

Optimization of Digital Literacy Knowledge Sharing and Human Capital on Digital Economy for MSMEs Business Sustainability

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ABSTRACT

MSMEs strongly influence the national economy as the most strategic sector. MSMEs in Indonesia reach 64.2 million, but facts in the field show that only 17.25 million are included in the digital ecosystem. The research objectives help MSME players understand the current conditions of adopting a digital economy business model in improving business sustainability by focusing on digital literacy knowledge sharing, human capital, and digital transformation with moderation of self-efficacy. The research method uses a quantitative research design with an explanatory research approach. Data collection was carried out through questionnaires given to 216 MSMEs. The purposive sampling technique was used to determine the sample of MSMEs in East Java, Indonesia. The data from the questionnaire was processed using SmartPLS software to test the hypothesis. The results prove that digital literacy knowledge sharing, human capital, and digital transformation affect the sustainability of MSME businesses. Self-efficacy can moderate

KEYWORDS

MSMEs, Digital Transformation, Digital Literacy Knowledge Sharing, Human Capital, Self-Efficacy

INTRODUCTION

The progress of the digital economy is influenced by the availability of human resources with superior competitive competencies. The development of the economic sector has also always been a measure of the success of government programs. Indonesia's rapid economic growth is driven by several sectors, one of which is micro, small, and medium enterprises (MSMEs), which have a strategic role. MSMEs play a significant role in the national economy. Kominfo (2022) stated that there are 64.2 million MSMEs, 61% of which contribute to Indonesia's gross domestic product. MSMEs

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also absorb 97% of the national workforce, or approximately 119.6 million people. However, only about 17.5 million MSMEs have entered the digital ecosystem and utilized e-commerce. Along with the high contribution of MSMEs to the economy, the government continues to focus on developing the enterprise sector. The large number of MSMEs has enormous potential, especially in driving economic growth in Indonesia.

Digital technology has led to the development of a new economic resource known as the digital economy. This helps explain how the internet is changing the way business is done. While information in the traditional economy is physical, in the digital economy it is digital. The rapid development of digital technology has made the digital economy one of the major forces shaping the global business landscape. The digital economy is a cornerstone of sustainable economic growth.

The digital economy is a crucial driver of the growth of MSMEs in Indonesia, and the government is also encouraging MSMEs to accelerate their digital adoption through various programs. The current phenomenon of digitalization is getting stronger. Digital transformation is a driving strategy for national economic recovery. This is a challenge for the government in encouraging faster and more inclusive digitization and technology adoption to go digital by MSMEs in the form of new business models.

Observations in the field show that MSMEs play an essential role in supporting the country's economy. However, not all MSMEs in East Java, Indonesia, have adopted digital concepts due to their limited knowledge capabilities, resources, and human resource readiness to support the digital economy. Only around 4.6 million MSMEs have entered the digital ecosystem in East Java, Indonesia. This hampers their ability to transform from traditional business models to digital business models (Parra-Sánchez & Talero-Sarmiento, 2023).

MSMEs are required to be able to understand and evaluate existing information—the ability to identify information in digital form. Digital literacy knowledge sharing needs to be done in developing enterprise governance to access, manage, integrate, analyze, and evaluate information, build new knowledge, and create and communicate with other parties to optimize the performance of digital-based MSMEs. Knowledge sharing can increase knowledge, skills, and experience (Widen & Suomi, 2007) and improve innovation capabilities in the workplace (Harjanti & Noerchoidah, 2017).

Digital technology has become a great transforming force in society, driving great prosperity in the world economy. Digital transformation can be seen as transitioning from conventional organizations that rely on real-world resources to digital organizations that depend on information and virtual resources (Chen et al., 2023). Digital transformation focuses on changes in structure and value creation, along with the use of digital technologies, dynamic capabilities, consumer behavior, and strategic responses (Kraus et al., 2022). Digital transformation is essential in the recovery and efforts to improve the competitiveness of the national economy, including improving the productivity and performance of MSMEs.

Technological change involves a transformative shift in the human capital dimension, both from the perspective of technology creation and development and the perspective associated with the role of users of the new technology. Human capital is a human resource that can be understood as the accumulation of knowledge, skills, and abilities possessed by a person who plays a vital role in increasing productivity (Noerchoidah & Eliyana, 2015) and developing new technological innovations (Polyanin et al., 2019). Reliable and quality human capital is an aspect that delivers a business with the ability to support the increase in business performance. However, MSMEs in Indonesia are experiencing problems related to human resources. Survey results show that 83 percent of human resources in Indonesian MSMEs indicate low education (Kuzminov et al., 2019). So this shows that improving the quality of human resources or human capital of MSMEs is very important.

MSMEs require self-efficacy to transform digital technology to change existing business processes or create new businesses that are more efficient and effective. Self-efficacy is an individual's belief in the ability to perform tasks or actions needed to achieve goals (Waddell et al., 2019). The higher the self-efficacy of MSMEs, the better their willingness to share knowledge to gain new knowledge.

Business sustainability is important for MSMEs in responding to business changes to meet market needs. It can make MSMEs competitive (Mont et al., 2020), increase business value (Galvão et al., 2020), and strengthen brands in the minds of consumers (Baldassarre et al., 2020).

Digital economy research is still rare. Several studies have described the strengths, weaknesses, opportunities, and threats (SWOT) analysis to measure the competitiveness of MSMEs (Husin & Haron, 2020), the use of digital tools in managerial and operational work to realize digital transformation of MSMEs (Kraft et al., 2022), the readiness of changes in MSMEs adopting digital economy sharing business models (Lestantri et al., 2021), and the impact of digital transformation that affects enterprise concerns, such as the availability of skilled staff, production or labor costs, access to funding, customers, and competitiveness (Skare et al., 2023), but this research has some sharp contrasts.

This research has novelty. First, no one has discussed the steps that must be taken in strengthening the sustainability of MSMEs. Second, it uses a mediation and moderation research framework involving five constructs, namely, digital literacy knowledge sharing, human capital, digital transformation, business sustainability, and self-efficacy. This conceptual framework has never been studied before. Finally, this study has a different research setting, namely, MSMEs in East Java, Indonesia, which is different from previous studies.

MSMEs in East Java, in realizing business sustainability, can take crucial steps to actualization: First, digital literacy knowledge sharing helps to understand and apply various forms of information from various digital sources shown by computers, increasing the competence and knowledge of enterprise actors as human capital. Second, this commitment to growth is crucial for digital transformation that changes conventional methods toward digitalization, introducing self-efficacy that can strengthen human capital, increase digital competence, and achieve digital transformation.

The theoretical basis for explaining the conceptual framework is the resource-based view (RBV; Barney, 1991) to create sustainable competitive advantage. Intangible resources are strategic assets that are valuable, rare, inimitable, and irreplaceable. The RBV emphasizes the knowledge-based view (KBV), which views knowledge as the most important strategic resource for a company's competitiveness. Knowledge resources are essential to ensure sustainable competitive advantage. Vaz et al. (2019) conveyed that the collection of knowledge in the organization is the organization's intellectual capital. The KBV helps explain how individual knowledge sharing can affect organizational sustainability by contributing to the success of knowledge management in organizations.

This research is designed to help MSMEs understand the current conditions by adopting a digital economy business model to achieve business sustainability. Based on the problems faced by MSMEs, the objectives of this study are to test and analyze:

1. The effect of digital literacy knowledge sharing on human capital.
2. The effect of human capital on business sustainability.
3. The effect of digital literacy knowledge sharing on digital transformation.
4. The effect of digital transformation on business sustainability.
5. The role of human capital in mediating digital literacy knowledge sharing and business sustainability.
6. The role of digital transformation in mediating digital literacy and business sustainability.
7. The role of self-efficacy in moderating digital literacy knowledge sharing and human capital.
8. The role of self-efficacy in moderating digital literacy knowledge sharing and digital transformation.

LITERATURE REVIEW

Digital Literacy Knowledge Sharing and Human Capital

Digital literacy knowledge sharing and human capital are essential components that MSMEs must own in developing their businesses. Digital literacy knowledge sharing is a knowledge-sharing activity emphasizing user skills in utilizing digital media, such as communication tools, internet networks, and so on (Wardana et al., 2023). Digital literacy knowledge sharing can provide learning and understanding of digital literacy. Digital literacy knowledge sharing is essential to increase human capital. Human capital itself is the knowledge and skills possessed by operators of MSMEs. Interaction on explicit knowledge-sharing activities can ultimately increase organizational members' knowledge and improve organizational performance so that human capital can increase (Chao et al., 2011). Human capital is an engine of creativity in organizations involved in the knowledge economy, especially interacting with customers as a manifestation of the company's ability to solve business problems (Masadeh, 2021).

Hypothesis 1: Digital literacy knowledge sharing affects human capital.

Human Capital and Business Sustainability

Human capital is one of the main components of intangible assets owned by the company. Human capital has a broad scope and is closely related to all aspects of the company and can positively impact the realization of company goals. Human capital is all workers' effort to invest in their work, including their abilities, behavior, and enthusiasm. Human capital combines knowledge, skills, innovation, and people's ability to carry out their duties to create value to achieve goals. The formation of added value contributed by human capital in carrying out its duties and work provides sustainable revenue in the future for an organization (Batool et al., 2022). Human capital can impact business sustainability by seeking value-creation opportunities (Freudenreich et al., 2020). Human capital can also contribute to achieving these goals by creating individual competencies and skills for sustainable business success (Podgorodnichenko et al., 2020). Kaplan and Norton (2004) stated that companies need to understand current and future competitive conditions, their business strengths, and their competitors' conditions to create sustainable competitive advantage. Measurement of business sustainability is adapted from Kaplan and Norton (2004) by adjusting the existing business capabilities.

Hypothesis 2: Human capital affects business sustainability.

Digital Literacy Knowledge Sharing and Digital Transformation

Digital literacy knowledge sharing is one of the pillars supporting the realization of the digital transformation agenda. Knowledge sharing is exchanging and creating knowledge between individuals by describing, integrating, and explaining information to the recipient (Van Den Hooff & Ridder, 2004). Knowledge sharing can directly improve knowledge and skills and deepen the understanding of organizational members through feedback and discussion (Noerchoidah et al., 2020). The ability to perform digital literacy knowledge sharing is crucial in realizing digital transformation. MSMEs should not only recognize technology but also be careful in using it. Digital literacy can predict digital transformation in influencing the competitiveness of MSMEs. Digital literacy affects enterprise competitiveness directly or indirectly through digital transformation. Equitable digitalization and digital transformation of MSMEs must be supported by adequate digital understanding and collaboration in sustainable multisector cooperation schemes that can achieve and meet these expectations (Liu et al., 2020). The involvement of MSMEs in adopting digital technology can be assessed from the level of readiness to use technology and how to digitize several processes in business activities, seen from the level of digital awareness, the level of digital inquiry capabilities, digital collaboration, and digital transformation capabilities (Garzoni et al., 2020). The measurement of knowledge sharing is adapted from Van Den Hooff and Ridder (2004) by adjusting the knowledge contribution to the capabilities of enterprise actors.

Hypothesis 3: Digital literacy knowledge sharing affects digital transformation.

Digital Transformation and Business Sustainability

Digital transformation has become an essential requirement in the business world. Digital transformation can accelerate processes and improve efficiency in all aspects of its business, from data processing, marketing, and production to the delivery of products or services to customers (Li, 2022). Digital transformation refers to changes and transformations that provide opportunities for innovation and entrepreneurship (Ghi et al., 2022). Digital transformation involves the use of technologies such as cloud computing, big data, internet of things, artificial intelligence, and blockchain to optimize business processes and improve customer satisfaction. Digital transformation also helps businesses to open up great opportunities to achieve long-term success in the future. The better the digital transformation carried out, the more improvement there is in marketing performance, so that it increases its marketing sustainability (Budiarto et al., 2024; Hilali et al., 2020). Digital transformation measurement adapts (Ghi et al., 2022) by adjusting the efforts of MSMEs to use digital technology.

Hypothesis 4: Digital transformation affects business sustainability.

Digital Literacy Knowledge Sharing, Human Capital, and Business Sustainability

The KBV helps explain how individual knowledge sharing can affect organizational performance by contributing to organizational success. The practice of knowledge sharing in organizations results in the transfer and exchange of knowledge, which has an impact on the development of human capital, namely, the competence of human resources in the organization (Widen & Suomi, 2007). Digital literacy knowledge sharing has a crucial role in organizations that enable the improvement of enterprise competencies to gain a sustainable competitive advantage. With the development of human capital in the organization, it can improve performance in doing work and organizational sustainability. Digital literacy knowledge sharing refers to sharing information, skills, and knowledge using technology to improve work capabilities and productivity in running and developing a business (Batool et al., 2022). Human capital is an essential factor in predicting organizational sustainability. Employees with suitable skills and knowledge are readier to share digital literacy knowledge, which ultimately improves business performance and sustainability (Sunday, 2017).

Hypothesis 5: Human capital mediates digital literacy knowledge sharing and business sustainability.

Digital Literacy Knowledge Sharing, Digital Transformation, and Business Sustainability

The skills required for business processes have changed along with technological developments. Digital literacy emerged alongside the evolution of the internet and demanded knowledge of how to access, search, and critically analyze information (Farias-Gaytan et al., 2022). Digital literacy is one of the pillars supporting the realization of the digital transformation agenda. Digital literacy knowledge sharing is critical in utilizing digital information and knowledge. The digital transformation process explains the importance of digital literacy to support the innovation process to strengthen competitiveness (Rozak et al., 2021). Digital transformation creates business in new ways. New business models are created in order to capture value in the digital era. The existence of digital transformation makes businesses focus on customers, excel in competition, take advantage of opportunities offered by digital capabilities, and have the ability to innovate (Carayannis & Hanna, 2016). MSMEs that are able to take opportunities from the development of information technology get positive results in their business development.

Hypothesis 6: Digital transformation mediates digital literacy knowledge sharing and business sustainability.

Self-Efficacy Moderates Digital Literacy Knowledge Sharing and Human Capital

Knowledge-based resources are the strategic position of resources related to organizational knowledge in producing sustainable competitive advantage and performance. Digital literacy knowledge sharing and human capital are essential components that must be owned by enterprise actors in developing their businesses (Baharun et al., 2021). Digital literacy knowledge sharing is a reciprocal process where individuals exchange knowledge (tacit and explicit knowledge) of digital literacy and practice the new knowledge gained. Self-efficacy is an essential factor in handling various situations (Jusriadi & Naidah, 2022; Yang et al., 2019). Self-efficacy grows because individuals are aware of their potential, have mutual trust in the workplace, and adequately understand the challenges faced (Tierney & Farmer, 2011). High levels of self-efficacy enable them to carry out work tasks and overcome work-related problems more effectively. Conversely, individuals with low levels of self-efficacy tend to experience difficulties (Rismansyah et al., 2024). High self-efficacy is expected to strengthen the realization of digital literacy knowledge sharing to improve the digital competence of MSMEs. In this study, self-efficacy was measured by adopting indicators from Tierney and Farmer (2011) and adjusting the beliefs of enterprise actors regarding the performance of their work tasks.

Hypothesis 7: Self-efficacy moderates digital literacy knowledge sharing and human capital.

Self-Efficacy Moderates Digital Literacy Knowledge Sharing and Digital Transformation

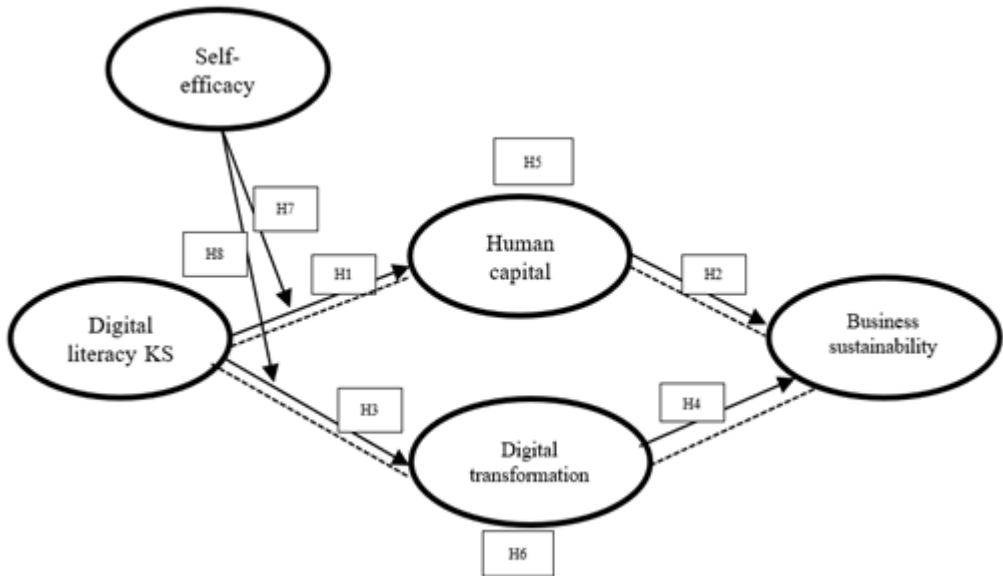
The rapid development of information technology needs the attention of business actors. This situation is no longer an obstacle but needs to be addressed as an opportunity that must be taken (Sun et al., 2021). Digital literacy knowledge sharing is a set of shared skills that are broader and more complex than the simple use of digital technology, the most important of which is the need to contextualize the internet and present information against other nonnetworked forms. Digital skills can improve the use of information technology, transformation and social media engagement, competitiveness, and organizational performance in MSMEs (Rozak et al., 2021). Self-efficacy is needed in the transformation process because it is an essential requirement for an individual in facing the challenges of change that can encourage improved performance (Rapp et al., 2015). A person with self-efficacy sets more ambitious goals than the previous condition and engages in more creative actions (Ng & Lucianetti, 2016).

Hypothesis 8: Self-efficacy moderates digital literacy knowledge sharing and digital transformation.

Theoretical Framework

Figure 1 shows the research conceptual framework where digital literacy knowledge sharing affects human capital, digital transformation, and business sustainability. Human capital and digital transformation are mediating variables. Furthermore, there is self-efficacy as moderation between digital literacy knowledge sharing and human capital, and there is self-efficacy as moderation between digital literacy knowledge sharing and digital transformation.

Figure 1. Conceptual framework



Note. KS = knowledge sharing.

METHODOLOGY

This research was a quantitative study with an explanatory research approach, namely, testing the direct and indirect effects of digital literacy knowledge sharing, human capital, and digital transformation with moderation of self-efficacy for business sustainability of MSMEs in East Java, Indonesia. Self-efficacy can be used as moderation because it is an essential factor that makes MSMEs confident in their ability to produce changes in dealing with various situations so that it can strengthen digital literacy knowledge sharing related to human capital and digital transformation.

This research was conducted in East Java with a focus on MSMEs in the Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan regions (Gerbang Kertausila). The research population was all MSMEs in the Gerbang Kertausila region of Indonesia, determining the number of samples, namely, the number of indicators multiplied by 5-10 (Hair et al., 2019), and the sample considered capable of describing the population was 216 MSMEs. The sample was then selected using a purposive sampling technique based on the criteria of a minimum business duration of 1 year. Data collection was through questionnaires given to enterprise actors. Hypothesis testing used Smart Partial Least Squares Software.

This study used a measuring instrument from Tierney and Farmer (2011) to measure self-efficacy in as many as five items. Digital literacy knowledge sharing was measured using six items from Van Den Hooff and Ridder (2004). Human capital adopted from Ghi et al. (2022) constituted as many as four items. Digital transformation using measuring instruments from Ghi et al. (2022) included as many as five items. Business sustainability used a measuring instrument from Kaplan and Norton (2004) of four items.

RESULTS AND DISCUSSION

Results

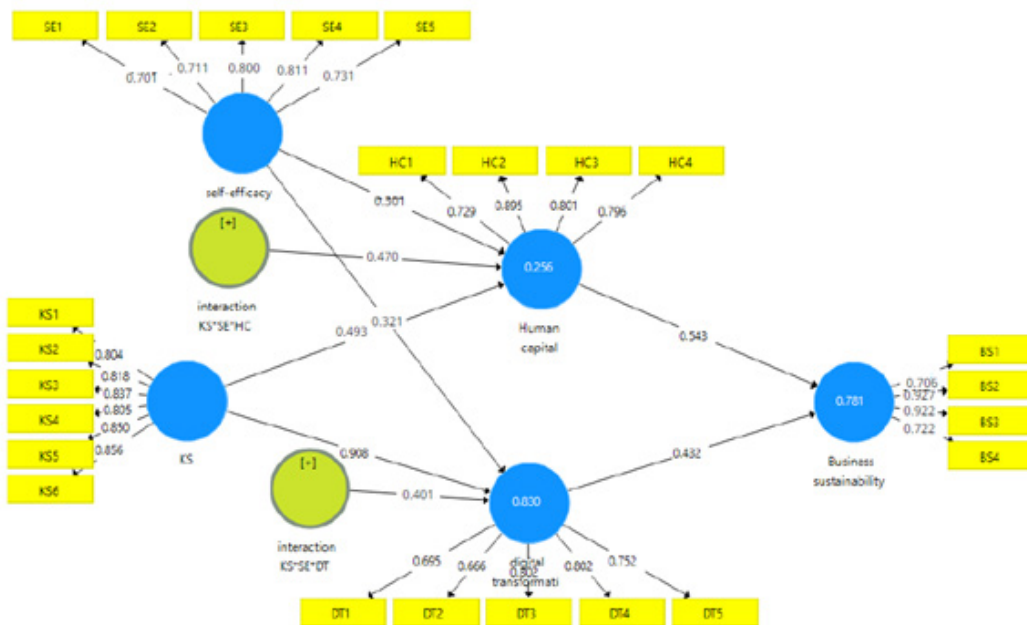
Characteristics of Respondents

The respondents in this study are mostly owners of MSMEs (93%). The majority of business types are food and beverages (78%), male (62.04%), aged 31–40 (36.57%), with a high school education (34.26%), and with a business period of 1–3 years (37.5%).

Outer Model

The outer model stage presents validity and reliability tests. Validity testing was done using the loading factor parameter > 0.7 , but the value > 0.6 is still considered sufficient and acceptable (Hair et al., 2019). The expected average variance extracted value is > 0.5 . Reliability testing can be done by observing Cronbach's alpha > 0.7 and composite reliability value > 0.7 so that it can be declared reliable. The outer model results are presented in Figure 2.

Figure 2. Outer model results



Note. KS = knowledge sharing; HC = human capital; DT = digital transformation; SE = self-efficacy; BS = business sustainability.

Figure 2 shows the results that indicators on all personal constructs of digital literacy knowledge sharing, human capital, digital transformation, business sustainability, and self-efficacy have a loading factor value > 0.6 and average variance extracted value > 0.5 (Table 1), so it is concluded that all indicators are valid. The results of reliability testing show the value of Cronbach's alpha and composite reliability > 0.7 so that all variables are reliable, as presented in Table 1.

Table 1. Validity and reliability results

Variable	Indicator	Loading Factor	Cronbach Alpha	Average Variance Extracted	Composite Reliability
Digital literacy knowledge sharing (KS)	KS1	0.804	0.909	0.687	0.929
	KS2	0.818			
	KS3	0.837			
	KS4	0.805			
	KS5	0.850			
	KS6	0.856			
Human capital (HC)	HC1	0.729	0.825	0.651	0.881
	HC2	0.895			
	HC3	0.801			
	HC4	0.796			
Digital transformation (DT)	DT1	0.695	0.799	0.56	0.862
	DT2	0.666			
	DT3	0.802			
	DT4	0.802			
	DT5	0.752			
Self-efficacy (SE)	SE1	0.701	0.765	0.616	0.616
	SE2	0.711			
	SE3	0.800			
	SE4	0.811			
	SE5	0.731			
Business sustainability (BS)	BS1	0.706	0.736	0.776	0.706
	BS2	0.927			
	BS3	0.922			
	BS4	0.722			

Inner Model

The inner model is useful for determining the suitability of the relationship between the independent variable and the dependent variable. The inner model is presented in Table 2, namely, R Squared (R^2).

Table 2. R squared (R^2)

Variable	R^2
Human capital	0.256
Digital transformation	0.830
Business sustainability	0.781

Note. R^2 = R Squared.

R^2 for digital literacy knowledge sharing on human capital is 0.256. This explains that 25.6% of human capital is influenced by digital literacy knowledge sharing, and other factors influence 74.4%. Digital transformation is influenced by digital literacy knowledge sharing by 83% and 17% by different factors. Furthermore, business sustainability is influenced by human capital and digital transformation by 0.781 or 78.1%, and as much as 21.9% is another factor not examined in this study. The lower R^2 value for human capital compared to digital transformation and business sustainability indicates that the contribution of human capital in the regression model is less

significant or more complex than the other two factors. Human capital includes aspects such as employee knowledge, skills, and competencies, which are more difficult to measure directly with the results of the business than factors such as digital transformation or business sustainability.

Furthermore, with Smart Partial Least Squares Software through bootstrapping, the t-statistic value is obtained, while the two-sided t-table value at 5% significance is 1.96. Moreover, the results of the data analysis are presented in Table 3, which shows the direct and indirect effects between variables and moderation.

Table 3. Test results of direct, indirect, and moderation effects

Hypothesis	Direct, indirect, and moderation effects	Original Sample (O)	T Statistic	P Value	Results
H ₁	Digital literacy knowledge sharing (KS) → human capital	0.493	5.701	0.006	Supported
H ₂	Human capital → business sustainability	0.543	7.683	0.000	Supported
H ₃	Digital literacy KS → digital transformation	0.908	16.478	0.000	Supported
H ₄	Digital transformation → business sustainability	0.432	5.622	0.000	Supported
H ₅	Digital literacy KS → Human capital → business sustainability	0.271	6.679	0.001	Supported
H ₆	Digital literacy KS → Digital transformation → business sustainability	0.391	5.202	0.000	Supported
H ₇	Self-efficacy moderates digital literacy KS and human capital	0.570	8.468	0.000	Supported
H ₈	Self-efficacy moderates digital literacy KS and digital transformation	0.991	9.053	0.000	Supported

Table 3 describes that all original samples are positive, the t-statistic value is more significant than 1.96, and the p-value is smaller than 0.05. Thus, it can be concluded that all hypotheses are supported.

Discussion

This study finds that digital literacy knowledge sharing affects human capital in MSMEs in East Java (Hypothesis 1 accepted). This means that the more MSMEs are willing to do digital literacy knowledge sharing, the greater are the competence and skills of MSMEs in East Java. Capacity building based on communication and information technology needs to be carried out; in this case, digital literacy is carried out to develop the quality of governance of MSMEs. Media literacy knowledge sharing is important for MSMEs to be smart and have the ability to access, analyze, evaluate information, build new knowledge, and communicate with other parties.

The existence of digital literacy knowledge sharing can encourage the formation of human capital with the knowledge, experience, and skills to carry out business development so that the performance of MSMEs can improve. Harmoko (2021) stated that providing digital literacy is very important to improving the quality of human resources. Furthermore, Masadeh (2021) showed that human capital drives creativity to provide quality services for customers in the face of business competition.

The majority of MSMEs strongly agree with digital literacy knowledge sharing in learning digital devices. This indicates a strong intention from MSMEs to gain knowledge about digital media such as computers, smartphones, and other devices in an effort to improve the competency of MSMEs in East Java, Indonesia.

The findings of this study are similar to the research of Akhavan and Mahdi Hosseini (2016), who found empirical evidence that knowledge sharing affects the intellectual capital of research and development employees. This is in line with the opinions of Gregson (2013) and Vătămănescu et al. (2020) that digital literacy knowledge sharing is needed for MSMEs to increase competence in running a business.

This study provides empirical evidence that human capital affects business sustainability in MSMEs in East Java (Hypothesis 2 supported). This means that the better the human capital of MSMEs, the better their business sustainability is. MSMEs with creative capacity, digital management skills, digital capabilities, adaptability, and mobility are able to increase revenue, sales volume, and business growth.

High human capital is able to support business actors in achieving success. Knowledge gained from education and experience as an entrepreneur owned by business actors is expected to be useful and used to increase business productivity in achieving success. Business actors must be competent in managing their businesses to achieve business sustainability. Holborow (2018) conveyed that the right human capital produces intellectual competence and agility, and acquiring high-quality skills is very important in business sustainability.

The results of this study are reinforced by the research of Hernita et al. (2021) that strengthening human resource capacity makes a positive contribution to increasing the sustainability of MSMEs in Makassar, Indonesia. Sunday (2017) proved that human capital has a positive and significant relationship with the economic sustainability of manufacturing companies in Rivers State, Nigeria.

The results of this study provide evidence that digital literacy knowledge sharing affects digital transformation in MSMEs in East Java (Hypothesis 3 supported). This means that the higher the willingness of MSMEs to do digital literacy knowledge sharing, the higher is their ability to use digital technology. Digital literacy knowledge sharing has a direct relationship with digital transformation, which is found with the emergence of courage and ability to carry out digital transformation for MSMEs.

Empirical results show that digital literacy knowledge sharing has the largest contribution in influencing the emergence of the ability to perform digital transformation. Digital literacy knowledge sharing refers to sharing proficiency in using digital technology and communication tools to access, manipulate, integrate, analyze, and assess information effectively to generate new knowledge and engage in collaborative interactions.

Digital literacy is key to expanding the access of MSMEs to opportunities and increasing competitiveness in an increasingly digitized economy (Krajčůk et al., 2023). To ensure that MSMEs do not go out of business, they must be able to support the digitalization process. Enterprise players are connected to market networks through various digital platforms in marketing the products produced. Digital literacy knowledge sharing and digital transformation of MSMEs as dynamic capabilities are identified in the KBV. The dynamic capabilities of MSMEs in the digital transformation process and digital literacy activities allow MSMEs to be competitive.

The results of this study are in accordance with research by Zhao et al. (2023) that digital literacy has an important effect on digital transformation in companies in China.

The findings of this study prove that digital transformation affects business sustainability in MSMEs in East Java (Hypothesis 4 supported). The research results confirm that the more MSMEs carry out digital transformation, the higher is their business sustainability. Digital literacy knowledge sharing contributes to changing and creating new business models to survive and continue to develop with better performance and competitiveness sustainably.

The rapid development of information technology needs the attention of MSMEs. This situation is no longer an obstacle but needs to be addressed as an opportunity that must be taken. Marketing no longer uses old and conventional methods but needs to consider other methods (Chawla & Chodak, 2021). The development of online transactions has changed people's cultural practices and behaviors (Paiva Neto et al., 2020).

Digital transformation using online marketing has received significant attention from MSMEs. This indicates that digital transformation receives great attention to online-based sales systems that can help MSMEs in supporting business sustainability, such as growing businesses, increasing opinions, increasing sales volumes, and increasing capital in enterprises run by MSMEs.

The results of this study are supported by the research of Teng et al. (2022) that digital transformation has a positive influence on marketing performance. The results of the study of Li (2022) found that digital transformation has a positive and significant effect on the sustainability of enterprise marketing. Furthermore, Martínez-Peláez et al. (2023) found that digital transformation is positively correlated with business sustainability of MSMEs.

The results of this study also prove that human capital mediates digital literacy knowledge sharing and business sustainability in MSMEs in East Java (Hypothesis 5 supported). The results of this study provide empirical evidence that high digital literacy knowledge sharing is able to increase business sustainability indirectly through human capital in MSMEs in East Java.

Based on the KBV theory, that knowledge resources are very important to ensure sustainable competitive advantage, digital literacy knowledge sharing is in the high category, so this is what supports MSMEs to improve their performance. Digital literacy knowledge sharing at a high level causes MSMEs to apply technology in accordance with the times and maintain their businesses. Digital literacy knowledge sharing receive the highest attention in digital devices and digital applications. This shows that the willingness of MSMEs in East Java to conduct digital literacy knowledge sharing can increase enterprise competence in knowledge or understanding in using digital devices that reflect human capital.

Human capital is an economic assessment of the accumulated knowledge, skills and abilities possessed by a person and plays a vital role in increasing labor productivity and encouraging the development of new technological innovations. Reliable and quality human capital supports MSMEs to innovate business development and even support businesses to get out of various problems that can disrupt the performance of MSMEs. The human capital of MSMEs in East Java, Indonesia, is in the high category, so this supports MSMEs in East Java to achieve business sustainability. Human capital gets the highest attention in developing digital capabilities; this means that MSMEs in East Java have a high interest to improve their ability to implement digital technology to achieve business sustainability.

The results of this study find that digital transformation mediates digital literacy knowledge sharing and business sustainability in MSMEs in East Java (Hypothesis 6 supported). These results confirm that a high level of digital literacy knowledge sharing can indirectly encourage business sustainability of MSMEs in East Java through digital transformation. The existence of knowledge, skills, and digital readiness owned by MSMEs can generate the courage and ability to carry out business digital transformation to impact the success of MSMEs.

Digital literacy knowledge sharing can fundamentally encourage business model transformation as flexibility and adaptation in responding to changes in the business environment in the digital era. Digital literacy knowledge sharing contributes to changing and being able to create new business models so that they can survive and continue to grow with sustainable performance and competitiveness.

Digital literacy knowledge sharing activities by sharing information technology skills with enterprise colleagues in East Java encourage the growth of online programs that have driven the pace of business sustainability for MSMEs. Lacson et al. (2020) revealed that advances in digital technology have further expanded the networks and partnerships of enterprise actors. The use of social media by business actors can increase revenue.

The results of this study prove that self-efficacy moderates between digital literacy knowledge sharing and human capital in MSMEs in East Java (Hypothesis 7 supported). Based on the results of structural equation modeling using partial least squares analysis, the biggest contribution to forming self-efficacy is persistence in developing abilities. This shows that self-efficacy is a belief in the

ability to develop knowledge, skills, and intellectual abilities. When the self-efficacy variable interacts with digital literacy knowledge sharing and human capital, the effect is very large, meaning that self-efficacy can strengthen the influence of digital literacy knowledge sharing and human capital so that it is proven that self-efficacy can be a moderator variable.

This condition can occur because the majority of MSMEs aged 31-40 years are classified as productive age with high self-efficacy so that they are able to share skills in using digital facilities in the form of digital devices and applications to increase intellectual acumen in digital technology. The competence of MSMEs is influenced by their entrepreneurial self-efficacy. A high level of self-efficacy indicates an individual's readiness and ability to deal with challenging conditions in business development and to achieve goals (Memon et al., 2019). This is reinforced by the opinion of Bayraktar and Jiménez (2020) that self-efficacy is very important as a resource needed in a high level of change.

The findings of this study prove that self-efficacy moderates between digital literacy knowledge sharing and digital transformation in MSMEs in East Java (Hypothesis 8 supported). This means that the self-efficacy of MSMEs in East Java is manifested in the form of behavior that is not easily discouraged, able to overcome difficulties, confident in success, able to achieve goals, and able to strengthen the realization of MSMEs in digital literacy knowledge sharing, which has a contribution in influencing the emergence of the ability to carry out digital transformation.

Self-efficacy is an essential resource for facing challenges in the process of organizational change. The self-efficacy of MSMEs in East Java is in the high category so that any difficulties in the digitization process can be adequately resolved. Self-efficacy allows MSMEs to have confidence in their abilities and knowledge to achieve all the demands of change and leads to new attitudes, thoughts, and behaviors that support change (Bayraktar & Jiménez, 2020). Self-efficacy is needed by MSMEs to influence optimism toward achievements in digital transformation. High self-efficacy allows MSMEs to be ready to face change.

CONCLUSION

The study results show that digital literacy knowledge sharing, human capital, and digital transformation directly or indirectly affect the sustainability of MSMEs in East Java, Indonesia. In addition, the role of self-efficacy of enterprise actors can strengthen the realization of human capital and the implementation of digital transformation in finding new opportunities for business sustainability.

This research provides suggestions for MSMEs and the government. The willingness of enterprise actors to incorporate digital literacy knowledge sharing should continue to improve their abilities, knowledge, and good skills so that they have better competencies to provide the best service for consumers and expand the market. Enterprise players must have high self-efficacy to have high enthusiasm and not be easily discouraged in facing existing challenges. Furthermore, the role of the government is needed in providing support in the form of facilities or policies so that all MSMEs in Indonesia can go digital.

This research supports the development of literature regarding the RBV of how organizations achieve competitive advantage. Furthermore, the development of the RBV is a KBV that focuses on knowledge assets to maintain its competitive advantage in the long term. The willingness of MSMEs to conduct digital literacy knowledge sharing as a construct of this study provides a more specific explanation to understand better the influence of human capital and digital transformation on business sustainability.

This research cannot be separated from limitations. First, the research design uses a cross-sectional method, namely, collecting enterprise data simultaneously. Future research can use the longitudinal method to analyze more deeply to obtain a clear picture of the causal relationship between these variables. Second, this research focuses only on East Java, Indonesia, MSMEs, so one needs to be

careful if it is generalized to other regions. Future research should not only involve MSMEs in East Java but in a wider area for more comprehensive results. Finally, this research uses quantitative methods, so further research can be used in mixed methods to obtain more in-depth information on sustainability of MSMEs.

COMPETING INTERESTS

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