


INVESTIGATING DIGITAL FINANCIAL LITERACY AND ITS IMPACT ON SMES' PERFORMANCE: EVIDENCE FROM INDONESIA

Ratih Kusumawardhani^A, Nonik Kusuma Ningrum^B, Risal Rinofah^C



ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 01 September 2023</p> <p>Accepted 13 December 2023</p> <p>Keywords:</p> <p>Blended Learning; Management Education; Executive Education; Bibliometric Analysis; Management and Business Education.</p> <div data-bbox="172 1016 480 1263" style="text-align: center;">  </div>	<p>Purpose: This study aims to measure the impact of digital resources and digital adoption on Indonesian SMEs' digital financial literacy. Subsequently, the impact of digital financial literacy on financial performance is also tested. This study employs quantitative approach.</p> <p>Theoretical Framework: Although previous studies about financial literacy in the Indonesian context has been carried out a lot, but the majority is related to individual/personal and household financial decision-making little research has linked financial literacy with decision-making in SMEs. Research on financial literacy in the Indonesian context has also been carried out which is linked to the latest trends in digitalization, but this research focuses more on one issue, namely financial technology (fintech)</p> <p>Design/Methodology/Approach: A causal study is used to examine the causal relationship between related variables by conducting hypothesis testing. A quantitative approach by distributing questionnaires directly to respondents is used as the primary data. In this study, SPSS Version 28 was used for data screening and profiling of respondent SMEs. Partial Least Square-Structural Equation Modelling (PLS-SEM) with the Smart-PLS 3 software, including measurement and structural models testing, was used to test the proposed hypothesis.</p> <p>Findings: This study reveals that SMEs which possess better digital resources has no impact on proficiency of digital financial literacy. Meanwhile, the SMEs which have better in digital adoption have better in term of digital financial literacy. As expected, the digital financial literacy has positive and significant impact on financial performance.</p> <p>Research, Practical & Social Implications: This study offers valuable insights from a managerial perspective that are applicable. Accordingly, the managers of SMEs should focus on selecting the appropriate digital portfolio to optimize their degree of digital financial literacy, since this study has demonstrated that digital adoption raises digital financial literacy.</p> <p>Originality/Value: This study adds to the body of knowledge regarding contemporary issues pertaining to digital financial literacy. The study's key result is that SMEs who use digital technologies typically have higher levels of digital financial literacy. This has an additional benefit in that these SMEs typically do better financially.</p> <p>Doi: https://doi.org/10.26668/businessreview/2023.v8i12.4097</p>

^A Master in Management. Department of Management, Universitas Sarjanawiyata Tamansiswa. Yogyakarta, Indonesia. E-mail: ratihkusuma@ustjogja.ac.id Orcid: <https://orcid.org/0009-0003-5494-3717>

^B Master in Management. Department of Management, Universitas Sarjanawiyata Tamansiswa. Yogyakarta, Indonesia. E-mail: nonik.kusumaningrum@ustjogja.ac.id Orcid: <https://orcid.org/0000-0002-5079-9282>

^C Master in Management. Department of Management, Universitas Sarjanawiyata Tamansiswa. Yogyakarta, Indonesia. E-mail: risal.rinofah@ustjogja.ac.id Orcid: <https://orcid.org/0000-0001-9726-9396>

INVESTIGAÇÃO DA LITERACIA FINANCEIRA DIGITAL E DO SEU IMPACTO NO DESEMPENHO DAS PME: PROVAS DA INDONÉSIA

RESUMO

Objetivo: O objetivo deste estudo foi identificar o perfil da pesquisa acadêmica sobre blended learning no mundo e propor uma agenda de pesquisa para o tema.

Referencial Teórico: A literatura recente tem relatado bons resultados tanto no desempenho dos alunos quanto na satisfação dos estudantes no blended learning (Dziuban et al., 2004). No entanto, ainda há muito o que investigar e aprender sobre o BL por ser um desenvolvimento recente.

Desenho/Metodologia/Abordagem: Analisamos o perfil das publicações internacionais sobre blended learning em gestão e negócios de 2001 a 2021. Identificamos quando, quem, onde e o quê foi publicado sobre o assunto, destacando os autores e periódicos de maior impacto com base no índice h e CiteScore (Scopus), além de explorar a cooperação entre países.

Resultados: O volume de pesquisas vem aumentando nos últimos vinte anos, embora existam poucos autores, instituições e periódicos de referência contribuindo para a consolidação do tema e os países que realizam mais pesquisas conjuntas em redes de coautoria respondem pelo maior volume de publicações, autores e revistas de impacto.

Pesquisa, Implicações Práticas e Sociais: Sugerimos uma agenda de pesquisa futura e destacamos as contribuições feitas para a educação executiva e gerencial.

Originalidade/Valor: Os resultados indicam que o número de publicações está crescendo, sendo a área de gestão e negócios a que mais contribui, sendo que os países que produzem em coautoria também fornecem mais publicações.

Palavras-chave: Educação Gerencial, Educação Executiva, Análise Bibliométrica, Gestão e Educação Empresarial.

ALFABETIZACIÓN FINANCIERA DIGITAL Y SU IMPACTO EN EL DESEMPEÑO DE LAS PYMES: EVIDENCIA DE INDONESIA

RESUMEN

Objetivo: El objetivo de este estudio fue identificar el perfil de la investigación académica en el aprendizaje mixto en el mundo y proponer una agenda de investigación para el tema.

Referencias Teóricas: La literatura reciente ha reportado buenos resultados tanto en el rendimiento de los estudiantes como en la satisfacción de los estudiantes en el aprendizaje mixto (Dziuban y otros, 2004). Sin embargo, todavía hay mucho por investigar y por aprender acerca de la BL porque es un acontecimiento reciente.

Diseño/Metodología/Enfoque: Se analizó el perfil de las publicaciones internacionales sobre el aprendizaje mixto en administración y negocios de 2001 a 2021. Identificamos cuándo, quién, dónde y qué se publicó sobre el tema, destacando los autores y periódicos con mayor impacto basado en el índice h y CiteScore (Scopus), además de explorar la cooperación entre países.

Resultados: El volumen de investigación ha aumentado en los últimos veinte años, aunque hay pocos autores, instituciones y publicaciones periódicas de referencia que contribuyen a la consolidación del tema, y los países que realizan más investigaciones conjuntas sobre las redes de coautoría representan el mayor volumen de publicaciones, autores y revistas de impacto.

Investigación, Implicaciones Prácticas y Sociales: Sugerimos un futuro programa de investigación y destacamos las contribuciones hechas a la educación ejecutiva y gerencial.

Originalidad/Valor: Los resultados indican que el número de publicaciones está creciendo, siendo el área de gestión y negocio al que más contribuye, y los países que producen en la coautoría también proporcionan más publicaciones.

Palabras clave: Gestión de la Educación, Educación Ejecutiva, Análisis Bibliométrico, Gestión Empresarial y Educación.

INTRODUCTION

The COVID-19 pandemic has further accelerated the existing growth of digital financial services, which has been greatly aided by financial technology (fintech). The current Covid-19 pandemic and the rise of financial technology, have led to the rapid increase of "digital" financial services and products (DFS), which are accessible and delivered through digital channels like mobile phones (Lyons & Kass-Hanna, 2021). There are growing concerns that traditional financial literacy is insufficient to give consumers access to and effective use of digital financial services. Digital financial literacy, which is quickly becoming an essential enabler, is a set of abilities that include aspects of both financial literacy and digital literacy, as well as particular traits and risks related to digital financial services.

Financial literacy has long been considered a workable strategy to increase financial inclusion and lessen inequities in the financial markets. Recently, though, financial literacy has undergone a paradigm change toward what is now known as "digital financial literacy". In addition to having a basic understanding of financial literacy, people who participate in the digital economy and society also need to be able to operate digital devices like mobile phones, smartphones, and tablets, conduct digital financial transactions, and protect their interests as online shoppers. As a result, it is necessary to (re)define what financial literacy is in this digital age (Kass-Hanna et al., 2022). To find the various mechanisms through which digital financial literacy can assist people, families, and communities in creating sustainable livelihoods and establishing long-term financial security in all aspects of their life, researchers will need to do more comprehensive empirical and predictive modeling.

Although previous studies about financial literacy in the Indonesian context has been carried out a lot, but the majority is related to individual/personal and household financial decision-making (Brilliant & Kautsar, 2020; Dewi et al., 2020; Fauzi et al., 2021; Gunawan et al., 2020) little research has linked financial literacy with decision-making in SMEs. Research on financial literacy in the Indonesian context has also been carried out which is linked to the latest trends in digitalization, but this research focuses more on one issue, namely financial technology (fintech) (Sari & Kautsar, 2020; Sih Kusumawardhani et al., 2021).

Research on digital financial literacy is a very new research theme and the Covid-19 pandemic has accelerated the presence of digital finance. So that the discussion of literature on financial literacy develops and shifts towards digital financial literacy. This research theme has been widely studied in poor and developing countries in Asia and Africa (Lyons et al., 2022). So that recent research tends to discuss definitions, dimensions, constructs and measurements

from the digital financial literacy (Kass-Hanna et al., 2022). To the best of the authors' knowledge, there is no existing research on digital financial literacy on Indonesian SMEs. Therefore, the main objective of this study is to examine the impact of digital financial literacy on SMEs' financial performance. Previously, digital financial literacy tends to be tested on individual consumers (Rahayu et al., 2022; Setiawan et al., 2020). Therefore, this study intends to close such research gap.

The following section contains literature reviews relating to this topic, followed by a methodology section illustrating the methods employed to conduct this investigation. Results from the data that was gathered are shown in the fourth section. The explanation of the findings and results is included in the fifth part. The study concludes with a summary of the key findings, a list of limitations, and recommendations for future research.

THEORETICAL FRAMEWORK

Digital Financial Literacy

According to Prasad et al., (2018), digital financial literacy is related to understanding of online systems for spending and saving money through online banking and payment. Digital financial literacy is a synthesis of two ideas, namely financial literacy and digital platforms (Tony & Desai, 2020). Digital financial literacy is thus characterized as financial literacy in the context of digital financial technology. Digital financial literacy is a multi-dimensional concept, much like digital literacy and financial literacy. The ability to read and write from online sources, as well as the capacity to choose pertinent sources for a given task, combine knowledge into a coherent message, and present that message to an audience, are all considered components of proficiency in digital literacy (Bulger et al., 2014). There is yet no agreed-upon definition of digital financial literacy, despite some earlier literature describing various components of it. According to Morgan et al., (2019), there are four components of digital financial literacy: familiarity with digital financial services and products, awareness of digital financial hazards, familiarity with digital financial risk management techniques, and familiarity with consumer rights and dispute resolution procedures.

Digital Resources and Digital Financial Literacy

The importance of both tangible and intangible assets in giving businesses a competitive edge and enhancing their performance was highlighted by the resource-based view (Das & Teng, 2000). The Resource-Based theory further suggests that a firm will function successfully

when all the essential resources are available to such an organization. Hardware, software, technology, cash, and other resources that businesses require to undertake digital transformation are collectively referred to as “digital resources” (Chen et al., 2022). To foster digital literacy, Hadjerrouit (2010) argue that we need digital learning resources. According to Bulger et al., (2014), access to digital technology (digital resources) and experience with digital technology influence digital literacy proficiency. One of the digital literacy concepts is digital consumption (Zerkina et al., 2019), i.e., the extent to which digital technologies for information are available: digital devices, mobile and fixed Internet, free access to electronic media, and the ability to receive and offer public and entertainment services through the internet. In order to assist the firm’s digital literacy and transformation, business activities like developing plans, gathering resources, and internal promotion are referred to as “digital organizing” (Chatterjee et al., 2021). The process of digital organizing is fraught with difficulties, thus it’s crucial to properly plan the resources needed for it (Mikalef & Gupta, 2021). To manage digital technologies and create new goods, businesses must retain high capabilities, talents, and expertise (Khin & Ho, 2018). Implementing digital literacy requires effective resource integration and reconfiguration inside businesses (Martínez-Caro et al., 2020).

Digital technology integration will alter value generation, business models, and procedures (Yang et al., 2022). In order for businesses to achieve their objectives, this process is essential to developing digital literacy plans (Rahman et al., 2022). Businesses exhibit a variety of behaviors to promote digital literacy, which helps them save costs and boost efficiency (Pinheiro et al., 2021). To adapt to the advancement of the digital age, businesses should modify their vision, strategy, organizational structure, function, and culture as part of the digital literacy process (Yang et al., 2022). Therefore, we hypothesize as follows:

Hypothesis 1. Digital resource has a positive effect on digital financial literacy.

Digital Adoption and Digital Financial Literacy

According to Yang (2022), digital adoption refers to how businesses utilize digital technology to implement digital literacy. Other scholars (Ghasemaghaei, 2021; Rahman et al., 2022) linking digital literacy to firm competitiveness, they argue that firm competitiveness refers to a company’s overall capacity to realize its value generation through digital transformation. The use of intelligent manufacturing by SMEs is made possible by the digital transformation, which boosts their performance on the market. The four aspects of digital

technology, strategy, capacity, and culture that are part of digital transformation have a favorable impact on how well businesses succeed in the market.

Enterprise digitalization enables operations to be more adaptable and competitive, which helps growing firms expand. With the ability to work from any location, anytime, thanks to digital technology, businesses can perform better in the market. In the digital transformation process, adopting and mastering comprehensive data capabilities aids businesses in performing better (Ciampi et al., 2021). Early use of digital technologies (such as big data, cloud computing, artificial intelligence, etc.) can help businesses obtain long-lasting competitive advantages, which is necessary to thrive in a challenging business climate (Martínez-Caro et al., 2020). Maintaining business competitiveness depends heavily on enterprises adopting and mastering significant data capabilities in the digital transformation process (Ciampi et al., 2021). Market performance and competitiveness can improve as a result of business digitalization (Martínez-Caro et al., 2020).

The second main concept of digital literacy is digital competence (Zerkina et al., 2019) and it includes the abilities to use and adopt information and communication technologies effectively, including how to conduct Internet searches, evaluate the veracity of information and its critical susceptibility, create content and post it online, use mobile devices for communication, manipulate money using online services, and use the Internet to browse for goods and services. The empirical study finds that the adoption of financial technology positively affects financial literacy and financial behavior (Farida et al., 2021). Therefore, this study proposes the following hypothesis:

Hypothesis 2. Digital adoption has a positive effect on digital financial literacy.

Digital Financial Literacy and SMEs Performance

The disruption of current economic systems, processes, and sectors, as well as shifts in consumer behavior and the reshaping of company models and commercial interactions, can be considered the economic impact of digital technology. Business performance at SMEs can be judged by how well the firm manages its people resources, consumers, customers' needs, and finances (Fitriati et al., 2020; Mukson et al., 2021). This demonstrates the company's development focus and its ability to identify chances for ongoing innovation (Mel et al., 2001).

Previous studies have addressed issue on the relationship between digital literacy, financial literacy and business performance of SMEs. The majority of the studies reveal positive impact of digital and financial literacy on SMEs' business performance (Dharmawan Buchdadi

& Sholeha, 2020; Frimpong et al., 2022; Kulathunga et al., 2020; Ratnawati & Soelton, 2022; Rvspk et al., 2020; Usama et al., 2019). In terms of SME performance, digital and financial literacy is thought to be a potent intellectual capital (Kulathunga et al., 2020). By enhancing organizations' knowledge base, financial literacy would enable and improve the performance of SMEs in this complex business climate (Jappelli & Padula, 2013; Lusardi et al., 2014). Therefore, increased digital and financial literacy is crucial to the success of SMEs and it is highly relevant. Previous scholars argue that small amount of government funding to support Indonesian SMEs due to lack of administrative constraints as a result of low level of digital and financial literacy (Dharmawan Buchdadi & Sholeha, 2020). Further impact is the SMEs face difficulties in access funding because many formal financial institutions hesitate to provide credit to business owners (Dharmawan Buchdadi & Sholeha, 2020). Therefore, it is expected that a financial risk-taking mindset enables entrepreneurs to recognize possibilities and dangers related to business and financial decisions, strong digital and financial literacy helps reduce financial risks that arise in the SMEs. Previous studies have examined the impact of digital and financial literacy on the operations of SMEs (Frimpong et al., 2022; Ratnawati & Soelton, 2022). These studies found the impact of digital technology, digital literacy and financial literacy on the performance of SMEs to be positive and significant. Therefore, combining financial digitalization and good financial literacy crucial for SMEs to improve their performance and make it more efficient and successful. Hence, we hypothesize as follows:

Hypothesis 3. Digital financial literacy has a positive effect on financial performance.

METHODOLOGY

Measurement of the Variables

A causal study is used to examine the causal relationship between related variables by conducting hypothesis testing. A quantitative approach by distributing questionnaires directly to respondents is used as the primary data. The overall measurement of digital financial literacy adapted from (Morgan & Trinh, 2019; Prasad et al., 2018; Setiawan et al., 2020) with the six-Likert-scale values that aim to determine the tendency of respondents' responses to the questions asked to avoid bias. As argued by [39], a six-point scale is most suitable for use if there is a need to direct the respondent on one side of the response. Six-point Likert scale assessment consists of strongly disagree (1), disagree (2), somewhat disagree (3), somewhat agree (4), agree (5), and strongly agree (6).

Sample and Data Collection

The sample of this study are SMEs located in five main cities in Yogyakarta and Central Java Provinces such as the city of Yogyakarta, Surakarta, Semarang, Magelang and Purwokerto. The convenience sampling method is used as a sampling technique that allows the author to distribute questionnaires to SMEs easily. The use of this method aims to facilitate the authors in obtaining research samples. Twenty-five people with managerial expertise (such as SMEs' owners, managers and senior staff) participated in the questionnaire's pilot study. Database on SMEs is collected from department of cooperatives and micro, small and medium enterprises (Dinkop dan UMKM) in each region. At the end, this study collected samples from 275 respondents to be examined. Seventeen questionnaires were deemed invalid because essential variables had missing data; as a result, 258 valid questionnaires made up the final sample for analysis. This indicates nearly 94% effective response rate; therefore, the current study's response rate is quite satisfactory.

Data Analysis Techniques

In this study, SPSS Version 28 was used for data screening and profiling of respondent SMEs. Partial Least Square-Structural Equation Modelling (PLS-SEM) with the Smart-PLS 3 software, including measurement and structural models testing, was used to test the proposed hypothesis. In order to create accurate and relevant data that will increase the effectiveness of research results, a measurement model test is conducted to verify that the measurement is valid and reliable. To examine the internal consistency reliability, Cronbach's alpha and composite reliability (CR) with criteria > 0.70 were utilized (Hair et al., 2012). Second, the research instrument's validity in assessing the variables included in this study was evaluated by a validity test. Both discriminant and convergent validity will be evaluated. To evaluate convergent validity, the loading factor value of > 0.50 (Hair et al., 2012, 2022) and average variance extracted (AVE) ≥ 0.50 (Hair et al., 2012, 2022) were employed. The Heterotrait-monotriat ratio of correlations (HTMT) with a value less than 0.85 (Henseler et al., 2015) and the Fornell-Larcker test criteria to the square roots of AVE (Fornell & Larcker, 1981) are employed to evaluate discriminant validity in the meanwhile.

RESULTS

Respondent Characteristics

Table 1 presents characters of the respondents (owner and/or managers of SMEs) of the study which consists of the respondents' gender, the respondents' age, roles of the respondents, education background, SMEs' sectors, number of employees, the SMEs' age, and sales turnover/year. The profile of the respondents are as follows. Of a total 258 respondents, male outnumbered female in the survey (nearly 60.00%). In terms of age, the oldest group of the respondents (more than 50 years old) had the greatest proportion (nearly 22.00%) and it was followed by young respondents (31-35 years old), that is, 20.20%. When considering the respondents' role, nearly 54.00% of the respondents are owners. Regarding the education background, majority of the respondents graduated from high school (68.60%), then followed by undergraduate leavers (28.30%). When considering the SMEs' sectors, the highest proportion (38.40%) was the manufacturing, while 24.00% and 19.40% represented fashion and culinary sectors, respectively. The SMEs with 5-19 employees (small firms) and less than 5 employees (micro firms) dominated the study with 50.00% and 46.10%, respectively. More than a half of the participated SMEs (54.30%) were operating for 5-10 years, while 36.00% were operating for more than 10 years. Lastly, nearly 68.00% of the participated SMEs have sales turn over/year for up to IDR 300 million, while around 31% of them able generate sales between IDR 300 million – IDR 2.5 billion.

Table 1. Respondent Characteristics

Characteristics	Description	Frequency	(%)
Gender	Male	153	59.3
	Female	105	40.7
Age (years old)	21 – 25	13	5.0
	26 – 30	23	8.9
	31 – 35	52	20.2
	36 – 40	34	13.2
	41 – 45	46	17.8
	46 – 50	34	13.2
	More than 50	56	21.7
The Role	Owner	139	53.9
	Director	37	14.3
	Senior Staff	67	26.0
	Owner & Director	15	5.8
Formal Education	Below High School	6	2.3
	High School	177	68.6
	Undergraduate	73	28.3
	Master	2	0.8
	Doctor	6	2.3
SMEs' Sectors	Services	23	8.9
	Manufacture	99	38.4
	Tourism	0	0
	Culinary	50	19.4

Characteristics	Description	Frequency	(%)
	Information Technology	1	0.4
	Agriculture	2	0.8
	Farming	0	0
	Fashion	62	24.0
	Others	21	8.1
Number of Employees	Less than 5	119	46.1
	5 – 19	129	50.0
	20 – 99	8	3.1
	More than 99	2	0.8
Sales turnover/year (IDR)	Up to 300 mil.	175	67.8
	300 mil. – 2.5 bil.	79	30.6
	2.5 – 50 bil.	4	1.6
SMEs' age (years)	Less than 5 years	25	9.7
	5 – 10 years	140	54.3
	More than 10 years	93	36.0

Source: Prepared by the researchers based on the outputs of the statistical program SPSS 28.

Measurement Model: Validity and Reliability

Tabel 2 presents the overall measurement's validity convergent and reliability test. It shows that the measurement of this study is convergently valid and reliable. The reliability of measurement is indicated by the value of Cronbach's alpha (CA) and composite reliability (CR) of this study is all above 0.7. While, the loadings factor values of all indicators and the AVE values shown were all above 0.50.

Table 2. Internal consistency and convergent validity: Composite reliability (CR) and Average variance extracted (AVE)

Formative Construct	Item Scales	Loadings	VIF	Cronbach's Alpha	CR	AVE
Digital Adoption (DA)				0.853	0.900	0,692
	DA1	0,811	2.452			
	DA2	0,850	2.045			
	DA3	0,832	2.583			
	DA4	0,835	2.167			
Digital Resources (DR)				0.857	0.898	0,638
	DR1	0,725	1.955			
	DR2	0,799	1.637			
	DR3	0,858	2.055			
	DR4	0,783	1.945			
	DR5	0,823	2.840			
Digital Financial Literacy (DFL)				0.765	0.844	0,523
	DFL1	0,672	2.533			
	DFL5	0,563	2.666			
	DFL6	0,731	2.478			
	DFL10	0,806	1.873			
	DFL11	0,815	2.490			
Financial Performance				0.709	0.771	0,537
	FP1	0,813	1.845			
	FP2	0,548	2.465			
	FP4	0,806	2.570			

Source: Prepared by the researchers based on the outputs of the statistical program SPSS 28.

The Fornell and Larcker (Fornell & Larcker, 1981) criterion and Heterotrait–Monotrait ratio (HTMT) (Henseler et al., 2015) were employed to evaluate the data's discriminant validity. Table 3 summarizes the results for the Fornell and Larcker criterion. Bold values on the diagonal of the correlation matrix represent the square root of the AVE, and they were higher than the correlations for the latent variables, demonstrating the discriminant validity's accuracy. Moreover, all latent variable HTMT values were less than 0.9, supporting the discriminant validity of the results (Table 4).

Table 3. Discriminant validity - Fornell-Larcker Criterion

Variable	DA	DFL	DR	FP
Digital Adoption (DA)	0,832			
Digital Financial Literacy (DFL)	0,485	0,723		
Digital Resources (DR)	0,725	0,591	0,799	
Financial Performance (FP)	0,388	0,299	0,386	0,733

Source: Prepared by the researchers based on the outputs of the statistical program SPSS 28.

Table 4. Discriminant validity – Heterotrait-Monotrait (HTMT) ration

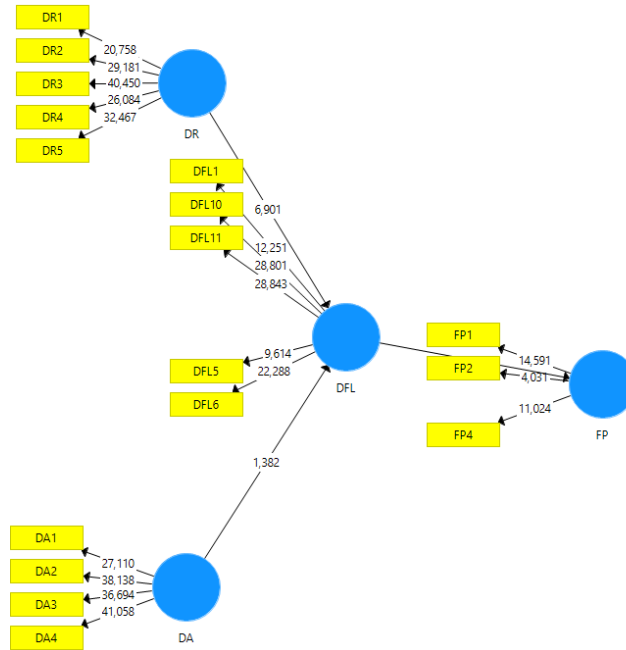
Variable	DA	DFL	DR	FP
Digital Adoption (DA)	-			
Digital Financial Literacy (DFL)	0,592	-		
Digital Resources (DR)	0,846	0,729	-	
Financial Performance (FP)	0,536	0,374	0,492	-

Source: Prepared by the researchers based on the outputs of the statistical program SPSS 28.

Structural Model Evaluation and Testing the Hypotheses

As the first step in evaluating the structural model, we conducted a multicollinearity assessment (Hair et al., 2022) using the variance inflation factors (VIFs). All of the VIF values in this investigation were below the 3-point cutoff, suggesting that there was no multicollinearity in the data (see Table 2). Next, we used (Hair et al., 2022) bootstrapping technique to evaluate the path coefficients' significance. Using a cut-off value of 1.96 (5% significance), we evaluated the path coefficients' significance. Hypotheses 2 ($\beta=0.299$, $p=0.000$) and 3 ($\beta=0.505$, $p=0.000$) were supported by the results, which indicate that every path coefficient was statistically significant. This indicates that digital financial literacy had a direct positive influence on financial performance. Such relationship also applies to the relationship between digital resources and digital financial literacy. Therefore, we conclude, hypotheses 2 and 3 were accepted. By contrast, the relationship between digital adoption and digital financial literacy i.e., no significance indication between the two variables ($\beta=0.119$, $p=0.168$). Hence, hypothesis 3 was rejected. (See Figure 1 and Table 5).

Figure 1. Direct path coefficients of the structural model



Source: Prepared by the researchers based on the outputs of the statistical program Smart-PLS 3 software.

Table 5. Direct path coefficients of the structural model

Path	Hypothesis	Path Coefficient (β)	t-value (> 1.96)	P-value (< 0.05)	f ²
DA → DFL	1	0,119	1,382	0,168	0,010
DFL → FP	2	0,299	5,956	0,000	0,298
DR → DFL	3	0,505	6,901	0,000	0,388

Source: Prepared by the researchers based on the outputs of the statistical program Smart-PLS 3 software.

Next is the evaluation of the coefficient of determination (R^2) (see Table 6). The table shows that R^2 values of digital financial literacy (0.631) and financial performance (0.651) were above the threshold level of 0.50, indicating a moderate predictive accuracy of the variables.

Table 6. The Results of R-square and Q-square

Endogenous Latent Variable	R ²	Q ²
DFL	0,631	0,307
FP	0,651	0,335

Source: Prepared by the researchers based on the outputs of the statistical program Smart-PLS 3 software.

Table 7 summarized the results of the hypotheses testing in the study. Of three proposed hypotheses, only hypothesis 1 was rejected, while the rest of two hypotheses were accepted.

Table 7 Summary of the hypothesis testing

Hypotheses	Decision
H1 Digital resource has a positive effect on digital financial literacy.	Rejected
H2 Digital adoption has a positive effect on digital financial literacy.	Accepted
H3 Digital financial literacy has a positive effect on financial performance.	Accepted

Source: Prepared by the researchers based on the outputs of the statistical program Smart-PLS 3 software.

DISCUSSION

This study was conducted to investigate the impacts of digital resources possessed by Indonesian SMEs and digital adoption conducted by Indonesian SMEs on digital financial literacy. Subsequently, the impact of digital financial literacy on financial performance of Indonesian SMEs is also tested. Interestingly, currently, insights related to interrelationship between the three variables, in the context Indonesian SMEs, remain unexplored. The majority of the studies tend to focus on possession of digital financial literacy at individuals' level and its impact on behavior such as saving and spending. Hence, this study intends to narrow such research gap. The conceptual framework and the three hypotheses that resulted from an extensive literature review served as the study's cornerstones. Scientific procedures were followed in the creation of the questionnaire, selection of the sample, gathering of data, and analysis. The results show that digital adoption has a positive effect on SMEs' digital financial literacy. Furthermore, as expected, digital financial literacy also has a positive impact on financial performance of the SMEs. However, the possession of digital resource has no impact on digital financial literacy.

The positive impact of digital adoption on digital financial literacy is consistent with the results of previous studies (Farida et al., 2021; Kumari et al., 2023; Yu et al., 2017). Especially financial technology adoption positively effects financial literacy and financial behavior (Farida et al., 2021). The study finding on the relationship between digital financial literacy and financial performance is also congruent with the studies conducted by many scholars (Dharmawan Buchdadi & Sholeha, 2020; Dura, 2022; Frimpong et al., 2022; Kulathunga et al., 2020; Patria et al., 2023; Ratnawati & Soelton, 2022; Rvspk et al., 2020; Usama et al., 2019). The studies argue that the greater level of digital financial literacy, it will drive better business performance of the SMEs.

This study adds to the body of knowledge regarding contemporary issues pertaining to digital financial literacy. The study's key result is that SMEs who use digital technologies typically have higher levels of digital financial literacy. This has an additional benefit in that these SMEs typically do better financially. This study offers valuable insights from a managerial perspective that are applicable. Accordingly, the managers of SMEs should focus on selecting the appropriate digital portfolio to optimize their degree of digital financial literacy, since this study has demonstrated that digital adoption raises digital financial literacy.

The study's conclusion that digital financial literacy improves SMEs' financial performance has significant managerial ramifications as well. The development of programs

that raise employees' proficiency in digital finance literacy is something that SMEs' managers should be focused on. For example, offering frequent seminars and training sessions on digital financial literacy.

The final managerial takeaway has to do with investing money. Since micro and small businesses make up the majority of the SMEs in this survey, funding financial support for human and digital investment can be difficult to come by. On the one hand, it is critical that SMEs continue to use digital technology and maintain their current level of digital financial literacy. Conversely, however, most of the micro and small businesses (SMEs) that were assessed had low yearly sales turnover. Consequently, it is critical that SMEs' management make decisions that strike a balance between funding for digital investments and funding itself.

This study has certain limitations that should be noted, despite the fact that it adds new insights into the area of digital financial literacy and how it affects the financial performance of SMEs. First, only five cities in the provinces of Yogyakarta and Central Java were used to gather study participants. As a result, the study does not fully reflect Indonesian SMEs, generalization of the findings must be done with caution. Therefore, to provide a more complete picture of digital financial literacy and its effect on financial performance among Indonesian SMEs, future research can expand the sample size of respondents to include more provinces. Second, the survey may not give a comprehensive picture of the size of SMEs because the majority of its respondents are micro and small businesses. Thus, it is recommended that a balanced sample of SMEs' sizes be included in future research.

CONCLUSIONS

One area of research that is expanding is that of small and medium-sized enterprises' digital financial literacy. As a result, research on digital financial literacy to be a new research theme. Especially in the context of SMEs in emerging markets like Indonesia, so the novelty of such research theme is still promising. Therefore, this study endeavored to investigate the impact of digital financial literacy on the Indonesian SMEs' performance. Besides, the impact of digital resources and digital adoption on digital financial literacy were also tested. To achieve this, this study used a structured questionnaire, SPSS 28, and Smart-PLS 3 software to obtain data and to test the study's assumptions. The main conclusions show that digital adoption positively and directly impacted the development of digital financial literacy. Another finding indicated that the financial performance of SMEs was significantly influenced by digital financial literacy. This suggests that in order to sustain and even further expand their level of

digital financial literacy, SMEs in developing economies must improve their digital adoption. Further implication is to accelerate the SMEs' financial performance, the managers must improve their proficiency on digital financial literacy. This finding supports the tenets of the resource-based theory, which contends that increasing operational knowledge strengthens a firm's human resource capabilities and competences to produce a competitive advantage and improved firm performance.

ACKNOWLEDGMENTS

This work was supported by Indonesian Ministry of Education, Culture, Research, and Technology (Main Contract Number: 181/E5/PG.02.00.PL/2023; Derivative contract number: 0423.1/LL5-INT/AL.04/2023, 001/PF.PPDA.DIKTI/UST/LP2M/K/VI/2023)

REFERENCES

- Brillianti, F., & Kautsar, A. (2020). Apakah Literasi Keuangan Memengaruhi Kesejahteraan Rumah Tangga di Indonesia? *Kajian Ekonomi Dan Keuangan*, 4(2), 103–115. <https://doi.org/10.31685/kek.v4i2.541>
- Bulger, M. E., Mayer, R. E., & Metzger, M. J. (2014). Knowledge and processes that predict proficiency in digital literacy. *Reading and Writing*, 27(9), 1567–1583. <https://doi.org/10.1007/s11145-014-9507-2>
- Chatterjee, S., Rana, N. P., Tamilmani, K., & Sharma, A. (2021). The effect of AI-based CRM on organization performance and competitive advantage: An empirical analysis in the B2B context. *Industrial Marketing Management*, 97, 205–219. <https://doi.org/10.1016/j.indmarman.2021.07.013>
- Chen, D., Esperança, J. P., & Wang, S. (2022). The Impact of Artificial Intelligence on Firm Performance: An Application of the Resource-Based View to e-Commerce Firms. *Frontiers in Psychology*, 13, 1–14. <https://doi.org/10.3389/fpsyg.2022.884830>
- Ciampi, F., Demi, S., Magrini, A., Marzi, G., & Papa, A. (2021). Exploring the impact of big data analytics capabilities on business model innovation: The mediating role of entrepreneurial orientation. *Journal of Business Research*, 123, 1–13. <https://doi.org/10.1016/j.jbusres.2020.09.023>
- Das, T. K., & Teng, B.-S. (2000). A Resource-Based Theory of Strategic Alliances. *Journal of Management*, 26(1), 31–61.
- Dewi, V. I., Febrian, E., Effendi, N., Anwar, M., & Nidar, S. R. (2020). Financial literacy and its variables: The evidence from Indonesia. *Economics and Sociology*, 13(3), 133–154. <https://doi.org/10.14254/2071>

- Dharmawan Buchdadi, A., & Sholeha, A. (2020). THE INFLUENCE OF FINANCIAL LITERACY ON SMES PERFORMANCE THROUGH ACCESS TO FINANCE AND FINANCIAL RISK ATTITUDE AS MEDIATION VARIABLES Corporate governance practise in Indonesia View project. In *Article in Academy of Accounting and Financial Studies Journal*. <https://www.researchgate.net/publication/345045505>
- Dura, J. (2022). Determinants of Financial Literacy and Digital Literacy on Financial Performance in Driving Post-Pandemic Economic Recovery. *Journal of Contemporary Eastern Asia*, 21(2), 47–68. <https://doi.org/10.17477/jcea.2022.21.2.047>
- Farida, M. N., Soesatyo, Y., & Aji, T. S. (2021). Influence of Financial Literacy and Use of Financial Technology on Financial Satisfaction through Financial Behavior. *International Journal of Education and Literacy Studies*, 9(1), 86. <https://doi.org/10.7575/aiac.ijels.v.9n.1p.86>
- Fauzi, F., Antoni, D., & Suwarni, E. (2021). Mapping potential sectors based on financial and digital literacy of women entrepreneurs: A study of the developing economy. *Journal of Governance and Regulation*, 10(2 Special Issue), 318–327. <https://doi.org/10.22495/JGRV10I2SIART12>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Source: Journal of Marketing Research*, 18(1), 39–50.
- Frimpong, S. E., Agyapong, G., & Agyapong, D. (2022). Financial literacy, access to digital finance and performance of SMEs: Evidence From Central region of Ghana. *Cogent Economics and Finance*, 10(1). <https://doi.org/10.1080/23322039.2022.2121356>
- Ghasemaghaei, M. (2021). Understanding the impact of big data on firm performance: The necessity of conceptually differentiating among big data characteristics. *International Journal of Information Management*, 57, 1–13. <https://doi.org/10.1016/j.ijinfomgt.2019.102055>
- Gunawan, A., Pirari, W. S., & Sari, M. (2020). Pengaruh Literasi Keuangan dan Gaya Hidup. *Jurnal Humaniora*, 4(2), 23–35.
- Hadjerrouit, S. (2010). A Theoretical Framework to Foster Digital Literacy: The Case of Digital Learning Resources. *International Conference on Key Competencies in the Knowledge Society (KCKS)*, 144–154. https://doi.org/10.1007/978-3-642-15378-5_14i
- Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2022). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (Third). SAGE Publications Inc.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40(3), 414–433. <https://doi.org/10.1007/s11747-011-0261-6>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Jappelli, T., & Padula, M. (2013). Investment in financial literacy and saving decisions. *Journal of Banking and Finance*, 37(8), 2779–2792. <https://doi.org/10.1016/j.jbankfin.2013.03.019>

- Kass-Hanna, J., Lyons, A. C., & Liu, F. (2022). Building financial resilience through financial and digital literacy in South Asia and Sub-Saharan Africa. *Emerging Markets Review*, 51. <https://doi.org/10.1016/j.ememar.2021.100846>
- Khin, S., & Ho, T. C. F. (2018). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177–195. <https://doi.org/10.1108/IJIS-08-2018-0083>
- Kulathunga, K. M. M. C. B., Ye, J., Sharma, S., & Weerathunga, P. R. (2020). How does technological and financial literacy influence SME performance: Mediating role of ERM practices. *Information (Switzerland)*, 11(6). <https://doi.org/10.3390/INFO11060297>
- Kumari, V., Bala, P. K., & Chakraborty, S. (2023). An Empirical Study of User Adoption of Cryptocurrency Using Blockchain Technology: Analysing Role of Success Factors like Technology Awareness and Financial Literacy. *Journal of Theoretical and Applied Electronic Commerce Research*, 18(3), 1580–1600. <https://doi.org/10.3390/jtaer18030080>
- Lusardi, A., Mitchell, O. S., Currie, J., Bucher-Koenen, T., Michaud, P.-C., van Rooij, M., Utkus for suggestions, S., de Bassa Scheresberg, C., Kim, H., St Louis, D., & Yu, Y. (2014). The Economic Importance of Financial Literacy: Theory and Evidence The Economic Importance of Financial Literacy: Theory and Evidence The authors thank. *Source: Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
- Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring “digital” financial literacy. *FINANCIAL PLANNING REVIEW*, 4(2). <https://doi.org/10.1002/cfp2.1113>
- Lyons, A. C., Kass-Hanna, J., & Fava, A. (2022). Fintech development and savings, borrowing, and remittances: A comparative study of emerging economies. *Emerging Markets Review*, 51. <https://doi.org/10.1016/j.ememar.2021.100842>
- Martínez-Caro, E., Cegarra-Navarro, J. G., & Alfonso-Ruiz, F. J. (2020). Digital technologies and firm performance: The role of digital organisational culture. *Technological Forecasting and Social Change*, 154, 1–10. <https://doi.org/10.1016/j.techfore.2020.119962>
- Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information and Management*, 58(3). <https://doi.org/10.1016/j.im.2021.103434>
- Morgan, P. J., Huang, B., & Trinh, L. Q. (2019). *The Need to Promote Digital Financial Literacy for the Digital Age*. <https://whatis.techtarget.com/definition/gig-economy>
- Morgan, P. J., & Trinh, L. Q. (2019). *ADB Working Paper Series FINTECH AND FINANCIAL LITERACY IN THE LAO PDR* Asian Development Bank Institute. <https://www.adb.org/publications/fintech-and-financial-literacy-lao-pdr>
- Patria, H., Arfani, M., Alam, F., Mulyadi, A., & Setyarko, A. (2023). *THE INFLUENCES OF DIGITAL TECHNOLOGY, DIGITAL LITERACY, AND DIGITAL MARKETING ON THE PERFORMANCE OF SMES IN BEKASI*. 6(1), 401–418.

- Pinheiro, M. A. P., Jugend, D., Jabbour, A. B. L. de S., & Jabbour, C. J. C. (2021). Circular economy-based new products and company performance: The role of stakeholders and Industry 4.0 technologies. *Business Strategy and the Environment*, 31, 483–499.
- Prasad, H., Meghwal, D., & Dayama, V. (2018). Digital Financial Literacy: A Study of Households of Udaipur. *The Journal of Business and Management*, V(1), 23–32.
- Rahayu, R., Ali, S., Aulia, A., & Hidayah, R. (2022). The Current Digital Financial Literacy and Financial Behavior in Indonesian Millennial Generation. *Journal of Accounting and Investment*, 23(1), 78–94. <https://doi.org/10.18196/jai.v23i1.13205>
- Rahman, M. S., Hossain, M. A., & Abdel Fattah, F. A. M. (2022). Does marketing analytics capability boost firms' competitive marketing performance in data-rich business environment? *Journal of Enterprise Information Management*, 35(2), 455–480. <https://doi.org/10.1108/JEIM-05-2020-0185>
- Ratnawati, K., & Soelton, M. (2022). THE ROLE OF DIGITAL FINANCIAL LITERACY ON FIRM PERFORMANCE IN MICRO INDUSTRY. *International Conference on Community Development (ICCD)*, 4(1), 95–101.
- Rvspk, R., Hms, P., & Rgn, M. (2020). Digital Literacy, Business Uncertainty & Economic Performance: An Empirical Study of Small Businesses in Sri Lanka. *International Journal of Academic Research in Business and Social Sciences*, 10(5). <https://doi.org/10.6007/ijarbss/v10-i5/7171>
- Sari, A. N., & Kautsar, A. (2020). Analisis Pengaruh Literasi Keuangan, Financial Technology dan Demografi Terhadap Inklusi Keuangan Pada Masyarakat di Kota Surabaya. *Jurnal Ilmu Manajemen*, 8(4), 1233–1246.
- Setiawan, M., Effendi, N., Santoso, T., Dewi, V. I., & Sapulette, M. S. (2020). Digital financial literacy, current behavior of saving and spending and its future foresight. *Economics of Innovation and New Technology*, 31(4), 320–338. <https://doi.org/10.1080/10438599.2020.1799142>
- Sih Kusumawardhani, S., Kurnia Shanti, Y., Azzahra, K., Fitri Arianti, B., & Putri Romadhina, A. (2021). PENERAPAN LITERASI KEUANGAN DALAM MEMAHAMI FINANCIAL TECHNOLOGY. *SULUH: Jurnal Abdimas*, 2(2), 151–160. <http://journal.univpancasila.ac.id/index.php/SULUH>
- Tony, N., & Desai, K. (2020). Impact Of Digital Financial Literacy On Digital Financial Inclusion. *INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH*, 9, 1. www.ijstr.org
- Usama, M. K., Fauziah, W., Yusoff, W., & Usama, K. M. (2019). The Impact of Financial Literacy on Business Performance. *International Journal of Research and Innovation in Social Science (IJRISS) /Volume III, Issue X*, 2454–6186. www.rsisinternational.org
- Yang, Z., Likai, Z., & Ruoyu, L. (2022). The Impact of Network Ties on SMEs' Business Model Innovation and Enterprise Growth: Evidence from China. *IEEE Access*, 10, 29846–29858. <https://doi.org/10.1109/ACCESS.2022.3158749>

Yu, T. K., Lin, M. L., & Liao, Y. K. (2017). Understanding factors influencing information communication technology adoption behavior: The moderators of information literacy and digital skills. *Computers in Human Behavior*, 71, 196–208. <https://doi.org/10.1016/j.chb.2017.02.005>

Zerkina, N., Lomakina, Y., Kisel, O., & Lazarou, E. (2019). Extend centre's resources for increasing general digital literacy. *ELearning and Software for Education Conference*, 140–145. <https://doi.org/10.12753/2066-026X-19-156>