Digital Literacy Mediation in Balikpapan Micro and Small Industries' Business Performance

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Abstract: Productivity gaps between large companies and micro and small industries are due to gaps in technology adoption, access to funding and managerial practices. Moving the capital to East Kalimantan is a momentum for micro and small industry players to encourage economic productivity growth in the buffer zone of the Capital City of the Archipelago (IKN). Community-based cluster development can minimize weaknesses, especially in the use of technology and information systems. This study investigates the effect of digital experience on business performance with digital literacy as a mediating variable. This research takes a sample of micro and small industries in Balikpapan City as one of the buffer cities of IKN. The subjects are food processing industry players in the Somber Small Industry Center area. Quantitative research uses structural-partial least square (SEM-PLS) modeling with WarpPLS 8.0 analysis tool. Hypothesis testing results show that digital experience and digital literacy partially have a direct and significant effect on business performance. Digital literacy significantly mediates the relationship between digital experience and business performance of micro and small businesses in Balikapapan City.

Keywords: Regional economy; micro and small industries; digital experience; digital literacy; & business performance.

1.   Introduction

The lack of productivity growth is one of the biggest threats to economic growth in the micro and small industry sector. Business units that are able to adopt agile operating models are likely to gain many benefits, such as increased customer focus, speed to market, more engaged employees, and high productivity (Nilsson et al., 2023). Productivity gaps between large enterprises and SMEs are due to gaps in technology adoption, access to funding, and managerial practices (Mawarsari, 2023). The impact of disruption between specialized market areas will be different in each city (Nicolaas et al., 2023). Moreover, after the Covid-19 pandemic, many companies were dormant and failed, while others innovated and thrived. Given the challenges faced and the magnitude of the opportunities, increasing the productivity of micro and small industries in developing countries by adopting proven technologies is a useful solution (Albaz et al., 2020). The movement of the capital to East Kalimantan is a momentum for micro and small industry players to encourage regional economic productivity growth. Therefore, this research is important to see the extent to which digital experience and digital literacy can create value for the performance of micro and small industries in Balikpapan City.

Digitalization has disrupted the entire value chain, from marketing to customer experience enhancement to product creation. Digital brand interactions happen before shoppers decide what to buy, where to buy it, or what price they are willing to pay (Hannan et al., 2023). Brands which reach buyers with digital experiences and the right information at the right time will gain a greater share of growth and outperform competitors. Instead, brands not keeping up with customers' digital behaviors and preferences will be left behind. Companies who provide substandard online experiences can also tarnish brands and destroy value (Dauriz et al., 2014). How to respond to shifts in shopping behavior, digital knowledge sharing capabilities and data mining will help impact companies. For buyers, online experiences drive real-world decision-making. Convenience and speed are the main reasons for making online purchases. Buyers are able to compare product features and prices and find a wider selection of stores and retailers online. Online ratings and opinions help drive more decisions about where to make purchases (Farisha et al., 2019). For business owners, the above factors are opportunities for business innovation. Digital experience in this study refers to personal and subjective responses resulting from direct or indirect interactions with digital media (Silalahi & Rufaidah, 2017).

Digital channels have made daily tasks easier for many, but not for everyone. Active participation of citizens in adoption of the digital economy requires access to high-speed internet subscriptions, affordable subscription fees, internet-enabled devices, applications, digital skills, and other technical support (Darko et al., 2023). Minimum to advanced digital skills are required to thrive in an increasingly technology-driven economy. Digital literacy is an ability to filter all the insights needed to fully participate in the digital environment. Levels of digital readiness are a driver of gaps in jobs that require digital skills. Job security threats in the digital age are those who know how to use digital tools. Businesses need to know what kind of digital skills they need to participate and contribute to the digital economy. Digital skills required for professionals include critical thinking, creativity, digital information evaluation skills and problem-solving skills (van Laar et al., 2020). Digital literacy is not just about technical skills, but also a way of thinking about data, devices and technology and how we operate within an organization (Neeley, 2022). It is defined as a set of knowledge, abilities, skills, and attitudes regarding digital technologies that develop one's personal, cognitive, and social competencies to communicate, collaborate, create, manage and share content, and solve problems by considering ethical and sustainable practices (Vuorikari et al., 2016).

Hypotheses in this study are that digital experience has a positive effect on digital literacy (H1), digital experience has a positive effect on business performance (H2), digital literacy has an effect on business performance (H3) and digital literacy has a positive effect on mediating the relationship between digital experience and business performance (H4).

2. Literature Review

2.1. Digital Experience

Digitalization has impacted the entire value chain, from marketing, customer experience enhancement to product creation. Digital brand interactions happen before shoppers decide what to buy, where to buy it, or what price they are willing to pay (Hannan et al., 2023). Brands that reach shoppers with the right digital experiences and information at the right time will gain a greater share of growth and outperform competitors. Otherwise, brands that do not keep up with customers' digital behaviors and preferences will be left behind. Enterprises that provide substandard online experiences can also tarnish brands and destroy value (Dauriz et al., 2014). How to respond to changes in purchasing behavior, digital knowledge sharing capabilities and data mining will help impact the company. For shoppers, online experiences

drive real-world decision-making. Convenience and speed are the main reasons for making online purchases. Shoppers are able to compare product features and prices and find a wider selection of stores and retailers online. Online ratings and opinions help drive more decisions about where to make purchases (Farisha et al., 2019). For business owners, the above factors are opportunities for business innovation. Digital experience in this study refers to personal and subjective responses resulting from direct or indirect interactions with digital media (Silalahi & Rufaidah, 2017).

2.2. Digital Literacy

Digital channels have made everyday tasks easier for many people, but not for everyone. Active participation of people in the application of the digital economy requires access to high-speed internet subscriptions, affordable subscription fees, internet-enabled devices, applications, digital skills, and other technical support (Darko et al., 2023). Minimum to advanced digital skills are required to evolve in an increasingly technology-driven economy. Digital literacy is the ability to distill all the insights needed to fully participate in the digital environment. The level of digital readiness is a driver of the gap in jobs that require digital skills. The threat to job security in the digital era is those who know how to use digital tools. Businesses need to know what kind of digital skills they need to participate and contribute to the digital economy. The digital skills required for professionals include critical thinking, creativity, digital information evaluation skills and problem-solving skills (van Laar et al., 2020). Digital literacy is not only about technical skills, but also a way of thinking about data, devices and technology and how we operate within an organization (Neeley, 2022). Digital literacy is defined as a set of knowledge, abilities, skills, and attitudes regarding digital technologies that develop a person's personal, cognitive, and social competencies to communicate, collaborate, create, manage and share content, and solve problems by considering ethical and sustainable practices (Vuorikari et al., 2016).

3. Research Methods

Quantitative research using structural-partial least square (SEM-PLS) modeling analyzed with WarpPLS 8.0. SEM method was conducted to see the involvement of the relationship between variables and the indicator model simultaneously. Outer model analysis with PLS regression, inner model analysis with Warp3, and resampling method approach with Stable3 method. Research uses primary data by answering 55 closed questions in the research instrument. Data sources are 80 entrepreneurs in Somber Small Industry Center at Balikpapan area. Saturated sampling technique is used in this study where all population is used as sample. A five-point Likert scale, strongly disagree to strongly agree is used to measure the research constructs. Model consists of 3 variables namely digital experience, digital literacy, and business performance. Digital experience (DE) is measured with 10 parameters, digital literacy (DL) is measured with 5 parameters, and business performance (BP) is measured with 3 parameters.

Instrument testing is carried out to measure the validity and reliability of an indicator and its latent variable. This stage begins with testing the outer model. Consists of validity testing based on the outer loading measure (valid if the outer loading value is> 0.7), validity testing based on the Average Variance Extracted measure (valid if the AVE value is> 0.5), reliability testing based on Composite Reliability (reliable if the CR value is> 0.7), discriminant validity testing based on the Fornell-Lacker and Cross-Loading approaches. The Fornell-Lacker approach is said to be valid if the AVE square root value for each latent variable is greater than the correlation value between the latent variable and other latent variables. Cross-Loading approach is said to be valid if the loading value of each indicator on the variable

concerned is greater than the cross loading on other latent variables. Testing the inner model by testing the hypothesis and the coefficient of determination (R-square). Tests are carried out with a t-test, if a p-value <0.10 (α = 10%) is obtained, it is weakly significant, if the p-value <0.05 (α = 5%) it is significant and if the p-value <0.01 (α = 1%) it is very significant.

4. Results and Discussion

Business actor characteristics in Somber Small Industry Center at Balikpapan area are mostly male respondents (63.75%), aged 41-50 years (51.25%), who have been running the business for more than 10 years (47.50%) with less than 5 employees (48.75%). Characteristics of respondents can be seen in Table 1.

**Table 1.** Characteristics of Respondents

Characteristics of respondents	Frequency	Percentage
Gender		
Male	51	63.75%
Female	29	36.25%
Age of Respondents		
20-30 y.o	8	10.00%
31-40 y.o	21	26.25%
41-50 y.o	41	51.25%
51-60 y.o	10	12.50%
Length of time running the business		
1-2 y.o	0	0.00%
3-5 y.o	7	8.75%
6-10 y.o	35	43.75%
>10 y.o	38	47.50%
Number of employees		
<5 person	39	48.75%
5-10 person	31	38.75%
>10 person	10	12.50%

Based on the outer model test results on digital experience, digital literacy, and business performance variables, all indicators' outer loading values are >0.7. The higher the outer loading, the closer the relationship between an indicator and its latent variable. Based on AVE values of digital experience, digital literacy, and business performance are 0.703, 0.729, 0.786 respectively. It is known that all AVE values are >0.5, meaning the latent variables of digital experience, digital literacy, and business performance have absorbed the variance of each indicator >50%. Based on the CR results, it is known that CR values of digital experience, digital literacy, and business performance are 0.959, 0.931, 0.917, respectively. It is known that all CR values are >0.7, which means that the composite reliability of a questionnaire is getting better. In PLS-SEM context, CR is a more appropriate measure of reliability than Cronbach's alpha. Discriminant validity tests the extent to which a construct is truly different from other constructs. The discriminant validity test results show that the instruments that have been designed have good discriminant validity based on the Fornell-Lacker and Cross-Loading approaches. Outer model test results show that indicators and latent variables are valid and

reliable, so the instrument can be retained for the next analysis process. The outer model test results can be seen in Table 2.

Table 2. Outer Model Test Results

Indicator	Outer loading	Desc	AVE	CR	Fornell-Lacker	Desc
DE1	0.910	valid				
DE2	0.792	valid				
DE3	0.925	valid				
DE4	0.862	valid				
DE5	0.872	valid	0.703	0.959	0.839	reliable
DE6	0.763	valid				
DE7	0.774	valid				
DE8	0.942	valid				
DE9	0.734	valid				
DE10	0.784	valid				
DL1	0.892	valid				
DL2	0.923	valid				
DL3	0.800	valid	0.729	0.931	0.854	reliable
DL4	0.843	valid				
DL5	0.805	valid				
BP1	0.805	valid				
BP2	0.928	valid	0.786	0.917	0.887	reliable
BP3	0.921	valid				
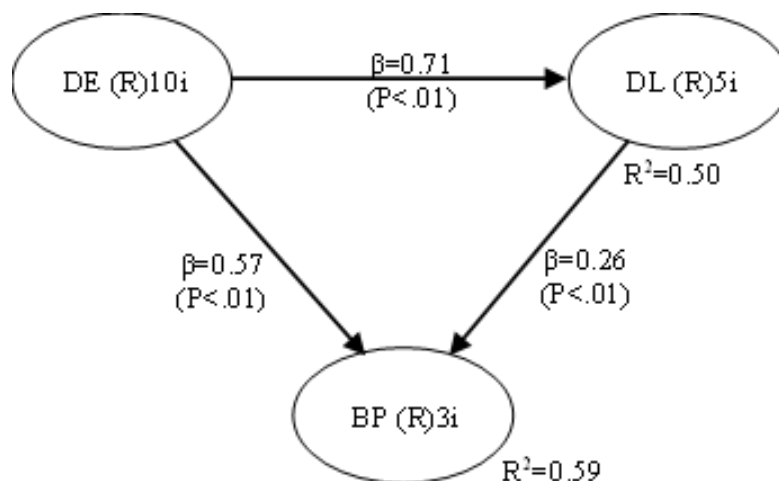
Figure 1. Structural Model Test Results

Inner model testing was used to test the structural model (Figure 1). Based on the direct effect test results, it is found that digital experience has a positive effect on digital literacy with a path coefficient of 0.706 and significant with a P-value <0.001 (α=1%), hypothesis 1 is accepted. Digital experience has a positive effect on business performance with a path coefficient of 0.566 and is significant with a P-value <0.001 (α = 1%), hypothesis 2 is accepted. Digital literacy has a positive effect on business performance with a path coefficient of 0.258 and is significant with a P-value of 0.007 (α = 1%), hypothesis 3 is accepted. Results of the inner

model test can be seen in Table 3.

Table 3. Inner Model Test Results

Hypothesis	Path coefficients	P values	R-squared
H1: DE → DL	0.706**	<0.001	0.499
H2: DE → BP	0.566**	<0.001	
H3: DL → BP	0.258**	0.007	0.587
H4: DE → DL → BP	0.182**	0.009	

Notes: n=80; sig** P=<0.01

R-square value states the degree to which the independent variable explains the variance of the independent variable. It was found that the R-square value on the digital literacy latent variable was 0.499, which means that the digital experience variable was able to explain the variance of the independent variable by 49.9%. Meanwhile, the R-square value on the latent variable of business performance is 0.587, which means that the digital experience and digital literacy variables are able to explain the variance of the non-independent variable of business performance by 58.7%.

Based on the results of testing the indirect effect of digital experience on business performance through digital literacy has a positive effect with a path coefficient of 0.182 and significant with a P-value of 0.009 (α = 1%), hypothesis 4 is accepted (Table 3).

4.1. Digital Experience and Digital Literacy

Research found that digital experience has a positive effect on digital behavior. For shoppers, online experiences drive real-world decision-making. Research by (Dauriz et al., 2014) shows that purchases are influenced by what buyers find in the digital world. It's supported by smartphone penetration and segment demographics. Digital media that is attractive and easy to navigate is more likely to drive sales traffic. Business owners who are able to provide digital services with stable access speeds, wide network availability, secure usage, with good digital image quality and compatible mobile applications will provide a digital experience to customers and gain a greater share of growth. A smooth omnichannel experience makes customers more comfortable using technology. According to research (Polizzi, 2020), the ability to evaluate online content involves not only reflection on the nature and origin of information, contextual knowledge, and the use of multiple sources, but also functional and critical digital skills and knowledge about the internet and the digital environment. Information literacy is also needed for businesses to create personalized digital content according to customer preferences. (Alam et al., 2023) saw the gap in access to digitalization causing differences in attitudes. Respondents who have access to educational digitization generally have a positive attitude. In contrast, respondents who lacked access to digital facilities had a negative attitude towards the digitalization of education. In a competitive environment, personalization is essential to engage and attract customers. Customer preferences suggest that omnichannel marketing and distribution is the optimal strategy for engagement. Traditional channels alone are no longer enough to keep customers engaged.

4.2. Digital Experience and Business Performance

Research has found that digital experience has a positive effect on business performance. Digital technology's presence in the work environment encourages the workforce to acquire new competencies. (Richter, 2017) research on 249 teachers in Germany shows that social media platforms can be a place for professional collaboration and the provision of digital social

support. Collaboration by seeking information, sharing information, and creating together. This indicates the potential for social media use to contribute to professional development and indicates that social media can be a place for knowledge transfer. Digital service support in form of access speed, network availability and security in the use of digital media is able to increase one's productivity, which ultimately improves organizational performance. In line with (Elgheit, 2018) shows that increasing usage of digital marketing and social media has a positive impact on consumer attitudes in online shopping centered on e-commerce. Increasing the number of shopping channels also affects consumer behavior, thus creating a more dispersed consumer shopping experience. Digital brand interactions occur before shoppers decide what to buy, where to buy it, or what price they are willing to pay (Hannan et al., 2023). Business owners who are able to reach buyers with the right digital experience and information at the right time will gain a greater share of growth and outperform competitors. Instead, those that do not keep up with customers' digital behaviors and preferences will be left behind. Enterprises that provide substandard online experiences can also tarnish brands and destroy value (Dauriz et al., 2014). Personal and subjective responses resulting from direct or indirect interactions with digital media can be through digital services, digital visualizations and digital touch points.

4.3. Digital Literacy and Business Performance

Finally, this study found that digital literacy has a positive effect on business performance. This support previous research, (Ochoa Pacheco & Coello-Montecel, 2023) on 357 professionals shows that digital competence improves performance and psychological empowerment of employees. This study highlights the importance of digital competence in achieving organizational goals. Enterprises that are able to use social media marketing with a focus on producing engaging, interactive, and educational content can build brand relationships with customers to improve business performance (Hannan et al., 2023). Business owners who pay attention to the security of user data will give customers a safe impression. Business owners' ability to interact and collaborate with customers in digital media aims to ensure a seamless transition from digital to non-digital experiences and vice versa. E-service quality, and customer satisfaction on digital platforms can strengthen customer confidence in buying digital products (Erwin Halim et al., 2023), which in turn can affect business performance.

4.4. Mediation of Digital Literacy on Business Performance

Based on this study, it was found that digital literacy has a positive effect on mediating digital experience on business performance. Business owners' digital experience journey in providing digital services, digital visualization and digital touch points requires the support of a set of knowledge, abilities, skills and attitudes regarding digital technology. Our research is supported by previous research which found that leaders with a digital mindset are superior in improving financial performance than technologically slow companies (Lamarre et al., 2023). A digital mindset develops from a person's personal, cognitive and social competencies to communicate, collaborate, create, manage and share content, and solve problems by considering ethical and sustainable practices. Further performance can be driven by the integration of technology across business processes. This leads to higher digital sales and lower costs. Emerging trends of personalized advertising may lead to privacy concerns from consumers. Enterprises must be sensitive to consumer privacy when developing advertising strategies and building long-term customer relationships (Mandal, 2019). Customer communication through online media (eWOM) can generate significant benefits for organizations but also presents challenges. Negative eWOM communication can have

consequences for companies, resulting in reputation damage and decreased sales (Lappeman et al., 2018). Upskilling organizations and building distributed technologies to empower teams capable of digital innovation can improve company performance.

5. Conclusion

It concluded that the direct effect of digital experience on digital literacy, digital experience on business performance, digital literacy on business performance has a positive and significant effect. Digital literacy mediates between digital experience and business performance. Digital media that is both engaging and easy to navigate is more likely to drive sales traffic. Business owners who are able to provide digital services will provide a digital experience to customers and gain a greater share of growth. The ability of businesses to interact and collaborate with customers on digital media aims to ensure a seamless transition from digital to non-digital experiences and vice versa. Better performance can be driven by technology integration across business processes. This drives higher digital sales and lower costs.

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