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FACTORS AFFECTING THE ADOPTION OF CLOUD COMPUTATIONS ON COMPANY PERFORMANCE

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ABSTRACT

Industry 4.0, while not fully implemented, has seen many companies starting to strategise their future business process. Companies have started to look at Industry 4.0 technologies that companies can adopt to remain competitive. One of the widely available technologies is cloud computing, which helps companies perform data storage and computation. This study aims to investigate the effect of cloud computing adoption by describing the TAM-TOE model on the factors that affect cloud computing to improve company performance. The variables tested in this study consists of independent variables, namely Technology Context (TC), Organizational Context (OC), Environment Context (EC), Perceived Usefulness (PU), Perceived Ease of Use (PE), Attitude (A), and Behavioral Intention (BI). The sample used in this study was taken using a cross-sectional design method where 127 respondents were selected as samples. The analytical method, in this case, used multiple linear regression analysis using SPSS version 26 statistical software. The results showed that TC, EC, PU, and A affected company performance, but OC and PE did not affect. The result shows that companies agreed that cloud computing is practical and can improve the company's performance. However, the respondents agree that the current cloud computing technology will disrupt the company's business performance and migrating to cloud computing is challenging. This study recommends that the government should introduce policies such as tax incentive and encourage collaboration with other developed nations to foster the adoption of cloud computing and other Industry 4.0 technologies.
Keywords: *TAM, TOE, Organizational Context, Behavioral Intention, Cloud Computing.*

1. INTRODUCTION

The development of competition between companies on digital economic in Indonesia is taking place very rapidly in line with the development of cloud computing technology which is one of the most promising improvements in the future. Cloud computing is generally described as using computing resources supplied as a provider over the internet network. In other words, cloud computing can be described as a type of computing utility providers such as e-mail, corporate software, ERP and makes use of international resources that can be shared by way of employees or trading partners [6].

Cloud computing can increase an organisation's ability because it provides services that allow companies to adjust information technology resources according to today's demand. In the generation of Industry 4.0, which has introduced digitalisation and automation in manufacturing and operation, the adoption and use of cloud computing have changed current organisation systems, providing companies with increased flexibility, agility and productivity [9]. In addition, cloud computing presents a significant technological trend and is aimed at significant changes in information technology processes and the IT market.[8]. The literature accepts that cloud computing is an intermediary for companies that provide higher entry to world markets, lower chance costs, and guide collaboration and innovation in an increasingly interconnected world [30]. However, there were scholars against the cloud computing advantages for companies due to it requires companies to redesign overall business process

management and supply chain. Furthermore, companies need to develop new talent or acquiring new talent to maintain cloud computing. Since cloud computing advantage is relatively new and limited, it was not recommended for companies to pursue cloud computing at this moment [33].

In the adoption of cloud computing, there is great potential that business activities can utilise to improve company performance. Unfortunately, the limited knowledge about cloud computing in developing countries delays using cloud computing [4]. Nevertheless, companies adopting cloud computing are plenty as the benefits such as mobility and enhancing computational power for performance are cheaper [34]. Furthermore, organisational theory has stated that when a company has a unique and inimitable resource, that company can achieve a competitive advantage [35].

Therefore, this paper investigates how much influence adopting cloud computing has on company performance given the above problem.

This study helps to confirm the adoption of cloud computing in Indonesia. The empirical evidence is helpful to contribute to the literature especially coming from a developing country. This study uses the TOE framework robust in technology-related literature but has not been widely used in multi-disciplinary studies. Since the nature of this study is business management and technology of cloud computing, the result of this study can contribute to the theory extension in the literature. Practically, this study helps top management of companies understand the industry acceptance of cloud computing and starts supporting cloud computing to remain competitive in the industry. The Indonesian policymakers also can introduce incentives to help companies adopting cloud computing and other Industry 4.0 technology faster.

2. THEORETICAL FRAMEWORK

2.1 TAM Framework

TAM (Technology Acceptance Model) is a concept that Davis first developed from the theory of reasoned action. Davis's goal in developing this theory is to develop and explain and predict acceptance by each individual. The TAM model tries to clarify how clients will in common acknowledge and utilise innovation. The model closes a few factors that affect consumer choices while tolerating innovation. The primary factor is considered perceived usefulness, precisely, the degree to which an individual accepts that utilising a specific framework will enhance work execution productively. The subsequent factor is Perceived Ease of Use, especially the degree to which an individual or association accepts that utilising a specific framework requires minimum effort [20].

Perceived ease of use refers to the effort an individual expects to use technology and is intently related to competency beliefs. Perceived ease of use and perceived usefulness are directly related to another core TAM variable, attitudes towards technology. Furthermore, TAM has outcome variables in the form of behavioural intentions and Actual System Use.

2.1 TOE Framework

TOE is a framework that classifies Technological Context, Organizational Context and Environmental Contexts as three factors that influence companies that adopt cloud computing with innovation [12]. In identifying the three contexts of the TOE, it is necessary to conduct a review of the adoption of cloud computing in companies. In line with statements from previous studies, there is a want to strengthen an adoption model for each particular technology [11]. Based on this framework, the technological innovation adoption system is influenced by using three factors. Based on this framework, the technological innovation adoption technique is influenced via three components of the firm context:

a. Technology Context = represents inner and outer technology associated with the organisation. This technology is already used in companies and is accessible in the market but is rarely used. These technologies can include equipment or practices. This technology context consists of 9 factors: relative advantage, compatibility, complexity, flexibility, trialability, service quality, perceived security risk, perceived privacy risk, and perceived trust.
b. Organisational context = associated with the company's assets and characteristics, such as measurement and organisational structure. This technological context consists of 2 factors, specifically top management support and organisational readiness.
c. Environmental context = refers to the environment in which the company does business; it can be associated with factors around it, such as industry, rivals or competitors, and technology service carriers. This technology context consists of 4 factors: competitive pressure, trading partner pressure, regulatory support, and supplier computing support.

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2.2 TAM-TOE Framework

TAM and TOE Framework are widely applied in the innovation and adoption of cloud computing technology. TAM has the flexibility in choosing external variables and can see the acceptance behaviour of individuals, while TOE considers technological context, organisational context and environmental context that influence technology acceptance and adoption at the organisational level.[31] This aligns with Gangwar's research which combines the TAM and TOE models and applies them to exploring cloud computing adoption at the organisational level [32].

Integrating the TAM and TOE encountered difficulties because the TAM variable and the TOE variable varied across contexts and significance. Thus, the researcher concludes that there are deficiencies in general variables that can be generalised to the application of cloud computing technology and some that can be applied to cloud computing technology. To improve an integrated model, this research follows a method by which includes the TAM and TOE variables identified from various research based on the second model.

[Figure 1: TAM-TOE Framework]

3. DATA ANALYSIS TECHNIQUE

The information analysis approach in this study uses quantitative data analysis techniques, an activity that processes numerical data from survey information of respondents. This lookup uses multiple linear regression analysis techniques and checks every independent variable's direct and indirect impact on the dependent variable. In this study, the information had been analysed the use of the SPSS 26 software program.

3.1 Instrument Test

Before the data is tested to prove the hypothesis, the data previously passed validity and reliability tests to ensure that the data to be tested are valid and reliable.

a. Validity Test
   Measuring the validity of this study using Pearson Correlations (2-tailed). The validity test is done by looking at the significant value (2-tailed). A variable is stated to be valid if the Sig (2-tailed) importance value indicated by each statement object is not greater than 0.05 [28].

b. Reliability Test
   An instrument can be stated to be reliable if its Cronbach's Alpha value is at least 0.6. The reliability coefficient that is closer to 1.0 means the better. Reliability less than 0.6 is regarded as unreliable. Reliability in the range of 0.70 is acceptable, while reliability larger than 0.80 is accurate [29].

3.2 Classic Assumption Test

Several assumptions should be met before using multiple linear regression as a measuring device to analyse the impact of the variables under study. The classical assumption tests used are:

a. Normality Test
   The normality test used in this study is the Kolmogorov-Smirnov standards; if the significance is > 5%, the data is not normally distributed. On the other hand, if the significance is < 5%, the data is normal.

b. Multicollinearity Test
   One way to discover multicollinearity is to seem to be at the TOL (Tolerance) and VIF (Variance Inflation Factor) values. The basis of the analysis used is that if the TOL value is more significant than 0.1 and VIF is less than 10, then this means that in the regression equation, there is no correlation between independent or multicollinearity-free variables [28].

c. Heteroscedasticity Test
   Suppose the independent variable is statistically huge where the significant value is > 0.05, then there is an indication of heteroscedasticity. Likewise, on the other hand, if the independent variable is not significant where the sig value is > 0.05, there is an indication that heteroscedasticity does not occur.

3.3 Multiple Linear Regression Analysis

Multiple Linear Regression Analysis can provide a basis for predicting and analysing variance. Sometimes a study does not only analyse one independent variable with one dependent variable applying a simple regression model but includes several or greater than one independent variable and one dependent variable suitable for applying multiple regression [29].

Multiple regression is applied to solve cases that have one dependent variable with several / more independent variables. The basic equation for multiple regression can be written as follows.

$$Y = a + \beta 1X1 + \beta 2X2 + \beta 1X1 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \varepsilon$$

Information:
Y = Behavioral Intention
X1 = Technology Context
X2 = Organizational Context
X3 = Environment Context
X4 = Perceived Usefulness
X5 = Perceived Ease of Use
X6 = Attitude
a = constant or intercept
β = the coefficient of the independent variable which reflects the coefficient of increase in Y if there is an increase of one unit of X.
ε = error

The linear equation test uses a significance level of 0.05. If the significant value shown in each test is less than 0.05, a regression model can be used in this study.

a. Hypothesis Test
The hypothesis is an assumption or conjecture about something made to explain it, which is often required to check it [27].

b. Partial Regression Coefficient Test (t-test)
The t-test is used to decide if the independent variables individually (partially) impact the dependent variable. This means that these variables are significant explanations for the dependent variable. Hypothesis testing is carried out using α = 5% (0.05). This test is done by looking at the coefficient table, which looks at the sig value in the regression test. Ho is rejected, or Ha is accepted if the significance coefficient (probability) is smaller than the alpha level or sig <α. Ho is accepted, or Ha is rejected if the significance coefficient (probability) is greater than the alpha level or sig> α.

c. Simultaneous Regression Coefficient Test (F Test)
The F test is used to determine whether or not all the independent variables covered in the model simultaneously (simultaneously) impact the dependent variable. This means that all independent variables are simultaneously significant explanations for the dependent variable. This test is executed by searching at the ANOVA table, which sees the sig value in the regression test. Ho is rejected, or Ha is accepted if the significance coefficient (probability) is smaller than the alpha level or sig <α. Ho is accepted, or Ha is rejected if the significance coefficient (probability) is greater than the alpha level or sig> α.

d. Coefficient of Determination (R^2)
The coefficient of determination plans to perceive how much impact the free factor has on the needy variable, utilising the coefficient of determination. The coefficient of determination is the square of the relationship coefficient as a measure to decide the capacity of every factor utilised. The coefficient of determination clarifies the extent of variation in the dependent variable (Y), which is clarified by just a single independent variable (more than one free factor: Xi; i = 1, 2, 3, 4, etc.) together [28].

4. RESULT AND DISCUSSION

The method used to answer the problem in this study is the descriptive method. Analysis of the ratios to find the value or number of variable X (Technology Concept, Organizational Concept, Environment Concept, Perceived Usefulness, Perceived Ease of Use, Attitude) and variable Y (Behavioral Intention).

a. Descriptive Statistic

Descriptive provides an overview or description of data in which there is an average (mean), standard deviation, maximum, and minimum value. The research data were described during the study period, namely within two weeks (5 - 19 January 2021).

TABLE I: DESCRIPTIVE STATISTICS

Descriptive Statistics					
	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
X1 (TC)	127	22	45	37.04	4.273
X2 (OC)	127	2	10	8.16	1.477
X3 (EC)	127	8	20	15.63	2.716
X4 (PU)	127	14	25	21.21	2.627
X5 (PE)	127	13	30	24.91	3.524
X6 (A)	127	9	20	16.72	2.340
Y (BI)	127	9	20	17.20	2.236
Valid N (listwise)	127				

The X1 variable (Technology Concept) is known to have an average value of 37.04 with a minimum and maximum value of 22 and 45 with a standard

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deviation of 4.273. The finding is similar to a previous study that found that technology positively and significantly affects a company's performance [36].

The variable X2 (Organizational Concept) is known to have an average value of 8.16 with a minimum and maximum value of 2 and 10 with a standard deviation of 1.477. The finding is negative and insignificant to the company's performance [37].

The X3 variable (Environment Concept) is known to have an average value of 15.63 with a minimum and maximum value of 8 and 20 with a standard deviation of 2.716. The finding is similar to a previous study that found that environment positively and significantly affects a company's performance [38].

The variable X4 (Perceived Usefulness) is known to have an average value of 21.21 with a minimum and maximum value of 14 and 25 with a standard deviation of 2.627. The finding is similar to a previous study that found that use technology positively and significantly affects a company's performance [39].

The variable X5 (Perceived Ease of Use) is known to have an average value of 24.91 with a minimum and maximum value of 13 and 30 with a standard deviation of 3.524. The finding is negative and insignificant to the company's performance [37].

The variable X6 (Attitude) is known to have an average value of 16.72 with a minimum and maximum value of 9 and 20 with a standard deviation of 2.340. The finding is similar to a previous study that found that attitude positively and significantly affects a company's performance [40].

The variable Y (Behavioral Intention) is known to have an average value of 17.20 with a minimum and maximum value of 9 and 20 with a standard deviation of 2.236. The finding is similar to a previous study that found that behaviour positively and significantly affects a company's performance [40].

b. Validity Test

Measuring the validity of this study using Pearson Correlations (2-tailed). The validity test is done by looking at the significant value (2-tailed) using the table r.

TABLE II: VALIDITY TEST

N = 127	***Pearson Correlations***
TC 1	**.597**
TC 2	**.623**
TC 3	**.626**
TC 4	**.561**
TC 5	**.592**
TC 6	**.634**
TC 7	**.571**
TC 8	**.500**
TC 9	**.529**
OC 1	**.891**
OC 2	**.900**
EC 1	**.796**
EC 2	**.766**
EC 3	**.665**
EC 4	**.665**
PU 1	**.785**
PU 2	**.684**
PU 3	**.687**
PU 4	**.745**
PU 5	**.759**
PE 1	**.775**
PE 2	**.722**
PE 3	**.838**
PE 4	**.716**
PE 5	**.750**
PE 6	**.771**
A 1	**.802**
A 2	**.826**
A 3	**.782**
A 4	**.794**
BI 1	**.798**
BI 2	**.814**
BI 3	**.823**
BI 4	**.673**

Based on the results of the validity test table, it is known that

1. The validity value of TC1 is 0.597 > 0.1793.
2. The validity value of TC2 is 0.623 > 0.1793.
3. The validity value of TC3 is 0.626 > 0.1793.
4. The validity value of TC4 is 0.561 > 0.1793.
5. The validity value of TC5 is 0.634 > 0.1793.
6. The validity value of TC6 is 0.634 > 0.1793.
7. The validity value of TC7 is 0.571 > 0.1793.
8. The validity value of TC8 is 0.500 > 0.1793.
9. The validity value of TC9 is 0.529 > 0.1793.
10. The validity value of OC1 is 0.891 > 0.1793.
11. The validity value of OC2 is 0.900 > 0.1793.
12. The validity value of EC1 is 0.796 > 0.1793.
13. The validity value of EC2 is 0.766 > 0.1793.
14. The validity value of EC3 is 0.665 > 0.1793.
15. The validity value of EC4 is 0.665 > 0.1793.
16. The validity value of PU1 is 0.785 > 0.1793.
17. The validity value of PU2 is 0.684 > 0.1793.
18. The validity value of PU3 is 0.687 > 0.1793.
19. The validity value of PU4 is 0.745 > 0.1793.
20. The validity value of PU5 is 0.759 > 0.1793.
21. The validity value of PE1 is 0.775 > 0.1793.
22. The validity value of PE2 is 0.722 > 0.1793.
23. The validity value of PE3 is 0.838 > 0.1793.
24. The validity value of PE4 is 0.716 > 0.1793.
25. The validity value of PE5 is 0.750 > 0.1793.
26. The validity value of PE6 is 0.771 > 0.1793.
27. The validity value of A1 is 0.802 > 0.1793.
28. The validity value of A2 is 0.826> 0.1793.
29. The validity value of A3 is 0.782 > 0.1793.
30. The validity value of A4 is 0.794 > 0.1793.
31. The validity value of BI1 is 0.798 > 0.1793.
32. The validity value of BI2 is 0.814 > 0.1793.
33. The validity value of BI3 is 0.823 > 0.1793.
34. The validity value of BI4 is 0.673 > 0.1793.

It can be concluded that all variables from the validity test results are more than r table 0.1793. r table obtained from 127 respondents with a significance level of 5%.

c. Reliability Test

Reliability is used to achieve valid and reliable research outcomes and measure many times to produce the same data.

TABLE III: RELIABILITY TEST

	Cronbach's Alpha
X1 (TC)	**.737**
X2 (OC)	**.753**
X3 (EC)	**.682**
X4 (PU)	**.783**
X5 (PE)	**.856**
X6 (A)	**.813**
Y (BI)	**.778**

Based on the outcomes of the reliability test, it is known that the value of the Technology Context is 0.737. It can be concluded that the data can be received well. The value of the Organizational Context is 0.753. It can be concluded that the data can be received well. The value of the Environment Context is 0.682. Then it can be concluded that the data is acceptable. The value of the Perceived Usefulness is 0.783. It can be concluded that the data can be received well. The value of the Perceived Ease of Use is 0.856. It can be concluded that the data can be received very well. The value of the Attitude is 0.813. It can be concluded that the data can be received very well. The value of the

Behavioral Intention is 0.778. It can be concluded that the data can be received well.

d. Multiple Linear Regression Analysis

Multiple regression is applied to solve cases that have one dependent variable with several / more independent variables.

TABLE IV: MULTIPLE LINEAR REGRESSION ANALYSIS

Y = 0.49 + 0.148X1 + 0.099X2 – 0.119X3 + 0.206X4 + 0.075X5 + 0.362X6

The linear equation test uses a significance level of 0.05. If the significant value shown in each test is greater than 0.05, a regression model can be used in this study.

e. Normality Test

The normality test in the regression model is used to check whether the information is typically distributed or not by searching at the significance of the Kolmogorov-Smirnov (K-S) test.

TABLE V: NORMALITY TEST

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		127
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	1.23155308
Most Extreme Differences	Absolute	.064
	Positive	.038
	Negative	-.064
Test Statistic		**.064**
Asymp. Sig. (2-tailed)		**.200[c,d]**
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

Based on the outcomes of the normality test, it is recognised that the significance value is 0.200 > 0.05. So, it can be concluded that the residual value is generally distributed.

f. Multicollinearity and t-test

The multicollinearity test goals to examine whether or not the regression model finds a correlation between independent variables. In addition, the t-test is a test used to show how far an independent variable can partially or individually explain variations of independent variables.

TABLE VI: MULTICOLLINEARITY AND t-tEST

Coefficients							
Model	***Unstandardised Coefficients***		***Standardised Coefficients***	***t***	***Sig.***	***Collinearity Statistics***	
	B	***Std. Error***	***Beta***			***TOL***	***VIF***
(Constant)	.029	1.102		.027	.979		
X1 (TC)	.128	.043	.256	3.007	.003	**.362**	**2.766**
X2 (OC)	.051	.106	.032	.480	.632	**.583**	**1.716**
X3 (EC)	-.119	.060	-.150	-1.984	.050	**.457**	**2.188**
X4 (PU)	.295	.072	.337	4.070	.000	**.382**	**2.615**
X5 (PE)	.096	.049	.140	1.974	.051	**.522**	**1.914**
X6 (A)	.310	.084	.313	3.676	.000	**.363**	**2.758**
a. Dependent Variable: Y							

Based on the table of multicollinearity test results above, the variable X1 (Technology Context) is known to have a TOL value of 0.362 > 0.1, while the VIF value is 2.766 < 10. Based on the decision making on the multicollinearity test, there is no multicollinearity symptom in the regression model. The variable X2 (Organizational Context) is known to have a TOL value of 0.583 > 0.1, while the VIF value is 1.716 < 10. Based on the decision making on the multicollinearity test, there is no multicollinearity symptom in the regression model. The variable X3 (Environment Context) is known to have a TOL value of 0.457 > 0.1, while the VIF value is 2.188 < 10. Based on the decision making on the multicollinearity test, there are no multicollinearity symptoms in the regression model. The variable X4 (Perceived Usefulness) is known to have a TOL value of 0.382 > 0.1, while the VIF value is 2.615 < 10. Based on the decision making on the multicollinearity test, there is no multicollinearity symptom in the

regression model. The variable X5 (Perceived Ease of Use) is known to have a TOL value of 0.522 > 0.1, while the VIF value is 1.914 < 10. Based on the decision making on the multicollinearity test, there is no multicollinearity symptom in the regression model. The variable X6 (Attitude) is known to have a TOL value of 0.363 > 0.1, while the VIF value is 2.758 < 10. Based on the decision making on the multicollinearity test, there is no multicollinearity symptom in the regression model.

Based on the table of multicollinearity test results above, it is known:

1 Sig. for the effect of variable X1 (Technology Context) on Y (Behavioral Intention) is 0.001 <0.05. It can be concluded that Ha is accepted and Ho is rejected.
2 Sig. for the influence of variable X2 (Organizational Context) on Y (Behavioral Intention) is 0.324> 0.05. It can be concluded that Ha is rejected and Ho is accepted.
3 Sig. for the influence of variable X3 (Environment Context) on Y (Behavioral Intention) is 0.05 = 0.05. It can be concluded that Ha is accepted and Ho is rejected.
4 Sig. for the influence of the variable X4 (Perceived Usefulness) on Y (Behavioral Intention) is 0.003 <0.05. It can be concluded that Ha is accepted and Ho is rejected.
5 Sig. for the influence of the variable X5 (Perceived Ease of Use) on Y (Behavioral Intention) is 0.103> 0.05. It can be concluded that Ha is rejected and Ho is accepted.
6 Sig. for the influence of the variable X6 (Attitude) on Y (Behavioral Intention) is 0.000 <0.05. It can be concluded that Ha is accepted and Ho is rejected.

g. *F-Test*

The F test is used to discover whether all the independent variables covered in the model jointly (simultaneously) impact the dependent variable.

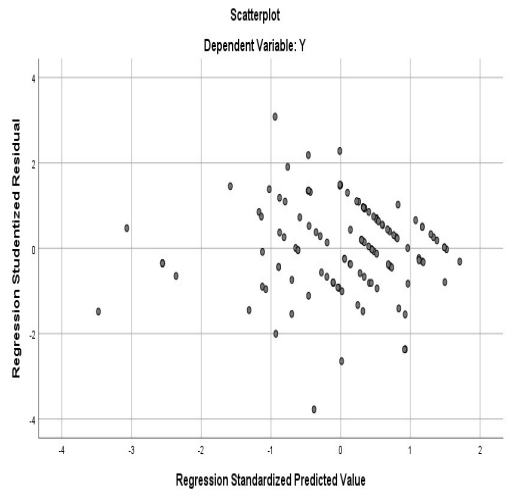
TABLE VII: ANOVA (F TEST)

ANOVA[a]					
Model	***Sum of Squares***	***df***	***Mean Square***	***F***	***Sig.***
Regression	438.972	6	73.162	45.940	.000[b]
Residual	191.107	120	1.593		
Total	630.079	126			
a. Dependent Variable: Y					
b. Predictors: (Constant), X6, X3, X2, X5, X1, X4					

h. *Heteroscedasticity Test*

The heteroscedasticity test pursuits to examine whether in a regression model used there is a similarity in variance from the residuals of one other observation.

TABLE VII: HETEROSCEDASTICITY TEST



Based on the heteroscedasticity test table, it can be considered that the dots unfold randomly and are unfold each above and under the variety zero on the Y-axis and do not shape a particular pattern regularly (wavy, widened, then narrowed). Thus, it can be concluded that there is nothing heteroscedasticity impact in the regression model.

i. *Coefficient of Determination*

The coefficient of determination aims to see how plenty influence the independent variable has on the established variable partly using the coefficient of determination.

TABLE VIII: COEFFICIENT OF DETERMINATION (R^2)

Model Summary				
Model	***R***	***R Square***	***Adjusted R Square***	***Std. Error of the Estimate***
1	.835[a]	.697	**.682**	1.262
a. Predictors: (Constant), X6, X3, X2, X5, X1, X4				
b. Dependent Variable: Y				

From the results of the coefficient of determination table, the value of the coefficient of determination (Adjusted R Square) is 0.682, which means that the effect of the independent variable (X) on the dependent variable (Y) is 68.2%.

5. DISCUSSION

This study aims to investigate the effect of cloud computing on the performance of the company in Indonesia. The result shows that Indonesian companies have exposure to Industry 4.0 technology such as cloud computing. This statement is critical as it shows that the Indonesian industry is growing and beginning to adopt Industry 4.0 technology. The adoption of technology will significantly improve the company's performance and attract more foreign investment. As a result, local companies will become more competitive and work together in a multinational supply chain [41].

The result also shows that organisational support is required to adopt cloud computing. Knowing the advantages of cloud computing is insufficient if the top management does not support the cause. However, the negative and insignificant finding is understood as a scholar has found that top management is unwilling to invest in Industry 4.0 technology because the current state of the technology is still in the infant stage. Additionally, top management wanted to wait for the incentives given by the government [42].

This study also has proven that companies in Indonesia should implement cloud computing because the environment in which the company is operating has exposure and already accepting the importance of cloud computing. Therefore, the delay in adopting cloud computing will increase the likelihood of competitors adopting the technology and gain a competitive advantage. Since the industry is growing, the Indonesian government can introduce incentives to encourage more companies to adopt the technology. The adoption of cloud computing will improve the performance of companies and their supply chain networks as well as the industry performance [43].

Future research should focus on the use of social network theory [44]. Since it has been proven that the adoption of cloud computing has a positive and significant effect on the performance of companies in Indonesia, understanding the trend, the bottleneck, and the future direction in the industry are required. The objective can be achieved using social network analysis in which companies with cloud computing network can be discovered. Additionally, after investigating the network of cloud computing companies, investigation of the changes in behaviour of individuals related to technology usage is also recommended. Companies are not willing to invest heavily to gain profits [45]. Companies want to invest to ensure that the employee's productivity can be increased in the long term. Therefore, future research should look into the pre-environment and post-environment of employees using cloud computing in terms of performance [46].

6. CONCLUSION

The conclusion shows that cloud computing services affect company performance. This study indicates that 68.2% of the dependent variables of Behavioral Intention can be explained by independent variables, namely Technology Context, Organization Context, Environmental Context, Perceived Usefulness, Perceived Ease of Use and Attitude. Companies that adopt cloud computing services as a reference in the decision-making process in the future

To improve cloud computing services in companies, they should increase the influence of the Organisational Context on top-level management in making the right decisions in using cloud computing services. The higher the level of influence on the Organisational Context, the higher the adoption of cloud computing. In addition, it is hoped that the effect of Perceived Ease of Use will be further improved so that users in the company can increase the use of cloud computing quickly and efficiently. However, the inconclusive result of Perceived Ease of Use and Organisational Context can be further investigated using another method such as social network analysis. It can be argued that companies' top management was not willing to invest heavily in the technology as the competitors are also not widely adopting cloud computing at this time. This statement is true when looking at the environmental acceptance of cloud computing among the respondents. Therefore, it is the Indonesian government responsibility to improve the industry by introducing incentives for companies to adopt Industry 4.0 technology.

Furthermore, the current movement in the literature and industry are in tandem where companies are moving toward the digital economy. Thus, companies need to start adopting technology whether the usefulness and support are required or

not. This statement is aligned with the theory of Resource-Based View, where companies that start a movement on a new resource that is not easily imitated and unique to others will gain a competitive advantage. This statement should be a reminder to top management that view cloud computing as unimportant or insignificant in improving their companies' performance.

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APPENDIX

Appendix-A: Questionnaire

VARIABLE	ITEM	DESCRIPTION
TECHNOLOGY ACCEPTANCE MODEL (TAM)	PU 1	CLOUD COMPUTING ALLOWS ME TO GET WORK DONE WITH EASE
	PU 2	USING CLOUD COMPUTING IMPROVES ENTERPRISE PERFORMANCE
	PU 3	I THINK THE APPLICATION OF CLOUD COMPUTING WILL BE VERY USEFUL FOR IMPROVING COMPANY PERFORMANCE
	PU 4	USING CLOUD COMPUTING MAKES ME EASIER FOR ENTERPRISE PERFORMANCE
	PU 5	OVERALL, CLOUD COMPUTING IS BENEFICIAL IN ENTERPRISE PERFORMANCE
	PE 1	IT IS EASY FOR ME TO OPERATE THE CLOUD COMPUTING SYSTEM
	PE 2	IT IS EASY FOR ME TO OPERATE CLOUD COMPUTING THE WAY I WANT IT
	PE 3	THE WAY CLOUD COMPUTING OPERATES IS CLEAR AND EASY TO UNDERSTAND
	PE 4	I FEEL CLOUD COMPUTING IS VERY FLEXIBLE WHEN USED FOR BUSINESS ACTIVITIES
	PE 5	IT DOESN'T TAKE ME MUCH EFFORT TO BECOME SKILLED AT USING CLOUD COMPUTING
	PE 6	OVERALL, CLOUD COMPUTING IT EASY TO USE
	A 1	USING CLOUD COMPUTING IS A GREAT SOLUTION
	A 2	USING CLOUD COMPUTING IS A FAVORABLE
	A 3	I LIKE TO USE CLOUD COMPUTING
	A 4	USING CLOUD COMPUTING IS MORE FUN
	BI 1	I INTEND TO USE CLOUD COMPUTING IN MY CURRENT BUSINESS ACTIVITIES
	BI 2	I INTEND TO USE CLOUD COMPUTING TO FACILITATE MY BUSINESS ACTIVITIES
	BI 3	I INTEND TO USE CLOUD COMPUTING IN THE FUTURE
	BI 4	I BELIEVE IN USING CLOUD COMPUTING TO BE SAFE IN DOING BUSINESS ACTIVITIES
TECHNOLOGY – ORGANIZATIONAL – ENVIRONMENT (TOE)	TC 1	CLOUD COMPUTING HELPS IMPROVE PERFORMANCE WITHIN THE COMPANY
	TC 2	CLOUD COMPUTING HELPS ADAPT TO THE LATEST TECHNOLOGY
	TC 3	THE COMPLEXITY OF USING CLOUD COMPUTING BECOMES A BARRIER TO THE ADOPTION OF NEW TECHNOLOGIES
	TC 4	ADJUSTMENTS IN USING CLOUD COMPUTING ARE A BARRIER TO THE ADOPTION OF NEW TECHNOLOGIES
	TC 5	COMPUTING CAN BE APPLIED TO COMPANY PERFORMANCE
	TC 6	THE QUALITY OF SERVICE HAS A POSITIVE IMPACT ON THE APPLICATION OF CLOUD COMPUTING
	TC 7	THE SECURITY OF CLOUD COMPUTING SERVICES IS MORE GUARANTEED FOR COMPANIES
	TC 8	GUARANTEE ON PRIVACY INCREASES THE RATE OF CLOUD COMPUTING ADOPTION
	TC 9	GUARANTEE TRUST CAN IMPROVE CLOUD COMPUTING ADOPTION
	OC 1	SUPPORT FROM TOP MANAGEMENT CREATES A FAVORABLE CLIMATE BY PROVIDING SUFFICIENT RESOURCES FOR CLOUD COMPUTING APPLICATIONS
	OC 2	ORGANIZATIONAL READINESS HELPS ACHIEVE CLOUD COMPUTING DEPLOYMENTS
	EC 1	THE LEVEL OF BUSINESS COMPETITION CAN DECREASE WITH THE APPLICATION OF CLOUD COMPUTING
	EC 2	PRESSURE FROM VENDORS IS INCREASING THE ADOPTION OF CLOUD COMPUTING
	EC 3	THERE ARE NO LAWS GLOBALLY TO ENSURE THE SECURITY OF DATA AND RESOURCES FROM CLOUD COMPUTING
	EC 4	SUPPLIERS' COMPUTING SUPPORT MAY AFFECT THE LIKELIHOOD OF CLOUD COMPUTING DEPLOYMENTS

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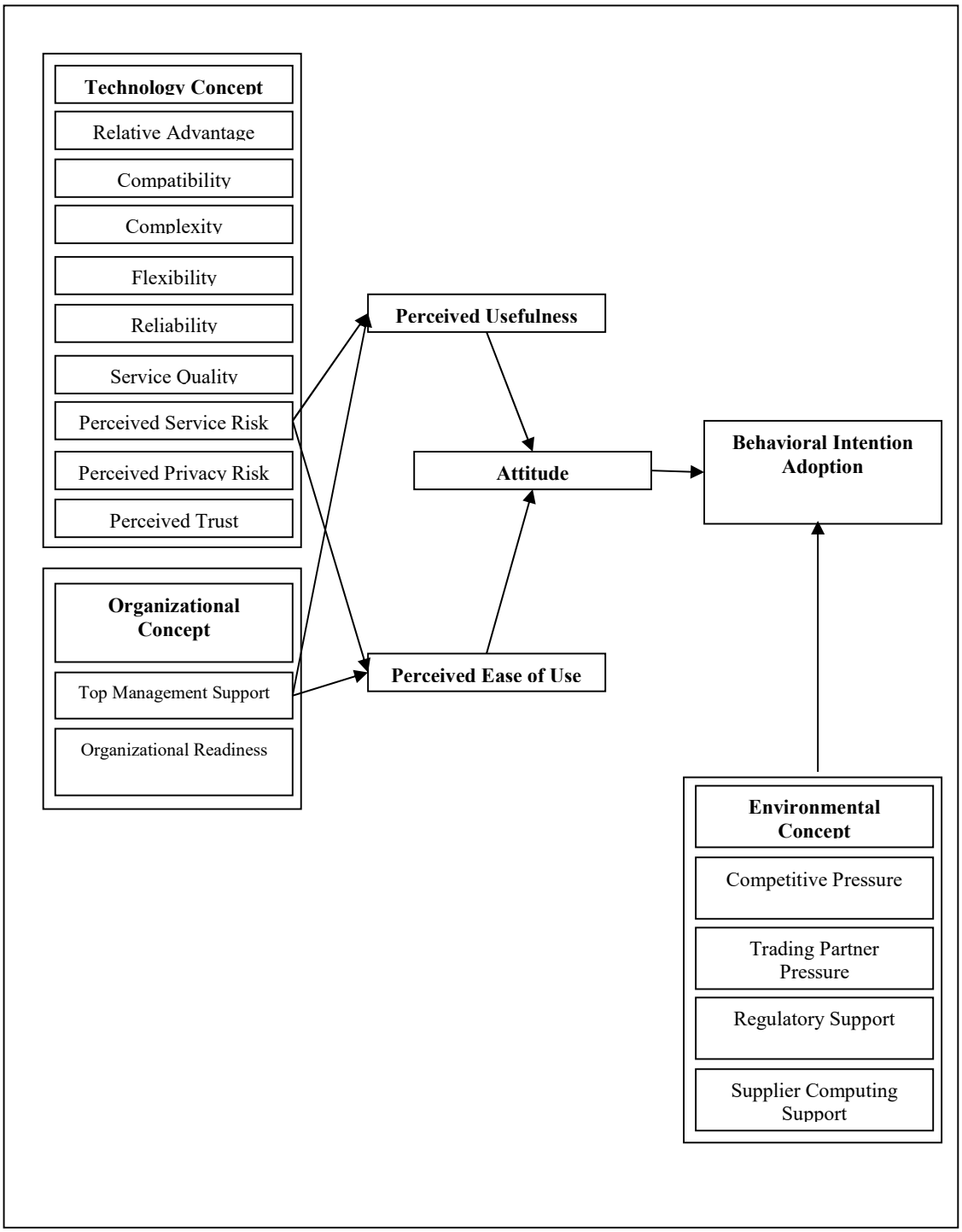

Figure 1: TAM-TOE Framework