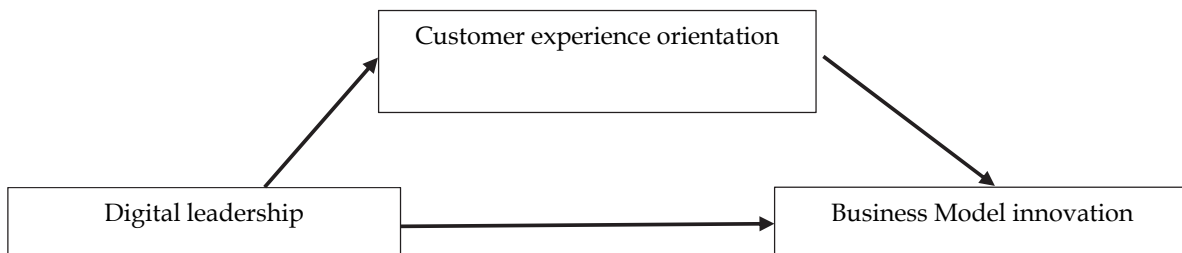
Therefore, the proposed hypothesis is:

**Hypothesis 2:** Digital leadership has significant impact on customer experience orientation in the Indonesian telecommunication industry.

Customer experience orientation has significant impact on business model innovation (Gilmore & Pine, 2002; Ramaswamy, 2011; Randall et al., 2013). Therefore, the proposed hypothesis is:

**Hypothesis 3:** Customer experience orientation has significant impact on business model innovation in the telecommunication industry.

Based on the proposed hypotheses, the research model is depicted in the following Fig. 1.



**Fig. 1.** Research Model

### 3. Methodology

This research employed quantitative research design. The unit of analysis was the telecommunications company in Indonesia, and the company management as the observed units. In specific, time horizon techniques were used, in which the data collection was carried out during February 2018. The sampling method is purposive sampling, and it involved 88 respondents from Indonesia telecommunication firms, in which 75% of them were represented by General Manager and Manager Leaders and 25% of them was VP and Board Leader. A power analysis to determine what size sample was needed. Power is related to the probability of the test that will find a statistically significant difference when such a difference actually exists. According to Hair et al. (2014), the recommended sample size is 52 respondents for the model with an endogenous construct that has 2 arrows directed, 0.05 significance level, 80% statistical power and minimum  $R^2 = 0.25$ . The sample size of this research includes 88 respondents, consisted of male respondents (88%) and female respondents (12%), which is more than the recommended sample size. Moreover, 83% respondents were from network provider, while 17% were from service providers. Data were collected via self-assessment through an online questionnaire, which was distributed through WhatsApp, Telegram and email. Since there is a limitation of data sample, the statistical a tool of analysis is SmartPLS.

### 4. Results

There are two test models: measurement model and structural model. Then, the hypothesis testing was done to measure the validity and reliability. The measurement model is related to latent variables that examines the relationship between the latent variables and their measurements. The structural model is related to latent variables and the other ones. There are 25 measurement variables (in rectangles) and 3

latent variables (in big ellipses). The independent variable is Digital Leadership, and the others are dependent variables from each latent variable, there is a path pointing to dimensions and indicators (second order). Brand performance has four indicators (BP1-BP4) as a formative model consisting a composite variable that summarizes the common variation in a collection of indicators. A composite variable is considered as independent variable. The causal action of the variables flows from the independent variables (indicators) to the composite variable. Therefore, these dimensions form Customer Experience Orientation. Measurement model was used to assess the convergent validity, discriminant validity and outer path testing. The convergent validity was used to test the value of loading factor, which must be higher than 0.6, meanwhile, the Cronbach's Alpha, Rho A and composite reliability must be higher than 0.7, then the average variance extracted (AVE) must be higher than 0.7 (Hair et al., 2014). Those figures must be higher than threshold to indicate that the all of the latent variables have good reliability and validity in all variable and dimension.

**Table 1**  
Convergent Validity

	Cronbach's Alpha	rho A	Composite Reliability	AVE
Business Model Innovation	0.942	0.950	0.953	0.720
Content Innovation	0.956	0.959	0.971	0.919
Customer Experience Orientation	0.909	0.912	0.923	0.501
Customer Relation	0.792	0.799	0.877	0.704
Digital Leadership	0.833	0.856	0.881	0.597
Governance Innovation	0.816	0.831	0.915	0.843
Personalization	0.793	0.801	0.880	0.712
Price Promotion	0.705	0.706	0.871	0.772
Structure Innovation	0.809	0.855	0.889	0.731
Brand performance	0.908	0.910	0.935	0.784

Table 1 shows that the result where AVE value was greater than 0.5, then Cronbach's Alpha, Rho A, and composite were greater than 0.7. This indicates that all variables had good reliability in all variable and dimension.

**Table 2**  
Discriminant Validity

		1	2	3
1	Business Model Innovation	<b>0.849</b>		
2	Customer Experience Orientation	0.708	<b>0.765</b>	
3	Digital Leadership	0.700	0.633	<b>0.773</b>

The discriminant variable was calculated using Fornell-Lacker criteria. The result of AVE in bold diagonal should be greater than the correlation between construct (the value of left side row). Table 2 shows that the diagonal number was higher than the correlation between construct, this indicates that it had good discriminant validity. The outer path analysis is used to test the outer loading which must be higher than 0.6 and based on the bootstrap resampling method the result of t-statistics must be higher than 1.96 for testing the model with confidence level 95%, and the p value must be less than 0.05. The bootstrap sampling involved minimum 5,000 samplings (Becker & Ismail, 2016), and the result in Table 3 shows all constructs had outer loading greater than 0.6 with t-statistics, which was more than 1.96 and the p-value was less than 0.05. This indicates each indicator was a valid measurement tool in measuring latent variables.

The structural and hypothesis testing can be done through blindfolding and hypothesis testing. The blindfolding test is used to assess the predictive relevance of model whether it is robust or not. The result of blindfolding test shows that Q2 was obtained for customer experience was equal to 0.142 and business model innovation was equal to 0.402, which were greater than zero. This indicates that the model had adequate predictive relevance. Hence, the hypothesis testing can be done.

**Table 3**  
Outer Path Analysis

	Outer Loading	T Statistics	P Values	Remarks
BP1 ← brand performance	0.892	9.186	0.000	Valid
BP2 ← brand performance	0.883	8.640	0.000	Valid
BP3 ← brand performance	0.903	15.940	0.000	Valid
BP4 ← brand performance	0.863	10.912	0.000	Valid
CRM1 ← Customer Relation	0.814	8.964	0.000	Valid
CRM2 ← Customer Relation	0.897	21.403	0.000	Valid
CRM3 ← Customer Relation	0.803	11.801	0.000	Valid
PP1 ← Price Promotion	0.872	7.909	0.000	Valid
PP2 ← Price Promotion	0.885	11.513	0.000	Valid
TP1 ← Personalization	0.851	11.714	0.000	Valid
TP2 ← Personalization	0.923	26.965	0.000	Valid
TP3 ← Personalization	0.747	6.404	0.000	Valid
Creative ← Digital Leadership	0.740	7.002	0.000	Valid
Global ← Digital Leadership	0.788	12.591	0.000	Valid
Inquisitive ← Digital Leadership	0.695	5.943	0.000	Valid
Profound ← Digital Leadership	0.797	9.078	0.000	Valid
Though ← Digital Leadership	0.837	9.275	0.000	Valid
CI1 ← Content Innovation	0.949	23.174	0.000	Valid
CI2 ← Content Innovation	0.964	54.193	0.000	Valid
CI3 ← Content Innovation	0.963	40.309	0.000	Valid
SI1 ← Structure Innovation	0.920	20.424	0.000	Valid
SI2 ← Structure Innovation	0.935	29.657	0.000	Valid
SI3 ← Structure Innovation	0.686	6.168	0.000	Valid
Gove1 ← Governance Innovation	0.905	24.314	0.000	Valid
Gove2 ← Governance Innovation	0.932	40.114	0.000	Valid

Fig. 2 shows the result of bootstrapping testing, which was used to measure the hypothesis testing. The result of hypothesis testing is presented in Table 4. The direct effect test shows that the relationship between digital leadership and business model innovation had a path coefficient score of 0.360 with t-statistics = 2.54 and p-value = 0.010 < 0.05. This means that  $H_0$  was rejected and  $H_1$  is accepted which means that digital leadership had significant impact on business model innovation. The second assessment is the relationship between digital leadership and customer experience orientation, which had a path coefficient score of 0.633 with t-statistics = 8.181 and p-value = 0.000 < 0.05. This means that  $H_0$  was rejected and  $H_1$  was accepted. It indicates that digital leadership had a significant impact on customer experience orientation. While the relationship between customer experience orientation and business model innovation yield a path coefficient score of 0.537 with t-statistics = 3.786 and p-value = 0.000 < 0.05. This means that  $H_0$  was rejected while  $H_1$  was accepted. There was a significant impact of customer experience on business model innovation.

**Table 4**  
Hypothesis Testing Result

Hypothesis	Path Analysis	Path	Standard Deviation	T Statistics	P Values	Result
Direct Effect Test						
H1	Digital Leadership → Business model innovation	0.360	0.140	2.564	0.010	Significant
H2	Digital leadership → Customer Experience Orientation	0.633	0.077	8.181	0.000	Significant
H3	Customer experience Orientation → Business Model	0.537	0.142	3.786	0.000	Significant
Indirect Effect Test						
	Digital leadership → customer experience orientation	0.340	0.112	3.038	0.002	Significant

The indirect effect test shows that the mediating role of customer experience orientation had a path coefficient score=0,340 with t-statistics = 3.038 and p-value = 0.002. This means that  $H_0$  was rejected and  $H_1$  was accepted. This proves that customer experience orientation had supportive impact as mediating role on relationship between business model innovation and digital leadership.



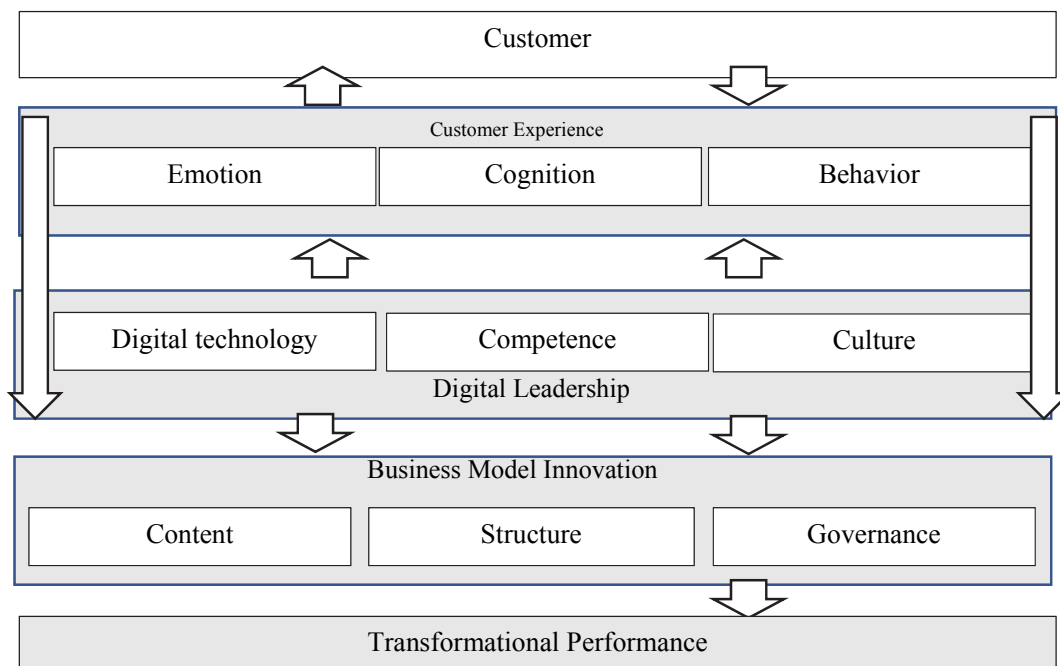
Fig. 2. Complete of Research Model Result

## 5. Discussions

In Industry 4.0 era, the Upper Echelon Theory (Hambrick & Mason, 1984) is still relevant. The digital leadership plays significant role in driving the organization transformation as impact of disruption technology and innovation for incumbent firms (Christensen & Bower, 1996; Markides, 2006). The finding shows that the digital leadership had direct and indirect influence on business model innovation as part of digital transformation (Berman, 2012; Li, 2018; Prem, 2015). The finding shows that digital leadership was formed by global, profound, creative and tough characteristics, which is aligned with the phenomenon change in Industry 4.0, where the ecosystem of firm is required to be more innovative, standardized, modular, interoperable, decentralized, real-time, and service-oriented (Ibarra et al., 2017). In digital era, the digital leader should act in global mind set to interconnect each other and to be more creative to support the innovation culture in respective firms. They should always think the new way in doing business and they have deep and profound knowledge in taking risk and making decision to make the firm more innovative, modular and decentralized. In other words, the digital leaders should facilitate the firms' digital capability to be integrated in the development of culture and competence (Rudito & Sinaga, 2017). The role of digital leadership should drive innovation in optimizing the digital technology (De Waal et al., 2016). This finding shows that incumbent firms should implement digital leadership to establish good customer experience (Cinquini et al., 2013; Ravichandran et al., 2016; Yoong, 2009) and to create business model innovation (Kreutzer et al., 2017; Wasono & Furinto, 2018; Wasono et al., 2018). The finding of Customer Experience Orientation shows strong relationship in the development of business model innovation in industry 4.0. This indicates that due to the digital disruption the customer becomes the important factors in sustaining competitive advantage. In this digital era, customer experience becomes



the input of the development of value chain to develop business model innovations. With a strong reputation, firms can control and attract valuable customers and stakeholders to create more value in a series of activities. The development of strong customer relation is considered in personalizing customer requirement. This finding emphasizes the importance of personalization due to digital technology and virtualization (Henfridsson et al., 2014; Parise et al., 2016). The interesting part of this finding is that price in the development of customer experience was less prioritized in Industry 4.0. It indicates that during the digital era, customer experience can be prioritized with strong customer relationship and personalization. In other words, when customer experience is fulfilled by the firm, the customer would not consider the price and the brand of the firm. Business model innovation is formed by structure and content innovation. This is in line with the previous study that the development of business model is supported by value creation or it can be commercialized by creating future cash flow (Basceanu, 2014; Cinquini et al., 2013; Zott & Amit, 2017). Meanwhile, the government is still considered important, but in less priority, compared to content and structure of innovation, since in the development content and context of business model innovation, the government innovation is the part integrated in the process of business model innovation. In indirect test, it shows that customer experience plays as an intervening variable in the relationship between business model innovation and digital leadership. This finding supports the findings in previous studies that leadership through collaboration will strengthen innovation in business model (Gilmore & Pine, 2002; Ramaswamy, 2011; Randall et al., 2013). This finding has implication the important of the firm in digital transformation model to strengthen digital leadership as presented in Fig. 3. Digital leadership becomes a central on transformation with supported digital technology, the digital leader's competence and culture drive the transformation based on vision and ambition.



**Fig. 3.** The role of Digital leadership in Digital transformation

To implement the transformation and to assure that the performance management is on track, the digital maturity of the firm is an important part. The base of digital transformation is business model innovation, which could be formed by customer experience, digital innovation, and ecosystem development. This model is set up based on the concept of disruption innovation where incumbent firms could not perform the innovation in business model because they were losing focus to customer. In the digital era, it is not only about the customer, but also the development of ecosystem in the integration path of transformation (Kane et al., 2017; Valdez-de-leon, 2016)

## 6. Conclusions, limitation & Future Research

### 6.1 Conclusion

Based on the results of hypotheses testing, it can be concluded that digital leadership had direct and indirect impact on business model innovation. Indirect paths were mediated by customer experience orientation. This finding has implication on the digital transformation model where the digital leader played significant role in assuring the digital transformation based on their vision and ambition, performance management based on digital maturity and the development of fundamental firm based on digital operational excellence and digital culture.

### 6.2. Limitation & Future Research

This is an exploratory research that has limited variables: time and sample. Hence, further study is suggested to extend the following recommendation: (1) to study more variables in the digital transformation contexts, (2) to extend the number of sample of telecommunication companies in Indonesia, (3) to provide better modelling and statistical analysis based on Covariance Based better statistical application; and (4) and to conduct longitudinal research based on the firm that are already in the stage of digital transformation.

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