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The effects of financial and technology literacy on the sustainability of Indonesian SMEs: Mediating role of supply chain practice

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Most SME owners have understood the importance of several strategies to run their business more professionally. Financial literacy, technological literacy and supply chain practice are some of the important strategies to maintain the sustainability of SMEs. The research was conducted in Indonesia, in the East Java region whereas a developing country, SMEs are the backbone of the economy because most of the people are involved in this sector. The research sample was taken from data recorded at the Export Center office, and as many as 485 SME owners were involved in this study. Quantitative analysis using SEM-PLS analysis found that financial literacy, technological literacy, and supply chain practice contributed positively and significantly to the sustainability of SMEs. If SME owners are aware and understand the importance of financial literacy and are supported by technological literacy and strengthened by supply chain practice, then the opportunity for SMEs to run their business in a sustainable manner is even greater.

1. Introduction

SMEs are a form of business that plays a major role in influencing the economic condition of a nation, especially for developing countries (Nikmah et al., 2021). SMEs become a model of economic development that drives domestic production and job creation (Uma, 2013). The problems faced by SMEs in several countries are more or less the same, one of the problems is limited financing capacity (Yoshino & Hesary, 2016). This is because SMEs do not have sufficient knowledge in financial management, such as not recording transactions and not making regular financial reports. SMEs are increasingly finding it difficult to obtain financial assistance, because they cannot qualify for business loans (Yoshino & Hesary, 2016; Ye & Kulathunga, 2019). SMEs should have various capabilities if they want their business to survive. Like the ability of financial literacy, it is a major factor in determining the economic and financial stability of SMEs. Financial literacy implies the ability of SMEs owners in the financial decision-making process (Ripain, Amirul, & Mail, 2017), which can also be called a guarantee of business continuity (Saboor, 2019).

Technological literacy is also important. This is an important source of knowledge, which can help SMEs in facing the technological revolution (Kulathunga et al., 2020), can help SMEs to expand their business in response to globalization (Osano, 2019; Glavas, Mathews, & Russel, 2019). Technological literacy enables SMEs to work efficiently to collect, evaluate, interpret and share relevant and timely information (Kulathunga et al., 2020). Technological literacy is also important for planning, interaction and collaboration, customer service, and for administration (Akomea-Bonsu & Sampong, 2012). Technological literacy is a consequence of business in an all-digital condition, including for SMEs (Schiavi & Behr, 2018).

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Supply chain practice describes the chain that connects various entities, from customers to suppliers, through manufacturing and services so that the flow of materials, money and information can be managed effectively to meet business needs (Charkha & Jaju, 2014; Viskari & Karri, 2013). In the context of business sustainability, organizations not only manage their financial and technological capabilities, but must also consider supply chains that can understand and manage economic, environmental and social risks. In the context of the supply chain, it is necessary to implement management practices that not only promote the company but can be used as a tool to maintain sustainability with core business functions that fall within the supply chain management domain, such as: procurement, logistics and knowledge management (Morally & Searcy, 2013).

Financial literacy, technological literacy and supply chain practice often support each other in individuals and organizational level. Therefore, it is important to improve the integration of technology literacy, financial literacy and supply chain practice for business continuity. If they are integrated, they can be used as vital resources that can be used as capital for business continuity (Ye & Kulathunga, 2019). SMEs owners are important to have these three capabilities, because they play a major role for their business when facing volatile market conditions (Ying, Hassan, & Ahmad, 2019). These three capabilities can help SMEs owners to maintain business continuity, as shown in several studies, that SMEs owners who have good financial management capabilities, for example have the ability to access finance (Khan & Shahzad, 2014), financial risk management (Boom, 2020), financial reporting (Dombrovskis & Katainen, 2017); (Johari & Komathy, 2019), supply chain practice (Govindan et al., 2014) are better able to maintain their business.

The pandemic, disruption, and globalization have made it increasingly difficult for Indonesian SMEs to move. Indonesian SMEs are expected to be able to face this challenge by increasing product and service innovation, developing human resources and technology and expanding the marketing area (Hu, William, & Found, 2019); (Mukhtar et al., 2020). Technology literacy which is manifested by the ability to adopt and use technology becomes significant if it is accompanied by having relevant and sufficient knowledge (Omiunu, 2017). Meanwhile, financial literacy is an important source of knowledge that can improve individual skills and expertise, and supply chain practice able to reach a wider market. So it is important to integrate financial literacy, technological literacy, and supply chain practice. This effort is to create and maintain a competitive strategy by exploring and utilizing innovation for business sustainability (Klongthong et al., 2020).

This study aims to analyze the effect of the sustainability of SMEs by involving literacy and supply chain skills. Sustainability concept has been introduced to many fields including financial, technology, and supply chain (Al-Odeh & Smallwood, 2012). While several previous studies stated that the survival of SMEs was due to the support of other parties such as the government and other related organizations (Marri, Nebhwani, & Sohag, 2011; Panjaitan, Timur, & Sumiyana, 2021; Chen et al., 2021), this study tries to explore the capabilities of SMEs themselves through financial literacy, technological literacy and supply chain practice represented by their owners.

2. Literature Review

SMEs are increasingly being discussed nowadays along with their large role in contributing to economic development through job creation, poverty reduction, and flexible business models (Agyei, 2018). However, with the many limitations that SMEs have, this sector often cannot survive (Shimul, Uddin, & Tulon, 2017). To maintain its survival, SMEs must have a strategy. Implementing a business that is flexible, easy to adjust, is not only limited to considering reducing operational costs, but also focusing on what the market needs (Prabawani, 2013), because sustainability has a broad meaning, in addition to considering environmental sustainability when running a business, but also taking into account the economic and social sustainability of the organization (Prasanna, Jayasundara, & Gamage, 2019).

2.1 Financial literacy and SMEs sustainability

Financial literacy is a source of knowledge that determines the sustainability of SMEs (Ye & Kulathunga, 2019). Financial literacy shows an important role for the sustainability of SMEs in both developed and developing countries (Wise, 2013). Financial literacy has an important role in the value creation process for SMEs that leads to sustainability (Jappelli & Padula, 2013). Financial literacy helps SMEs to adapt to changes in the business environment and take advantage of the changes that occur (Ye & Kulathunga, 2019). SMEs with good financial literacy have better insight into aspects of strategic financial issues, so their performance is better (Huston, 2010), and SMEs with low financial literacy often experience errors in financial management (Lusardi & Mitchell, 2014). For SMEs owners, having good financial literacy means that they are able to determine the most profitable and potentially successful investments (Widdowson & Hailwood, 2007). Financial literacy can also be used to ensure the sustainability of personal, family, organizational and even state finances (Adomako, Danso, & Damoah, 2015). In SMEs, it is important for owners to have financial literacy, because SMEs owners play a central role. Financial literacy is used to evaluate their financial condition and make financial decisions (Ye & Kulathunga, 2019).

Financial literacy is knowledge that determines the sustainability of SMEs (Jappelli & Padula, 2013), because it plays an important role in the value creation process for SMEs (Bongomin et al., 2018). Having financial literacy is important to deal with very fast economic changes (Huston, 2010), making appropriate financial decisions and strategic long-term financial planning (Ye & Kulathunga, 2019).

2.2 Technology literacy and SMEs sustainability

Technological literacy is a vital tool to ensure organizational performance in a digital business environment (Ifijeh, James, & Adebayo, 2016). Technological literacy improves organizational capabilities in decision-making processes through efficient information management (Kulathunga et al., 2020), because it enables SMEs to be able to efficiently collect, evaluate, interpret and share relevant and timely information (Zhang, Majid, & Foo, 2010). Technological literacy is important to improve organizational business processes (Ladokun, Osunwole, & Olaoye, 2013), as well as to help with planning, interaction and collaboration, customer service and business administration (Ashrafi & Murtaza, 2008).

Technological literacy contributes significantly to the performance of SMEs today, as experienced by SMEs in China, India, England and the United States (Kulathunga et al., 2020). Technological literacy helps SMEs to ensure business continuity, because it can make it easier for them to reduce the obstacles they face, such as difficulties in accessing finance (Eniola & Entebang, 2015), for that they must meet several requirements, such as a business license, have an account number, number taxpayers, and all of them require technological literacy (Ong & Ismail, 2008). In SMEs, technological literacy depends on the role of the owner, whether technological literacy is important or not. It is undeniable that SMEs are very dependent on their owners (Islam & Al Mukit, 2016), the successful implementation of technological literacy, depending on the ability of the owners, is the ability to work independently and collaborate with others effectively, responsibly and appropriately in choosing the use of technology. to manage the business, integrate, evaluate and communicate information (Kulathunga, et al., 2020).

2.3 Supply chain practice and SMEs sustainability

There is an increasing recognition that organizations must address their business sustainability concerns by maintaining supply chain practices (Pinto, 2017). Largely due to pressure from various stakeholders, especially government regulators, community activists, non-governmental organizations (NGOs), and global competition, many companies have adopted a certain level of commitment to sustainability practices. Supply chain practice can also be used as management in dealing with social, economic and concern for the environment and its surroundings (Alzaman, 2014). Supply chain management is a critical and interdisciplinary field that stems from integrating the concept of sustainability with core business functions that fall within the supply chain management domain, such as: procurement, logistics and knowledge management (Gold & Schleper, 2017).

Supply chain practices can be described as systems and strategic coordination of business with cross-functional organizations (organizations and suppliers) for the purpose of improving long-term performance, organizational performance and supply chain performance (Maulini et al., 2022). Poor supply chain due to lack of knowledge of SMEs owners, such as ignorance to obtain data and information, not adaptive to technology, and business as it is (Maulini et al., 2022). This is what hinders the business continuity of SMEs. Especially when discussing supply chains related to business in Indonesia. The supply chain that occurs is different from other countries (Alamsjah & Asrol, 2022). The large geographical area, with the transportation infrastructure that is not good, makes it a challenge in supply chain implementation. This is one of the reasons SMEs in Indonesia are not good at implementing their supply chains so that it has an impact on the sustainability of their business.

3. Research mode and hypotheses

One of the reasons for the sustainability of SMEs can be seen from their financial literacy. Given that SMEs are very dependent on the ability of their owners, many studies have used SMEs owners as key informants to collect data. Research conducted by Njoronge (2013) proves that SMEs owners who have high financial literacy will be more successful in running their business.

Other research states that the development of SMEs depends on how their owners get quality information that can be used as a basis for making correct business decisions, one of which is about financial policy (Lusimbo, 2016). SMEs owners with good financial literacy are more able to make appropriate financial decisions than SMEs owners who do not understand financial literacy (Fatoki, 2014), with financial literacy, SMEs can be run in an accountable manner and ensure business continuity in the future.

H_1: *Financial literacy has a significant effect on sustainability.*

Meanwhile, another factor to see the sustainability of SMEs is technological literacy. This allows SMEs to get valuable information, improve knowledge, performance and relationships with consumers and suppliers, thereby increasing efficiency and lowering production costs (Akomea-Bonsu & Sampong, 2012). In the present era of economic globalization, technological literacy is becoming increasingly important to support business needs and strengthen the competitive position of SMEs, because they are faced with a wider market reach (Sarwar et al., 2021). There is a lot of literature that proves that technological literacy is an important determinant of the success of SMEs. Technological literacy helps SMEs to break down the obstacles they have experienced so far, such as difficulties in obtaining financing from banks, failing to enter certain markets, and breaking down other barriers.

H_2: *Technology literacy has a significant effect on sustainability.*

Supply chain practices that include upstream and downstream linkages (Govindan et al., 2014), create room for systemic possibilities (Kim, 2006) and systemic methods (Kirchoff, Tate, & Mollenkopf, 2016). The supply chain organizes practices that can facilitate the different types of stakeholders (practitioners, managers, and scholars) who need to address business process issues (Baliga, Raut, & Kamble, 2020). Supply chain practice as an integrated purchasing plan from the supplier to the product/service to the customer. More fully, the supply chain covers product design, reuse, dismantling, and final disposal (Govindan et al., 2014), as well as warehousing, transportation, improving the quality of suppliers in accordance with the latest regulations, and a stimulus for the adoption of several certifications, such as environmental certification. The supply chain is closely related to business continuity, because its activities start with product design and go through the selection of raw materials, manufacturing processes, transportation and delivery, and end consumers (Hasan, 2013).

H_3: *Supply chain practice has a significant effect on sustainability.*

H_4: *Financial literacy has a significant effect on sustainability through supply chain practice.*

H_5: *Technology literacy has a significant effect on sustainability through supply chain practice.*

The research concept model is shown in Fig. 1, where SMEs sustainability is influenced by financial literacy, technology literacy and networking capability as mediators.

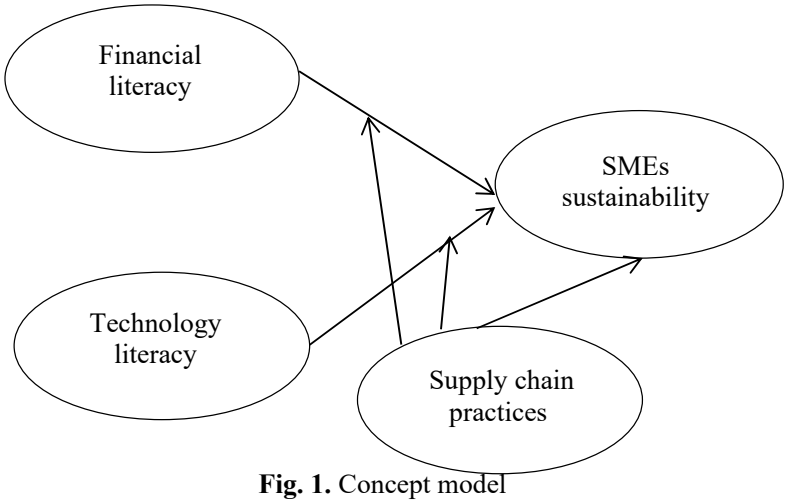

Fig. 1. Concept model

4. Methodology

The research method shows the size of the construction of financial literacy, technological literacy, network capability and sustainability as well as the data collection procedures used. Subsequently, a relationship analysis was performed for each construct using the PLS test with Smart PLS software. The questionnaire uses answer choices with a 5-point Likert scale, financial literacy with 10 statements adopted from Ye and Kulathunga (2019), technological literacy with 9 statements adopted from Santoso and Lestari (2019), supply chain practice with 5 statements adopted from Hasan (2013), and sustainability with 8 statements taken from Ye and Kulathunga(2019). In Indonesia, based on the latest regulations regarding the classification of SMEs, it is based on business capital, both own capital and loan capital. This research is related to awareness of financial management and the use of technology, and based on data only about 30% SMEs in Indonesia implement it (Effendi et al., 2020). This number is met by SMEs that have an international market, and this research focuses on SMEs who view the international market as a good opportunity to maintain business sustainability. Questionnaires were distributed via email to SMEs owners registered at the export center office, Indonesia. A total of 510 questionnaires were sent, and 485 questionnaires were deemed worthy to be used as research data. 76% of respondents are male and the remaining 24% are female. The educational background is at most high school 46%, Bachelor and Diploma 39% and the rest only with courses or informal education as much as 15%. The fields that they are involved in are also varied, SMEs producing the most furniture (wood, natural stone, rattan) are 48%, agricultural and plantation products 28%, processed food 13%, and textiles 11%.

5. Results and Discussion

Normality of the data is checked with the value of skewness and kurtosis. In table 1 it is shown there is no normality problem for the data, because all skewness and kurtosis values are between 1 and +1 (Leguina, 2015). Table 1 summarizes the reliability, validity, and descriptive statistics of the constructs.

Table 1
Reliability, validity, and descriptive statistics of the constructs

Construct	Items	Loading	Mean	SD	Skewness	Kurtosis	VIF
Financial literacy	FL1	0.769	4.980	1.4790	-0.465	-0.754	2.127
	FL2	0.732	4.410	1.5392	0.280	-0.871	1.909
	FL3	0.757	4.830	1.5040	-0.165	-0.861	2.865
	FL4	0.852	4.450	1.5340	-0.171	-0.742	2.586
	FL5	0.774	4.535	1.5443	-0.205	-0.790	1.907
	FL6	0.709	4.070	1.5766	-0.500	-0.695	2.118
	FL7	0.774	4.650	1.4870	-0.375	-0.598	2.080
	FL8	0.787	4.410	1.4830	-0.483	-0.882	2.560
	FL9	0.830	4.830	1.5142	-0.168	-0.911	2.360
	FL10	0.735	4.410	1.5818	0.165	-0.760	2.595
Technology literacy	TL1	0.870	4.700	1.5342	-0.480	-0.148	1.867
	TL2	0.707	5.000	1.8200	-0.526	-0.888	2.450
	TL3	0.757	4.320	1.5890	-0.745	-0.680	2.080
	TL4	0.734	3.800	1.4825	-0.115	-0.530	2.980
	TL5	0.796	3.650	1.7077	-0.748	-0.445	1.973
	TL6	0.722	4.420	1.4630	-0.463	-0.532	1.635
	TL7	0.772	4.090	1.4965	-0.599	-0.422	2.079
	TL8	0.824	3.600	1.5020	-0.817	-0.760	1.975
	TL9	0.768		1.6110	-0.762	-0.425	1.473
Supply chain practice	SC1	0.847	4.850	1.5042	-0.351	-0.443	1.654
	SC2	0.810	4.950	1.4310	-0.728	-0.942	1.890
	SC3	0.794	4.990	1.5529	-0.695	-0.752	2.125
	SC4	0.852	5.200	1.3218	-0.723	-0.871	2.538
	SC5	0.847	5.510	1.4572	-0.190	-0.566	2.045
SMEs sustainability	SS1	0.784	4.640	1.2980	-0.890	0.344	2.468
	SS2	0.782	3.970	1.4580	-0.675	-0.845	2.055
	SS3	0.794	4.590	1.5020	-0.980	0.915	1.980
	SS4	0.788	4.870	1.2450	-0.465	0.890	2.050
	SS5	0.816	3.450	1.1961	-0.350	-0.785	1.848
	SS6	0.863	5.050	1.4480	-0.684	-0.920	2.376
	SS7	0.762	4.920	1.1869	-0.670	0.975	2.080
	SS8	0.732	4.910	1.1560	-0.920	0.808	2.741

The validity and reliability shown in Table 1 are then used as the basis for finding the AVE with the rule that it should be greater than 0.5 and the CR value should be higher than 0.7 so that it will provide reliable evidence of convergent validity and reliability.

Table 2
Consistency reliability and convergent validity

Variable	Cronbach's alpha	CR	AVE
Financial literacy	0.874	0.852	0.670
Technology literacy	0.905	0.865	0.593
Supply chain practice	0.860	0.820	0.652
SMEs sustainability	0.925	0.895	0.670

After confirming that the CR and AVE values have met the requirements, then proceed with hypothesis testing, by looking at the result of the t-value and p-value with significant at 5% for the two tailed test (>1.96).

Table 3
Hypothesis test

Path	Hypothesis	Path coeff	t-value>1.96	p-value<0.05	*f*	Sig
FL→SS	1	0.530	2.570	0.032	0.265	Yes
TL→SS	2	0.728	4.728	0.004	0.354	Yes
SC→SS	3	0.564	4.072	0.012	0.328	Yes
FL→SC→SS	4	0.352	2.113	0.052	0.189	Yes
TL→SC→SS	5	0.784	4.962	0.000	0.387	Yes

All hypotheses are accepted, where the direct relationship between financial literacy, technology literacy and supply chain practice on SMEs sustainability shows good results. Meanwhile, networking capability as a moderator has succeeded in providing support, although the contribution made is not always strengthening. In the relationship of financial literacy to SMEs sustainability, supply chain practice tends to weaken this relationship. Can be a reminder to be careful in using supply chain practice when dealing with financial literacy. Financial literacy emphasizes the awareness and willingness of SMEs owners that financial knowledge is important in running a business today (Fatoki, 2014). This push is internal, from within the owners of SMEs. Supply chain practice provides a positive impetus for literacy technology as an effort to create business sustainability (Govindan et al., 2014). Supply chain practice makes SMEs more capable of procuring technology resources (Hasan, 2013), finding SMEs with the right partners to provide training (Baliga, Raut, & Kamble, 2020), and requires good

relationships with external parties such as network providers, because to understand technology not only by reading, it needs practice and guidance (Mallinguh, Wasike, & Zoltan, 2020; Das, Kundu, & Bhattacharya, 2020; Kulathunga et al., 2020). Therefore, the concept of business sustainability has grown to become important, and organizations should strive to balance performance with economic, environmental and social conditions. Today, the concept of sustainability has become a strategy and has been incarnated in daily business activities. Sustainability being an operational practice concept, is a multidimensional concept that includes business strategy, financial management, customer satisfaction, stakeholder interests, the process of adapting to technology, starting from the initial chain to the final destination of a product/service. Business sustainability can be used to assess the performance of an organization. Another concept describes sustainability as a leader's efforts to achieve their business goals by directing their strategy and management to take advantage of internal and external potentials and try to execute them while minimizing risk. This opinion is in line with the results of this study, a sustainability strategy with indicators that underline the understanding of finance and technology and the application of an effective supply chain as an integrated strategy that strengthens business characteristics. Maintaining business sustainability is the same as maintaining business sustainability for the long term while maintaining global competitiveness and reputation.

6. Conclusion

Financial literacy, technology literacy and supply chain practice play an important role in SMEs sustainability. Business for now is not only measured by the high volume of sales and profits earned. Business sustainability also needs to be considered. This is called a healthy business. There is good planning and long term estimation. Although faced with an uncertain and volatile business environment, planning and estimation can minimize the risk of loss. How to minimize it can be done by increasing several abilities, such as financial literacy, technology literacy and supply chain practice.

7. Limitations and Future Studies

This study is limited to its theoretical basis, where business sustainability is built on only three supporting indicators, such as financial literacy, technology literacy and supply chain practice. Data is also limited in a narrow scope. Recommendations for further research, that there are still many factors in an effort to build business sustainability and in almost all parts of Indonesia, most of the population works as SMEs, so it is necessary to expand the scope of research to get more accurate and comprehensive results.

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