ACCOUNTING INFORMATION SYSTEM ADOPTION AMONG INDONESIAN MSMES: A CONCEPTUAL MODEL FOR CLOUD COMPUTING

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Abstract

The utilization of accounting information systems technology (AIS) allows micro small medium enterprises (MSMEs) to become competitive. Even though MSMEs have resources limitation, they can utilize the essential advantages of AIS through cloud computing. This paper proposes a conceptual model that influences an intention to adopt cloud accounting (ITAC) among MSMEs by using constructs that had been investigated in a preliminary study and aligned with such literature of the existing technology adoption theory. The theory of TAM-TOE is integrated by involving variables such as the cloud computing characteristic (CA), organizational readiness (OR), mimetic pressure (MP), government intervention (GI), perceived ease of use (PEOU), and perceived usefulness (PU) of MSMEs owner-managers on the cloud accounting. Based on a pre-testing study through a survey of MSMEs in Indonesia, the result shows the validity and reliability of scale measurement and supports its potential for a full-scale study. The proposed model contributes to a better understanding of the cloud accounting adoption among MSMEs in developing countries.

Keywords: Cloud accounting, Indonesian MSMEs, TAM, Technology adoption, TOE framework.

1. Introduction

Nowadays, the digital economy had delivered a lot of business leverage at MSMEs in developing countries. This era allowed micro-businesses to expand their market with a low budget but high impact by creating a horizontal relationship with customers. The ASEAN e-commerce among the member states is expected to grow at double-digit average rates [1]. Thailand and Malaysia had maintained a double-digit rate, and their markets are projected to achieve double-digit growth in 2021. In Indonesia, its contribution was about 45% of regional revenue and expected to achieve more than 60% within 5 years, due to the e-commerce market had reached a rate of about 30% per year.

With the presence of the digital economy era to achieve potential growth, MSMEs need to improve their business administration such as management accounting to enable them to have more competitive capabilities. The significance of the accounting makes owner-managers highly reliant on the accounting information system (AIS) [2]. The MSMEs will be more effective and efficient in operation by utilizing AIS and thus it is necessary to implement even though facing limited resources such as costs and expertise [3]. Fortunately, MSMEs will get the value of AIS essential advantages through cloud computing (CC) because of the low costs of subscribing [4]. However, Forester research [5] reported that the adoption rates in developing countries like Indonesia, Malaysia, and Thailand seem to be rather low despite the CC subscriber cost is affordable.

MSMEs have an important part in a developing country, by contributing to several areas such as job opportunities, investments, and increasing industrial output. During the economic crisis in Indonesia that occurred between 1997 to 1998, only the MSMEs sector was able to remain established. Bellefleur and Murad [6] highlighted that Indonesia's MSMEs have an outstanding level of achievement during the crisis. Similarly, the Ministry of Cooperative and the SMEs Republic of Indonesia also highlighted that the number of MSMEs had increased even after the crisis and was able to employ around 114 million workers by the year 2013 [7]. Besides that, MSMEs contribute around 57% to the total Indonesian GDP [8]. This information shows that Indonesian MSMEs can be considered important in triggering national economic development.

Based on the above issues, a study related to the competitiveness of MSMEs is necessary. We propose a conceptual model for the cloud accounting (AC) adoption on MSMEs which will be guided by such research questions (1) What factors influence intention to adopt AC? (2) How can existing theories of technology adoption be employed to model AC adoption? The motivation was the recent academic literature on AC adoption had not provided adequate insights on factors that influence MSMEs that could contribute to the successful adoption of the technology among MSMEs in developing countries. Besides that, the complexity of the technology adoption factors is high and it has limitations if only underpin in a single theoretical framework since each theory has its weaknesses [9].

The proposed model that portrays the impact of constructs will assist to fill the gap in the existing study of AC at MSMEs. In addition, the pre-testing results reported here will be more valid by further study through a wide-ranging data collection process among owner-managers in several cities in Indonesia. The finding of this study will significantly contribute to the research on technology adoption at MSMEs.

2. Literature Review

2.1. Cloud accounting

AIS-based CC called cloud accounting (AC) is an innovative solution that can help to save significant funds for MSMEs. AC is an online accounting system that delivers the accounting data from users to remote servers owned by cloud services providers for further procedures. Hence, owner-managers can access and employ the accounting information for flexibility since it is not restricted to a single physical machine [10]. The system mainly uses the public cloud deployment model which supports the software as a service (SaaS) model which means that the service providers own, manage, and operates the infrastructure of the AC system for their customers. The infrastructures are installed at the building of the service providers such as servers, data storage, networking units, and software.

The usefulness of management accounting is an outcome of the reliable accounting information delivered by supporting CC qualities. Al Lami et al. [11] studied the CC qualities related to management accounting by seeing the perspective of usability and performance, agility, assurance, accountability, financial, security, and privacy. Information in the knowledge-based economy is necessary for the success or survival of MSMEs [12]. The reliable information will be obtained by AC to support owner-managers in facing a higher degree of uncertainty and potential growth.

Recently, service providers developed AIS using enterprise-based architecture and application integration (XML Based or Web Service) as well as cloud computing technology [13]. The benefits of the architecture such as much less error, and provides a real-time financial statement, and thus the management recognizes the near condition and can decide faster. There are several accounting application providers in the market with a variety of features and prices. Regarding the subscriber cost in Indonesia, the AC is relatively affordable with the MSMEs budget because the most expensive is about USD35.50 per month. Mostly the applications within the price between about USD7.00 to USD14.00 per month. Some of the vendors provide basic accounting features and some with full-featured apps such as SME Accounting, Zahir Accounting, Jurnal.id, E-accounting, and SI-APIK. AC is suitable for Indonesian MSMEs because of the advantages such as lower cost, fully featured, reliable, accurately, a more timely manner, and compliance with Financial Report Standards (SAK-ETAP). However, Hamerman et al. [5] concluded that the adoption rates of the technology in developing countries such as Indonesia, Malaysia, and Thailand seem to be rather low despite the subscriber cost is affordable.

2.2. Theories of technology adoption

Alles [14] examining the research paper on AC as a technology chosen at the 2018 Journal of Information Systems annual conference and concluded that the AC literature fails to recognize its character either in the field of accounting or cloud computing. In line with Murthy [15], the study found that the popularity of AC in a business term was imbalanced with its presence in academic literature, and not surprised that the research on AC faces paucity issues. Therefore, Schmidt et al. [16] highlighted the necessary research issues to address the mentioned absence of either cloud computing or AIS including (1) ensuring the strategic alignment and risk management by the governance of the cloud, (2) Cloud services contract, (3)

Cloud admin about operations, (4) Auditing impact of Cloud-enabled businesses, (5) The cost incurred in adopting cloud computing, (6) Stakeholder involvement, and (7) Factors affecting the success of cloud implementation and operation.

The previous research of AC at the firm-level has not provided adequate insights on factors affecting that could contribute to the successful adoption among MSMEs, particularly in the Indonesian context. The study by Molinillo and Japutra [17] concluded that there were three theories most used in the field of technology adoption for the organization level such as diffusion of innovation theory (DOI), technology-organization-environment (TOE) framework, and institutional theory. In the same vein, Gangwar et al. [18] found that the technology acceptance model (TAM) and TOE are widely used in the study of technology adoption at the organization level. However, every single theory has its limitation due to the complexity of technology adoption factors [9].

3. Research Model and Hypothesis

3.1. Identification of the factors for cloud accounting adoption

With the purpose to address the limitations encountered in previous studies, a preliminary study by employing an online survey with open-ended questions has been conducted to acquire relevant factors before developing a conceptual model. The survey questionnaire was adapted from the questions list by Chan and Ngai [19]. It is meaningful to note that the questions chosen were adapted from the paper in the web-based adoption model field, which is relevant to the AC adoption issue. The adapted questions which then modified to be relevant with the purpose to identify factors that will be used for the model development.

The data collection had been done through an online questionnaire to owner-managers of GoFood merchant who had been a key person in the decision to adopt the technology. The online technique was adopted due to the coverage of the Indonesia scale, inexpensive, quick, convenient, and efficient consideration, and it stood that no requirement on the availability of interviewers [20]. WhatsApp tool was employed as a platform of messaging and social media popular in Indonesia with about 130 million users [21] to disseminate the google forms by using google form link and the shortening in Bitly. A self-selected sampling of a heterogeneous sample of Indonesian MSMEs was adopted as appropriate for the early stages of an exploratory study [22]. For the preliminary study, the total number of validities respondent questionnaire was 26 MSMEs and the number of effective respondents categorized as Go-Food merchant was 17 MSMEs. Based on the preliminary study, several significant factors influence the willingness of Indonesian MSMEs to adopt AC as depicted in Table 1. The constructs of the model based on factors in the preliminary study, which have been aligned with the literature on the existence of technology adoption theory are shown in Table 2.

Table 1. Factors influence of intention to adopt cloud accounting.

Code	Categories	
• Mobile record and access	• Scalability	Technology
• Back-up data	• Suitable price	characteristic
• Save time		

• Simple and efficient Features	• Accurate	Usability Factors
• SAK-ETAP Compliance		
• Lack of information • Limited human resources	• Lack of technological literacy	Perceived Barriers
• Limited budget (cost)	• Lack of accounting knowledge	
• Workers	• Infrastructure	Organizational readiness
• Budget allocation	• Training/workshop	
• Competitive pressure	• Trend	Environmental factors
• Government intervention		

Table 2 Alignment between the preliminary study and literature review.

Literature Review	Preliminary Study Finding
Underpinning Theories	**Factors influences**
Technology, Organization, Environment (TOE)	*Categories of TOE*
1 T, Cloud computing characteristics (CA)	1 Technology Characteristics
2 O, Organizational Readiness (OR)	2 Organizational Readiness
E, Mimetic Pressure (ME) E, Government Intervention (GI)	(Workers, Budget allocation Infrastructure, Training)
3	3 Trend (E)
4	4 Government Intervention (E)
Technology Adoption Model (TAM)	*Categories of Usability Factors & Perceived Barriers*
1 Perceived Usefulness (PU) Perceived Ease of Use (PEOU)	1 - SAK-ETAP Compliance - Accurate
2	2 - Simple and efficient features

Five major categories have been summarized such as (1) technology characteristic, (2) usability factors, (3) perceived barriers, (4) organizational readiness, and (5) environmental factors, and each of the categories consists of sub-categories that specifically explained factors that influence their intention to adopt AC. Furthermore, we review such literature related [23-27] and proposes a conceptual model that highlights the factors that influence Indonesian MSMEs intention to adopt AC.

3.2. Conceptual model

The conceptual model was developed by integrating the TOE theory and technology adoption model (TAM) as shown in Fig. 1. In this study, the dependent variable is the behaviour intention of owner-managers to adopt AC (ITAC) and the

independent variables are the critical determinants, which will be evaluated by owner-managers who have an important role in deciding an MSMEs as well as high commitment and support for the AC implementation.

The independent variables are divided into three categorized of technology, organization, and environment (TOE), namely cloud computing characteristic (CA) under technological context, organizational readiness (OR) under organizational, and government intervention (GI), and mimetic pressure (MP) under environment. The independent variables predict one dependent variable which is the intention to adopt AC (ITAC). Meanwhile, two mediators mediate the relationship between the independent variables and the dependent variable.
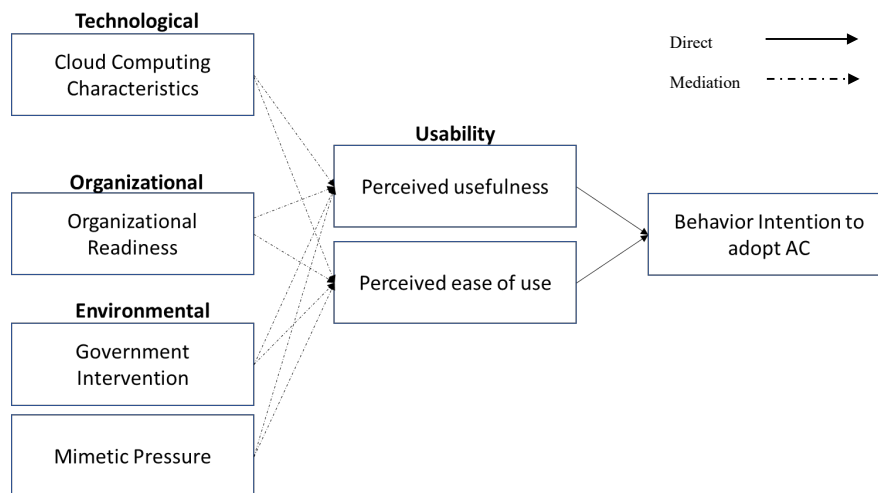

Fig. 1. The proposed conceptual model.

The variables under organizational, technological, and environmental context are originally from the TOE theory, while the individual context of owner-managers characteristics attributes to the usability of AC comes exclusively from the technology acceptance model (TAM) such as perceived usefulness and perceived ease of use. The TOE framework is widely employed in various types of research on the adoption of innovation for an organization-level [28].

According to the TOE, technological context describes current and new technologies that are appropriate to the enterprise. The organizational context refers to the attributes of an organization both in size, managerial structure, and scope of its business. The environmental context is the area where companies conduct their business such as industry, competitors, and government regulation. Concerning the uniqueness of MSMEs, TAM is considered the most significant theory for defining an acceptance of owner-managers Behavior and the use of technological innovations [18]. There are perceived usefulness (PU) and perceived ease of use (PEOU) as the fundamentals determinants of the adoption of new technology in TAM theory. Davis [29] defined PU as the degree to which an individual agrees that it would improve his or her job performance by using a particular system, and PEOU as the degree to which a person believes that it would be less effort to use a specific system. Therefore, hypothesize is proposed as follows.

H1 PEOU will have a positive impact on ITAC

H2 PU will have a positive impact on ITAC

H3 CA will have a positive impact on PEU

H4 CA will have a positive impact on PU

H5 OR prior will have a positive impact on PEOU

H6 OR prior will have a positive impact on PU

H7 GI will have a positive impact on PEOU

H8 GI will have a positive impact on PU

H9 MP will have a positive impact on PEOU

H10 MP will have a positive impact on PU

MSMEs are mostly micro in scale and led by the business owner who plays the collective role of users, managers, and large shareholders. The role of owner-managers is critical for the decision-making of ICT adoption [30]. A researcher like Lian et al. [31] has found that the support of owner-managers is the key factor in enterprises' adoption of cloud computing. Therefore, it is very important to investigate the factors of perceived usability in MSMEs intention to adopt CA.

H11 PEOU mediate the relationship between CA and ITAC

H12 PU mediate the relationship between CA and ITAC

H13 PEOU mediate the relationship between OR and ITAC

H14 PU mediate the relationship between OR and ITAC

H15 PEOU mediate the relationship between GI and ITAC

H16 PU mediate the relationship between GI and ITAC

H17 PEOU mediate the relationship between MP and ITAC

H18 PU mediate the relationship between MP and ITAC

4. Methodology

This paper applies the positivist ontology, empirical epistemology, and quantitative methodology as guided by objectives to test hypotheses and to summarize findings' in avoiding speculation issues and bias that occur in interpretive research [32]. In line with Amaratunga et al. [33] stressed that a quantitative approach entailed the verification of hypotheses providing strong reliability and validity. Pre-test data for evaluating the proposed model was collected by employing the medium of a survey-based online. The survey instrument was designed based on literature from previous studies. In Section 1, we ask the current SaaS-based application utilized by Indonesian MSMEs and following by such questions in Section 2 regarding the general information of the respondents and their firm's characteristics. Furthermore, we measure the level of an argument of the respondents about technological context, organizational context, environmental context, owner-managers perception on the usability of CA, and trust in Section 3, and behaviour intention to adopt CA in Section 4. All the Constructs in Section 3 and 4 have been operationalized using 5-point Likert scales, ranging from (1=strongly disagree) to (5 = strongly agree). The appropriate on a five-point scale ranging from 1='Strongly Disagree', 2='Disagree, 3='Neutral, 4= 'Agree', 5='Strongly Agree. The construct items used were 35 sets of questions. Four items of CA is adapted from Gangwar et al. [18] , three items of OR is adapted from Wang et al. [34], four

items of GI is adapted from Zhu et al. [35], three items of MP is adapted from DiMaggio and Powell [36], three items of PEOU and four items of PU were adapted from Greenberg et al. [37], and three items of ITAC is adapted from Lu et al. [38].

Statistical Package for Social Sciences (SPSS) version 24 will be used to analyse quantitative data from the questionnaires including descriptive statistic to analyse the demographic data section. This paper, however, focused on the development model and instrument, including validation, and thus did not include demographic data in the analysis. First, the reliability of the instrument was analysed by calculating the Cronbach's Alpha and composite reliability. The structural equation modeling (SEM) using SmartPLS for the pre-testing data was employed to validate the proposed model by examining the convergent and discriminant validity. Having measured the outer model, the evaluation of the inner model was further examined by the goodness of fit and effect size.

5. Pre-Test Study Results

In order to validate the model and instrument designed, the sampling frame for a pre-test consists of MSMEs that correspond with the full-scale study. An appropriate sample of 50 was collected to conduct a pre-testing for the reliability of the instrument ($N=50$). Lukas Bah [39] pointed out the size of 50 respondents allows the running of proper statistical testing procedures.

5.1. Survey instrument validity and reliability

The proposed survey instrument is worthwhile remarking as adapted from previous studies on TOE theory, TAM, AIS, and cloud computing adoption, in which the validity and reliability of the items were also recognized. Reliability and validity are the two main criteria used to evaluate the outer model. The consistency of the data collected from the distributed questionnaire is evaluated by the reliability analysis. The analysis can be defined by testing consistency and stability [40]. This paper evaluated the reliability of the instrument by calculating the internal consistency through Cronbach's Alpha of 1.0 as shown in Table 3. According to Sekaran and Bougie [40], a value of less than 0.60 is considered weak, in the range of 0.70 is acceptable, and more than 0.80 is good. Besides that, the model reliability of the instrument can be defined by the measure of composite reliability (CR), and the average variance extracted (AVE) can be measured to define convergent validity. The threshold for reliability is CR > 0.7 and convergent validity is AVE > 0.5 [41]. The value of AVE for the item of GI3 was below the minimum threshold for reliability and thus the item has been removed from the model. Hence, the values as shown in Table 3 are above the threshold, which concluded that the reliability of the model is established.

Table 3. Reliability statistics.

Variable	Item	Loading	Ca	CR	AVE
CA	CA1	0.861			
	CA2	0.907	0.897	0.928	0.764
	CA3	0.853			
	CA4	0.875			
GI	GI1	0.868			
	GI2	0.744	0.743	0.842	0.641

	GI4	0.739			
ITAC	ITAC1	0.911			
	ITAC2	0.902	0.871	0.921	0.794
	ITAC3	0.860			
MP	MP1	0.916			
	MP2	0.925	0.903	0.939	0.837
	MP3	0.904			
OR	OR1	0.859			
	OR2	0.943	0.866	0.918	0.788
	OR3	0.859			
PEU	PEU1	0.813			
	PEU2	0.891	0.799	0.882	0.715
	PEU3	0.831			
PU	PU1	0.853			
	PU2	0.790	0.812	0.877	0.641
	PU3	0.823			
	PU4	0.731			

Furthermore, we evaluated the discriminant validity for each construct, which compares with the correlations of the construct, through the square root of AVE value [42]. Table 4 shows the square root of AVE for the constructs and the correlations. The value as in bold is greater than all the constructs' correlations which means that the discriminant validity of the model is adequate [43].

Table 4. Discriminant validity Fornell-Larcker.

	CA	GI	ITAC	MP	OR	PEU	PU
CA	**0.874**						
GI	0.011	**0.687**					
ITAC	0.253	0.037	**0.891**				
MP	0.612	-0.016	0.305	**0.915**			
OR	0.380	0.097	0.430	0.295	**0.888**		
PEU	0.508	0.152	0.460	0.483	0.456	**0.845**	
PU	0.510	0.010	0.377	0.554	0.387	0.529	**0.800**

5.2. Inner model evaluation

Once the reliability and validity of the model were established, the next step was to evaluate the inner model results. This paper evaluated the GoF, which is required to assess the inner model fits. Global validation of PLS models use these cut-off values [44]: GoFsmall = 0.10, GoFmedium = 0.25, GoFlarge = 0.36). As shown in Table 5, the GoF was categorized as GoFlarge (0.512), and thus the model has shown adequately.

Table 5. Goodness-of-fit.

Construct	AVE	R^2
Perceived Usefulness (PU)		0.431
Perceived Ease of Use (PEOU)		0.395
Intention to adopt (ITCA)		0.236
Average Score	0.740	0.354
GoF = $\sqrt{(AVE \times R^2)}$		0.512

Besides that, effect size (f^2) is usually done to evaluate whether the omitted exogenous latent variable has a substantial effect on the endogenous variable [45]. The effect Size (f^2) values of 0.02, 0.15, and 0.35, revealed as small, moderate, and large respectively [46]. The f^2 of the exogenous latent construct on the endogenous latent construct for GI->PU was very small (<0.02), while the rests were at a small-medium scale ($0.02<f^2<0.15$) as shown in Table 6. It might be MSMEs experiences on government involvement not satisfactory enough to support their performance in management accounting. The finding was linear with Tambunan [47] that the government just tended to focus more on large enterprises (LEs) in policy implementation including technology transfer. The first largest relationship was in PEOU to ITAC, which was 0.115, meaning that the owner-managers were concerned on PEOU for the primary effects of behaviour intention to adopt AC. The second biggest was OR to PEOU, which means the better organizational readiness will create higher PEOU of CA technology.

Table 6. Effect size.

Path	f^2	Path	f^2
CA → PEU	0.06	GI → PU	0.002
CA → PU	0.022	MP → PEU	0.062
OR → PEU	0.106	MP → PU	0.091
OR → PU	0.023	PEU → ITAC	0.115
GI → PEU	0.026	PU → ITAC	0.035

6. Conclusion

This study identified the critical determinants of intention to adopt cloud accounting (ITAC) through a preliminary study, which then aligned with the existing theory of technology adoption. The study decided to develop a conceptual model by integrating the existing theories of technology adoption such as TAM and TOE framework, which the TOE act as external constructs of the extended TAM. Cloud computing characteristics (CA), organizational readiness (OR), government intervention (GI), and mimetic pressure (MP) have a direct relationship with both TAM constructs and has an indirect relationship with ITAC. Both perceived ease of use (PEOU) and perceived usefulness (PU) have a mediating role for the external constructs of the extended TAM.

The pre-testing study has screened out problems of the model constructs and instruments. Cronbach's Alpha (Ca) and composite reliability (CR) values were greater than the recommended value of 0.7 which has represented the reliability test of the model constructs. The convergent was defined through the AVE, while the discriminant validity referred to the square root of each construct AVE which was higher than its correlation with another construct. One of the construct items has an AVE value that lower than the threshold, and it needs to remove. These results and suggestions received from respondents to the pilot questionnaires will be a direction to design the proposed full-scale study. Two constructs such as trust in the internet and trust in system reliability are needed to address the perceived trust that potentially strengthens or weakens the impact of TOE -TAM constructs and intention to adopt CA. The required trust factors have been highlighted in previous studies on cloud computing [48, 49]. Hence, the proposed model will provide a

more relevant assessment in the exploration of cloud computing adoption by involving the trust factors.

At the moment, the development of the conceptual model was the first stage in investigating the factors that influence ITAC at MSMEs in developing countries. The test of effect size (f^2) was an initial procedure to measure the inner model. A subsequent study to survey a larger sample of MSMEs in several cities in Indonesia will be conducted by using the validated instrument from the pre-testing study. The SEM will be employed for the path analysis through a test of the proposed hypotheses. In summary, the final model development can be applied in future studies of technology adoption in MSMEs or other business sectors in developing countries.

The results of the full-scale study based on empirical evidence will have a potential contribution to the body of knowledge and give a direction to owner-managers of MSMEs in the decision-making process of cloud accounting. Besides that, it will assist the service providers in implementing the right strategies for marketing related. Finally, the study will contribute to a future study, which can determine the most effective technology adoption models that are applicable for developing countries.

References

1. Chen, L. (2020). Improving digital connectivity for e-commerce: A policy framework and empirical note for ASEAN.

2. Ibrahim, F.; Ali, D.N.H.; and Besar, N.S.A. (2020). Accounting information systems (AIS) in SMEs: towards an integrated framework. *International Journal of Asian Business and Information Management*, 11(2), 51-67.

3. Ahmad, K. (2014). The adoption of management accounting practices in Malaysian small and medium-sized enterprises. *Asian Social Science*, 10(2), 236-249.

4. Carcary, M.; Doherty, E.; and Conway, G. (2014). The adoption of cloud computing by Irish SMEs-an exploratory study. *The Electronic Journal Information Systems Evaluation*, 17(1), 003-014.

5. Hamerman, P.; Herbert, L.; Andrews, C.; and Ephraim, A. (2015). Application adoption trends 2015: The SaaS boom continues as businesses demand agility. *Forrester Research Inc*.

6. Bellefleur, D.; Murad, Z.; and Tangkau, P. (2012). A snapshot of Indonesian entrepreneurship and micro, small, and medium sized enterprise development. Retrieved March 6, 2013, from www crawford anu edu au.

7. Anggadwita, G.; Luturlean, B.S.; Ramadani, V.; and Ratten, V. (2017). Socio-cultural environments and emerging economy entrepreneurship: Women entrepreneurs in Indonesia. *Journal of Entrepreneurship in Emerging Economies*, 9(1), 85-96.

8. Iramani; Fauzi, A.A.; Wulandari, D.A.; and Lutfi. (2018). Financial literacy and business performances improvement of micro, small, medium-sized enterprises in East Java Province, Indonesia. *International Journal of Education Economics and Development*, 9(4), 303-323.

9. Dincer, B.; and Dincer, C. (2016). Literature review on the use of technology and information systems in SMEs. *International Journal of Academic Research in Business and Social Sciences*, 6(12), 678-684.

10. Dimitriu, O.; and Matei, M. (2015). Cloud accounting: a new business model in a challenging context. *Procedia Economics and Finance*, 32, 665-671.

11. Al Lami, M.F.F.; Maelah, R.; and Ghassan, G. (2019). Management accounting information usefulness and cloud computing qualities among small-to-medium enterprises. *International Journal of Management Studies*, 26(1), 1-31.

12. Delone, W.H.; and McLean, E.R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems*, 19(4), 9-30.

13. Nurhidayati, F.; Sensuse, D.I.; and Noprisson, H. (2017). Factors influencing accounting information system implementation. *Proceedings of the International Conference on Information Technology Systems and Innovation*. Indonesia, 1-6.

14. Alles, M. (2018). Examining the role of the AIS research literature using the natural experiment of the 2018 JIS conference on cloud computing. *International Journal of Accounting Information Systems*, 31(C), 58-74.

15. Murthy, U.S. (2016). Researching at the intersection of accounting and information technology: A call for action. *Journal of Information Systems*, 30(2), 159-167.

16. Schmidt, P.J.; Wood, J.T.; and Grabski, S.V. (2016). Business in the cloud: Research questions on governance, audit, and assurance. *Journal of Information Systems*, 30(3), 173-189.

17. Molinillo, S.; and Japutra, A. (2017). Organizational adoption of digital information and technology: a theoretical review. *The Bottom Line*, 30(01), 33-46.

18. Gangwar, H.; Date, H.; and Ramaswamy, R. (2015). Understanding determinants of cloud computing adoption using an integrated TAM-TOE model. *Journal of Enterprise Information Management*, 28(1), 107-130.

19. Chan, S.C.H.; and Ngai, E.W.T. (2007). A qualitative study of information technology adoption: how ten organizations adopted web-based training. *Information Systems Journal*, 17(3), 289-315.

20. Duffy, B.; Smith, K.; Terhanian, G.; and Bremer, J. (2005). Comparing data from online and face-to-face surveys. *International Journal of Market Research*, 47(6), 615-639.

21. Kemp, S. (2019). Digital 2019: Indonesia. Retrieved October 5, 2020, from: https://datareportal.com/reports/digital-2019-indonesia.

22. Vehovar, V.; Toepoel, V.; and Steinmetz, S. (2016). Non-probability sampling. *The Sage Handbook of Survey Methods*, 327-345.

23. Yigitbasioglu, O. (2014). Modelling the intention to adopt cloud computing services: a transaction cost theory perspective. *Australasian Journal of Information Systems*, 18(3), 193-210.

24. Lutfi, A.A.; Idris, K.M.; and Mohamad, R. (2017). AIS usage factors and impact among Jordanian SMEs: The moderating effect of environmental

uncertainty. *Journal of Advanced Research in Business and Management Studies*, 6(1), 24-38.

25. Abduljalil, K.; and Zainuddin, Y. (2015). Intrinsic and extrinsic motivation as attitude factors towards adoption of accounting information system (AIS) in Libyan SMEs. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 5(1), 161-170.

26. Musa, Z.K.C.; Muhayiddin, M.N.; Yusoff, M.N.H.; Ismail, M.; and Muhamad, M. (2019). Intention to use cloud accounting system among SMEs in Malaysia: A conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) model. *Research in World Economy*, 10(2), 74-78.

27. Hussein, L.A.; Baharudin, A.S.; Krishnaswamy, J.; and Kiumarsi, S. (2019). B2B e-commerce technology factors with mediating effect perceived usefulness in Jordanian manufacturing SMEs. *Journal of Engineering Science and Technology*, 14(1), 411-429.

28. Baker, J. (2012). *Information systems theory*. Chapter: The technology–organization–environment framework. Springer; 231-245.

29. Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.

30. Elbeltagi, I.; Al Sharji, Y.; Hardekar, G.; and Elsetouhi, A. (2013). The role of the owner-manager in SMEs' adoption of information and communication technology in the United Arab Emirates. *Journal of Global Information Management*, 21(2), 23-50.

31. Lian, J.-W.; Yen, D.C.; and Wang, Y.-T. (2014). An exploratory study to understand the critical factors affecting the decision to adopt cloud computing in Taiwan hospital. *International Journal of Information Management*, 34(1), 28-36.

32. Wicks, A.C.; and Freeman, R.E. (1998). Organization studies and the new pragmatism: Positivism, anti-positivism, and the search for ethics. *Organization Science*, 9(2), 123-140.

33. Amaratunga, D.; Baldry, D.; Sarshar, M.; and Newton, R. (2002). Quantitative and qualitative research in the built environment: application of "mixed" research approach. *Work Study*, 51(1), 17-31.

34. Wang, Y.-n.; Jin, L.; and Mao, H. (2019). Farmer cooperatives' intention to adopt agricultural information technology - Mediating effects of attitude. *Information Systems Frontiers*, 21(3), 565-580.

35. Zhu, K.; Kraemer, K.L.; and Xu, S. (2006). The process of innovation assimilation by firms in different countries: a technology diffusion perspective on e-business. *Management Science*, 52(10), 1557-1576.

36. DiMaggio, P.J.; and Powell, W.W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.

37. Greenberg, R.; Li, W.; and Wong-On-Wing, B. (2012). The effect of trust in system reliability on the intention to adopt online accounting systems. *International Journal of Accounting and Information Management*, 20(4), 363-376.

38. Lu, H.P.; Hsu, C.L.; and Hsu, H.Y. (2005). An empirical study of the effect of perceived risk upon intention to use online applications. *Information Management and Computer Security*.

39. Hair, J.F.; Bush, R.P.; and Ortinau, D.J. (2014). *Marketing research* (Vol. 2). Australia: McGraw-Hill Education.

40. Sekaran, U.; and Bougie, R. (2010). *Research methods for business - A skill building approach*. New York: John-Wiley and Sons.

41. Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E.; and Tatham, R.L. (1998). *Multivariate data analysis*. New Jersey: Prentice Hall Upper Saddle River.

42. Gefen, D.; and Straub, D. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information Systems*, 16(1).

43. Fornell, C.; and Larcker, D.F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 382-388.

44. Wetzels, M.; Odekerken-Schroder, G.; and Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: guidelines and empirical illustration. *Management Information Systems Quarterly*, 33(1).

45. Hair Jr, J.F.; Sarstedt, M.; Hopkins, L.; and Kuppelwieser, V.G. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review*, 106-121.

46. Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.

47. Tambunan, T. (2007). The role of government in technology transfer to SME clusters in Indonesia: micro-level evidence from the Metalworking industry cluster in Tegal (Central Java). *Southeast Asia Research*, 15(3), 385-406.

48. Ho, S.M.; Ocasio-Velázquez, M.; and Booth, C. (2017). Trust or consequences? Causal effects of perceived risk and subjective norms on cloud technology adoption. *Computers & Security*, 70, 581-595.

49. Gangwar, H.; and Hema, D. (2016). Understanding cloud computing adoption: A model comparison approach. *Human Systems Management*, 35(2), 93-114.