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Determinants of Digital Technology Adoption Among Women Entrepreneurs

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A B S T R A C T

Women entrepreneurs are promoted to adopt digital technology as a means of enhancing business performance. Therefore, this research aims to investigate the impact of human, social, financial, physical, and intellectual capital on digital technology adoption among women entrepreneurs. A quantitative method is used with an associative type across various business sectors in East Java Province, Indonesia. Furthermore, the sample is selected by purposive sampling with a total of 268 individuals. Data collection is carried out through a questionnaire, while the analysis is performed using PLS-SEM. The results show that human, financial, physical, and intellectual capital have a positive and significant influence on the adoption of digital technology among women entrepreneurs. However, only social capital reports an insignificant influence. Among the examined variables, intellectual capital plays the most crucial role in adopting digital technology. This research provides theoretical and practical implications for women entrepreneurs and the government.

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Introduction

The inclusion of women in business is subjected to a substantial transformation due to the effects of the COVID-19 pandemic. Furthermore, women are engaged in entrepreneurial pursuits across diverse companies and are particularly susceptible to the repercussions. A discernible distinction exists between women and men in terms of business ownership (Elam et al., 2022). The exit rate from the business world increased from 2.9% to 3.6% over a two-year pandemic period. In upper-middle-income countries, the pandemic's most significant impact exit from the business world showed a 74% increase from 2019 to 2021, compared to men at 34%.

According to a global survey in 2021 (Elam et al., 2022), women (47%) and men (48.1%) entrepreneurs reported that the pandemic presented new business opportunities. The opportunity arising from the pandemic globally is the rapid adoption of digital technology. The use of digital technology offsets the loss of income for small businesses and those led by women. The pandemic increased business digitalization by 3 to 4 years and has driven widespread digital technology adoption.

However, few participants are equally prepared for this transformation (Lashitew, 2023) and women entrepreneurs are not ready to face these changes. Specifically in Indonesia, data from the Central Bureau of Statistics (2023) shows that the percentage of women internet users is still lower than that of men, while access to information technology is the key to increasing women's empowerment in the digital entrepreneurship sector. The urgency is related to the need to find contributory capital sources for the efforts of women entrepreneurs to adopt digital technology. This research uses human, social, financial, physical, and intellectual capital in relation to the adoption of digital technology.

Human capital is crucial because resources are determinants in supporting the adoption, diffusion, and spread of technology (Skare & Blažević Burić, 2022). Selective technology adoption policies should be accompanied by human resource education policies that impact economic growth (Hammad & El Naggar, 2023). Social capital provides opportunities, specifically for new women entrepreneurs (Hammad & El Naggar, 2023). Online social capital is used for entrepreneurial capacity development,

accessing resources, as well as recognizing and exploiting entrepreneurial opportunities. Digital financial capital reflects the principles of entrepreneurial feminism (Orser et al., 2020). Technology adoption can challenge or strengthen women entrepreneurs' access to financial capital in the digital era. A common factor limiting women`s interest is financial capital, which impacts their ability to become entrepreneurs (Kovaleva et al., 2023). Physical capital, such as infrastructure networks, can promote or hinder the adoption of digital technology (Awinia, 2023). Economic liberalization, increased private sector participation, and urbanization led to Industrial Revolution 4.0. However, the lack of infrastructure networks presents a challenge to technology adoption (Ullah et al., 2022). Intellectual capital is crucial for the sustainability of this variable (Ullah et al., 2022). The capital will drive the transformation, sustainability, and achievements of women in consistently growing businesses, serving as a measure of competitiveness in the economy.

This research aims to identify the influence of human, social, financial, physical, and intellectual capital on the adoption of digital technology. Therefore, 5 research questions are posed as follows: RQ1: Does human capital influence the adoption of digital technology among women entrepreneurs? RQ2: Does social capital influence the adoption of digital technology among women entrepreneurs? RQ3: Does financial capital influence the adoption of digital technology among women entrepreneurs? RQ4: Does physical capital influence the adoption of digital technology among women entrepreneurs? RQ5: Does intellectual capital influence the adoption of digital technology among women entrepreneurs? Based on these questions, this research focuses on determinants of the adoption of digital technology in East Java Province, Indonesia.

Literature Review

Digital Technology Adoption

The disruptive nature of digital technology has a systemic impact on enhancing organizational transformation, particularly in entrepreneurship (Santos et al., 2023). A total of three factors need to be understood in the adoption of digital technology, including demand conditions, supply conditions, and managerial attributes (Lashitew, 2023). Demand conditions refer to factors influencing the attractiveness of various digital technologies

resulting from information capabilities and human resources. Supply conditions are related to the availability of Information and Communication Technology (ICT) as well as digital solutions, such as basic infrastructure and internet-based services. Managerial attributes are characteristics of top managers in determining technology adoption decisions. In the entrepreneurial context, these attributes, such as gender influence, attitudes, risks, and adaptability in determining technology adoption (Orser et al., 2019).

Furthermore, technological adoption is related to the entrepreneurship intentions of women entrepreneurs. Various types of access, such as mental, material, skills, and usage, contribute significantly to the adoption of digital technology among rural women in India (Chatterjee et al., 2020). In Saudi Arabia, the use of digital media and other ICT is an effort to pursue entrepreneurship opportunities (McAdam et al., 2019). Digital entrepreneurship is expected to facilitate the engagement even though adopted technology is on a small scale. An example is the adoption of mobile applications for the sustainability of business in Saudi Arabia (Abed, 2021). Awareness of digitalization is not enough to influence the performance of women entrepreneurs in Nigeria (Shamaki et al., 2022). However, women entrepreneurs need to adopt and adapt to new technology to create added value for customers.

Pergelova et al. (2019) operationalized digital technology through 3 measures, namely infrastructure, Management Information System (MIS), and the Internet. Digital infrastructure use is measured as a formative index, including website ownership, online ordering options, online payment options, and electronic signatures. MIS use is measured as a formative index, including customer relationship management, supply chain management, and company resource planning systems. Furthermore, internet use is measured as frequency for work purposes, referring to use and value.

Human Capital

Human capital is the most important factor in the adoption of digital technology. This variable has a positive and significant influence on technology adoption in sub-Saharan African countries (Danquah & Amankwah-Amoah, 2017). The improvement in the performance of SMEs in Romania is not only the result of digital technology adoption but also

requires the human capital to effectively use the technology for deriving benefits (Martin et al., 2013)

Technology adoption depends on the skills, quality, and quantity of the workforce. The relationship is conditional, relying on various aspects of human capital and the nature of the technology. Human capital formed through learning mechanisms is the most crucial determinant in adoption (Asif & Lahiri, 2021). The direction depends on the accumulation of skills and the quality of education (Schiopu, 2015). Technology adoption relies on the skills of the workforce and the capacity of companies to adjust employment opportunities with changes in the manufacturing and service sectors in the European Union (Conti & Sulis, 2016). Educated and skilled workers increase the adoption of new technology in SMEs in Greece (Giotopoulos et al., 2017). Entrepreneurs can leverage their knowledge and skills to adopt various types of technology in the UK`s industrial sector (Ganotakis et al., 2021).

Human capital is a resource related to individuals and depends on health, education, training, knowledge, and skills (Kabir et al., 2012). Aspects explored by Kungwansupaphan et al. (2016) include education, knowledge, experience, and skills. Giotopoulos et al. (2017) measured the variable in adopting ICT through scientific background, while Ganotakis et al. (2021) used education and experience. Women's inclusion in the job market depends on their digital knowledge and skills (Jevtić et al., 2023). Therefore, hypothesis 1 proposed in this research is as follows:

H1: Human capital influences the adoption of digital technology among women entrepreneurs.

Social Capital

Zeleke et al. (2023) argued that the intensity of digital technology adoption should consider social capital, such as good relationships and trust with others. The concept is an additional important factor that has a positive influence on technology adoption. Social networks, social norms, and association activities have a significant influence on the level of technology adoption (Lee, 2015). In Chile, social capital consisting of trust in institutions as well as formal and informal networks becomes crucial in explaining the decisions (Hunecke et al., 2017). The variable significantly and positively influences technological innovation in SMEs in Kurdistan to

reduce the potential setback in technology adoption (Lawa & E-Vahdati, 2022).

There are differing research results regarding the willingness to adopt technology, even when conducted in China. (Ren et al., 2022) stated that social capital consisting of norms, networks, and trust had a positive influence on technology adoption behavior in Shandong Province. According to Han et al. (2022), the variable consisting of social networks, participation, and trust has a significant positive influence on the adoption of new technology in the eastern and central regions of China. Social capital has a significant negative influence on the adoption of new technology in the western region of China but does not have an impact in the northeastern region of China.

Therefore, attention should be provided to enhancing this capital to increase willingness to adopt new technology. Olamide & Ogbechie (2021) investigated informal sector SMEs in Nigeria using social capital measures based on internal and external perspectives. Internal social capital includes close friends, family members, business partners, and employees, while the external variable includes customers, suppliers, competitors, and associations. Internal and external are determining factors for the success of women entrepreneurs in Serbia (Stanković et al., 2023). Therefore, hypothesis 2 in this research is proposed as follows:

H2: Social capital influences the adoption of digital technology among women entrepreneurs.

Financial Capital

Financial capital influences the adoption of digital technology, specifically in terms of financing (Lestari et al., 2022) and often becomes the most significant obstacle. SMEs in India are beginning to implement Industry 4.0 and related technologies (Internet of Things, Advanced Robotics, Big Data, and Cybersecurity). However, in the implementation, financial risk becomes the most significant barrier to Industry 4.0 adoption (Tamvada et al., 2022). SMEs in the European Union face a lack of funding to enhance technology adoption (Henriques & Viseu, 2022). Furthermore, advanced regions with higher specialization levels should be associated with a lack of fund usage to improve ICT in SMEs.

Financial capital available includes funds from savings and credits (Ahmed & Wahid, 2011). This depends on changes in income and savings

after rural women`s inclusion in small-scale entrepreneurial activities in Bangladesh (Kabir et al., 2012). In the manufacturing sector of SMEs in Malaysia, financial support from the government is important (Jayeola et al., 2022). In this context, loans from the government greatly assist the capital of women entrepreneurs. Affirmative action is needed to facilitate access to loans from bank and non-bank financial institutions (Hendratmi et al., 2022). However, there are differences between men and women in borrowing from financial institutions globally (Antonijević et al., 2022). Women's opportunities to borrow are limited, so they prefer to borrow from informal sources. Therefore, hypothesis 3 proposed in this research is as follows:

H3: Financial capital influences the adoption of digital technology among women entrepreneurs.

Physical Capital

The relative resource structure reflects the importance of physical capital required for each company to adopt technology. In China, companies with higher physical capital intensity tend to adopt technology through cloud computing outsourcing (Zheng et al., 2020). Meanwhile, those with higher knowledge capital intensity use private clouds.

The transition requires the availability of infrastructure in both hardware and soft skills. The pandemic has increased technology adoption among SMEs in Veneto, Italy (Roffia & Mola, 2022), necessitating planning for the physical resources of companies to enable effective digitalization of processes and practices. Companies in Tanzania face obstacles in implementing Industry 4.0 due to a lack of supporting infrastructure networks (Awinia, 2023). Therefore, hardware and soft skills need to be considered as crucial factors in the African industrial leap toward Industry 4.0.

Physical capital is needed in the form of basic infrastructure to support technology adoption (Ahmed & Wahid, 2011). Women entrepreneurs in Bangladesh measure the variable in terms of household ownership of durable assets such as houses, machines, markets, healthcare facilities, and road transportation facilities (Kabir et al., 2012). Listed companies in China measure physical capital, including factories, machines, and other assets with fixed, tangible, and durable features (Zheng et al., 2020). Based on these considerations, hypothesis 4 is proposed as follows:

H4: Physical capital influences the adoption of digital technology among women entrepreneurs.

Intellectual Capital

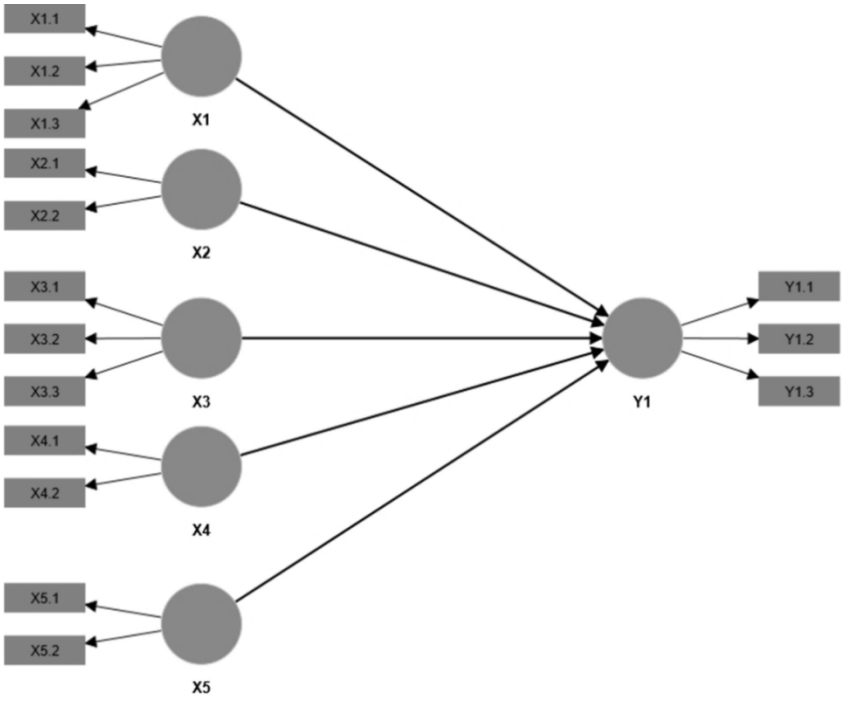
Intellectual capital signifies the intangible capabilities of companies, such as knowledge, information, and relationships used to create value (Khan et al., 2021). Anwar et al. (2021) interpreted the variable as how intellectual abilities and knowledge contribute to the creation of organizational value. There are 3 elements of intellectual capital, according to Do Rosário Cabrita and Bontis (2008), namely intangibility, value, and the growth effect of collective practices.

Intellectual capital enhances the recognition of opportunities to improve the growth and development of digital technology adoption. Abbas et al. (2022) examined the influence of the variable on the growth of technological innovation of SMEs in Pakistan. The results showed that human and customer capital significantly influenced technological innovation growth, while structural capital was found to be insignificant. The conceptualization influences technological innovation and sustainability-oriented initiatives in SMEs in Thailand (Phonthanukitithaworn et al., 2023). Intellectual capital increases the recognition of opportunities to develop open sustainability innovation. The variable refers to the collection of knowledge, information, intellectual property, and experience or knowledge possessed by the organization to enable value creation (Gómez-Valenzuela, 2022). Having a good reputation and non-physical assets such as intellectual property and certifications can assist in the adoption of technology (Hendratmi et al., 2022). Therefore, hypothesis 5 is formulated as follows:

H5: Intellectual capital influences the adoption of digital technology among women entrepreneurs.

Figure 1 shows the conceptual framework model in this research based on a literature review.

Figure 1: Conceptual framework model



Source: PLS-SEM, 2023

Method

This research used a quantitative approach with a causal associative type and was conducted across all regencies/cities in East Java Province from July to August 2023. The population was all women entrepreneurs registered with the Department of Cooperatives and SMEs in East Java Province. The sample was selected using purposive sampling, with the criteria being women entrepreneurs who have adopted digital technology in their marketing, and the number of respondents fulfilling the criteria was 268 individuals. Primary data sources were obtained from questionnaires distributed offline, while secondary data sources were sourced from the Department of Cooperatives and SMEs in East Java. The data collection technique comprised distributing questionnaires to women entrepreneurs. The research included human, social, financial, physical, and intellectual capital as exogenous variables as well as digital technology adoption as the

endogenous variable constructed from several dimensions and indicators, as shown in Table 1.

Table 1: Matrix of variables, dimensions, and indicators

Variable	Dimension	Indicator
Human capital (X1) (Kabir et al., 2012) (Kungwansupaphan et al., 2016) (Giotopoulos et al., 2017) (Ganotakis et al., 2021)	Education (X1.1)	1. Women entrepreneurs (X1.1.1) 2. Employees (X1.1.2)
	Expertise/skills (X1.2)	1. Women entrepreneurs (X1.2.1) 2. Employees (X1.2.2)
	Experience (X1.3)	1. Women entrepreneurs (X1.3.1) 2. Employees (X1.3.2)
Social capital (X2) (Olamide & Ogbechie, 2021)	Internal (X2.1)	1. Family members (X2.1.1) 2. Employees (X2.1.2) 3. Close friends (X2.1.3) 4. Business partners (X2.1.4)
	External (X2.2)	1. Customers (X2.2.1) 2. Suppliers (X2.2.2) 3. Competitors (X2.2.3) 4. Associations/communities (X2.2.4)
Financial capital (X3) (Ahmed & Wahid, 2011) (Kabir et al., 2012) (Hendratmi et al., 2022) (Jayeola et al., 2022)	Personal (X3.1)	1. Savings (X3.1.1) 2. Income/revenue (X3.1.2)
	Financial institutions (X3.2)	1. Bank (X3.2.1) 2. Non-bank (X3.2.2)
	Government (X3.3)	1. Cash assistance (X3.3.1) 2. Credit interest subsidy (X3.3.2)
Physical capital (X4) (Ahmed & Wahid, 2011) (Kabir et al., 2012) (Zheng et al., 2020)	Properties (X4.1)	1. Business location (X4.1.1) 2. Warehouse (X4.1.2)
	ICT Equipment (X4.2)	1. ICT Device (X4.2.1) 2. Internet connection (X4.2.2)
Intellectual capital (X5) (Hendratmi et al., 2022)	Reputation (X5.1)	1. Social media (X5.1.1) 2. Good reputation (X5.1.2)
	Non-physical assets (X5.2)	1. Intellectual property rights (X5.2.1) 2. Certifications (X5.2.2)

Variable	Dimension	Indicator
Digital technology adoption (Y1) (Pergelova et al., 2019)	Infrastructure use (Y1.1)	1. Marketing and sales of products (Y1.1.1) 2. Order and payment (Y1.1.2)
	MIS use (Y1.2)	1. Product information (Y1.2.1) 2. Raw material information (Y1.2.2)
	Internet use (Y1.3)	1. Digital tools (Y1.3.1) 2. Added value (Y1.3.2)

Source: processed by researchers, 2023

The validity test showed that all indicators were declared valid without significant correlation values (ρ value < 0.05). Furthermore, the reliability test showed that all dimensions were considered reliable with a Cronbach's alpha > 0.60. The data analysis technique used was Partial Least Squares-Structural Equation Modelling (PLS-SEM) with SmartPLS 4.0 software to determine the influence of human, social, financial, physical, and intellectual capital on digital technology adoption among women entrepreneurs.

Results

In this research, the descriptive analysis covers 2 aspects, namely, general respondent and variable description. The general respondent description is used to show the number and percentage based on business sector, marital status, age, education, length of business operation, and number of employees. The results show that the majority of respondents are in the culinary (food/beverage) sector (64.2%), married (85.8%), aged between 21-30 and 31-40 years (69%), Senior/Vocational High School graduates (46.3%), operating business for ≤ 3 years (49.6%), and having 1-4 employees (94.4%).

The variable description is used to show the average of each indicator. Table 2 shows that respondents' perception of the human capital variable falls into the good category, with an average score of 3.60. The indicators "women entrepreneurs' experience" (X1.3.1) and "employees' education" indicator (X1.1.2) have the highest and lowest scores at 4.13 and 3.18, respectively.

Table 2: Human capital variable description

Indicator	Respondents' answer score (%)					Average	Interpretation
	1	2	3	4	5		
X1.1.1	14.2	7.8	19.4	22.8	35.8	3.58	Good
X1.1.2	24.6	10.4	17.5	17.2	30.2	3.18	Fairly good
X1.2.1	6.0	5.6	13.4	26.9	48.1	4.06	Good
X1.2.2	23.9	7.8	17.2	19.4	31.7	3.27	Fairly good
X1.3.1	4.9	4.9	15.7	22.0	52.6	4.13	Good
X1.3.2	22.8	7.1	13.4	25.4	31.3	3.35	Fairly good
					Total	**3.60**	**Good**

Source: processed by researchers, 2023

Table 3 shows that respondents' perception of the social capital variable falls into the good category, with an average score of 3.76. The "support from family members" (X2.1.1) and "business associations/communities" (X2.2.4) have the highest and lowest scores at 4.68 and 3.30, respectively.

Table 3: Social capital variable description

Indicator	Respondents' answer score (%)					Average	Interpretation
	1	2	3	4	5		
X2.1.1	1.1	1.1	5.6	13.4	78.7	4.68	Excellent
X2.1.2	21.3	5.6	10.4	17.5	45.1	3.60	Good
X2.1.3	9.0	6.7	15.3	24.6	44.4	3.89	Good
X2.1.4	23.5	8.2	14.9	18.3	35.1	3.33	Fairly good
X2.2.1	0.7	3.7	10.4	21.3	63.8	4.44	Excellent
X2.2.2	16.0	9.0	23.1	23.9	28.0	3.39	Fairly good
X2.2.3	13.1	6.3	28.4	25.0	27.2	3.47	Good
X2.2.4	21.6	7.5	20.5	20.1	30.2	3.30	Fairly good
					Total	**3.76**	**Good**

Source: processed by researchers, 2023

Table 4 shows that respondents' perception of the financial capital variable falls into the good category, with an average score of 3.62. The "business income/revenue" (X3.1.2) and the "non-bank financial institutions" (X3.2.2) have the highest and lowest scores at 4.28 and 3.20, respectively.

Table 4: Financial capital variable description

Indicator	Respondents' answer score (%)					Average	Interpretation
	1	2	3	4	5		
X3.1.1	5.6	5.6	16.4	16.8	55.6	4.11	Good
X3.1.2	2.2	4.5	13.1	23.1	57.1	4.28	Excellent
X3.2.1	15.7	6.0	22.8	23.9	31.7	3.50	Good
X3.2.2	23.1	9.3	20.1	19.0	28.4	3.20	Fairly good
X3.3.1	22.4	6.0	19.4	17.5	34.7	3.36	Fairly good
X3.3.2	24.3	7.8	17.5	19.4	31.0	3.25	Fairly good
					Total	**3.62**	**Good**

Source: processed by researchers, 2023

Table 5 shows that respondents' perception of the physical capital variable falls into the good category, with an average score of 3.77. The "business location" (X4.1.1) and the "warehouse" (X4.1.2) have the highest and lowest scores at 4.38 and 2.97, respectively.

Table 5: Physical capital variable description

Indicator	Respondents' answer score (%)					Average	Interpretation
	1	2	3	4	5		
X4.1.1	1.9	4.1	11.2	19.8	63.1	4.38	Excellent
X4.1.2	26.9	10.8	21.3	20.5	20.5	2.97	Fairly good
X4.2.1	5.2	9.7	19.0	23.5	42.5	3.88	Good
X4.2.2	10.4	6.3	17.2	19.4	46.6	3.85	Good
					Total	**3.77**	**Good**

Source: processed by researchers, 2023

Table 6 shows that respondents' perception of the intellectual capital variable falls into the good category, with an average score of 3.80. The "good reputation" (X5.1.2) and "intellectual property rights" (X5.2.1) have the highest and lowest scores at 3.94 and 3.67, respectively.

Table 6: Intellectual capital variable description

Indicator	Respondents' answer score (%)					Average	Interpretation
	1	2	3	4	5		
X5.1.1	4.5	8.2	21.6	28.0	37.7	3.86	Good
X5.1.2	3.0	6.7	20.9	32.1	37.3	3.94	Good
X5.2.1	9.3	8.6	19.8	30.6	31.7	3.67	Good
X5.2.2	9.3	6.3	20.1	30.2	34.0	3.73	Good
					Total	**3.80**	**Good**

Source: processed by researchers, 2023

Table 7 shows that respondents' perception of digital technology adoption variable falls into the good category, with an average score of 3.85. The "marketing and sales of products" (Y1.1.1) and "raw material information" (Y1.2.2) have the highest and lowest scores at 4.21 and 3.15, respectively.

Table 7: Digital technology adoption variable description

Indicator	Respondents' answer score (%)					Average	Interpretation
	1	2	3	4	5		
Y1.1.1	4.5	6.7	10.4	19.8	58.6	4.21	Excellent
Y1.1.2	15.3	4.9	12.7	15.7	51.5	3.83	Good
Y1.2.1	9.7	10.1	14.2	20.1	45.9	3.82	Good
Y1.2.2	22.8	16.4	14.6	15.7	30.6	3.15	Fairly good
Y1.3.1	4.5	11.9	13.1	18.3	52.2	4.02	Good
Y1.3.2	4.5	10.4	12.3	21.3	51.5	4.05	Good
					Total	**3.85**	**Good**

Source: processed by researchers, 2023

PLS-SEM analysis is used to test hypotheses in this research. The evaluation of the outer (reflective measurement) and inner model (structural) is necessary to assess the PLS-SEM results (Hair Jr. et al., 2022).

Outer Model Evaluation

The first step in evaluating the outer model includes examining the indicator reliability test results through outer loadings. Table 8 shows that all outer loadings are > 0.708 to fulfill the standard. The second step is to

assess the internal consistency reliability. All variables have Cronbach's alpha > 0.70 and composite reliability > 0.80, showing satisfactory values (Table 8). Based on the results, the model has a high level of reliability. The third step is to examine the convergent validity test results through Average Variance Extracted (AVE). Table 8 shows that all variables have AVE ≥ 0.50, explaining more than half of the indicator variance.

Table 8: Outer loading, Cronbach's alpha, composite reliability, AVE, and VIF

Variable	Indicator	Outer loading	Cronbach's alpha	Composite reliability	AVE	VIF
Human capital (X1)	X1.1	0.872	0.890	0.931	0.819	2.269
	X1.2	0.918				2.868
	X1.3	0.924				2.910
Social capital (X2)	X2.1	0.877	0.710	0.874	0.775	1.436
	X2.2	0.884				1.436
Financial capital (X3)	X3.1	0.784	0.725	0.847	0.651	1.112
	X3.2	0.852				2.980
	X3.3	0.872				3.069
Physical capital (X4)	X4.1	0.819	0.713	0.869	0.769	1.442
	X4.2	0.931				1.442
Intellectual capital (X5)	X5.1	0.948	0.862	0.935	0.878	2.340
	X5.2	0.926				2.340
Digital technology adoption (Y1)	Y1.1	0.886	0.853	0.911	0.773	2.247
	Y1.2	0.863				1.898
	Y1.3	0.888				2.273

Source: processed by researchers, 2023

The last step is to assess the discriminant validity test results through cross-loading. According to Table 9, each indicator has the largest cross-loading, showing good discriminant validity.

Table 9: Cross-loading

Indicator	Variable					
	X1	X2	X3	X4	X5	Y1
X1.1	0.872	0.395	0.294	0.408	0.391	0.469
X1.2	0.918	0.439	0.343	0.450	0.415	0.557
X1.3	0.924	0.505	0.332	0.459	0.451	0.585
X2.1	0.450	0.877	0.252	0.363	0.316	0.415
X2.2	0.424	0.884	0.349	0.414	0.337	0.427
X3.1	0.370	0.327	0.784	0.440	0.475	0.565
X3.2	0.268	0.261	0.852	0.430	0.407	0.511
X3.3	0.211	0.225	0.872	0.429	0.391	0.506
X4.1	0.368	0.378	0.396	0.819	0.467	0.454
X4.2	0.472	0.401	0.537	0.931	0.606	0.712
X5.1	0.450	0.374	0.552	0.607	0.948	0.721
X5.2	0.418	0.317	0.439	0.554	0.926	0.608
Y1.1	0.500	0.389	0.589	0.622	0.623	0.886
Y1.2	0.548	0.433	0.577	0.589	0.650	0.863
Y1.3	0.526	0.439	0.579	0.607	0.608	0.888

Source: processed by researchers, 2023

Inner Model Evaluation

The initial step in evaluating the inner model includes assessing the structural model for collinearity through the Variance Inflation Factor (VIF). Table 8 shows that the VIF for all indicators is < 5, showing that the estimates of the structural model are not influenced by collinearity. The subsequent step is to assess the goodness of fit test results using Q^2. The results show a Q^2 of 0.663, meaning that the model has relevant predictive value and explains 66.3% of the information. The final step is to analyze the path coefficients and hypothesis test results.

Table 10: Path coefficients and hypothesis test results

Hypothesis		Path coefficients	T-statistics	P-values	Hypothesis test
H1	Human capital →Digital technology adoption	0.219	4.240	0.000	Accepted
H2	Social capital → Digital technology adoption	0.067	1.494	0.135	Rejected

Hypothesis		Path coefficients	T-statistics	P-values	Hypothesis test
H3	Financial capital → Digital technology adoption	0.284	5.877	0.000	Accepted
H4	Physical capital → Digital technology adoption	0.209	4.472	0.000	Accepted
H5	Intellectual capital → Digital technology adoption	0.306	5.860	0.000	Accepted

Source: processed by researchers, 2023

Table 10 shows that all variables in the model have positive path coefficients. Therefore, the human, social, financial, physical, and intellectual capital possessed by women entrepreneurs is directly proportional to the changes in digital technology adoption. The largest and smallest path coefficients are for the intellectual and social capital variables, respectively. The results show that 4 hypotheses have a significant influence, while 1 hypothesis has an insignificant influence. The human, financial, physical, and intellectual capital have an empirical t-value greater than the critical value (1.96) and a p-value smaller than 0.05, implying a statistically significant coefficient at the 5% level due to the acceptance of hypotheses 1, 3, 4, and 5. Meanwhile, social capital has an empirical t-value < 1.96 and a p-value > 0.05, showing that this coefficient is not statistically significant at the 5% level and hypothesis 2 is rejected.

Discussion

The Influence of Human Capital on the Adoption of Digital Technology

Hypothesis 1 (H1), stating that human capital influences digital technology adoption among women entrepreneurs, is accepted. The result shows that human capital has a positive and significant influence on adopting digital technology. This can be interpreted as an increase in human capital among women entrepreneurs, resulting in a larger adoption of digital technology. Human capital, consisting of education, expertise/skills, and experience indicators, significantly influences adoption. This confirms that

women entrepreneurs and employees have good education, expertise/skills, and experience in running business, specifically in the use of ICT.

From an empirical perspective, these results are consistent with Martin et al. (2013) and Danquah & Amankwah-Amoah (2017) examining the influence of human capital. The research by Martin et al. (2013) in Romania found that human resources are a key factor influencing the digitalization of companies. Danquah and Amankwah-Amoah (2017) reported that human capital positively and significantly influences technology adoption in sub-Saharan African countries. The indicators used to measure the variable in Martin et al. (2013) and Danquah and Amankwah-Amoah (2017) are different from those used in this research. The indicators used by previous results are education, while this research adds expertise/skills and experience indicators. Therefore, the result that human capital significantly and positively influences the adoption of digital technology is a novelty.

Based on the variable description, the indicator with the highest score is that women entrepreneurs have adequate experience in managing businesses. Despite the general respondent description showing that most women entrepreneurs have been running businesses for less than 3 years, experience enhances the ability to adopt digital technology.

The Influence of Social Capital on the Adoption of Digital Technology

Hypothesis 2 (H2), stating that social capital influences digital technology adoption among women entrepreneurs, is rejected. This variable does not have a significant influence on the adoption of digital technology. Therefore, social capital, consisting of internal and external dimensions, is not sufficient. Higher social capital should encourage women entrepreneurs to adopt digital technology, but this research does not support the notion.

From an empirical perspective, these results diverge from previous research examining the influence of social capital on digital technology adoption. Previous research showed that social capital had a positive and significant influence on technology adoption in Chile (Hunecke et al., 2017), China (Ren et al., 2022), and Kurdistan (Lawa & E-Vahdati, 2022). Specifically, there are differences in the use of indicators to measure the variable. Hunecke et al. (2017) and Ren et al. (2022) used social trust, networks, and norms, while Lawa and E-Vahdati (2022) adopted structure, relative, and cognitive. However, this research uses internal and external indicators, thereby providing different results in line with Han et al. (2022),

who argue that social capital does not have a significant influence on the adoption of new technology in the northeast region of China.

After closer examination, there are 3 statement items falling into the fairly good category, namely relationships with business partners/associates, suppliers, and business associations/communities. The indicator with the lowest score is business associations/communities, reflecting a limitation in sharing experience and knowledge with women entrepreneurs.

The Influence of Financial Capital on the Adoption of Digital Technology

Hypothesis 3 (H3), stating that financial capital influences digital technology adoption among women entrepreneurs, is accepted. This research shows that financial capital has a positive and significant influence on the adoption of digital technology. The greater the financial capital possessed by women entrepreneurs, the better the adoption of digital technology in business. This result provides evidence that financial capital from personal sources, institutions, and the government significantly influences the adoption of digital technology.

From an empirical perspective, previous results examining the influence of financial capital were conducted by Lestari et al. (2022) and Henriques and Viseu (2022). These results were consistent with research that financial capital significantly influenced technology adoption in SMEs in Indonesia (Lestari et al., 2022) and the European Union (Henriques & Viseu, 2022). However, there is a specific difference in the use of indicators to measure the financial capital variable. Lestari et al. (2022) used the quality and availability of financial resources, while Henriques and Viseu (2022) adopted total expenditure and total costs. There is a difference in the indicators of the financial capital variable used in this research. This further enriches the academic literature with a variety of indicators to measure the variable in women entrepreneurs.

Based on the variable description, the indicator with the highest score is the income/revenue of women entrepreneurs, which increases financial capital. Furthermore, capital is obtained for business from personal savings and financial institutions. These factors contribute significantly to women entrepreneurs adopting digital technology.

The Influence of Physical Capital on the Adoption of Digital Technology

Hypothesis 4 (H4), stating that physical capital influences digital technology adoption among women entrepreneurs, is accepted. This research shows that physical capital has a positive and significant influence on the adoption of digital technology. The physical capital possessed by women entrepreneurs is directly proportional to the adoption of digital technology. This suggests that property and ICT equipment dimensions variable significantly influences the adoption of digital technology.

From an empirical perspective, these results are consistent with previous research examining the influence of physical capital on digital technology adoption. Physical capital significantly influences the adoption of digital technology in China (Zheng et al., 2020), Italy (Roffia & Mola, 2022), and Tanzania (Awinia, 2023). Even though there is a similarity with some previous research, differences exist in the characteristics of business sectors. Most respondents were in the manufacturing and culinary (food/beverage) sector. Therefore, the result that physical capital significantly influences the adoption of digital technology is a novelty.

The indicator with the highest score, based on the variable description, is business location. Additionally, women entrepreneurs have good ICT equipment such as complete devices (computers, mobile phones/gadgets) and smooth internet connectivity, which is essential for running an online business. These supportive factors contribute to enhancing the adoption of digital technology among women entrepreneurs.

The Influence of Intellectual Capital on the Adoption of Digital Technology

Hypothesis 5 (H5), stating that intellectual capital influences the adoption of digital technology among women entrepreneurs, is accepted and this variable has a positive and significant influence. An increase in intellectual capital leads to a larger adoption of digital technology. This result provides evidence that the variable, consisting of reputation and non-physical assets indicators, significantly influences adoption.

From an empirical perspective, the results are consistent with previous research examining the influence of intellectual capital. Previous research showed that the variable had a significantly positive influence on technology adoption in SMEs in Pakistan (Abbas et al., 2022) and Thailand

(Phonthanukitithaworn et al., 2023), even though different indicators are used. Abbas et al. (2022) used human, structural, and consumer capital, while Phonthanukitithaworn et al. (2023) adopted relational, social, and structural capital. However, this research uses indicators of the intellectual capital variable adapted from a questionnaire developed by Hendratmi et al. (2022), namely reputation and non-physical assets. The difference enriches the variety of indicators to measure intellectual capital.

After closer examination of the data, the good reputation in the community receives the highest score compared to other indicators. Therefore, businesses owned by women entrepreneurs have a good reputation in the wider community, which is crucial to sustainability. Intellectual property rights receive the lowest score compared to other indicators. This implies that women entrepreneurs may not be fully aware of the importance of the rights (patents, copyrights, trademarks) in protecting business products.

Conclusion

In conclusion, this research was conducted to examine the influence of human, social, financial, physical, and intellectual capital on the adoption of digital technology among women entrepreneurs in East Java. Generally, out of the 5 hypotheses proposed in this research, 4 were accepted and 1 was rejected. The hypothesis test results showed that human, financial, physical, and intellectual capital had a significantly positive influence among women entrepreneurs, while social capital had a positive but non-significant influence. Furthermore, this research showed that intellectual capital had the highest path coefficient compared to others. This result supported previous results and reported the importance of cultivating various capital in adopting digital technology. This research had practical implications, where women entrepreneurs were expected to enhance human, financial, physical, and intellectual capital. Meanwhile, the government, as a policymaker, could support these entrepreneurs in several ways. Firstly, training programs should be provided to enhance the expertise/skills of women entrepreneurs and their employees in strengthening human capital. Secondly, easy access to financial capital, both in cash and non-cash, should be promoted. Thirdly, the government could provide ICT equipment assistance to enhance physical capital. Lastly, the process of managing intellectual property rights and certifications should be carried out to strengthen capital. These

programs were expected to assist women entrepreneurs in adopting digital technology.

Limitations and Further Research

This research includes diverse sectors, including culinary (food/beverage), fashion, beauty, crafts, and household needs. Further analysis is expected to focus on a more specific business sector for data homogeneity, such as the culinary (food/beverage) sector, which dominates women-owned businesses. This research is conducted in the local context of women entrepreneurs in East Java, limiting its generalizability nationally. A similar investigation should be performed on a national scale, covering all provinces to obtain more comprehensive results. Additionally, this research uses a quantitative approach and shows that social capital has an insignificant influence on adopting digital technology. Further analysis is promoted to use a qualitative approach to examine the occurrence of the phenomenon among women entrepreneurs.

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