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DIGITAL TECHNOLOGY ADOPTION AND PERFORMANCE OF WOMEN ENTREPRENEURS: FINDINGS FROM EAST JAVA

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ABSTRACT

This research aims to analyze the influence of digital technology adoption on the performance of women entrepreneurs. This type of research is quantitative with a causal associative type. The population in this study was 394 women entrepreneurs in East Java Province. The sampling technique used purposive sampling to obtain a sample size of 268 respondents. Data collection uses questionnaires and data analysis techniques using PLS-SEM. The research results show that digital technology adoption has a positive and significant effect on the performance of women entrepreneurs in East Java Province. These results provide a practical contribution, namely that women entrepreneurs are encouraged to adopt digital technology so that it can help them improve their business performance.

Keywords: Digital Technology Adoption, Performance, Women Entrepreneurs, East Java.

ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh adopsi teknologi digital terhadap kinerja pengusaha perempuan. Jenis penelitian ini kuantitatif dengan tipe asosiatif kausal. Populasi dalam penelitian ini adalah pengusaha perempuan di Provinsi Jawa Timur sebanyak 394 orang. Teknik pengambilan sampel menggunakan purposive sampling sehingga diperoleh jumlah sampel sebesar 268 responden. Pengumpulan data menggunakan kuesioner dan teknik analisis data menggunakan PLS-SEM. Hasil penelitian menunjukan bahwa adopsi teknologi digital berpengaruh positif dan signifikan terhadap kinerja pengusaha perempuan di Provinsi Jawa Timur. Hasil ini memberikan kontribusi praktis yaitu pengusaha perempuan didorong untuk mengadopsi teknologi digital sehingga dapat membantu mereka dalam meningkatkan kinerja usahanya.

Kata Kunci: Adopsi Teknologi Digital, Kinerja, Pengusaha Perempuan, Jawa Timur.

Introduction

Technology adoption is not gender-neutral, and some research literature confirms the limited participation of women in high-tech organizations and positions (Domecq et al., 2020). Men consider that the emergence of women entrepreneurs poses a threat to the business world, so women's involvement in entrepreneurial activities is still very limited (S. & Shivappa, 2021). Women are still less advanced in starting and managing their own businesses than men; women earn less money with slower business growth (Srividhya & Paramasivam, 2022).

Women entrepreneurs are less likely to adopt digital technologies than men (Orser & Riding, 2018; Lashitew, 2023). The level of digital technology adoption is still in its infancy among women entrepreneurs (Bhagat et al., 2021). Increasing access to digital technology has had a much greater beneficial effect on men entrepreneurs than on women entrepreneurs (Manocha et al., 2021).

Women's entrepreneurship is synonymous with women's empowerment (S. & Shivappa, 2021). Parallel to men, women entrepreneurs are quite fast with respect to innovation and job creation and also contribute more than real to the nation's income. In East Java, women play an important role in economic development. Table 1 shows data on the increase in women's income every year.

Table 1. Contribution to Women's Income in East Java Province, 2014-2023

No.	Year	Women's Income Contribution (%)
1	2014	34.83
2	2015	35.17
3	2016	35.52
4	2017	35.63
5	2018	35.64
6	2019	35.68
7	2020	35.81
8	2021	35.72
9	2022	35.81
10	2023	35.59

Source: BPS, 2024

This research aims to analyze the influence of digital technology adoption on the performance of women entrepreneurs in East Java Province. Women are expected to contribute and play an active role in the digital context because gender norms that regulate the different roles of men and women are starting to melt and change (Discua Cruz et al., 2022). The role of women digital entrepreneurs as active agents of transition who undergo a liminal journey in a digital context is to gain creative ways to develop new knowledge,

skills, and relationships (Kelly & McAdam, 2022). Digital technology has been proven to be able to empower women (Chatterjee et al., 2020).

Researchers have conducted several studies related to digital technology adoption and business performance. Bhagat et al. (2021) conducted research on micro and small businesses owned by women entrepreneurs in India. The results showed that there was a positive relationship between the level of digital marketing adoption and sales, so that it had an impact on the company's business performance. The digital marketing strategies adopted by women entrepreneurs were identified based on their digital media usage patterns.

In China, manufacturing companies with a high level of digitalization capabilities can usually produce higher corporate performance (Li et al., 2022). Digitization capability refers to the extent to which a company's management system allows the integration of data and processes with the help of different digital technologies.

Technology orientation is positively related to the performance of SMEs in Mexico (Ramírez-Solis et al., 2022). Technology is a determining factor in creating new business opportunities and securing a competitive advantage. Dimensions of technology orientation include companies tending to be aggressive, R&D-oriented, and future-oriented when learning new technology. In addition, companies employ as many technological experts as possible to produce innovative products.

Digital transformation in SMEs in Thailand has a positive effect on high-performance organizations (Songkajorn et al., 2022). Digital transformation combines information technology, computing, communication, and connectivity. Organizations use digital technology to create value, positively influence competition, and achieve superior performance.

Technological capacity influences the ambidexterity of banking organizations in Indonesia, with the relationship becoming stronger when mediated by the organization's dynamic capabilities (Yunita et al., 2023). Security risks will also increase if companies increase their technological capacity in a highly dynamic environment.

Adopting digital technology can provide many new opportunities and benefits. Digitalization and Industry 4.0 technology can improve product quality, process reliability, and increase flexibility and productivity (Chirumalla, 2021). Digital instruments contribute to business model innovation, creating new distribution channels and new ways to create and deliver value to the SME customer segment in Italy (Matarazzo et al., 2021). Similar results were

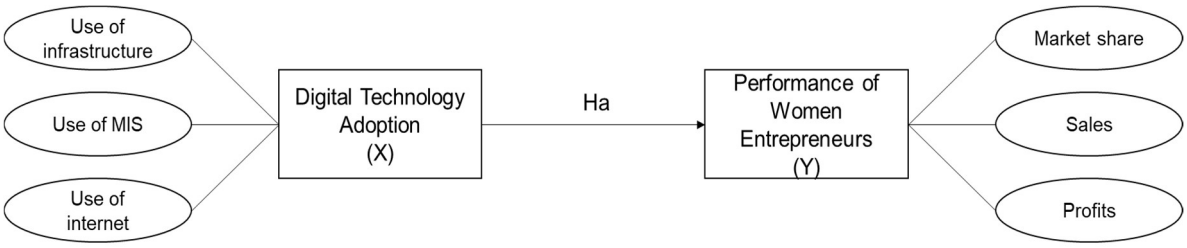
also presented by Hwang & Kim (2022) that adopting new technology increased the productivity of manufacturing SMEs in Korea.

Thus, this study proposes the following hypothesis:

Ha: Digital technology adoption influences the performance of women entrepreneurs.

Figure 1 shows the research framework and hypotheses based on the literature review.

Figure 1. Research Hypothesis Model



Source: Author Own, 2023

Method

This research is quantitative using a causal associative research type. The population in this study was all 394 women entrepreneurs registered with the East Java Province Cooperatives and SMEs Service. The sample was determined using a purposive sampling technique with the criteria namely women entrepreneurs who had adopted digital technology in their marketing so 268 respondents were obtained. Data was collected using a questionnaire distributed to respondents from July to August 2023. This research uses Partial Least Squares-Structural Equation Modeling (PLS-SEM) analysis with SmartPLS 4.0 software to determine the effect of digital technology adoption on the performance of women entrepreneurs.

This research questionnaire uses a 5-point Likert scale adapted from the appropriate literature. The digital technology adoption variable acts as an independent variable, while the business performance variable acts as a dependent variable. For the digital technology adoption variable, variable measurement was adapted from a questionnaire developed by Pergelova et al. (2019) which consists of three indicators, namely use of infrastructure, use of Management Information System (MIS), and use of internet. The measurement of business performance variables was adapted from a questionnaire developed by Feranita et al. (2020), Olamide & Ogbechie (2021), and Adomako & Ahsan (2022) which consists of three indicators, namely market share, sales and profits.

Result and Discussion

The results of the instrument validity test on the variables of digital technology adoption and business performance shows that all statement items have a significant correlation value because the ρ value < α (0.05) so they are declared valid. Meanwhile, the results of the instrument reliability test on all variables obtained a Cronbach alpha coefficient value of > 0.60 so all research instruments were declared reliable.

Based on questionnaire data obtained from 268 respondents, several conclusions were obtained regarding the general description of the respondents. First, the largest business sector is the culinary sector (food/drink) at 64.2%. Second, the majority of respondents were married, 85.8%. Third, the majority of respondents were in the age range of 21-30 years (36.2%) and 31-40 years (32.8%). Fourth, the most recent education of most respondents was dominated by high school/vocational school graduates at 46.3%. Fifth, the length of time the respondent has been running the business is ≤ 3 years at 49.6%. Sixth, the largest number of respondents' workforce is 1-4 people, amounting to 94.4%.

Table 2 and Table 3 show descriptions of digital technology adoption variables and business performance variables using frequency statistical tables obtained from tabulating respondents' answer scores.

Table 2. Respondents' Average Assessment of Digital Technology Adoption Variables

Item	Respondent Answer Score										Average Score
	1		2		3		4		5		
	f	%	f	%	f	%	f	%	f	%	
1	12	4.5	18	6.7	28	10.4	53	19.8	157	58.6	4.21
2	41	15.3	13	4.9	34	12.7	42	15.7	138	51.5	3.83
3	26	9.7	27	10.1	38	14.2	54	20.1	123	45.9	3.82
4	61	22.8	44	16.4	39	14.6	42	15.7	82	30.6	3.15
5	12	4.5	32	11.9	35	13.1	49	18.3	140	52.2	4.02
6	12	4.5	28	10.4	33	12.3	57	21.3	138	51.5	4.05

Source: Author Own, 2023

Based on Table 2, it can be seen that the average value of the digital technology adoption variable statement item which has a value of more than 4.2 is item 1 which can be interpreted as very good. This means that women entrepreneurs are very good at marketing and selling products through e-commerce. Then the average value of the statement items that have a value of more than 3.4 to 4.2 are items 2, 3, 5, and 6 which can be interpreted as good. This means that women entrepreneurs are good at providing online ordering and payment systems, providing information related to products sold through e-commerce accounts, and using the internet as a digital tool which has fundamentally changed business

processes and created added value for businesses owned by women entrepreneurs. The average value of statement items that have a value of more than 2.6 to 3.4 is item 4 which can be interpreted as quite good. This means that women entrepreneurs are quite good at obtaining information regarding raw materials provided by suppliers through the supplier's e-commerce account.

Table 3. Respondents' Average Assessment of Business Performance Variables

Item	Respondent Answer Score										Average Score
	1		2		3		4		5		
	f	%	f	%	f	%	f	%	f	%	
1	4	1.5	17	6.3	51	19.0	84	31.3	112	41.8	4.06
2	12	4.5	23	8.6	80	29.9	89	33.2	64	23.9	3.63
3	5	1.9	9	3.4	59	22.0	88	32.8	107	39.9	4.06
4	11	4.1	17	6.3	97	36.2	81	30.2	62	23.1	3.62
5	5	1.9	9	3.4	65	24.3	89	33.2	100	37.3	4.01
6	13	4.9	13	4.9	104	38.8	81	30.2	57	21.3	3.58

Source: Author Own, 2023

Based on Table 3, it can be seen that the average value of the business performance variable statement items which have a value of more than 3.4 to 4.2 are items 1, 2, 3, 4, 5, and 6 which can be interpreted as good. This means that women entrepreneurs have good market share, sales and profits each period compared to their competitors.

This research uses PLS-SEM analysis techniques for hypothesis testing. PLS-SEM results in assessment consists of evaluating the outer model and inner model. The outer model evaluation uses reflective measurement model evaluation, while the inner model evaluation uses structural model evaluation (Hair Jr. et al., 2022).

Evaluation of the reflective measurement model through four steps. The first step is to check the reliability indicators by looking at the outer loading value where each indicator has an outer loading value > 0.708 (Table 4) so it has a high level of reliability. The second step is to evaluate internal consistency reliability by looking at Cronbach's alpha and composite reliability where each research variable has a Cronbach's alpha value > 0.70 and a composite reliability value > 0.90 (Table 4) so it can be considered satisfactory. The third step is to determine convergent validity using the Average Variance Extracted (AVE) measure where each research variable has an AVE value > 0.50 (Table 4) so that the construct explains more than half of the variance of the indicators.

The fourth step is measuring discriminant validity using cross-loading values. The discriminant validity results in Table 5 shows that each indicator has the largest outer loading value so it has good discriminant validity.

Table 4. Results of Reliability Indicators, Internal Consistency Reliability, Convergent Validity, and VIF

Variable	Indicator	Outer loading	Cronbach's alpha	Composite reliability	AVE	VIF
Digital technology adoption (X)	X1	0.887	0.853	0.911	0.773	2.247
	X2	0.860				1.898
	X3	0.890				2.273
Business performance (Y)	Y1	0.940	0.928	0.954	0.874	3.712
	Y2	0.935				3.864
	Y3	0.929				3.477

Source: SmartPLS 4.0 Output, 2023

Table 5. Discriminant Validity Results

Indicator	Variable	
	X	Y
X1	0.887	0.518
X2	0.860	0.484
X3	0.890	0.533
Y1	0.588	0.940
Y2	0.506	0.935
Y3	0.533	0.929

Source: SmartPLS 4.0 Output, 2023

The procedure for evaluating structural model results begins with assessing the structural model for collinearity by looking at the Variance Inflation Factor (VIF) where the VIF value is < 5 (Table 4) so that collinearity does not have a major effect on the structural model estimation. Next, assess the significance and relevance of the structural model relationships. The assessment results are shown in Table 6.

Table 6. Path Coefficient, T-statistics and P-values

	Hypothesis	Path coefficient	T-statistics	P-values	Hypothesis test
Ha	Digital technology adoption (X) → Business performance (Y)	0.393	4.160	0.000	Accepted

Source: SmartPLS 4.0 Output, 2023

Based on Table 6, it appears that this model has a path coefficient with a positive value. Apart from that, it can be seen that the empirical t-value (4.160) is greater than the critical value (1.96) or the p-value (0.000) is smaller than 0.05 so the coefficient is statistically significant at the 5% significance level. This means that the hypothesis proposed in this research can be accepted.

This research finds that digital technology adoption has a positive and significant effect on the performance of women entrepreneurs. This means that the higher adoption of digital

technology owned by women entrepreneurs results in increased their business performance. These findings provide evidence that digital technology adoption consisting of indicators of use of infrastructure, use of MIS, and use of internet will have a significant effect on the performance of women entrepreneurs as measured by market share, sales, and profits.

From an empirical perspective, these findings are in line with previous research examining digital technology adoption on business performance. Previous research results show that digital technology adoption was found to have a significant effect on the performance of SMEs in India (Bhagat et al., 2021), SMEs in Mexico (Ramírez-Solis et al., 2022), SMEs in Thailand (Songkajorn et al., 2022), manufacturing companies in China (Li et al., 2022), and banking companies in Indonesia (Yunita et al., 2023) even though they use different indicators for measuring digital technology adoption variables and business performance.

Based on the characteristics of respondents, women entrepreneurs are dominated by those aged 21-30 years (36.2%), which shows that the majority of respondents belong to Gen Z. According to Sakitri (2021),Gen Z is known as the digital generation because Gen Z spends more than 6 hours a day using a cell phone and using social media much more often than previous generations. Therefore, it is easier for women entrepreneurs to adopt digital technology which is ultimately able to improve their business performance.

Based on the description of the digital technology adoption variable, the average score for item 1 is the highest compared to the other items. This means that by marketing and selling products through e-commerce very well, women entrepreneurs can improve their performance.

Conclusion

Based on the results of hypothesis testing, it can be concluded that there is an influence of digital technology adoption on the performance of women entrepreneurs in East Java Province. With digital technology adoption, women entrepreneurs can maintain market share in conditions of increasingly tight competition. Adoption of digital technology can also increase product sales, which in turn will increase profits. In essence, adopting digital technology is basic for a business to be able to survive in market competition so that women entrepreneurs can improve their performance.

Recommendations can be given to women entrepreneurs in East Java Province. They are expected to sell their products outside their immediate environment to a larger consumer base using digital applications. All this can help close the gender gap in the online marketplace. Greater use of digital technologies among women entrepreneurs has the

potential to generate value both for women entrepreneurs and for the economy as a whole and requires further attention going forward.

This research is limited to women entrepreneurs in East Java Province. So the results of this research cannot be generalized to other areas. Thus, future research is expected to use a wider coverage area at the national level so that the results can be generalized.

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