

BEHAVIORAL MANAGEMENT OF BLOCKCHAIN TECHNOLOGY FOR INDONESIAN MSME MANAGERS

**Mutamimah Mutamimah^{1*}, Nur Aisyah², Diana³,
Akbar Nuur Purnama Darma Wahana⁴**

Master of Management, Universitas Muhadi Setiabudi,
Jalan Pangeran Diponegoro KM ^{1,2,3,4}, Brebes, Indonesia.

*Corresponding author: mutamimah@umus.ac.id

Received:

04 Februari 2026

Revised:

11 Februari 2026

Accepted :

15 Februari 2026

Published:

16 Februari 2026

Abstract: *This research aims to test behavioral management for Indonesian MSME managers on blockchain technology (BT), with digital financial literacy (DFL) as a moderating variable. Determinants of behavioral management as behavioral intention: perceived usefulness, perceived ease of use, social influence, and responsiveness. The population of this study comprises all MSMEs in Indonesia, and the sampling technique is purposive sampling. Statistical analysis uses Moderated Regression Analysis. The research found that (1) perceived usefulness had a positive effect while perceived ease of use had a negative effect on the behavioral intention of MSMEs in adopting (BT); (2) Social influence and responsiveness do not affect MSMEs' behavioral intention in adopting BT; (3) DFL can strengthen the influence of perceived ease of use and social influence, but weakens the influence of perceived usefulness on the behavioral intention of MSMEs in adopting BT; and (4) the behavioral intention of MSMEs in adopting BT has a positive effect on actual use of blockchain technology. The practical implication is that the results of this study provide a basis for MSMEs to develop strategies for implementing blockchain technology, grounded in digital financial literacy. The theoretical implication is that the results of this study can inform the development of the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), or the Unified Theory of Acceptance and Use of Technology (UTAUT).*

Keywords: *Behavioral Management; MSMEs Manager; Digital Financial Literacy; Blockchain Technology.*

INTRODUCTION

Developments in digital technologies require MSMEs to adopt digital business management to remain competitive. MSMEs are business units owned by the majority of the Indonesian population (99%), while the remaining are large businesses (Mutamimah et al., 2021). In the current digital era, around 171 million people in Indonesia are internet users; in fact, it is the third-largest country in Asia with the most internet users (Harto & Komalasari, 2020).

One strategy for developing an MSME business is capital. Capital is one of the factors supporting MSMEs, as explained in the capital structure decision in business management. However, to date, capital has been a constraint for MSMEs; in fact, MSMEs have limited access to finance because most are considered high-risk borrowers (Mutamimah et al., 2021). It encourages MSMEs to rely on their own capital (internal funds) rather than on debt,

consistent with the pecking-order theory. It is difficult for financial institutions to extend credit to MSMEs in large numbers because MSMEs lack the systematic financial reporting and complete documentation required to obtain credit from banks (creditors). In fact, there is asymmetric information between MSMEs, as agents, and banks, as principals. When banks assess creditworthiness, they rely solely on agents and on banks as principals; their assessments are based solely on bankers' perceptions. This encourages credit risk for MSMEs. Therefore, technological innovation, including blockchain technology, is needed to eliminate asymmetric information and facilitate the monitoring and evaluation of MSME business operations, thereby reducing credit risk and enabling MSMEs to develop better (Mutamimah et al., 2023).

Singh et al., (2020) stated that blockchain, as an emerging decentralized technology with a ledger system, enables information storage and facilitates transactions without the need for intermediaries. Data from all stakeholders is stored on interconnected computers within the blockchain, allowing transparent monitoring by all parties involved, including SMEs, banks, suppliers, and governments. This system ensures that no single entity, including cybercriminals, can control the network. Blockchain technology supports the recording, financial reporting, and storage of business transactions within a network of digital blocks, promoting honesty, transparency, resilience, and trust among stakeholders. Consequently, all parties can effectively oversee business processes, thereby reducing credit risk (Osmani et al., 2021). So, blockchain technology can increase transparency, accountability, fairness, and responsibility (Mutamimah et al., 2023). This is reinforced by Tapscott & Tapscott (2016) who state that Blockchain technology is a tool for enhancing the effectiveness of corporate governance implementation. Although blockchain technology has been used by SMEs, there remains a lack of understanding of the factors that motivate MSMEs to adopt it. Such understanding is vital for researchers to advance blockchain research and for MSMEs to better leverage blockchain's potential to streamline business management. The Technology Acceptance Model (TAM) is a development of the previous theory, namely the Reason Action Theory (TRA), developed by Davis (1989). TAM is one of the most widely used theoretical frameworks to study the adoption of various technologies. TAM is widely regarded as a powerful model for predicting factors that influence technology acceptance. Therefore, our research focuses on MSMEs' behavioral intention to adopt blockchain technology using the TAM model.

Previous research on behavioral management remains inconclusive. Bhardwaj et al., (2021); Hamdan et al., (2022); Sciarrelli et al., (2022) found that perceived usefulness and ease of use had a positive effect on behavioral intention to use blockchain technology. Nuryyev et al. (2020) identified additional factors and found that social influence positively affected behavioral intention to use blockchain technology. However, Singh et al., (2020) found that perceived usefulness had no effect on behavioral intention to use blockchain technology. Given inconsistent findings in the literature on behavioral intention, it is necessary to refine the TAM model. In this research, we added Digital Financial Literacy (DFL) as a moderating variable. The addition of moderating variables can be used if previous research results regarding the relationship between variables are inconsistent (Baron & Kenny, 1986).

The development of the internet and digital media has enabled MSMEs to access a wider range of financial products and services. This can help MSMEs manage their increasingly complex businesses, for example, by improving transactional ease, efficiency, and cost-effectiveness,

generating financial reports, and securing capital. To reduce errors in financial management, MSMEs need to increase financial literacy (Sinaga et al., 2023). Financial literacy can provide the knowledge needed for MSMEs to adapt to changes in the digital business environment, enabling them to readily adopt digital technologies (Sinaga et al., 2023). Therefore, the success of TB adoption in MSMEs can be strengthened by MSMEs' digital financial literacy.

Given the inconclusive research on the adoption of blockchain technology and behavioral intention, and the importance of MSMEs' digital financial literacy (DFL), this paper formulates the following problem: What role does DFL play in moderating MSMEs' behavioral intention to adopt TB? Thus, this study aims to analyze the role of DFL in moderating MSMEs' intention to adopt blockchain technology.

The novelty of this research is that (1), based on previous research, TB adoption has been studied in MSMEs in Palestine by Hamdan, et.al. (2022); Bhardwaj et al., (2021) researched MSMEs in India and Nuryyev et al., (2020) researched MSMEs in Taiwan, so we researched MSMEs in Indonesia because Indonesia is the third largest country with internet users in Asia (Harto & Komalasari, 2020), (2) This research uses DFL as a moderating factor between the adoption of technology development from the TAM model and the behavioral intention of MSMEs in adopting TB to overcome research gaps. The theoretical contribution of this research lies in the development of technology adoption factors within TAM. In addition, this research contributes to practitioners by demonstrating that (1) MSME managers in Indonesia are ready to adopt blockchain technology in their businesses. (2) It is hoped that this research will provide input for the Indonesian government to formulate regulations regarding the importance of blockchain technology in supporting easy access to finance and business development in the current digital era.

LITERATURE REVIEW

'MSME's manager must have digital competencies. The Technology Acceptance Model (TAM) is a theory developed by Davis (1989) from the evolution of Reason Action Theory (TRA). The TAM model shows that behavioral intention in technology adoption can be determined by two responses: affective and cognitive (Davis, 1989; Sciarelli et al., 2022). Affective responses are associated with users' attitudes toward certain behaviors. Cognitive responses are identified through two main factors that explain attitudes and behavioral intentions toward the use of digital technology. These factors are perceived usefulness and perceived ease of use. Perceived usefulness is the extent to which SMEs believe in adopting digital systems that will improve their performance. Perceived ease of use is the extent to which SMEs believe that adopting digital technology systems is easy and does not require great effort. (1989) suggested considering external variables to determine the drivers of cognitive and affective responses to technical characteristics, thereby improving the adaptation of TAM models to specific analytical contexts.

The TAM model is also used to research and analyze blockchain technology adoption (Sciarelli et al., 2022). Some researchers have adopted TAM to examine the determinants of TB adoption by extending the model to include external variables. For example, Hamdan et al. (2021), Hamdan et al. (2022), and Sciarelli et al. (2022), using the main factors of the TAM model, found that perceived usefulness and ease of use had positive effects on MSMEs'

behavioral intention to adopt TB. Nuryyev et al. (2020) also identified other external factors, such as social influence. His research found that social influence also positively affected behavioral intention. Additionally, responsiveness is used as a variable influencing behavioral intention. Several studies by Alexandris, Dimitriadis, and Markata (2002); Kuruuzum and Koksall (2010); and Krishnamurthy, Bhargavi, and Kummar (2014) have included responsiveness and several other variables. The results of their research indicate that the responsiveness dimension plays an important role and is the most effective in predicting behavioral intention (Alexandris et al., 2002; Krishnamurthy et al., 2014; Kuruuzum & Koksall, 2010). Thus, the hypotheses are proposed as follows:

- H1: Perceived usefulness has a positive effect on the behavioral intention of MSMEs in adopting blockchain technology
- H2: Perceived ease of use has a positive effect on the behavioral intention of MSMEs in adopting blockchain technology
- H3: Social Influences have a positive effect on the behavioral intention of MSMEs in adopting blockchain technology
- H4: Responsiveness has a positive effect on the behavioral intention of MSMEs in adopting blockchain technology

Financial literacy is also considered a determinant of economic decision-making behavior (Kartini et al., 2022). However, in this digital era, MSMEs must develop financial literacy. Digital financial literacy is a factor that MSMEs must have to respond to current digital developments. Digital financial literacy comprises a person's knowledge, experience, and skills in using digital financial platforms, along with awareness of the financial risks that may arise. Morgan & Trinh (2020) state that there are four dimensions of digital financial literacy, namely: a) Knowledge of digital financial products and services, b) Awareness of digital financial risks, c) Knowledge of digital financial risk control methods, and d) Knowledge of consumer/customer rights and compensation procedures. Behavioral intention toward use and adoption involves mental processes, such as understanding and skills for planning and evaluating digital financial services. Behavioral intention of SMEs to use and adopt digitalization of product transfer, purchase, sale, service, or exchange of information through digitalization (Khan & Siddiqui, 2019). Owners and managers of MSMEs are motivated to adopt digital financial services to enhance their businesses' global market appeal. By embracing digital technologies, MSMEs can achieve economic resilience and strengthen their market connectivity. In response to an increasingly competitive and dynamic environment, MSMEs have transformed their operations, leveraging updated business strategies to remain competitive in both regional and global markets.

DFL is influenced by socio-economic position. DFL also has a positive impact on current saving and spending behavior, which contributes to future saving and spending. This research suggests that policymakers provide the millennial generation with knowledge about DFL (Setiawan et al., 2022). Financial decision-making in a rapidly evolving digital environment requires enhanced financial literacy and capabilities, including awareness of emerging risks associated with compulsive online consumer behavior. These risks include diminished tangibility, impulsive purchasing, and the ease of accessing loans and investment

opportunities (Koskelainen et al., 2023).

Grohmann (2018) analyzed the financial literacy and financial behavior of middle-class people living in urban Asian economies. The result was that higher financial literacy would lead to better financial behavior and decision-making., and Shim (2009) conducted a study to add to the literature by observing, and Shim (2009) conducted a study to add to the literature by examining this phenomenon from a financial perspective. The findings showed a correlation between financial literacy and financial behavior.

Gutter and Copur (2011) analyzed A pilot program initiated by a major bank aimed to explore whether providing access to information and communication technology, along with training in economic, financial, and digital literacy, as well as Internet usage, could benefit low- and middle-income individuals in urban areas by promoting more effective financial behaviors. The results demonstrated that digital financial literacy, e-banking technology training, and financial literacy resources significantly enhance financial management skills and encourage improved financial behaviors.

O'Neill and Xiao (2003) identified how online Financial Fitness Quiz takers handled their finances and assessed the strengths and weaknesses of their financial behavior. The study is limited in generalizability because the sample is non-random and non-probability, consisting of internet-savvy consumers. With 20 survey questions on financial behavior, the results indicate that respondents' financial behavior and online transaction decisions are influenced by financial literacy. In contrast, digital literacy clearly mediates the influence of both on financial behavior and digital-based transactions.

The results suggest a statistically significant positive correlation between financial knowledge and the frequency of internet banking use. Notably, consumers with lower financial literacy tend to report higher levels of mistrust in i-banking, as well as a lack of confidence in both their financial and digital skills, which are identified as the primary barriers to their use of these services (Andreou et al., 2021).

H5: Digital financial literacy strengthens the influence of usefulness on behavioral intention

H6: Digital financial literacy strengthens the influence of easy-to-use on behavioral intention

H7: Digital financial literacy strengthens the influence of social influences on behavioral intention

H8: Digital financial literacy strengthens the influence of responsiveness on behavioral intention

Behavioral management in finance plays an important role in influencing individuals' actual use of financial products and services. Research has shown that positive behavioral intentions towards financial products can increase adoption and use. For example, research by Thaler and Shefrin (1981) found that individuals with a strong intention to save for retirement are more likely to actively contribute to retirement accounts and engage in long-term financial planning. Perceived benefits and risks are key determinants of behavioral intentions in finance. Individuals who perceive financial products as useful for achieving their financial goals are more likely to develop positive intentions to use them regularly (Bucher-koenen & Lamla, 2014).

H9: Behavioral intention of SMEs in adopting Blockchain influences actual use of blockchain technology.

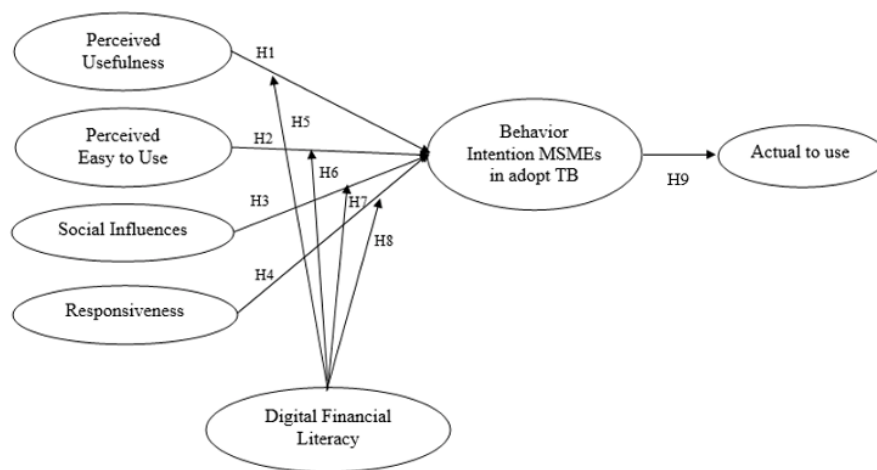


Figure 1. Research Framework

METHOD

The research design is an explanatory design, in which several independent variables influence the dependent variable. The sample comprised MSME managers in Indonesia. The sampling technique employs purposive sampling, with the inclusion criterion for culinary SME managers being those who have used digital technologies in their transactions for at least 2 years. The actual population size is not known with certainty because several SMEs have not been officially registered with the government, so in this study, the Jacob Cohen formula was used as a technique for calculating the sample size, which is presented as follows:

$$N = \frac{t}{F^2} + u + 1$$

$$N = \frac{17,6}{0,1} + 7 + 1 = 205,6 = 206 \text{ responden}$$

N = number of respondents

F² = size effect (0,1)

U = number of variables (7)

t = u power function (table)

Value of t table with t significant 1%, power 0.95, and u = 7 is 19.76

Based on Jacob Cohen's formula calculations, the sample size was 206 respondents. However, only 180 (87.38%) completed the questionnaire. Therefore, this study used 180 respondents. Data were collected using a Likert-scale questionnaire (1-5) and direct interviews with MSME managers. Operational definition of the variable is as follows:

Table 1. Variable and Indicators

Variable	Indicators
Perceived usefulness	Knowledge of blockchain technology Understanding of digital financial processes Digital financial skills Confidence in digital financial decision-making
Perceived ease of use	Ease of use Clarity and comprehensiveness Data tracking simplicity
Social influences	Support from family and friends Influence from colleagues and peers Spousal influence
Perceived usefulness	Business and financial benefits Independence enhancement Speed of transactions Productivity and efficiency improvement
Responsiveness	Accountability of transaction information Data quality accountability User support accountability
Behavioral intention	Intention to adopt blockchain Intention to update usage Intention to conduct transactions Intention to use blockchain features
Actual use	Preference for blockchain features Usage of blockchain service providers Adoption of blockchain technology

Source: Davis, F.D. (1989); Khan, M. S. & Siddiqui, S. H. (2019); Sciarelli, M., et.al. (2022)

The statistical analysis applied is descriptive and Multiple Regression Analysis (MRA). The regression equation for this research is as follows:

$$BI_i = \alpha + \beta PU_i + \beta PEOU_i + \beta SInf_i + \beta RSP_i + \beta DFL_i + \varepsilon \dots \dots \dots \text{Model 1)}$$

$$BI_i = \alpha + \beta PU_i + \beta PEOU_i + \beta SInf_i + \beta RSP_i + \beta DFL_i + \beta PU_i * DFL_i + \beta PEOU_i * DFL_i + \beta SInf_i * DFL_i + \beta RSP_i * DFL_i + \varepsilon \dots \dots \dots \text{Model 2)}$$

$$AU_i = \alpha + \beta BI_i + \varepsilon \dots \dots \dots \text{Model 3)}$$

Notes:

α	= constant	SInf	= social influence
β	= coefficient	RSP	= responsiveness
BI	= behavioral intention	DFL	= digital financial literacy
PU	= perceived usefulness	AU	= actual use
PEOU	= perceived ease to use		

RESULT AND DISCUSSION

Respondent Profile

Table 2. Respondent Profile

Gender	Male	60 (33.3%)
	Female	120 (66.7%)
Age	17-27	68 (37.8%)
	28-38	57 (31.7%)
	39-49	33 (18.3%)
	50-60	20 (11.1%)
	60	2 (1.1%)
Education	junior high school education	14 (7.8%)
	high school education	74 (41.1%)
	undergraduate education	83 (46.1%)
	postgraduate education	9 (5.0%)
Type of business	culinary business	145 (80.6%)
	batik business	35 (19.4%)
Business obstacles	capital	36 (20%)
	marketing	33 (18.3%)
	human resources	15 (8.3%)
	information technology	14 (7.8%)
Transaction	manual	77 (42.8%)
	digital	23 (12.8%)
	manual and digital	80 (44.4%)

Sources: questionnaire, 2024

Based on Table 2, the sampling yielded 180 SME managers as respondents, comprising 60 male respondents (33.3%) and 120 female respondents (66.7%). This shows that the majority of respondents are female. Respondents aged 17-27 years were 68 respondents (37.8%), 28-38 years were 57 respondents (31.7%), 39-49 years were 33 respondents (18.3%), 50-60 years were 20 respondents (11.1%), and more than 60 years were 2 respondents (1.1%). This shows that the majority of respondents are of productive age, namely 17-27 years. There were 14 respondents with junior high school education (7.8%), 74 with high school education (41.1%), 83 with undergraduate education (46.1%), and 9 with postgraduate education (5.0%). This shows that the majority of respondents have an undergraduate education. There were 145 respondents (80.6%) with culinary businesses, 35 respondents (19.4%) with batik businesses, and 35 respondents (19.4%) with both culinary and batik businesses. This shows that the majority of the types of businesses owned by respondents are culinary businesses. The obstacles that occurred to respondents in building a business were limited capital constraints for 36 respondents (20%), marketing constraints for 33 respondents (18.3%), HR capability constraints for 15 respondents (8.3%), information technology constraints for 14 respondents (7.8%), and other obstacles for 82 respondents (45.6%). This indicates that the business obstacles faced by respondents differ. Respondents recorded transactions in business manually as many as 77 respondents (42.8%), recorded transactions in business digitally as many as 23 respondents (12.8%), and recorded

transactions in business manually and digitally as many as 80 respondents (44.4%). This indicates that the majority of business records are managed by respondents through a combination of manual and digital methods. These data indicate that MSMEs exhibit a behavioral intention to adopt blockchain technology in their business transactions.

Validity Test, Reliability Test, and Classic Assumption Test

Based on the results of the validity test for the variables' usefulness, ease of use, social influences, digital financial literacy, behavioral intention, and actual use, the p-value (0.000) was < 0.05 , indicating that the test passed. The reliability test showed that Cronbach's alpha for all variables exceeded 0.05, indicating acceptable reliability. The results of the normality test using the one-sample Kolmogorov-Smirnov test obtained the Asymp. Sig. (2-tailed) 0.071 > 0.05 . This indicates that the data are normally distributed. The results of the multicollinearity test showed that the tolerance values for all variables were > 0.1 and the VIFs were < 10 . This means that the data passed the multicollinearity test. The results of the Glejser heteroscedasticity test indicate that all variables have p-values < 0.05 , indicating that the test is not rejected.

Descriptive Statistic

Table 3. Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
Usefulness	180	1.00	5.00	4.16	0.62
Easy to use	180	2.00	5.00	4.14	0.58
Social Influences	180	1.00	5.00	4.04	0.66
Responsiveness	180	1.33	5.00	4.02	0.63
Digital Financial Literacy	180	1.00	5.00	3.77	0.83
Behavioral Intention	180	1.00	5.00	4.10	0.66
Actual use	180	1.00	5.00	3.93	0.82
Valid N (listwise)	180				

According to the descriptive statistics presented in Table 3, the usefulness score has a mean of 4.16 (SD = 0.62), ranging from 1.00 to 5.00. This indicates that the average respondent perceives the item as highly useful, with values approaching the maximum. The ease-of-use score has a mean of 4.14, a minimum of 2.00, a maximum of 5.00, and a standard deviation of 0.58%. This suggests that respondents generally find the item easy to use, with scores close to the maximum possible. The social influence score has a mean of 4.04 (SD = 0.66), ranging from 1.00 to 5.00, indicating that social influences are perceived as highly impactful by the average respondent. Lastly, the responsiveness score has a mean of 4.02, a minimum of 1.33, a maximum of 5.00, and a standard deviation of 0.63%, indicating a generally positive perception of responsiveness among respondents.

This indicates that the average responsiveness score is close to the maximum, suggesting that most respondents perceive a high level of responsiveness. Digital financial literacy has a mean

of 3.77, a standard deviation of 0.83, and a range of 1.00 to 5.00. This shows that respondents generally rate their digital financial literacy highly, with scores nearing the maximum. The behavioral intention score has a mean of 4.10 (range: 1.00-5.00) and a standard deviation of 0.66%, indicating that respondents tend to have a strong intention to engage in the behavior. Finally, the actual usage score has a mean of 3.93, a minimum of 1.00, a maximum of 5.00, and a standard deviation of 0.82%, suggesting that respondents' actual usage is also close to the maximum, reflecting a high level of engagement.

Hypothesis Test Results

Table 3 shows the results of testing the hypotheses H1-H8 which are the influence of perceived usefulness on behavioral intention in adopting TB, the influence of perceived easy to use on behavioral intention in adopting TB, the influence of social influence on behavioral intention in adopting TB, and the influence of responsiveness on behavioral intention in adopting TB, the role of digital financial literacy in moderating the influence of perceived usefulness on behavioral intention in adopting TB, the role of digital financial literacy in moderating the influence of perceived easy to use on behavioral intention in adopting TB, the role of digital financial literacy in moderating the influence of social influence on behavioral intention in adopting TB, the role of digital financial literacy in moderating the influence of responsiveness on behavioral intention in adopting TB.

Table 3. Regression Analysis Model 1

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
1	(Constant)	3.748	0.857	4.372 0.000
	Usefulness	1.533	0.508	1.424 3.019 0.003
	Easy to use	-0.841	0.425	-0.740 -1.978 0.049
	Social Influences	-0.915	0.490	-0.906 -1.868 0.064
	Responsiveness	0.172	0.394	0.163 0.437 0.663
	Digital Financial Literacy	-0.729	0.251	-0.915 -2.903 0.004
	Usefulness*Digital Financial Literacy	-0.304	0.140	-2.249 -2.174 0.031
	Easy to use*Digital Financial Literacy	0.236	0.112	1.727 2.104 0.037
	Social Influences*Digital Financial Literacy	0.280	0.132	2.040 2.129 0.035
	Responsiveness*Digital Financial Literacy	-0.001	0.107	-0.008 -0.010 0.992
	R	0.680a	F	16.285
	R Square	0.463	Sig.	0.000a
	Adjusted R-Square	0.435		
	Std. Error of the Estimate	0.498		

Dependent Variable: Behavioral intention

Table 4 shows the results of testing hypothesis 9, namely the influence of behavioral intention on the adoption of blockchain technology by MSMEs.

Table 4. Regression Analysis Model 2

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
2	B	Std. Error	Beta	
	(Constant)	0.199	0.258	0.770 0.443
	Behavioral intention	0.910	0.062	0.739 14.622 0.000
	R	0.739b	F	213.801
	R Square	0.546	Sig.	0.000b
	Adjusted R-Square	0.543		
	Std. Error of the Estimate	0.552		

b. Dependent Variable: Actual use

Hypothesis 1 states that usefulness has a significant positive effect on behavioral intention to adopt BT. The results of the regression analysis in Table 4 show that usefulness has a coefficient of 1.533, a t-statistic of 3.019, and a p-value of 0.003, which is smaller than 0.05; thus, hypothesis 1 is accepted. The results at the 5% significance level indicate that usefulness has a positive effect on behavioral intention. , and Gajpal (2021); Hamdan, Aziguli, Zhang, Sumarliah, and Fauziyah (2022); Sciarelli et al. (2022) using the main factors of the TAM model found that perceived usefulness and ease of use had a positive effect on the behavioral intention of MSMEs to adopt TB. In the context of MSMEs adopting blockchain technology, perceived usefulness is associated with increased trust, transparency, and efficiency in business processes. These aspects resonate with the TAM, suggesting that when users perceive technology as valuable and instrumental in achieving their objectives, their intention to adopt it strengthens. Thus, organizations aiming to enhance technology adoption rates should prioritize demonstrating the practical benefits of blockchain technology to their stakeholders.

Hypothesis 2 states that ease of use has a significant positive effect on behavioral intention to adopt BT. However, the analysis results in Table 2 show that easy to use has a coefficient value of -0.841, a t-statistic of -1.978, and a p-value of 0.049, which is smaller than 0.05, so hypothesis 2 is rejected. Research results at the 5% significance level show that ease of use negatively affects behavioral intention, suggesting that usefulness can reduce it. Gajpal (2021); Hamdan, Aziguli, Zhang, Sumarliah, and Fauziyah (2022); and Sciarelli et al. (2022), using the main factors of the TAM model, found that perceived usefulness and ease of use had positive effects on MSMEs' behavioral intention to adopt TB. Research has shown that perceived usefulness can overshadow ease of use in technology adoption. Users may prioritize a system's practical benefits over its simplicity when deciding whether to adopt it. Bhardwaj, Garg and Gajpal (2021) organizations are increasingly adopting blockchain technology in their supply chains due to various advantages such as cost optimization, effective and verified record-keeping, transparency, and route tracking. This paper aims to examine the factors influencing the intention of small and medium enterprises (SMEs observed that in MSMEs, the utility of

blockchain technology, such as its ability to enhance transparency and efficiency, outweighed the importance of ease of use.

Hypothesis 3 states that social influences have a significant positive effect on behavioral intention to adopt BT. However, the results in Table 2 indicate that social influences have a coefficient of -0.915, a t-statistic of -1.868, and a p-value of 0.064, which exceeds 0.05; thus, hypothesis 3 is rejected. The research results at the 5% significance level show that social influences do not affect behavioral intention. The results of this study do not support those of Nuryyev et al. (2020), who found that social influence also had a positive effect on behavioral intention. In contexts where individual preferences dominate decision-making, social influences might have a limited role. For instance, when adopting technology with significant utility or complexity, personal evaluations of its usefulness and ease of use may outweigh external pressures. Social influence plays a varying role depending on the adoption context (Nuryyev et al., 2020)831 people in Taiwan. Structural equation modeling is used to examine the joint effect of both internal and external factors influencing the intention to use cryptocurrency payments. Results show that (1.

Hypothesis 4 states that responsiveness has a significant positive effect on behavioral intention to adopt BT. However, the results in Table 2 indicate that responsiveness has a coefficient of 0.172, a t-statistic of -0.437, and a p-value of 0.663, which exceeds 0.05; thus, hypothesis 4 is rejected. The research results at the 5% significance level show that responsiveness does not affect behavioral intention. The results of this study do not support the findings of Alexandris, Dimitriadis, and Markata (2002); Kuruuzum and Koksall (2010); and Krishnamurthy, Bhargavi, and Kummar (2014), who found that responsiveness did not influence behavioral intention. Responsiveness, a key dimension of service quality, often relates to the promptness and willingness of service providers to assist users. In some contexts, such as technology adoption, users may prioritize other factors, such as perceived usefulness, ease of use, or trust, over responsiveness. This could explain why responsiveness does not significantly influence behavioral intention in the present study.

Hypothesis 5 posits that digital financial literacy strengthens the influence of perceived usefulness on behavioral intention in BT adoption. However, the results in Table 2 indicate that digital financial literacy has a coefficient of -0.304, a t-statistic of -2.174, and a p-value of 0.031, which is less than 0.05; thus, hypothesis 5 is rejected. Research results at the 5% significance level indicate that digital financial literacy can attenuate the effect of usefulness on behavioral intention. The benefits of blockchain technology are particularly important for MSMEs to understand, especially given their limited digital financial knowledge and skills. If MSMEs understand digital finance, they will be very motivated to adopt blockchain technology. The results of this study do not support Gutter and Copur (2011). While digital financial literacy theoretically enhances the adoption of digital innovations, such as blockchain technology, by improving user confidence and understanding, this study's findings suggest a potential over-reliance on digital finance knowledge. This could lead to over-analysis or skepticism, reducing the intuitive appeal of usefulness in motivating behavioral intention. Similarly, Gutter and Copur (2011) highlighted cases in which financial literacy created unintended barriers by overwhelming users with complex information.

Hypothesis 6 posits that digital financial literacy strengthens the effect of ease of use on

behavioral intention to adopt BT. The results in Table 2 indicate that digital financial literacy has a coefficient of 0.236, a t-statistic of 2.104, and a p-value of 0.037, which is less than 0.05; thus, hypothesis 6 is accepted. Research results at the 5% significance level indicate that digital financial literacy strengthens the effect of ease of use on behavioral intention. The high level of knowledge, understanding, and digital financial skills among MSMEs has been shown to enhance their ease of use and behavioral intention toward adopting blockchain technology. This is supported by the strong social cohesion in Indonesian society, which facilitates the adoption of blockchain technology. The results of this research support the results of Grohmann (2018) research. Studies have shown that digital financial literacy reduces the perceived complexity of blockchain technologies, thereby increasing usability and acceptance. Grohmann (2018) emphasizes that higher levels of financial literacy correlate with better decision-making in the adoption process. In Indonesia, collective social behavior supports the development of digital financial skills, thereby facilitating the adoption of blockchain technology.

Hypothesis 7 states that digital financial literacy can strengthen the influence of social influences on behavioral intention to adopt BT. The results in Table 2 indicate that digital financial literacy has a coefficient of 0.280, a t-statistic of 2.129, and a p-value of 0.035, which is less than 0.05; thus, hypothesis 7 is accepted. Research results at the 5% significance level show that digital financial literacy can strengthen the influence of social factors on behavioral intention. A high level of knowledge, understanding, and digital financial skills among MSMEs has been shown to strengthen their social influence on behavioral intentions toward adopting blockchain technology. This is strongly supported by the high social status of Indonesian society as a means of improving social relations, a process that can be further strengthened by digital financial literacy. Digital financial literacy equips MSME owners to understand and use digital financial tools effectively. This enhanced capability can amplify the effects of social influence by enabling individuals to respond more effectively to peer recommendations and societal trends regarding blockchain technology adoption. Social influence often plays a pivotal role in technology adoption in highly networked societies such as Indonesia, where community-driven behavior is prevalent. Digital financial literacy also bridges the gap between knowledge and application. It ensures that social persuasion translates into actionable intentions, as individuals are motivated not only by societal expectations but also by the skills required to adopt blockchain technologies with confidence.

Hypothesis 8 posits that digital financial literacy strengthens the effect of responsiveness on behavioral intention to adopt BT. However, the results in Table 2 indicate that digital financial literacy has a coefficient of -0.001, a t-statistic of -0.010, and a p-value of 0.992, which exceeds 0.05; thus, hypothesis 8 is rejected. The research results at the 5% significance level indicate that digital financial literacy does not strengthen the influence of responsiveness on behavioral intention. The high levels of knowledge, understanding, and digital financial skills among MSMEs apparently do not strengthen their responsiveness to behavioral intentions regarding blockchain technology adoption. Responsiveness refers to the ability to provide prompt and helpful responses to user needs, which is often a critical factor in the adoption of blockchain technology. However, in this study, DFL did not amplify the effect of this factor on behavioral intention. One possible reason is that while DFL enhances technical comprehension and financial decision-making, it may not directly correlate with users' perceptions or valuations

of responsiveness when engaging with blockchain technology. This contrasts with the findings of previous studies, such as Grohmann (2018), which highlight the indirect role of DFL in fostering confidence rather than responsiveness in specific contexts.

Hypothesis 9 states that behavioral intention has a significant positive effect on actual use of BT. The results in Table 3 indicate that behavioral intention has a coefficient of 0.910, a t-statistic of 14.622, and a p-value of 0.000, which is less than 0.05; thus, hypothesis 9 is accepted. Research results at the 5% significance level indicate that higher behavioral intention is associated with greater actual adoption of blockchain technology. When MSMEs are interested in adopting blockchain technology to streamline their business processes, they are more likely to adopt it immediately. This is, of course, because MSMEs already understand the benefits of applying blockchain technology to their businesses, which will encourage them to adopt it, leading to lower bad credit and better business development. The results of this study support the research results of Thaler and Shefrin (1981), DiMaggio and Powell (1983), and Bucher-Koenen and Lamla (2014). The rationale for this finding is based on established models, such as the Technology Acceptance Model (TAM), which posits that when users are motivated to adopt a technology, they are more likely to use it in practice. This is supported by studies by Bucher-Könen and Lamla (2014), which found that behavioral intention is a critical precursor to actual use in the adoption of new technologies. When small and medium-sized enterprises (SMEs) perceive the usefulness and ease of use of blockchain, and when their intention to adopt it is high, this increases the likelihood of actual use, enhancing operational efficiency and reducing credit risks.

Based on the results of R2 model 1 in Table 3, the R2 was 46.3%. This means that usefulness, ease of use, social influences, and responsiveness account for 46.3% of the variance in behavioral intention toward blockchain technology adoption, whereas other variables outside this research model account for 53.7%. The F-test results in Table 3 indicate a significant positive effect. This means that usefulness, ease of use, social influences, and responsiveness can shape behavioral intention to adopt blockchain technology. The R2 model 2 tests in Table 4 yielded 54.6%. This indicates that behavioral intention accounts for 54.6% of the contribution to blockchain technology adoption and actual use, whereas other variables account for 45.4%.

CONCLUSION, LIMITATION, AND IMPLICATION

The conclusion of this paper shows that behavioral management, as a behavioral intention, positively affects the intention to adopt blockchain technology. However, ease of use, social influence, and responsiveness do not affect behavioral intention to adopt BT. Digital financial literacy can strengthen the influence of easy-to-use social influence on behavioral intention to adopt BT. However, digital financial literacy does not strengthen the influence of usefulness and responsiveness on behavioral intention to adopt blockchain technology. The limitation of this paper is that this research tested only 4 independent variables: perceived usefulness, perceived ease of use, social influences, and responsiveness to behavioral intention, with digital financial literacy as a moderating variable. For future research, it would be better to add other variables, both dependent variables and moderating or mediating variables, so that the research results are better. This study uses MSMEs as the sample; therefore, the results cannot be generalized to other samples, such as large companies or foreign companies. The practical

implication is that the results of this study provide a basis for MSMEs to develop strategies for implementing blockchain technology based on digital financial literacy. The theoretical implication is that the results of this study can inform the development of the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), or the Unified Theory of Acceptance and Use of Technology (UTAUT).

REFERENCES

- Alexandris, K., Dimitriadis, N. & Markata, D. (2002). Can perceptions of service quality predict behavioral intentions? An exploratory study in the hotel sector in Greece. *Managing Service Quality: An International Journal*, 12(4), 224–231. <https://doi.org/10.1108/09604520210434839>
- Alqaryouti, O., Siyam, N., Alkashri, Z. & Shaalan, K. (2020). Cryptocurrency usage impact on perceived benefits and ‘users’ behaviour. Themistocleous, M., Papadaki, M. (Eds) *Information Systems. EMCIS 2019. Lecture Notes in Business Information Processing*, 381, 123–136. https://doi.org/10.1007/978-3-030-44322-1_10
- Andreou, P. C., Lambertides, N. & Magidou, M. (2021). Stock price crash risk : A critique of the agency theory viewpoint. January. <https://doi.org/10.2139/ssrn.3774424>
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Bhardwaj, A. K., Garg, A. & Gajpal, Y. (2021). Determinants of blockchain technology adoption in supply chains by Small and Medium Enterprises (SMEs) in India. *Mathematical Problems in Engineering*, 1–14. <https://doi.org/10.1155/2021/5537395>
- Bucher-koenen, T. & Lamla, B. (2014). The long shadow of socialism: on east-west german differences in financial literacy. *Jahrestagung Des Vereins Für Socialpolitik 2014*, 1–49.
- Davis, F. D. (1989). Perceived usefulness, perceived ease to use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.5962/bhl.title.33621>
- Davis, F. D., Bagozzi, R. P. & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982–1003. <https://doi.org/10.1287/mnsc.35.8.982>
- DiMaggio, P. J. & Powell, W. W. (1983). The iron cage revisited : Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
- Grohmann, A. (2018). Financial literacy and financial behavior: Evidence from the emerging Asian middle class. *Pacific-Basin Finance Journal*, 48, 129–143. <https://doi.org/10.1016/j.pacfin.2018.01.007>
- Gutter, M. S. & Copur, Z. (2011). Financial behaviors and financial well-being of college students : evidence from a national survey. *Journal of Family and Economic*, 32, 699–714. <https://doi.org/10.1007/s10834-011-9255-2>
- Hamdan, I. K. A., Aziguli, W., Zhang, D., Sumarliah, E. & Fauziyah, F. (2022). A machine learning method to predict the technology adoption of blockchain in Palestinian firms.

- International Journal of Emerging Markets, 17(4), 1008–1029. <https://doi.org/10.1108/IJOEM-05-2021-0769>
- Hamdan, I. K. A., Aziguli, W., Zhang, D., Sumarlia, E. & Usmanova, K. (2022). Forecasting blockchain adoption in supply chains based on machine learning: evidence from Palestinian food SMEs. *British Food Journal*, 124(12), 4592–4609. <https://doi.org/10.1108/BFJ-05-2021-0535>
- Harto, B. & Komalasari, R. (2020). Optimalisasi platform online internet marketing untuk SME Little Rose Bandung. *Empowerment in the Community*, 1(1), 1–6. <https://doi.org/10.31543/ecj.v1i1.357>
- Kartini, K., Pahlevi, R. W. & Rachmi, N. H. (2022). Mapping of digital financial literacy research: a bibliometric review. *Jurnal Minds: Manajemen Ide Dan Inspirasi*, 9(1), 159–174. <https://doi.org/10.24252/minds.v9i1.28358>
- Khan, M. S. & Siddiqui, S. H. (2019). SMEs Intention towards Use and Adoption of Digital Financial Services. *Sustainable Business and Society in Emerging Economies*, 1(2), 65–80. <https://doi.org/10.26710/sbsee.v1i1.1007>
- Koskelainen, T., Kalmi, P., Scornavacca, E. & Vartiainen, T. (2023). Financial literacy in the digital age — A research agenda. *Journal of Consumer Affairs Published*, 57(1), 507–528. <https://doi.org/10.1111/joca.12510>
- Krishnamurthy, R., Bhargavi, K. & Kummar, A. (2014). Influence of service quality on banking ‘customers’ behavioural intentions. *International Journal of Economics and Finance*, 2(4). <https://doi.org/10.5539/ijef.v2n4p18>
- Kuruuzum, A. & Koksall, C. D. (2010). The impact of service quality on behavioral intention in hospitality industry. *International Journal of Business and Management Studies*, 2(1), 9–15.
- Morgan, P. & Trinh, L. (2020). The Need to Promote Digital Financial Literacy for the Digital Age Bihong Huang (Asian Development Bank Institute). June 2019, 1–9.
- Mutamimah, M., Alifah, S. & Adnani, M. D. (2023). Corporate governance innovation framework to reduce credit risk in MSMEs using blockchain technology. *Cogent Business and Management*, 10(3). <https://doi.org/10.1080/23311975.2023.2250504>
- Mutamimah, M., Tholib, M. & Robiyanto, R. (2021). Corporate governance, credit risk, and financial literacy for small medium enterprise in Indonesia. *Business: Theory and Practice*, 22(2), 406–413. <https://doi.org/10.3846/btp.2021.13063>
- Nuryyev, G., Wang, Y. P., Achyldurdyeva, J., Jaw, B. S., Yeh, Y. S., Lin, H. T. & Wu, L. F. (2020). Blockchain technology adoption behavior and sustainability of the business in tourism and hospitality SMEs: An empirical study. *Sustainability (Switzerland)*, 12(3). <https://doi.org/10.3390/su12031256>
- O’Neill, B. O. & Xiao, J. J. (2003). Financial fitness quiz : a tool for analyzing financial behavior. *Consumer Interests Annual*, 49.
- Osmani, M., El-Haddadeh, R., Hindi, N., Janssen, M. & Weerakkody, V. (2021). Blockchain for next generation services in banking and finance: cost, benefit, risk and opportunity analysis. *Journal of Enterprise Information Management*, 34(3), 884–899. <https://doi.org/10.1108/JEIM-02-2020-0044>
- Sciarelli, M., Prisco, A., Gheith, M. H. & Muto, V. (2022). Factors affecting the adoption of

- blockchain technology in innovative Italian companies: an extended TAM approach. *Journal of Strategy and Management*, 15(3), 495–507. <https://doi.org/10.1108/JSMA-02-2021-0054>
- Setiawan, M., Effendi, N., Santoso, T., Dewi, V. I. & Sapulette, M. S. (2022). Digital financial literacy , current behavior of saving and spending and its future foresight. *Economics of Innovation and New Technology* ISSN:, 31(4).
- Sinaga, K. A. S., Irene, J. & Christanti, R. (2023). Digital adoption and financial performance: evidence from Indonesian SMEs in food and beverage sector. *Return : Study of Management, Economic and Bussines*, 2(4), 423–435. <https://doi.org/10.57096/return.v3i04.94>
- Singh, H., Jain, G., Munjal, A. & Rakesh, S. (2020). Blockchain technology in corporate governance: disrupting chain reaction or not? *Corporate Governance*, 20(1), 67–86. <https://doi.org/10.1108/CG-07-2018-0261>
- Tapscott, D. & Tapscott, A. (2016). *Blockchain revolution : How the technology bitcoin is changing money, business, and the world*. Penguin Random House, 1–324.
- Thaler, R. H. & Shefrin, H. (1981). An economic theory of self-control. *Journal of Political Economy*, 89(2), 392–406. <https://doi.org/10.1086/260971>
- Xiao, J. J., Tang, C. & Shim, S. (2009). Acting for happiness : financial behavior and life satisfaction of college students. *Social Indicators Research*, 92, 53–68. <https://doi.org/10.1007/s11205-008-9288-6>