

Implementation of Business Sustainability in Jakarta's Micro Small Medium Enterprises

Alexander Adinata; Fabien Nicholas Sutedja; Haryadi Sarjono
BINUS Business School Undergraduate, Management Department

Bina Nusantara University, Jakarta 11480, Indonesia.

Alexander.adinata@binus.ac.id; Fabien.Sutedja@binus.ac.id; haryadi_s@binus.ac.id

Abstract

The Industrial Revolution 4.0 is directly related to the digital transformation process, and this is because digital transformation is one of the efforts to participate in the 4.0 industrial revolution and is the topic of discussion in this research. The research aims to become a means of information for MSMEs that will carry out digital transformation and as a reference for MSMEs that have not yet carried out digital transformation. The data analysis technique in this study uses the Partial Least Square (PLS) approach, one of the Structural Equation Modeling (SEM) equation models. The data analysis technique in this research is path analysis. The research data was collected using an online questionnaire and distributed using accidental sampling and snowball sampling techniques, so that 393 respondents were collected. The results of this study indicate that the variables of customer, competition, and innovation (financial technology), which are the dimensions of digital transformation, have a significant positive influence on business sustainability. Meanwhile, Big Data Usage as a moderator does not have a positive and significant effect on the relationship between the customer variable and business sustainability and the relationship between the competition variable and business sustainability. It can be concluded that the variable of Big Data Usage as a moderator weakens the relationship between the customer or competition variable and the business sustainability variable. The results of this study found that digital transformation can help MSMEs in Jakarta achieve business sustainability, but Big Data Usage has not been utilized properly.

Keywords

Digital Transformation, Big Data Usage, Business Sustainability, Industry 4.0, Financial Technology

1. Introduction

The presence of online-based businesses poses a threat to several industries in Indonesia that are still operating offline. Today, businesses and industries face challenges in transforming into digital business operations. Several business sectors started implementing the 4.0 industrial revolution in their systems. Herman (2016) says that the Industrial Revolution 4.0 is an era of digital industry where all parts of it collaborate and communicate in real-time anywhere at any time with the use of IT (Information Technology) in the form of the internet and CPS (Cyber-Physical Security), IoT (Internet of Things) and IoS (Internet of Services) to produce new innovations or other optimizations that are more effective and efficient. The Industrial Revolution 4.0 is directly related to the digital transformation process, and this is because digital transformation is one of the efforts to participate in the 4.0 industrial revolution. Currently, the number of MSMEs that carry out digital transformation is still relatively small. The results of data taken via CNN Indonesia in 2021 show that there are 64 million MSMEs in Indonesia, but only 13.7 million have carried out digital transformation. This result is relatively low. This study focuses on Micro, Small, and Medium Enterprises (MSMEs) which are conducting digital transformation in Indonesia. This study focuses on DKI Jakarta Province, which is the nation's capital, and the province of the country's economy. As the country's economic area, many MSMEs are domiciled in the DKI Jakarta province. The following are the number of MSMEs registered with the Ministry of Cooperatives and Small and Medium Enterprises of the Republic of Indonesia:

Table 1. Number of MSMEs in Each City in DKI Jakarta Province

City	Number of MSME's
South Jakarta	210.022 Unit
East Jakarta	240.512 Unit
Central Jakarta	138.304 Unit
West Jakarta	272.761 Unit
North Jakarta	197.179 Unit

Source: <http://umkm.depkop.go.id/> (2022)

Given the increasingly rapid technological developments and the 4.0 industrial revolution, the total number of MSMEs that have carried out digital transformation is relatively tiny. Digital transformation is a new concept that looks different for every company. This is about changing business models to be able to continue business in the digital era. According to Rogers (2016), digital transformation is divided into four dimensions that change business strategy to digital: Customer, competition, data, and innovation (Fintech). It is also supported by Rogers (2016) and Hilali et al. 1 (2020) opinions of other authors who find that customer-centricity, innovation capability (Fintech), operational excellence using data capabilities, and competitive mindset are the keys to successfully transforming companies digitally to remain competitive in the future.

Utilization of data that plays an important role will make this variable a that will be used as a comparison between the accuracy of its function as a moderator (supporter) of the relationship between the customer variable (Consumer) and competition (Competition) on the sustainability of the MSME business. This study uses financial technology variables in the innovation dimension because the notion of innovation is relatively broad. Therefore, we decided to narrow the scope of the innovation variable to fintech. In addition, the development of fintech in Indonesia has increased significantly, and the use of fintech is increasingly being found in MSMEs. According to (Al Hammadi, 2019) and (Jamil. N, 2019), FinTech is considered a new thing in the business field. Therefore further research needs to be done in order to get maximum results.

1.1 Research Question

1. Does digital transformation help MSMEs maintain their business sustainability?
2. Does using Big Data as a moderating variable strengthen the relationship between the independent and dependent variables?

1.2 Objectives

This study aims to determine the effect of Digital Transformation on Business Sustainability and the effect of using Big Data as a moderator variable in influencing the independent variable on the dependent variable.

1.3 Research Purpose

Based on the research objectives that have been stated above, this research aims to determine the effect of Digital Transformation on Business Sustainability and the effect of using Big Data as a moderator variable in influencing the relationship between the independent variable and the dependent variable.

2. Literature Review

2.1 Business Sustainability

According to (World Commission on Environment and Development, 1987), sustainability means development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Therefore, sustainability aims to secure intergenerational equality. The term sustainability is closely related to sustainable development, corporate social responsibility, and long-term planning. Business sustainability is generally defined as a business approach that is divided into four dimensions: (1) Corporate Identity, (2) Economic, (3) Social, and (4) Environmental (Alcívar et al., 2020).

In society, most people want to enjoy life as well as their parents, and they want their children to enjoy life with equal opportunities. This logic has something in common with businesses and corporations. Most managers want their business to be at least as profitable as it was in the past, and, ideally, the profits earned by

the company can grow. Based on this logic, business sustainability can be defined as the company's ability to respond to its short-term financial needs without compromising its (or others') ability to meet its future needs (Bansal & DesJardine, 2014). To achieve sustainability, companies must make and manage various investments to secure short-term profits and long-term revenue streams. Large companies, companies must start investing in technology and systems so that the company can continue to grow in the future.

2.2 Digital Transformation

The rapid development of information technology makes all organizations engaged in business have to start switching to digital. The meaning of the word digital itself, according to the KBBI, is something related to numbers for specific calculations. The changes mentioned are also known as transformations. According to the KBBI, transformation is a change from one grammatical structure to another by adding, subtracting, or rearranging its elements. Derived from the KBBI understanding, it can be concluded that digital transformation in business is a change in the organizational structure of a company that previously did not use a computer system, to use a computer system.

Digital transformation changes include central transitions in its business processes and strategies, enterprise capabilities, and operational routines. The rapid development of information technology makes all organizations engaged in business have to start switching to digital. To optimize the performance of an organization in the development and implementation of digital transformation, it is necessary to have a mature plan in the change process. The precise definition introduced by Hess, T et al. (2016) highlights the fact that digital transformation is concerned with "the changes that digital technology can make to a company's business models, products, processes, and organizational structures." Rogers (2016) identified four dimensions of a digitally transformed strategy: customer, competition, data, and innovation (Fintech). The innovation referred to in this paper focuses on Fintech, which is currently being discussed. This was also discussed by Uhl and Gollenia (2016). The authors found that customer-centricity (Consumer), innovation capabilities (Fintech), operational excellence using data capabilities, and a competitive mindset (Competition) are the keys to transform companies to remain competitive in the future successfully digitally.

2.2.1 Competition

Digital Business Transformation is the application of technology to build new business models, processes, software, and systems that generate more profitable revenue, tremendous competitive advantage, and higher efficiency (Mauborgne & Kim, 2017; Schwertner, K 2017). The topic of digitization and business model transformation is critical to building competitive advantage and maintaining local and international market competitiveness for all organizations. Only companies that manage to adapt to digital changes in a relatively short time can survive in the market (Kostić, 2018).

2.2.2 Customer

According to Greenberg (2008), a Customer is an individual or organization that buys products or services at their discretion, such as quality, location, price, and service. Customer is one of the main variables of digital transformation, according to Rogers (2016). Feedback from customers can become data and become a reference for company development in carrying out digital transformation. In the digital era, customers can collaborate and contribute to funding (through crowdsourcing), product creation, and variation. Crowdsourcing is the ability to gather a large group of people around a company's brand and make that group work to develop products and/or provide solutions (Sheehan, 2010). With crowdsourcing, customers can participate in the sustainability of a company's business by providing ideas or feedback to the company.

2.2.3 Financial Technology

Fintech is an abbreviation of "financial," which means finance, and "technology," which means technology. In simple terms, financial technology is a financial system that is assisted by technology in its operation. Meanwhile (Gomber, P et al. 2017) said that the definition of FinTech, in general, is "the connection of modern technology related to the Internet with the business activities of the financial services industry (for example, money lending and banking)." FinTech is an innovation as well as a nuisance in the financial sector that utilizes modern technology, especially on the internet (Gomber, P et al., 2017). The FinTech concept aims to reduce financial transaction costs and improve process efficiency in the financial sector (Awotunde, J.B et al., 2021). FinTech aims to reorganize how well the structure, and conditions and adapt to customer demands in the financial services sector (Awotunde, J.B et al. 2021).

2.2.4 Data

In today's digital era, the expression "Database is a new oil" reveals that data is a form of wealth that drives the information age and digital economy (Mohieldin, 2019). Data is a breakthrough in the business world and is a strategic asset (El Hilali et al., 2020). Information and data are crucial in the future. Big Data is an

important term in question. This term changes the meaning of data, what information can be obtained from data, and the use of data for company growth (Kubina et al., 2015). One of the business challenges in this era is how to get information and data as quickly as possible on the right target, in an efficient time, in an easy way. Internet is considered to play a vital role. Based on data released by We Are Social in 2021, Indonesia has 202.6 million people who actively use the internet out of 274.9 million recorded Indonesian population. Thus we can conclude that currently, anyone, anytime and anywhere, can use the internet. The internet increases the ease of retrieving information and data for the public.

2.2.4.1 Big Data

Big Data refers to a collection of data whose size exceeds the capabilities of ordinary database software to capture, store, manage and analyze (Manyika et al., 2011). The characteristics of Big Data are divided into 4, namely; Volume, Velocity, Variety, and Value (Kal et al., 2013). Volume, or in other words, the amount of data, is the main attribute of Big Data. It can be described as physical capacity, measured in terabytes, or measured by the number of records, transactions, tables, or files (Kubina et al., 2015). Velocity means the speed at which data is being formed and must be handled quickly in a timely manner (Cai et al., 2015). Variety means that Big Data has various types of data stored. Data types can be divided into two, namely, structured data, which is data that is easier to process because it uses a query language so that it can be processed using SQL and the like. In contrast, unstructured data is data that does not conform to a particular format, so it is difficult to process, for example, data in the form of pictures or videos (Maryanto, 2017). Value represents the value of data. The larger the scale of the data, the data is relatively less valuable (Cai et al., 2015).

3. Methods

This research approach is carried out quantitatively-associatively. Collecting data using a survey method with a questionnaire and then distributed online. In addition, the period used in this study was cross-sectional. The data analysis technique in this study uses path analysis with the PLS-SEM method. This study uses the PLS-SEM method because the PLS method can help determine the complexity of the relationship between one variable and another, along with the relationship between one variable and its indicators which are defined by two equations, namely the inner model and the outer model (Shandyastini, 2016). This study using PLS-SEM was created on the basis of its ability to estimate causal relationships among all latent constructs simultaneously while dealing with measurement errors in structural models (Hair et al., 2016). In addition, another reason for choosing PLS as a data analysis technique is because PLS is suitable to be used when predicting a large number of independent variables. In accordance with this study has a large number of variables (Sarstedt et al., 2016).

3.1 Partial Least Square

The PLS method can help determine the complexity of the relationship between one variable and another, along with the relationship between one variable and its indicators which are defined by two equations, namely the inner model and the outer model (Shandyastini, 2016). For this reason, the research stages will begin with testing the outer model then, followed by testing the inner model with further explanation below;

3.1.1 Outer Model

Ghozali (2016) stated that at the testing stage, the measurement of a model involves measuring Convergent Validity, Discriminant Validity, and Construct Reliability and Validity. It can be concluded that a hypothesis can be tested using Partial Least Square after passing the three test measurements

3.1.2 Inner Model

The inner model is a model that describes the relationship between components or latent variables. This relationship is also based on specific theories or assumptions (Juliandi, 2018). It is necessary to test the model using the bootstrapping method. T-Statistics and P-Values are needed to find out the results of the hypotheses that need to be considered.

3.2 Frame of Mind

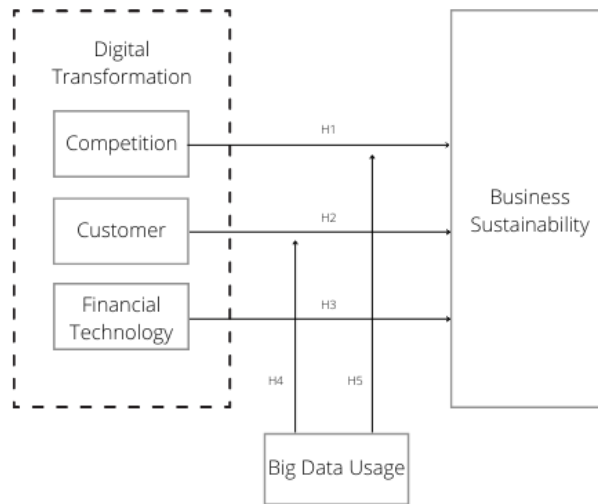


Figure 1. Frame of Mind

Source: Writer (2022)

3.3 Hypothesis

The researcher collected several journals with the keywords Competition, Customer, FinTech, Business Sustainability, Data, and Digital Transformation. Then the researchers got several hypotheses as follows:

Hypothesis 1: Competition in the digital era positively affects Business Sustainability.

Hypothesis 2: Customers in the digital era positively influence Business Sustainability.

Hypothesis 3: The application of FinTech to the business model positively impacts the company's ability to survive in the face of change.

Hypothesis 4: Big Data Usage can increase the success of business sustainability by using it as a moderator of the custom variable.

Hypothesis 5: Big Data Usage can increase the success of business sustainability by using it as a moderator of the competition variable

4. Data Analysis

The data for this study were processed using the SEM method with the Partial Least Square technique, using the SMARTPLS 3.0 program to analyze the data, which consisted of two steps, namely, the inner model and the outer model.

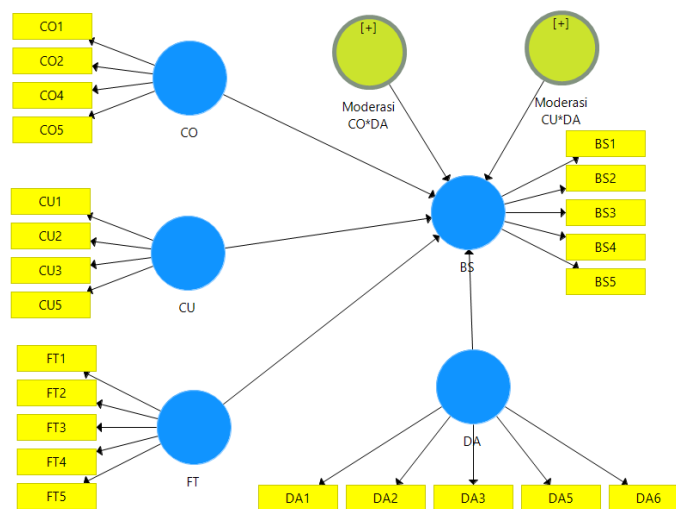


Figure 2. PLS Model Specification

Notes:

CO = Competition

CU = Customer
 FT = Financial Technology
 DA = Big Data Usage
 BS = Business Sustainability
 Source: Writer (2022)

4.1.1 Outer Model

4.1.1.1 Convergent Validity

Table 2. *Outer Loadings*

Variable	Indicator	Outer Loadings
<i>Competition</i>	CO1	0.790
	CO2	0.822
	CO4	0.764
	CO5	0.875
<i>Customer</i>	CU1	0.806
	CU2	0.782
	CU3	0.759
	CU5	0.812
<i>Financial Technology</i>	FT1	0.775
	FT2	0.788
	FT3	0.734
	FT4	0.725
	FT5	0.824
<i>Big Data Usage</i>	DA1	0.754
	DA2	0.732
	DA3	0.777
	DA5	0.786
	DA6	0.860
<i>Business Sustainability</i>	BS1	0.747
	BS2	0.796
	BS3	0.716
	BS4	0.778
	BS5	0.767

Source: Writer (2022)

4.1.1.2 Construct Reliability and Validity

Table 3. Construct Reliability and Validity

Variabel	Composite Reliability	Cronbach's Alpha	Average Variance Extracted (AVE)
Competition	0.887	0.829	0.662
Customer	0.869	0.799	0.624
Financial Technology	0.879	0.828	0.593
Big Data Usage	0.888	0.841	0.613
Business Sustainability	0.873	0.818	0.580

Source: Writer (2022)

4.1.1.3 Discriminant Validity

	BS	CO	CU	DA	FT	Moderasi CO*DA	Moderasi CU*DA
BS1	0,747	0,641	0,888	0,645	0,631	-0,582	-0,553
BS2	0,796	0,659	0,834	0,715	0,684	-0,634	-0,682
BS3	0,716	0,605	0,605	0,685	0,664	-0,573	-0,64
BS4	0,778	0,665	0,834	0,732	0,678	-0,632	-0,632
BS5	0,767	0,634	0,646	0,657	0,677	-0,537	-0,524
CO * DA	-0,78	-0,844	-0,705	-0,834	-0,751	1	0,847
CO1	0,699	0,79	0,649	0,664	0,721	-0,688	-0,622
CO2	0,677	0,822	0,678	0,654	0,7	-0,661	-0,533
CO4	0,612	0,764	0,625	0,632	0,66	-0,638	-0,54
CO5	0,745	0,875	0,715	0,755	0,761	-0,755	-0,646
CU * DA	-0,797	-0,721	-0,787	-0,811	-0,737	0,847	1
CU1	0,64	0,629	0,806	0,615	0,633	-0,501	-0,573
CU2	0,691	0,681	0,782	0,662	0,705	-0,594	-0,66
CU3	0,684	0,622	0,759	0,673	0,615	-0,563	-0,623
CU5	0,638	0,654	0,812	0,638	0,613	-0,563	-0,623
DA1	0,671	0,64	0,541	0,754	0,659	-0,673	-0,624
DA2	0,687	0,633	0,619	0,732	0,606	-0,59	-0,55
DA3	0,7	0,606	0,715	0,777	0,664	-0,614	-0,696
DA5	0,688	0,673	0,666	0,786	0,68	-0,646	-0,595
DA6	0,78	0,707	0,671	0,86	0,724	-0,735	-0,704
FT1	0,683	0,661	0,555	0,649	0,775	-0,572	-0,59
FT2	0,695	0,713	0,706	0,738	0,788	-0,609	-0,629
FT3	0,623	0,638	0,582	0,612	0,734	-0,543	-0,524
FT4	0,672	0,633	0,598	0,616	0,725	-0,576	-0,491
FT5	0,696	0,719	0,888	0,663	0,824	-0,589	-0,598

Figure 3. Cross Loading

Source: Writer (2022)

4.2.2 Inner Model

4.2.2.1 R-Square test

Table 4. R-Square

Variable	R-Square	Relationship Level
Business Sustainability	0.872	Strong

Source: Writer (2022)

4.2.2.2 Hypothesis testing (T-Statistic table and P-Value)

Table 5. Hypothesis Testing Result

Hipotesis	T-Statistics	P-Values	Result
H1 Competition in the digital era positively affects Business Sustainability	1.983	0.047	Accepted

H2	Customers in the digital era positively influence Business Sustainability	2.490	0.013	Accepted
H3	The application of FinTech to the business model positively impacts the company's ability to survive in the face of change	5.962	0.003	Accepted
H4	Big Data Usage can increase the success of business sustainability by using it as a moderator of the custom variable	1.137	0.255	Rejected
H5	Big Data Usage can increase the success of business sustainability by using it as a moderator of the competition variable	1.922	0.055	Rejected

Source: Writer (2022)

5. Results and Conclusions

The results of the analysis that has been carried out to determine the effect of Digital Transformation moderated by the Utilization of Big Data Usage and its impact on Business Sustainability, the results of the study are as follows. Based on the results of the research that has been done, the Competition variable has a significant positive effect on Business Sustainability because it has a T-Statistic value greater than 1.96, namely 1.983 and a P-Value less than 0.05, namely 0.047, in line with the statement Prasanna (2019) which states that competitive advantage can help companies survive in the global market with the help of technological innovation. As mentioned in our research, the technological innovation in question is Digital Transformation. Carrying out digital transformation (Digital Transformation) is considered as an adaptive form of MSMEs to changes in the business environment considering the very rapid growth of technology to be able to increase competitiveness competitively (Competition) against its competitors so that business sustainability (Business Sustainability) can be maintained.

Based on the results of the research that has been done, the Customer variable has a significant positive effect on Business Sustainability because it has a T-Statistic value greater than 1.96, namely 2.490, and a P-Value less than 0.05, namely 0.013, in line with the statement Strenitzerová, M (2018) where customer satisfaction and customer loyalty are considered as one of the main indicators of success that contributes to the sustainability of a business. The term consumer (customer) is the king of being a necessity that MSMEs must consider. Implementing technology into business is an action to keep up with changes in consumer behavior (customers) along with technological developments. So, MSMEs should carry out digital transformation (Digital Transformation) because consumers (Customers) influence the development of a business, so they must learn and adapt to what MSMEs want and need..

Based on the results of research that has been done, the Financial Technology variable has a significant positive effect on Business Sustainability because it has a T-Statistic value greater than 1.96, namely 5.962 and P-Value less than 0.05, namely 0.003, these results in line with the opinion (Gomber. P, 2017) but according to several other researchers, these results still need to be reconsidered considering that FinTech is a new thing in the business sector. Therefore further research is needed on these results (Al Hammadi, 2019), (Jamil. N, 2019). MSMEs must also adapt to changes in business models, such as changing the conventional way of transactions using cash to being cashless. Therefore, MSMEs must be able to follow the development of Financial Technology and implement it. For example, providing payment methods via an e-wallet such as OVO, GO-PAY, and QRIS. This is also related to the reduction of direct contact related to the current COVID-19 pandemic

Based on the results of the research that has been carried out, the variable Utilization of Big Data Usage as a moderator Customer does not have a positive and insignificant effect on Business Sustainability because it has a T-Statistic value smaller than 1.96, namely 1.137 and P- The value is more than 0.05, which is 0.255. It tends to weaken the relationship between the Customer (X2) variable and the Business Sustainability (Z) variable. However, the research conducted by (El Hilali. W, 2020) using Big Data as an intervening or mediating variable got results contrary to this research. MSMEs should use Big Data because it contains qualitative information related to market conditions and market demand and information about consumers (customers), such as what

goods are the best selling to consumer reviews of MSME products. However, it is very unfortunate that many MSMEs still do not understand the use of Big Data, so the use of Big Data is still not optimal.

Based on the results of the research that has been carried out, the variable Utilization of Big Data Usage as a moderator of Competition does not have a positive and insignificant effect on Business Sustainability because it has a T-Statistic value that is smaller than 1.96, namely 1.922 and P-Value is more than 0.05, which is 0.055, and tends to weaken the relationship between the Competition (X1) variable and the Business Sustainability (Z) variable. But research conducted by research (El Hilali. W, 2020) that uses Big Data as an intervening or mediating variable gets results contrary to this study. Awareness of MSMEs in the Utilization of Big Data must be considered because this is very important to serve as an analytical tool capable of becoming MSME business planning information. However, the reality on the ground is from the results of this study that not many MSMEs understand and understand how to work and process Big Data. In this case, the government is expected to be able to make MSMEs aware of the importance of Big Data.

References

- Hermann, M., Pentek, T., & Otto, B. (2016). Design Principles for Industrie 4.0 Scenarios. *Presented at the 49th Hawaiian International Conference on Systems Science*
- Rogers, D. L. (2016). 1. The Five Domains of Digital Transformation. *In The Digital Transformation Playbook* (pp. 1-18). Columbia University Press.
- Jamil, N. N., & Seman, J. A. (2019). The impact of fintech on the sustainability of Islamic accounting and finance education in Malaysia. *Journal of Islamic, Social, Economics and Development*.
- Al Hammadi, T., & Nobanee, H. (2019). FinTech and Sustainability: A Mini-Review. Available at SSRN 3500873.
- Bansal, P., & DesJardine, M. R. (2014). Business sustainability: It is about time. *Strategic organization*, 12(1), 70-78.
- Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, 15(2).
- Uhl, A., & Gollenia, M. L. A. (Eds.). (2014). *Digital enterprise transformation: A business-driven approach to leveraging innovative IT*. Ashgate Publishing, Ltd.
- Greenberg, J. (2008). Introduction to the special issue: To prosper, organizational psychology should.... *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 29(4), 435-438.
- Schwertner, K. (2017). Digital transformation of business. *Trakia Journal of Sciences*, 15(1), 388-393.
- Kim, Y., Choi, J., Park, Y. J., & Yeon, J. (2016). The adoption of mobile payment services for "Fintech". *International Journal of Applied Engineering Research*, 11(2), 1058-1061.
- Kostić, Z. (2018). Innovations and digital transformation as a competition catalyst. *Економика-Часопис за економску теорију и праксу и друштвена питања*, (1), 13-23.
- El Hilali, W., El Manouar, A., & Idrissi, M. A. J. (2020). Reaching sustainability during a digital transformation: a PLS approach. *International Journal of Innovation Science*.
- Sheehan, B. (2010), *Basic marketing: online marketing*. AVA publishing, London
- Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics*, 87(5), 537-580
- Juliandi, A. (2018). *Structural Equation Model Partial Least Square (Sem-Pls)*. 1– 6. <https://doi.org/10.5281/Zenodo.1243777>
- Awotunde, J. B., Adeniyi, E. A., Ogundokun, R. O., & Ayo, F. E. (2021). Application of big data with fintech in financial services. In *Fintech with Artificial Intelligence, Big Data, and Blockchain* (pp. 107-132). Springer, Singapore
- Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of management information systems*, 35(1), 220-265.
- Kubina, M., Varmus, M., & Kubinova, I. (2015). Use of big data for competitive advantage of company. *Procedia Economics and Finance*, 26, 561-565.
- Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C., & Hung Byers, A. (2011). *Big data: The next frontier for innovation, competition, and productivity*. McKinsey Global Institute.
- Katal, A., Wazid, M., & Goudar, R. H. (2013, August). Big data: issues, challenges, tools and good practices. In *2013 Sixth international conference on contemporary computing (IC3)* (pp. 404-409). IEEE.
- Cai, L., & Zhu, Y. (2015). The challenges of data quality and data quality assessment in the big data era. *Data science journal*, 14.
- Maryanto, B. (2017). Big Data dan Pemanfaatannya dalam Berbagai Sektor. *Media Informatika*, 16(2), 14-19.
- Ghozali, Imam (2016). *"Partial Least Square Concepts, Techniques and Applications."* Semarang: Diponegoro University Publishing Agency

Jamil, N. N., & Seman, J. A. (2019). The impact of fintech on the sustainability of Islamic accounting and finance education in Malaysia. *Journal of Islamic, Social, Economics and Development*.

Biographies

Alexander Adinata is currently an undergraduate student majoring in Binus Business School, Undergraduate Management at Binus University, who aims to further achieve the graduate through accomplishing this publishment as a mandatory requirement.

Fabien Nicholas Sutedja is currently an undergraduate student majoring in Binus Business School, Undergraduate Management at Binus University, who aims to further achieve the graduate through accomplishing this publishment as a mandatory requirement.

Haryadi Sarjono as a permanent lecturer majoring in management with specialization in operations management, Bina Nusantara University, West Jakarta, Indonesia, since 1996, has received the best paper at IEOM 2021 Surakarta, Indonesia