

# Business Innovation: Implementation Digital Transformation and Digital Leadership in Era Industrial Revolution 4.0

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**Abstract**—Some time later, the world economy experienced changes. The economic growth of the United States is estimated to remain strong. During the monetary crisis in 1998, the current state of the global economy had no effect on Cooperatives and SMEs. The reason is because at that time almost no SMEs borrowed money from foreign parties. However, this does not apply today. The contact of SMEs with foreign exchange is the cause. Besides that, SMEs in Indonesia also have problems with financial access and access to markets, namely the difficulty of adapting to technological advancements. Technological advances have touched on the development of digital with artificial intelligence components that can only be done if SMEs do Digital Transformation. SMEs must pay attention to their determinants of success, namely technological excellence, IT Capability, and IT Alignments with Business. These factors will be more quickly controlled and fulfilled if SME leaders have good vision and a strong understanding of Digital transformation. This research used causal study with a quantitative approach. Causal research is research that analyzes causal relationships between variables that are independent variables and dependent variables. If the SME leadership is able to support the Digital transformation process that is carried out, then SMEs will be able to carry out business innovations that can grow rapidly. This will make SMEs have the ability to compete and certainly contribute to the nations economy.

**Keywords**— *Technological Excellence, Digital Leadership, Business Innovation*

## I. INTRODUCTION

The world economy has changed dramatically. The economic growth of the United States is still stable. On the other hand, economic growth in emerging market and European countries is not stable. During the monetary crisis in 1998, the current state of the global economy had no effect on Cooperatives and SMEs. The reason is because at that time almost no SMEs borrowed money from foreign parties. With the enactment of normalization of American monetary policy that has an impact on the strengthening of the US dollar, the global economic turmoil that occurred has made SMEs in Indonesia experience the impact. The contact of SMEs with foreign exchange is the cause (Anonymous, 2018).

Even though SMEs will be affected, it is nothing to worry about. According to Ryan, Indonesian entrepreneurs have experience in navigating the flow of economic dynamics, so that the impact that will be felt is not too large. The good purchasing power of the people also plays a role in maintaining the stability of the Indonesian economy, especially in the case of SMEs. This can be seen from the level of household consumption in the third quarter of 2018 which reached around 5.01 percent. Meanwhile, previously it was higher, which touched 5.14 percent in the second quarter (Anonymous, 2018).

However, this condition can change dramatically in 2019. Given that, in 2019 the world has entered the Industrial Revolution 4.0 era, which is not necessarily all SMEs are ready to deal with. In the process, many large companies are currently having difficulties implementing. Therefore, efforts to introduce, as well as increase the level of small and medium enterprises to adapt in the industrial era 4.0 still have severe challenges (Roeslani, 2018).

Small and medium-sized businesses in the country which currently involve approximately 59 million people. With that great potential, its development efforts must be a top priority for the government and its businessmen. Therefore, technological changes that are so fast not only bring positive aspects, but can also be the opposite. So, a special strategy is needed that is able to bridge the transition process (Roeslani, 2018).

Because currently SMEs in Indonesia also have problems with financial access and access to markets, the biggest obstacle faced is the difficulty of adapting to technological progress. Current technological progress is not just about device updates, but also has touched on digital development with artificial intelligence components that can only be done if SMEs carry out Digital Transformation. Digital transformation itself has meaning as a profound and comprehensive change in the company to maximize the use of digital technology to improve the efficiency and effectiveness of all activities that contribute to the achievement of company goals (Ganguly, 2015; Kwon & Park, 2017).

However, it is certainly not easy for an UKM to do Digital Transformation, because SMEs must really pay attention to the factors that determine their success, including technological excellence, IT Capability, and IT Alignment with Business. These factors will be more quickly controlled and fulfilled if SME leaders have good vision and a strong understanding of Digital transformation, but if the opposite is the case, the SME leadership will actually be a thing that weakens the process of going towards Digital transformation itself (Kwon & Park, 2017; Nwankpa & Roumani, 2016; Rastislav & Silvia, 2015; Sow & Aborbie, 2018).

If the leadership carried out by SMEs is able to support the Digital transformation process that is carried out, then SMEs will be able to carry out business innovations that can develop rapidly. This will make SMEs have the ability to compete and certainly contribute to the nation's economy (Rastislav & Silvia, 2015). Companies that are able to carry out innovations, whether in the form of development or creation, tend to be companies that are able to survive through continuous improvement in performance (Nwankpa & Roumani, 2016).

Digital transformation can be measured based on the use of digital technology in business to provide digital experience to customers, digitizing operational processes, and the ability to drive digital business models. CEO Digital Leadership can be measured based on the accuracy of decisions taken by the CEO in the digital transformation process, for example in the form of vision, regulation, empowerment of human resources, and technology investment decisions (Kwon & Park, 2017).

IT expertise refers to the ability, experience, and knowledge related to the field of digital technology that can contribute greatly to effective decision making for the development of corporate informatization. IT Capability is the company's ability to formulate and implement IT-based resources combined with other company resources.

Conformity between IT and business in practice is not only useful for anticipating this, but in depth is able to encourage increased competitiveness of companies through value creation in the form of reducing costs and increasing business profits that the company can obtain.

The 4.0 industrial revolution itself is currently starting to take place. This is evident in the emergence of trends that combine automation technology with cyber technology which includes the scope of cyber-physical, Internet of Things (IoT), Cloud Computation and Cognitive Computation.

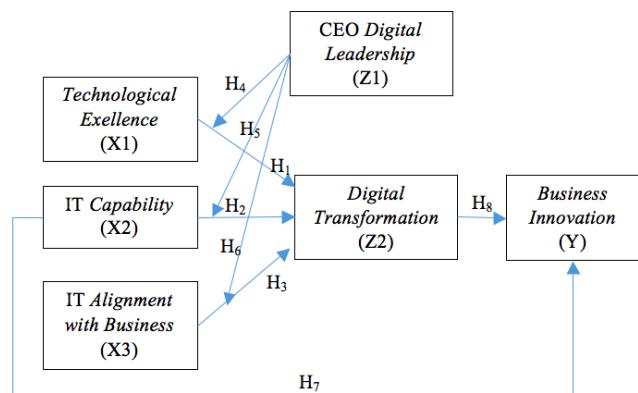


Fig. 1. Conceptual Framework

#### Research Hypothesis

- H1: Technological Excellence has a significant effect on Digital Transformation
- H2: IT Capability has a significant effect on Digital Transformation
- H3: IT Alignment with Business has a significant effect on Digital Transformation
- H4: CEO of Digital Leadership moderates the influence of Technological Excellence on digital transformation
- H5: CEO of Digital Leadership moderates the influence of IT Capability on digital transformation
- H6: CEO of Digital Leadership moderates the influence of IT Alignment with Business on digital transformation
- H7: IT Capability has a significant effect on Business Innovation
- H8: Digital Transformation has a significant effect on Business Innovation

## II. METHODS

### A. Types of research

This research is a causal study with a quantitative approach. Causal research is research that analyzes the causal relationship between variables that are influential (independent variables) and variables that are affected (dependent variable). The approach used is quantitative, which is an approach that uses static methods to analyze research data in the form of numbers. The results of the analysis are presented in the form of a description of the data and the results of the static tests used to answer the hypotheses developed in the study (Sugiyono, 2012).

### B. Population

The population used in this study consisted of all SMEs in Surabaya. Based on an unknown population, the determination of the number of research samples is based on the calculation of the sample for unknown population as follows:

$$n = \frac{Z^2}{4M^2}$$

$$n = 96.4 = 96 \text{ respondents}$$

Thus, the total sample of this study was 96 SME owners in Surabaya. Each of these SMEs will be represented by the owner in answering questions posed by researchers in the research data collection instrument.

### C. Data Analysis

The research data that has been collected using a questionnaire will then be analyzed using the static method with the help of SPSS and SEM PLS programs. The SPSS program will be used for descriptive data analysis while PLS SEM will be used to test the research model and hypothesis (Ghozali, 2014).

### D. Data Collection Instrument

The research data was collected using an instrument in the form of a questionnaire that will be distributed to respondents via e-mail. The statement in the research questionnaire was arranged based on operational variables as follows:

### III. RESULTS AND DISCUSSION

The significance test on the SEM model with PLS aims to determine the effect of exogenous variables on endogenous variables. Hypothesis testing with SEM PLS method is done by doing the bootstrapping process with the help of a smartPLS 2.0 computer program in order to obtain the relationship of the influence of exogenous variables on endogenous variables. Based on the table II, it can be seen that the test results show results above the required critical value of 1.96, there are only two hypotheses that show critical values that are below the critical value required. The results are as follows:

1. Technological Excellence has proven to have a significant influence on digital transformation. Technological excellence is the achievement of new technology and the success of its use in creating business innovation, increasing IT expertise, and developing IT strategic roles in MSMEs, so that the better utilization of technology in these MSMEs, the greater the success of digital transformation in MSMEs (Kwon & Park , 2017).

TABLE I. OPERATIONAL VARIABLE

Variabel	Dimension	Indicator
<i>Technological Excellence (X1)</i>	IT expertise	1. The existence of IT is able to support more effective decision making 2. The use of IT is able to encourage increased knowledge of all components of the company
	Strategic role of IT	3. IT plays a major role in the creation of new products 4. IT utilization is the basis for developing product quality 5. Based on the implementation of the IT role, the competitiveness of the company becomes increasingly high
<i>IT Capability (X2)</i>	IT Infrastructure Capability	6. Management of company data is very good 7. Communication channels within the company run well 8. The company's IT facilities are in good condition
	IT Business Spanning Capability	9. There is careful planning to increase IT contributions for the company 10. Management has formulated a strategy to integrate business plans and IT plans 11. IT process planning has been made flexible but mature
	IT Proactive Stance	12. The company always strives to develop IT by following the latest technological developments 13. Companies are able to continue to innovate in the IT field as needed 14. The company has a conducive climate that supports trials of using IT in new ways 15. The company always seeks new ways to improve the effectiveness of IT use
<i>IT Alignment with Business (X3)</i>	IT applications that are in line with company goals, business strategies and needs, and sharing information	16. The application of IT is always adjusted to the goals the company wants to achieve 17. IT implementation is always integrated with business strategies and needs 18. Application of IT is also intended to improve the process of sharing information within the company
<i>CEO Digital Leadership (Z1)</i>	Accuracy of decisions taken by the CEO in the digital transformation process, for example in the form of vision, regulation, empowerment of human resources, and technology investment decisions	19. The company's CEO has set a clear vision regarding the use of IT in supporting business operations 20. The CEO of the company manages IT utilization well 21. The company's CEO has formulated the concept of empowering the right human resources to improve IT utilization 22. The CEO of the company has set sufficient investment to increase the effectiveness of IT use
<i>Digital Transformation (Z2)</i>	The use of digital technology in business to provide digital experience to customers, digitizing operational processes, and the ability to drive digital business models	23. The company is implementing new business processes that are built based on digital technology, such as big data, social media platforms, mobile 24. Companies are integrating digital technology, such as social media, big data, and mobile technology to accelerate change 25. Companies are aiming to increase the use of digital technology
<i>Business Innovation (Y)</i>	Old product development and creation of new products	26. The company is able to develop products better thanks to the support of the digital technology used 27. Companies are able to create new products more easily through the utilization of the role of digital technology in the company

2. IT Capability has proven to have a significant influence on digital transformation. IT Capability is the company's ability to formulate and implement IT-based resources combined with other company resources. IT Capability does not only refer to aspects of technological capabilities, but also relates to all aspects or components within the company, which together form IT resources, along with related capabilities and knowledge that are the basis for the company to coordinate and achieve expected results (Nwankpa & Roumani, 2016). That is, if the existence of IT on MSMEs has good capabilities, then changes in MSMEs that lead to the use of digital technology to improve the efficiency and effectiveness of all activities that contribute to the achievement of company goals will be achieved.
3. The existence of IT in a company becomes one of the main resources that are expected to play a major role in efforts to achieve the company's business goals. Therefore, there must be conformity between the aspects of IT and the business of the company, that the strategy, goals and needs of the business must be synergized with IT in order to be able to implement IT at the right time and always in accordance with the main priorities of management (Kwon & Park, 2017). That is, if the business needs of MSMEs can synergize well with the existence of IT that is utilized, it will increasingly be able to support changes in MSMEs to be more effective and efficient because they have adopted digital technology.

TABLE II. BOOTSTRAPING DATA

Hypothesis	Effect	t-Result	Results
H1	Technological Excellence has a significant effect on Digital Transformation	2,694060	Proven
H2	IT Capability has a significant effect on Digital Transformation	3,218237	Proven
H3	IT Alignment with Business has a significant effect on Digital Transformation	2,046217	Proven
H4	CEO of Digital Leadership moderates the influence of Technological Excellence on digital transformation	2,601296	Proven
H5	The CEO of Digital Leadership moderates the influence of IT Capability on digital transformation	0,935092	Not Proven
H6	CEO of Digital Leadership moderates the influence of IT Alignment with Business on digital transformation	0,469569	Not Proven
H7	IT Capability has a significant effect on Business Innovation	2,215806	Proven
H8	Digital Transformation has a significant effect on Business Innovation	2,464335	Proven

4. The CEO of Digital Leadership is proven to be able to significantly moderate the influence of technological excellence on digital transformation. This shows that with a MSME having a leader who is able to initiate a company change that leads to a digital basis, the company will be more mature in preparing and planning the use of technology in its company quite mature, and in the end will be able to do digital transformation perfectly (Kwon & Park, 2017).
5. The CEO of Digital Leadership is not proven to significantly moderate the influence of IT Capability on digital transformation. This reflects that even though a leader has a vision and is able to initiate a change in the company towards a digital base with the support of cutting-edge technology, if the capacity of IT resources is not sufficient, digital transformation will not run smoothly (Nwankpa & Roumani, 2016).
6. The CEO of Digital Leadership is not proven to significantly moderate the influence of IT Alignment with Business on digital transformation. This represents the leader in the company has not been fully able to run the operation of the company in accordance with the expected business objectives. This causes an imbalance between IT and business strategy that causes digital transformation to be carried out that cannot run optimally. In the event of such conditions, the company may experience a large loss because the IT development
7. that is owned turns out to be unable to be implemented maximally and is unable to provide the expected contribution in achieving business goals (Kwon & Park, 2017).
8. IT Capability has proven to have a significant influence on Business Innovation. This shows that with the presence of good IT capabilities in the company, the company will increasingly be able to maneuver in realizing its business innovation. Companies that are able to carry out innovations, whether in the form of development or creation, tend to be companies that are able to survive through continuous improvement in performance (Nwankpa & Roumani, 2016).
9. Digital Transformation has proven to have a significant influence on Business Innovation. This shows that when a company is able to do digital transformation well, then the company indirectly has made an innovative effort. With the higher level of innovation of a company, the MSMEs will become companies that are able to compete and improve their business performance (Nwankpa & Roumani, 2016)

#### IV. CONCLUSION

Based on the results of the tests and discussions that have been presented in advance, it can be concluded that:

1. The first hypothesis which states that technological excellence has a significant effect on digital transformation can be proven to be true.
2. The second hypothesis which states that IT alignment with business has a significant effect on digital transformation can be proven true.

3. The third hypothesis which states that IT alignment with business has a significant effect on digital transformation can be proven true.
4. The fourth hypothesis which states that the CEO of digital leadership moderates the influence of technological excellence on digital transformation can be proven to be true.
5. The fifth hypothesis which states that the CEO of digital leadership moderates the influence of an IT capability on digital transformation cannot be proven to be true.
6. The sixth hypothesis which states that the CEO of digital leadership moderates the influence of IT alignment with business on digital transformation cannot be proven to be true.
7. The seventh hypothesis which states that IT Capability has a significant effect on Business Innovation can be proven to be true.
8. The eighth hypothesis which states that digital transformation has a significant effect on business innovation can be proven to be true.

## V. SUGGESTIONS

Based on the conclusions above, suggestions can be given as follows: First, based on the fact that the CEO of Digital Leadership is not proven to be able to moderate the influence of technological excellence and IT alignment with business on digital transformation, it is recommended that UMKMs want to carry out digital transformation so set high standards in the field of technology understanding and technology-based business strategies for leaders to plan business, technology procurement and technology utilization that are relevant to the company's business objectives, so that there is no imbalance in the process of operationalization.

Secondly, the value of R<sup>2</sup> obtained can be said to be quite small, which indicates that there are still many other variables that might influence digital transformation and innovation business, so further research can be suggested to add independent variables that can influence both.

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