



The role of human capital readiness in digital culture transformation in the era of industry 4.0

Vivi Puji Astuti ^{1*}

¹ Department of Magister Management, Faculty of Economics and Business, Universitas Pekalongan, Pekalongan, 51111, Indonesia

ABSTRACT

This study aims to determine the role of human capital readiness on digital culture transformation. This research method uses quantitative methods with accidental sampling technique and the sample calculation technique uses the estimated interval method. Where the sample in this study was 38 Micro, Small and Medium (MSMEs) business people in Pekalongan City who has joined the marketplace. Data were analyzed using multiple linear regression analysis. The results of this study reveal that partially (1) knowledge management has no significant effect on digital culture, (2) skills has a significant positive effect on digital culture, (3) attitude has a significant positive effect on digital culture. The effect of knowledge management, skill, and attitude on digital culture is 87,3% while the remaining 12,7% is influenced by other factors not included in this study such as innovation, creativity, quality of technology, and so on

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* Corresponding Author at Department of Management, Faculty of Economics and Business, Universitas Pekalongan, Jl. Sriwijaya No. 3 Kota Pekalongan, 51111, Indonesia
E-mail address: Vivipuji.a@gmail.com



1. Introduction

The development of a country's economy can be observed through the economic growth rate of the country during specific periods. Economic growth is a continuous process of changing the economic conditions of a country towards a better state over a certain period. The process of increasing the production capacity of an economy, manifested in the form of increasing national income, is interpreted as economic growth. One significant role in the economic growth of Indonesia is Micro, Small, and Medium Enterprises (MSMEs). In Press Release HM.4.6/553/SET.M.EKON.3/10/2022 by the Coordinating Ministry for Economic Affairs of the Republic of Indonesia, it is mentioned that the role of MSMEs is significant for Indonesia's economic growth, with their number reaching 99% of all business units. The contribution of MSMEs to the Gross Domestic Product (GDP) reaches 60.5%, and to employment absorption is 96.9% of the total national employment.

The world of business economy is currently declared to be in the era of Industry 4.0, where technology and information development are growing rapidly. This can be seen from the increasing number of internet users in Indonesia. It is also stated by the Central Statistics Agency (BPS) that Indonesia is one of the countries with the largest population of internet users in the world. The number of internet users in Indonesia was 132.7 million in 2018, 150 million in 2019, 175.4 million in 2020, 202.6 million in 2021, and 205 million in 2022.

The increasing number of internet users in Indonesia every year indicates that in the era of Industry 4.0, people are reluctant to be separated from internet technology, including in the buying and selling economic system, as seen in the data on the growth of e-commerce users in Indonesia. The number of e-commerce users was 87.5 million in 2018, 112.1 million in 2019, 129.9 million in 2020, 148.5 million in 2021, and 166.1 million in 2022. The increasing number of e-commerce users each year presents a significant opportunity for MSMEs to increase profitability. However, it also poses a challenge as it requires business actors to adjust the culture of the company or organization they own. The cultural adjustment that MSMEs need to implement in the Industry 4.0 era is digital culture.

According to McGrath & Maiye (2010), digital culture is a process of organizational implementation that aims at changing infrastructure and providing value to its customers by integrating digital technology into all aspects of operations. In the process of implementing digital culture, it certainly needs to be supported by the readiness of human capital capacity and capability or the business actors themselves. According to Hendarman et al., (2020), improving human capital readiness can be developed with dimensions of knowledge, skills, and attitude. As in the research conducted by Mert Duygan, et al., (2023), which states that attitude is a strong predictor that influences adaptation expectations for digital innovation processes.

The research conducted by Wicaksana, S. A., & Isfania, R. (2022) states that knowledge sharing significantly influences organizational agility, and its impact increases when organizational culture is added as a moderating variable. Additionally, research by D. Matthews, & D. O'Connor (2021) indicates that companies with human resources possessing strong digital skills tend to have stronger digital cultures and are more capable of adopting digital technology more effectively. Furthermore, research by S.S. Hassan, & M. Iqbal (2020) shows that human resources with high skills in information technology and communication have a positive influence on the digital transformation process in companies.

The study conducted by Asbari, M., et al., (2020) also states that hard skills and soft skills have a positive and significant influence on teachers' innovation abilities, both directly and indirectly through the mediation of organizational culture. Additionally, research by Satti, M. Z., et al., (2019) indicates



that companies prioritizing human resource development in technology and digitalization will have stronger and more effective digital cultures in adopting and utilizing digital technology. However, some findings from these studies are not consistent with research conducted by Alnsour, et al., (2019), which found that although human resources in public companies in Jordan are relatively prepared to face digital technology changes, this readiness does not significantly affect changes in corporate culture. Furthermore, research by Kianto, et al., (2019) shows that human resource readiness in adopting digital technology does not always influence corporate culture transformation, especially if there are organizational barriers hindering cultural change.

Based on the background description of the problem, the phenomenon of the gap, and the research gap above, the author is interested in conducting research with the title "The Role of Human Capital Readiness in Digital Culture Transformation in the Era of Industry 4.0." The objectives of this research include: (1) to test and analyze the role of knowledge management in digital culture in the era of Industry 4.0. (2) To test and analyze the role of skills in digital culture in the era of Industry 4.0. (3) to test and analyze the role of attitude in digital culture in the era of Industry 4.0.

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2. Method, Data, and Analysis

The research method employs a survey method using a questionnaire that must be filled out by respondents. This type of research is quantitative research with an accidental sampling technique, which involves selecting respondents to be used as samples based on those encountered by the researcher by chance. The calculation technique used by the researcher is the interval estimation method. Here is the formula for calculating the interval estimation method:

$$n = \left\{ \frac{Za}{e} \right\}^2$$

Where:

N : minimum sample size

Z : area under the normal curve

a : standard deviation of the population. In this case, since the population size is unclear, the standard deviation is assumed to be 50%, so a = 0.50

e : sampling error

The sampling measurement using the interval estimation method used by the researcher is as follows:

$$n = \left\{ \frac{Za}{e} \right\}^2$$

$$n = \left\{ \frac{1,65 (0,50)}{0,10} \right\}^2$$

$$n = 68,0625$$

From the calculation of the interval estimation method above, the researcher took 68 subjects from all SMEs in the city of Pekalongan who have joined the marketplace as research samples. Data



collection techniques used a questionnaire with a Likert scale. The main instrument was used to systematically obtain data containing several questions given to respondents who met the criteria for validity and reliability.

The analysis technique used in this research is the multiple linear regression analysis method to determine the significant relationship between two independent variables and one dependent variable. The multiple regression equation in this study is as follows:

$$Y = a + b_1.KM + b_2.S + b_3.A + e$$

Dimana:

Y : *Digital culture*
 a : Konstanta
 b₁ : Koefisien regresi untuk X₁
 b₂ : Koefisien regresi untuk X₂
 b₃ : Koefisien regresi untuk X₃
 KM : *Knowledge Management*
 S : *Skill*
 A : *Attitude*
 e : Standar error

Testing:

a. Model Feasibility Test (F Test)

The model feasibility test (F test) is used to assess the feasibility of the research and to indicate whether all independent variables included in the model collectively influence the dependent variable.

b. Partial Test (t Test)

Partial hypothesis testing (t test) is used to show how far one independent variable influences the dependent variable.

3. Result and Discussion

From the data collection using structured questionnaires distributed through Google Forms, a total of 38 respondents were obtained. The profile of the respondents in this study was observed to provide an overview of what this research sample looks like. Based on gender, there were 26 male respondents and 12 female respondents. Then, based on age group, all respondents were in the age range of 17 - 30 years old. This indicates that the respondents in this study are micro, small, and medium-sized business owners in the city of Pekalongan who have joined the marketplace, ranging from late adolescence to early adulthood, which falls into Generation Z. Generation Z is known as the internet generation that utilizes the internet and technology to navigate life.

Validity testing in this study was conducted by allocating scores to each item question addressed to the respondents with a total score for all items. The correlation technique used to test the validity of the question items in this study is the Pearson Product Moment correlation. The critical value (rtabel) is 0.320 (n = 38).



Table 1. Hasil Uji Validitas

Variabel	r_{hitung}	r_{tabel}	Interpretasi
<i>Knowledge Management</i>			
1	0,785	0,320	Valid
2	0,893	0,320	Valid
3	0,756	0,320	Valid
4	0,517	0,320	Valid
5	0,573	0,320	Valid
6	0,784	0,320	Valid
7	0,525	0,320	Valid
8	0,645	0,320	Valid
<i>Skill</i>			
1	0,919	0,320	Valid
2	0,843	0,320	Valid
3	0,811	0,320	Valid
4	0,803	0,320	Valid
5	0,913	0,320	Valid
6	0,901	0,320	Valid
<i>Attitude</i>			
1	0,747	0,320	Valid
2	0,761	0,320	Valid
3	0,592	0,320	Valid
4	0,676	0,320	Valid
5	0,877	0,320	Valid
6	0,594	0,320	Valid
7	0,582	0,320	Valid
8	0,785	0,320	Valid
<i>Digital Culture</i>			
1	0,678	0,320	Valid
2	0,754	0,320	Valid
3	0,789	0,320	Valid
4	0,803	0,320	Valid
5	0,670	0,320	Valid
6	0,753	0,320	Valid
7	0,813	0,320	Valid
8	0,769	0,320	Valid

Sumber: data diolah (2023)

Table 2. Hasil Uji Reliabilitas

Variabel	Cronbach Alpha	Nilai Standar	Keterangan
<i>Knowledge Management</i>	0,867	0,600	Reliabel
<i>Skill</i>	0,929	0,600	Reliabel
<i>Attitud</i>	0,888	0,600	Reliabel
<i>Digital Culture</i>	0,903	0,600	Reliabel

Sumber: data diolah (2023)



Model Fit Test (F Test)

Table 7 Hasil Uji F

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	439.404	3	146.468	77.726	.000 ^b
Residual	64.070	34	1.884		
Total	503.474	37			

a. Dependent Variable: Digital Culture

b. Predictors: (Constant), Attitude, Skill, Knowledge Management

The F test is a test used to assess the model fit and can be used to test the roles of knowledge management, skills, and attitudes simultaneously on digital culture. If the calculated F value $\geq$ the tabulated F value and the significance value is less than 0.05, then this research model is deemed suitable and tested to have a simultaneous effect.

Based on Table 7 above, it shows that this research model is suitable for use and tested that there is a significant effect of the roles of knowledge management, skills, and attitudes simultaneously on digital culture because the calculated F value $\geq$ the tabulated F value = $77.726 \geq 2.88$ with a significance value of 0.000.

Multiple Linear Regression Analysis

Table 8 Hasil Regresi Linier Berganda

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	5.500	3.268		1.683	.102		
Knowledge Management	.111	.132	.077	.841	.406	.446	2.244
Skill	.780	.088	.758	8.877	.000	.513	1.947
Attitude	.579	.009	.169	2.647	.009	.455	1.820

a. Dependent Variable: Digital Culture

Based on the table above, the regression equation is as follows:

$$Y = 5.500 + 0.111 \text{ KM} + 0.780 \text{ S} + 0.579 \text{ A} + e$$

In the multiple linear regression model above, it can be interpreted as follows:

1. The regression coefficient of knowledge management (X1) is positive, meaning that if the knowledge management variable increases, digital culture will improve.
2. The regression coefficient of skill (X2) is positive, meaning that if the skill variable increases, digital culture will improve.
3. The regression coefficient of attitude (X3) is positive, meaning that if the attitude variable increases, digital culture will improve.



Hypothesis Testing Results

Partial Test (t-test)

The t-statistic test essentially indicates the extent to which an independent variable organizationally influences the explanation of the dependent variable. Based on Table 8, the results can be explained as follows:

1. Results of hypothesis testing 1

Based on Table 8 above, it shows that the knowledge management variable (X1) partially has a positive but not significant effect on digital culture (Y) because the $t\text{-value} \leq t\text{-table} = 0.841 \leq 2.032$ with a significance value of 0.406. Thus, it can be concluded that hypothesis 1 (H1) is rejected.

2. Results of hypothesis testing 2

Based on Table 8 above, it shows that the skill variable (X2) partially has a positive and significant effect on digital culture (Y) because the $t\text{-value} \geq t\text{-table} = 8.877 \geq 2.032$ with a significance value of 0.000. Thus, it can be concluded that hypothesis 2 (H2) is accepted.

3. Results of hypothesis testing 3

Based on Table 8 above, it shows that the attitude variable (X3) partially has a positive and significant effect on digital culture (Y) because the $t\text{-value} \geq t\text{-table} = 2.647 \geq 2.032$ with a significance value of 0.009. Thus, it can be concluded that hypothesis 3 (H3) is accepted.

Coefficient of Determination

Table 9 Koefisien Determinasi

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.934 ^a	.873	.862	1.373	1.865

a. Predictors: (Constant), Attitude, Skill, Knowledge Management

b. Dependent Variable: Digital Culture

The table above shows that the R-squared value is 0.873, meaning that the variables knowledge management, skill, and attitude can explain 87.3% of the variation in the digital culture variable. The remaining 12.7% represents other variables not included in this study, such as innovation, creativity, technology quality, and so on.

4. Conclusion and Suggestion

Conclusion

- Based on the partial testing results, the variable of knowledge management has a positive but insignificant effect on digital culture. This is because the majority of Micro, Small, and Medium Enterprises (MSMEs) entrepreneurs still cannot analyze their business positions to identify opportunities and follow customer behavior. However, this information can be easily accessed through digital data. McKinsey & Company (2020) found that only 10% of MSMEs in Indonesia use digital tools to analyze market trends and customer behavior. Therefore, it can be concluded that MSME entrepreneurs in this study pay insufficient attention to knowledge management in integrating digital technology into their businesses (digital culture transformation). This is consistent with the research conducted by Alnsour, et al., (2019) and Kianto, et al., (2019).



2. Based on the partial testing results, the skill variable has a significant positive effect on digital culture. This means that if entrepreneurs have strong digital skills, they are more likely to have a stronger digital culture and are better able to adopt digital technology effectively. This aligns with the findings of research conducted by D. Matthews, & D. O'Connor (2021), S.S. Hassan, & M. Iqbal (2020), and Asbari, M., et al., (2020).
3. Based on the partial testing results, the attitude variable has a significant positive effect on digital culture. This means that the process of implementing digital technology into overall business operations will succeed quickly if supported by a positive attitude towards change. This is consistent with the findings of research conducted by Mert Duygan, et al., (2023).
4. Based on the simultaneous testing results, the variables of knowledge management, skill, and attitude have a significant positive effect on digital culture. This means that integrating digital technology with skills, innovation, and a positive attitude towards change will result in more effective adoption of digital culture. This aligns with the findings of research by Hendarman et al., (2020).

Suggestion

1. This study is limited to the variables of knowledge management, skill, and attitude. However, there are many other variables that can influence digital culture transformation, such as innovation, creativity, technology quality, and so on. Therefore, future researchers are expected to develop additional research variables.
2. The research sample is limited to only one subject, namely Micro, Small, and Medium Enterprises (MSMEs) entrepreneurs in Pekalongan City. It is hoped that future researchers can expand the sample or innovate in developing subjects.
3. It is hoped that Micro, Small, and Medium Enterprises (MSMEs) entrepreneurs in Pekalongan City can adopt digital culture well, one of which is by developing knowledge management to analyze market trends and customer behavior.

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