

MEASUREMENT OF READINESS AND INFORMATION TECHNOLOGY ADOPTION BASED ON ORGANIZATIONAL CONTEXT AMONG SMEs

Asrul Sani¹; Nur Nawangtyas²; Agus Budiyantra³; Ninuk Wiliani⁴

Informatics
STMIK Widuri
www.kampuswiduri.ac.id
asrulsani@kampuswiduri.ac.id; tyaspusparini@kampuswiduri.ac.id;
agusbudiyantra@kampuswiduri.ac.id

Information System Technology
BRI Institute Technology and Business
www.bri-institute.ac.id
ninukwiliani@bri-institute.ac.id

Abstract— *The importance of using information technology forces organizations to switch to using this technology in the daily activities of the organization in running a business and this cannot be separated from the SMEs organization. This research was conducted to measure the readiness level of a Small, and Medium Enterprise (SMEs) organization in the use and adoption of information technology based on the organizational context. This research uses quantitative methods by conducting surveys and interviews with policymakers organized by SMEs to avoid inaccurate information. Surveys and interviews were conducted in the Jabodetabek area. Data will be processed using PLS-SEM software for statistical analysis and inferential analysis, while for descriptive analysis using SPSS and spreadsheets. The results obtained indicate a significant relationship between the readiness level variable and the IT adoption variable.*

Keywords: *Readiness, IT Adoption, SMEs, SEM-PLS.*

Intisari—Pentingnya penggunaan Teknologi Informasi memaksa para organisasi harus beralih menggunakan teknologi tersebut kedalam kegiatan sehari hari organisasi dalam menjalankan usaha, dan ini tidak terlepas dari organisasi UKM. Penelitian ini dilakukan untuk mengukur tingkat kesiapan (readiness) sebuah organisasi Usaha Kecil dan Menengah (UKM) dalam penggunaan dan adopsi sebuah teknologi informasi berdasarkan konteks organisasi. Penelitian menggunakan metode kuantitatif dengan cara melakukan survey dan wawancara terhadap pengambil kebijakan diorganisasi UKM untuk menghindari informasi yang tidak akurat. Survey dan wawancara dilakukan pada wilayah Jabodetabek. Data akan diolah menggunakan software PLS-SEM untuk analisis statistika dan analisis inferensial, sedangkan untuk analisis deskriptif menggunakan

SPSS dan Spreadsheet. Hasil diperoleh menunjukkan adanya hubungan yang signifikan antara variabel tingkat kesiapan dan variabel adopsi TI.

Kata Kunci: *Kesiapan, Adopsi TI, UKM, SEM-PLS.*

INTRODUCTION

The modern SMEs economic environment which is dominated by globalization, intense competition, and the knowledge and information revolution has revolutionized the way business is run. The time of innovation is seen through escalated interest during the time spent utilizing PCs and information planning instruments in the assembling and administration enterprises just as broadcast communications foundation, and the spread of their utilization to government offices, instructive associations, and all the more as of late, in family units (Ali & Miller, 2017; Buchalceva, 2015). Therefore, technological progress, implementation, and application of information technology (IT) is a significant driving force behind many socio-economic changes in the current world situation (Antonelli & Fassio, 2014).

As the usage and commercialization of IT become broader around the globe, the reception of new IT can create new business openings and advantages. Right now, huge associations and SMEs are searching for approaches to reinforce them to get a serious and proficient position and increment their profitability (F. M. Cesaroni, Consoli, & Sentuti, 2011). In line with that, there is an increasing level of awareness of the need to make profits through investment in IT in management.

The utilization of IT apparatuses extraordinarily helps SMEs by giving the essential foundation to give the perfect kind of data at the perfect time. IT can likewise furnish SMEs with

seriousness through reconciliation between flexibly chain accomplices and between authoritative capacities, just as by giving significant data (Burgess & Paguio, 2016). However, the previous IT literature has shown that only a small number of studies have focused on the adoption and use of IT in SMEs (F. Cesaroni, Consoli, & Demartini, 2010). Besides, it has been found that although IT is growing exponentially in SMEs, the level of IT adoption by these businesses remains relatively low (Barba-Sánchez, Martínez-Ruiz, & Jiménez-Zarco, 2007; Skoko, Buerki, & Ceric, 2007), and Large organizations have experienced advantages over SMEs in increased IT-supported sales and cost savings (Buchalcevova, 2015). In looking for reasons for the differences in IT adoption in SMEs, the unique characteristics of this business can be observed. SMEs generally have limited access to information markets and suffer from the constraints of globalization (Chairoel, Widyarto, & Pujani, 2015). Besides, the executives methods, for example, money related examination, determining, and venture the board are infrequently utilized by SMEs (Chatzoglou & Chatzoudes, 2016; Consoli, 2012). The inclination to utilize generalists instead of pros, depending on transient arranging, casual and dynamic techniques, dynamic cycles, and an absence of normalization in working methodology are different qualities of SMEs (Tarutè & Gatautis, 2014).

This research focuses more on how the level of readiness of SMEs in IT adopting that is used efficiently can increase sales and increase the performance of these SMEs (Sani & Wiliani, 2019). In daily use, information technology plays a very fundamental role, as evidenced by the increasing number of IT users, especially for SMEs in Indonesia. This will provide capabilities and significant improvements to SMEs themselves.

The purpose of this research is to assess the psychometric characteristics as a whole in the form of descriptive analysis and inferential analysis of the readiness level of SMEs in IT adopting (organizational context), especially the island of Java which is the largest SME center in Indonesia. The questionnaire used in this study has been implemented by conducting a pretest in the SMEs environment around the suburbs of Jakarta to determine the value of the index formed so that it becomes a consideration in determining the model (Sani, Subiyakto, & Rahman, 2018).

Two questions are proposed to guide the implementation of this research, namely:

Q1: What is the status of the readiness level of SMEs in adopting IT, especially in the current organization context?

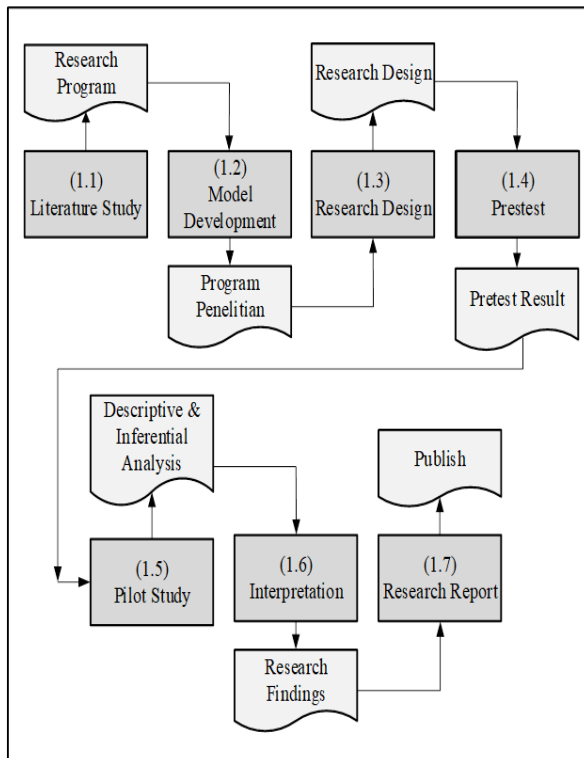
Q2: Do the factors that influence the level of readiness to have a significant effect on IT adoption, especially in an organizational context?

This paper will be organized into four sections, where the first part will explain the background of taking the title, the problem, the research objectives, and the research question. The second part will explain a few related theories that refer to previous research and are related to the readiness of technology (A. Parasuraman 2014; Parasuraman, 2000; Parasuraman & Colby, 2015) and IT adoption (Chatzoglou & Chatzoudes, 2016; Zhu, Kraemer, & Xu, 2003). This section will also explain aspects of the research methodology which will provide an overview of the stages of research starting from model development, data collection, and finally data processing. The third part will explain the analysis obtained after processing the data in the form of discussion, discussion, and further research stages. And the last part will provide conclusions that will later be used as a reference for further research.

MATERIALS AND METHODS

Referring to research points that have been determined in the early stages of research as described in the introduction, especially for the research questions section; This research was conducted to answer the above questions by using quantitative and qualitative approaches (Creswell, 2013, 2014; Creswell & Clark, 2017; Sugiyono, 2017, 2018) with the application of the objective point of view of researchers regarding how to determine the status of readiness for ongoing IT adoption and examining the relationship between readiness factors for IT adoption in an organizational context. Following the predetermined approach, specifically, the stages of the next research stages also adjust to this approach by using quantitative methods, techniques, and tools, as shown by the research procedure (Fig. 1).

For example, the data collection technique was carried out through a survey with a questionnaire research instrument, the data analysis was performed statistically with the associated computer software (Husain & Sani, 2020).



Source: (Asrul Sani, 2020)

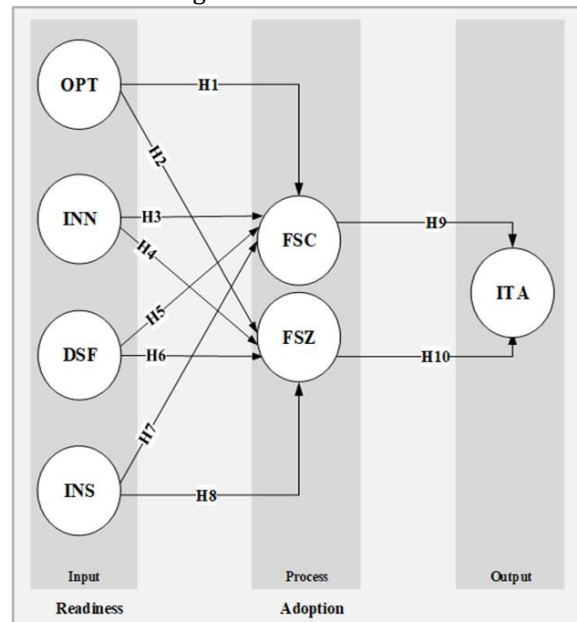
Figure 1. Research Procedure

This research was carried out in seven stages which are procedurally shown in Fig. 1 which includes: literature study, model development, research design, pretest, pilot study, interpretation, and preparation of reports which are finally published. The instrument of this study was in the form of a questionnaire consisting of three parts, where the first part consisted of cover letters from researchers to respondents, the second part was a cover sheet for a brief explanation of research activities and the third part was a research question sheet.

This study uses a five-point Likert scale (Kaptein, Nass, & Markopoulos, 2010) in measuring the questionnaire which starts from "strongly disagree" for point (1) to "strongly agree" for point (5). To ensure the validity and reliability of this tool, several indicator items were adopted from several previous studies, which are the references of this study (Chatzoglou & Chatzoudes, 2016; Zhu et al., 2003). The data collected by 206 respondents consisting of 130 respondents were obtained through google form and 76 were obtained based on direct distribution to respondents. Data processing was performed on data using Microsoft Excel 2013 and using the SPSS version 24 application and the SEM SmartPLS 3.0 application.

Readiness technology consists of four variables consisting of Optimism (OPT), Innovativeness (INN), Discomfort (DSF), and Insecurity (ISC). And for IT adoption in an

organizational context it consists of two variables, namely: Firm Scope (FSC) and Firm Size (FSZ). This can be seen in Fig. 2 which is the research model



Source: (Asrul Sani, 2020)

Figure 2. Research Model

Referring to some of the researchers above, the implementation of this study will produce two analyzes, namely analysis of the measurement model (outer model) and analysis of the structural model (inner model). The outer model is done to test the level of validity and level of reliability through indicator reliability, internal consistency reliability, convergent reliability, and discriminant validity. Meanwhile, the inner model test is carried out to test the path coefficient (β), coefficient of determination (R^2), T-Stat using the bootstrapping method, effect size (f^2), predictive relevance (Q^2), and relative impact (q^2) (Hair, Ringle, & Sarstedt, 2011; Hair Jr, Hult, Ringle, & Sarstedt, 2016; Subiyakto & Ahlan, 2013; Subiyakto, Ahlan, Kartiwi, & Putra, 2016).

The results of the interpretation are used to translate statistically-quantitatively by comparing and considering several previous literature that is used as a reference in this study

RESULTS AND DISCUSSION

The results of the analysis of the respondent's profile can be seen in Table 1 below, where this table shows the importance of the reliability and validity of the data sources obtained (Subiyakto, 2017; Subiyakto et al., 2016). For IT experience, the number 6 - 8 years dominates with a percentage of 45.63%. The distribution of the data distribution seems evenly distributed for the education level, which is dominated by the

bachelor level of 60.19%, while for the lowest is the Doctoral level of 0.48%. The data dissemination is only carried out for SMEs that have implemented information technology with varying levels of average IT experience.

Table 1. Respondent Profile

Profile	Item	f	Percentage
Education	High School	16	7.76
	Diploma	40	19.41
	Vocational	4	1.94
	Bachelor	124	60.19
	Master	21	10.19
	Doctoral	1	0.48
Job Position	Top Level	70	33.98
	Middle level	133	64.56
	Else	3	1.45
IT Experience	4 - 6 Years	37	17.96
	6 - 8 Years	94	45.63
	> 8 Years	75	36.40
IT Skill	Inexpert	26	12.62
	Skilled	122	59.22
	Expert	58	28.15
IT Knowledge	Novice	7	3.39
	Amateur	8	3.88
	Practitioner	187	90.77
	Expert	4	1.94
IT Strategic Plan	Pass	5	2.42
	Never	4	1.94
	Aware	197	95.63

Source: (Asrul Sani, 2020)

The consistency of the data provided shows that on average the SMEs that were used as respondents had adequate IT experience and skills, this is indicated by a high percentage for this category. Some respondents are skilled in using information technology with a percentage of 59.22%, less skilled 12.62%, and 28.15% highly skilled. This is also shown in the IT knowledge of the respondents who mostly know about 90.77%. In brief, it can be explained that this study involved respondents who were following the key information providers to SMEs who were used as respondents when determining them (Frenk, Anderson, Chaves, & Martin, 2011; Homburg, Klarmann, Reimann, & Schilke, 2012; Subiyakto et al., 2016).

Measurement Model Analysis

The method most often used by researchers in the SEM field to measure models through confirmatory factor analysis is to use the Multi Trait Multi-Method approach with convergent and discriminant validity testing (Campbell & Fiske, 1959; Hair, Sarstedt, Ringle, & Mena, 2012; Hair Jr et al., 2016).

Table 2. Statistical Analysis

Indicator	Outer Loading	AVE	CA	CR	R ²
OPT1	Reject				
OPT2	0.788				
OPT3	Reject	0.539	0.785	0.853	
OPT4	0.747				
OPT5	0.775				
INN1	0.713				
INN2	0.818				
INN3	0.899	0.703	0.892	0.922	
INN4	0.869				
INN5	0.881				
DSF1	Reject				
DSF2	0.832				
DSF3	0.814	0.693	0.857	0.898	
DSF4	0.818				
DSF5	0.840				
INS1	0.940				
INS2	0.892				
INS3	0.916	0.783	0.930	0.947	
INS4	0.887				
INS5	0.821				
FSC1	0.776				
FSC2	0.940				
FSC3	0.900	0.634	0.820	0.886	0.693
FSC4	0.893				
FSC5	Reject				
FSZ1	0.785				
FSZ2	Reject				
FSZ3	0.718	0.506	0.751	0.835	0.224
FSZ4	Reject				
FSZ5	0.791				
ITA1	Reject				
ITA2	0.783				
ITA3	0.742	0.608	0.837	0.885	0.269
ITA4	0.819				
ITA5	0.851				

Source: (Asrul Sani, 2020)

Based on statistical calculations using SmartPLS, it is obtained:

- For the reliability indicator test, the results obtained are 7 indicators (OPT1, OPT3, DSF1, FSC5, FSZ2, FSZ4, and ITA1) that are not accepted. This is because the Outer Loading value is > 0.7 (Hair Jr et al., 2016; Subiyakto & Ahlan, 2014).
- Testing the consistency reliability, it is found that 7 variables are accepted regarding the Composite Reliability (CR) value > 0.7 (Hair Jr et al., 2016; Subiyakto & Ahlan, 2014).
- Convergent validity testing refers to the Average Variance Extracted (AVE) value > 0.5 (Hair Jr et al., 2016).
- Testing discriminant validity, the results obtained 7 indicators are not accepted, this is because the value of Cross Loading > 0.7 (Hair Jr et al., 2016)

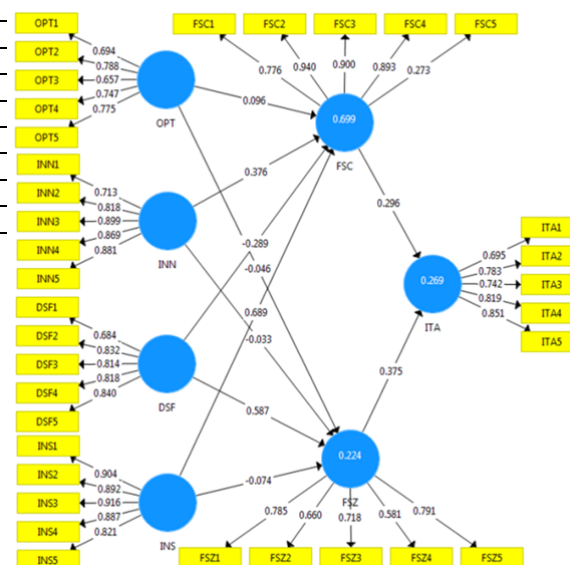
Table 3. Fornell & Lacker table

	DSF	FSC	FSZ	INN	INS	ITA	OPT
DSF	0.799						
FSC	0.642	0.796					
FSZ	0.468	0.185	0.711				
INN	0.769	0.724	0.333	0.838			
INS	0.834	0.796	0.356	0.733	0.885		
ITA	0.366	0.365	0.429	0.349	0.364	0.780	
OPT	0.704	0.668	0.289	0.681	0.754	0.326	0.734

Sumber: (Asrul Sani, 2020)

Structural Model Analysis

This analysis uses two testing procedures, namely by using bootstrapping and blindfolding. Bootstrapping analysis is carried out about path coefficient (β), coefficient of determination (R^2), and T-Stat testing, while blindfolding is carried out about testing of effect size (f^2), predictive relevance (Q^2), and relative impact (q^2). Figure 3 shows the path diagram for the research model



Source: (Asrul Sani, 2020)

Figure 3. Path Diagram

Table 4. Result Analysis

Path	β	R^2	T Stat	f^2	Q^2	q^2	Analysis					
							β	R^2	T-Stat	f^2	Q^2	q^2
OPT → FSC	0.324	0.689	0.987	0.012	0.431	0.305	Insign	Strong	Insign	Small	Predictive	Moderate
OPT → FSZ	0.710	0.224	0.372	0.001	0.096	0.254	Insign	Weak	Insign	Small	Predictive	Moderate
INN → FSC	0.000	0.689	4.077	0.170	0.431	0.552	Sign	Strong	Sign	medium	Predictive	Strong
INN → FSZ	0.780	0.224	0.279	0.001	0.096	0.254	Insign	Weak	Insign	Small	Predictive	Moderate
DSF → FSC	0.030	0.689	2.183	0.069	0.431	0.458	Sign	Strong	Sign	Small	Predictive	Strong
DSF → FSZ	0.000	0.224	4.100	0.111	0.096	0.458	Sign	Weak	Sign	Small	Predictive	Strong
INS → FSC	0.000	0.689	5.933	0.384	0.431	0.664	Sign	Strong	Sign	Large	Predictive	Strong
INS → FSZ	0.643	0.224	0.279	0.002	0.096	0.254	insign	Weak	Insign	Small	Predictive	Moderate
FSC → ITA	0.000	0.269	4.609	0.115	0.153	0.491	Sign	Weak	Sign	Small	Predictive	Strong
FSZ → ITA	0.000	0.269	6.111	0.185	0.153	0.405	Sign	Weak	Sign	Medium	Predictive	Strong

Source: (Asrul Sani, 2020)

Path coefficient (β) testing is carried out to test the β value, where the value is at < 0.05 to indicate a significant effect. The table shows that 4 lines have no significant effect, namely $OPT \rightarrow FSC$, $OPT \rightarrow FSZ$, $INN \rightarrow FSZ$, and $INS \rightarrow FSZ$. While the remaining 6 paths have a significant effect.

The coefficient of assurance (R^2) test is completed to clarify the autonomous variable with a standard estimation of about 0.670 solid variations, 0.333 for moderate variations, and an estimation of 0.190 or beneath for powerless variations. The results obtained indicate that the R^2 value of the FSC is 0.689, which means that the four readiness level variables (OPT, INN, DSF, and INS) produce a strong variant. The R^2 value of the FSZ is 0.224, which means that the four readiness level variables that have a pathway to the FSZ have weak variants. Finally, the R^2 value of ITA is 0.269, which means that two IT adoption variables that have a path to ITA have weak variants. Hypothesis testing (T-Stat) uses a two-tailed test with a significance of 5%, this means that the hypothesis will be accepted if it has a T-Stat > 1.96 . From the table it can be seen that there are 6 accepted

hypotheses, namely $INN \rightarrow FSC$, $DSF \rightarrow FSC$, $DSF \rightarrow FSZ$, $INS \rightarrow FSC$, $FSC \rightarrow ITA$, and $FSZ \rightarrow ITA$. The predictive effect test (f^2) is carried out to predict certain effects on other variables. The threshold values are about 0.02 for small, 0.15 for medium effect, and 0.35 for large effect. From the results it can be seen that only two pathways have moderate influence, namely $INN \rightarrow FSC$ and $FSZ \rightarrow ITA$, the others have little influence. Predictive linkage testing (Q^2) is conducted to determine the predictive relationship between certain variables and other variables with measurement limits above zero. In table 4, it shows that all pathways have predictive relationships.

Testing of the effect of predictive linkage relativity (q^2) is carried out to measure the relative predictive relationship between certain variables and other variables. The specified threshold values are 0.02 for small, 0.15 for moderate, and 0.35 for strong effects. It can be seen that four pathways have moderate influence, namely $OPT \rightarrow FSZ$, $OPT \rightarrow FSC$, $INN \rightarrow FSZ$, and $INS \rightarrow FSZ$, the rest have a strong influence.

Referring to the research question how the status of the readiness level of SMEs in adopting an IT, especially in the current organizational context, can be seen from the percentage of those who have IT knowledge as much as 90.77%, most of whom are also skilled at using IT as much as 59.22%. When viewed from the strategic plan for future IT development, respondents also know the strategic plan as much as 95.63%, meaning that the overall status of the readiness of SMEs in adopting IT in an organizational context can be fulfilled.

For the second question, whether the factors that influence the level of readiness have a significant effect on IT adoption, especially in an organizational context. Can be seen from the results of the following interpretation analysis. First, based on the results of measurement model testing, the outer model has met good psychometric characteristics, by the references of previous research studies on measurement model analysis (Afthanorhan, 2013; Husain & Budiyantera, 2018; Wong, 2013). Second, the relationship between the readiness level variable and the IT adoption variable has a significant relationship. The OPT variable value is 10% from the FSC variable, the INN variable is 38% from the FSC variable, the DSF variable is 59% from the FSZ variable and the INS variable is 69% from the FSC variable. These results indicate that the readiness variable greatly influences the IT adoption variable, especially for the FSC variable. On the other hand, the FSC and FSZ variables themselves have a percentage of 30% and 37% of the ITA variable.

CONCLUSION

The availability of technology and data from the use of information technology will provide stimulation, motivation, and direction for someone to use it, and the creation of organizational culture for using these technology products is an issue that has been disclosed to affect technology readiness.

From the results of the analysis process starting from the demographic respondent analysis, analysis of the measurement model (outer model) and analysis of the structural model (inner model) shows a significant relationship between the readiness level variable and the IT adoption variable. Measurement model testing has a good level of validity and reliability. The structural model testing with the six analyzes used also produces good psychometric results. Testing is carried out in stages, providing knowledge to readers which can later be used for further research development. The use of the PLS-SEM method with the SmartPLS device was very instrumental in the completion of this research.

Although careful research has been done on those issues

The methodology and data used in this study, limitations in its implementation in the field cannot be avoided. For example, sampling, type, and sample size, as well as the techniques and tools for data collection and analysis used in this research. Therefore, the findings may not be generalized to other studies using different methodologies and data. In the case of further studies, other than the proposed model; Methodological aspects and data used in this research can be a point of consideration for research next. Hopefully, several suggestions can be given for the development of further methods, especially in the development of information systems models.

ACKNOWLEDGMENT

This research was funded by the Ministry of Research Technology and Higher Education through PDP No. 044.ADD / LL3 / PG / 2020.

REFERENSI

- A. Parasuraman, C. L. C. (2014). The Influence of Technology Readiness Index in Entrepreneurial Orientation A Study with Brazilian Entrepreneurs in the United States of America.pdf. *Journal of Service Research* 17. DOI:10.5585/iji.v5i1.150
- Afthanorhan, W. (2013). A comparison of partial least square structural equation modeling (PLS-SEM) and covariance-based structural equation modeling (CB-SEM) for confirmatory factor analysis. *International Journal of Engineering and Science Innovative Technologies (IJESIT)*, 2(5), 8.
- Ali, M., & Miller, L. (2017). ERP system implementation in large enterprises—a systematic literature review. *Journal of Enterprise Information Management*, 30(4), 666-692. doi:https://doi.org/10.1108/JEIM-07-2014-0071
- Antonelli, C., & Fassio, C. (2014). The economics of the light economy: globalization, skill-biased technological change, and slow growth. *Technological Forecasting and Social Change*, 87, 89-107.
- Asrul Sani, N. N., Agus Budiyantera, Ninuk Wiliani. (2020). Laporan akhir penelitian mandiri. Jakarta.

- Barba-Sánchez, V., Martínez-Ruiz, M. d. P., & Jiménez-Zarco, A. I. (2007). Drivers, benefits and challenges of ICT adoption by small and medium sized enterprises (SMEs): a literature review. *Problems and Perspectives in Management*, 5(1), 103-114.
- Buchalcevova, A. (2015). Green ICT maturity model for Czech SMEs. *Journal of Systems Integration*, 6(1), 24-36.
- Burgess, S., & Paguio, R. (2016). Examining ICT application adoption in Australian home-based businesses: an Innovation-Decision Process approach. *Journal of Enterprise Information Management*, 29(2), 276-299.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 81.
- Cesaroni, F., Consoli, D., & Demartini, D. (2010). *The use of ICT in manufacturing small and medium-sized firms facing the crisis*. Paper presented at the VII Conference of the Italian Chapter of AIS.
- Cesaroni, F. M., Consoli, D., & Sentuti, A. (2011). The adoption of ICT in the small and medium-sized family business. The role of the younger generation. *Timisoara Journal of Economics*, 4(2 (14)), 67-80.
- Chairoel, L., Widyarto, S., & Pujani, V. (2015). ICT adoption in affecting organizational performance among Indonesian SMEs. *The International Technology Management Review*, 5(2), 82-93.
- Chatzoglou, P., & Chatzoudes, D. (2016). Factors affecting e-business adoption in SMEs: empirical research. *Journal of Enterprise Information Management*, 29(3), 327-358.
- Consoli, D. (2012). Literature analysis of determinant factors and the impact of ICT in SMEs. *Procedia-social and behavioral sciences*, 62, 93-97.
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* Sage publications.
- Creswell, J. W. (2014). Research design: qualitative, quantitative, and mixed methods approaches.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research: Sage publications*.
- Frenk, S. M., Anderson, S. L., Chaves, M., & Martin, N. (2011). Assessing the validity of key informant reports about congregations' social composition. *Sociology of Religion*, 72(1), 78-90.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the academy of marketing science*, 40(3), 414-433.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*: Sage Publications.
- Homburg, C., Klarmann, M., Reimann, M., & Schilke, O. (2012). What drives key informant accuracy? *Journal of Marketing Research*, 49(4), 594-608.
- Husain, T., & Budiyantera, A. (2018). Analisis End-User Computing Satisfaction (EUCS) Dan WebQual 4.0 Terhadap Kepuasan Pengguna. *JATISI (Jurnal Teknik Informatika dan Sistem Informasi)*, 4(2), 164-176.
- Husain, T., & Sani, A. (2020). Kepuasan Pelanggan Toko Online Yang Dipengaruhi Kualitas Produk Dan Layanan. *JITK (Jurnal Ilmu Pengetahuan Dan Teknologi Komputer)*, 5(2), 291-296. doi:<https://doi.org/10.33480/jitk.v5i2.614>
- Kaptein, M. C., Nass, C., & Markopoulos, P. (2010). *Powerful and consistent analysis of Likert-type rating scales*. Paper presented at the Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.
- Parasuraman, A. (2000). Technology Readiness Index (TRI) a multiple-item scale to measure readiness to embrace new technologies. *Journal of service research*, 2(4), 307-320.

- Parasuraman, A., & Colby, C. L. (2015). An updated and streamlined technology readiness index: TRI 2.0. *Journal of service research*, 18(1), 59-74.
- Sani, A., Subiyakto, A., & Rahman, T. K. A. (2018). *Integration of the Technology Readiness and Adoption Models for Assessing IT Use among SMEs in Indonesia*.
- Sani, A., & Wiliani, N. (2019). FAKTOR KESIAPAN DAN ADOPTSI TEKNOLOGI INFORMASI DALAM KONTEKS TEKNOLOGI SERTA LINGKUNGAN PADA UMKM DI JAKARTA. *JITK (Jurnal Ilmu Pengetahuan Dan Teknologi Komputer)*, 5(1), 49-56.
- Skoko, H., Buerki, L., & Ceric, A. (2007). Empirical evaluation of ICT adoption in Australian SMEs: Systemic approach. *IEEE, Harbin, China, January*, 15-18.
- Subiyakto, A. (2017). *Development of The Readiness and Success Model for Assessing the Information System Integration*. Paper presented at the International Conference on Science and Technology (ICOSAT) 2017, Jakarta.
- Subiyakto, A., & Ahlan, A. R. (2013, 27-28 Nov. 2013). *A coherent framework for understanding the critical success factors of the ICT project environment*. Paper presented at the 2013 International Conference on Research and Innovation in Information Systems (ICRIIS).
- Subiyakto, A., & Ahlan, A. R. (2014). Implementation of the Input-Process-Output Model for Measuring Information System Project Success. *TELKOMNIKA Indonesian Journal of Electrical Engineering*, 12(7), 5603-5612. doi:http://doi.org/10.11591/ijeecs.v12.i7.pp5603-5612
- Subiyakto, A., Ahlan, A. R., Kartiwi, M., & Putra, S. J. (2016). Measurement of the information system project success of the higher education institutions in Indonesia: a pilot study. *International Journal of Business Information System*, 23(2), 229-247. doi:https://doi.org/10.1504/IJBIS.2016.078908
- Sugiyono. (2017). *Metode Penelitian Kebijakan: Pendekatan Kuantitatif, Kualitatif, Kombinasi, R&D dan Penelitian Evaluasi*. Bandung: Alfabeta.
- Sugiyono. (2018). *Metode Penelitian kuantitatif* (Vol. 1). Bandung: Alfabeta.
- Taruté, A., & Gatautis, R. (2014). ICT impact on SMEs' performance. *Procedia-Social and Behavioral Sciences*, 110(0), 1218-1225.
- Wong, K. K.-K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing Bulletin*, 24(1), 1-32.
- Zhu, K., Kraemer, K., & Xu, S. (2003). Electronic business adoption by European firms: a cross-country assessment of the facilitators and inhibitors. *European Journal of Information Systems*, 12(4), 251-268.