Solid State Technology
Volume: 63 Issue: 4
Publication Year: 2020

Improving SME Performance Through, Network, and Technology (Study on SME Songket Weaving Fabrics Bali Province)

R. Adjeng Mariana Febrianti[1]*, Uman Suherman[2], Yuni Amalia[1], Khalila Deniza Vashti[1], Angga Alviaeno[1], Alif Prawira Wiguna[1]
[1]Widyatama University, Indonesia
[2]Universitas Pendidikan Indonesia
*adjeng.mariana@widyatama.ac.id

Abstract

The purpose of this study is to determine the effect of Network and Technology on SME Performance in Bali province. The technique used in this study is multiple regression analysis. Primary data from this study were obtained from questionnaires and interviews with 90 respondents. The results of the study concluded that Network and Technology had an influence on the performance of SMEs with the scores for Network Variables (53.2%) and Technology (44.8%). This study is proposed to fill the research gap while emphasizing the importance of network and technology factors to the performance of SMEs in Balo Province. These two factors play an important role for the performance of SMEs in building creativity and innovation so that they are expected to make a positive contribution to a superior strategy

Keywords: *Network, Technology, Performance, UKM.*

Introduction

Research on SMEs has developed since the growing debate about the role of business organizations in economic development (Joensuu, 2018). One of the debates that have surfaced among business people is how to improve the competitiveness of SMEs (Pinho, 2016). Wang (2020) argues that SMEs need to improve competitiveness in order to survive in a changing environment. Moran (2011) found that the competitiveness of SMEs can increase their bargaining position in business competition. Porter in his classic work (1985) wrote the concept of the value chain which forms the basis of competitiveness. This value chain is a set of activities that are useful for designing, producing, marketing, delivering and supporting its products. This concept has been developed to many companies and organizations including SMEs. There are specific research questions that are addressed in this study; What are the factors that affect the competitiveness of SMEs? How to empower it? And how to build a business network with business partners so as to result in the competitiveness of SMEs (Priyono, 2020; Wang, 2020; Durowoju, 2017).

Business networks for SMEs are closely related to the fact that resources are limited. Day (2016) explains that business and competition have shifted from corporate competition to business network competition. The SME cluster is a form of business network that is developing in many countries, especially in Indonesia. Tambunan (2009) advised that in

order to achieve optimal resource sharing in Indonesian SMEs, they must develop themselves into the SME cluster. Tambunan (2009) identifies several key issues to improve the competitiveness of SMEs in Indonesia, namely human resources, working capital, management and technology skills. This key factor is important to improve the performance of SME businesses in Indonesia, especially in the city of Bali which is famous for its songket woven fabric. Regardless of the increasing number of SMEs in the city of Bali, it is still felt that this has not been followed by an increase in quality, quantity or use of technology and management to increase competitiveness. This growth was recorded to reach (26,558 units) consisting of the informal sector 61,648 units and the formal sector 203,910 units (Bisnis.com, 2018).

Lamprinopoulou and Tregear (2011) found that the quality of human resources in a business has a major contribution to their marketing performance. Likewise, Lamprinopoulu (2011) which states that networks can improve business performance. Bek et al. (2013) stated that the ability to manage technology in the SME cluster is very important to improve its performance. Therefore, this study is proposed to analyze the competitiveness of SMEs in the city of Bali, and the focus or problem formulation in this study are; (1) How much influence does the network have on the performance of SMEs? (2) How much influence does technology have in improving the performance of SMEs, (3) How much influence does the network and technology have on the performance of SMEs?

Literature Review

Network

Since the late 1940s, the Organization for Economic Co-operation and Development, Bek (2013) notes that the idea of small and medium enterprises (SMEs) was introduced into the development landscape, and its main aim is to increase trade and industrialization in today's developed countries. In practice, the network is one of the important strategic factors in developing the performance of SMEs (Priyono, 2020). The development of UKM today is precisely determined by how it manages the network. Day (2016), the concept of a company's ability to develop a network lies in integrating, building and reconfiguring internal and external competencies to cope with a rapidly changing environment. Thus, a network can be defined literally as how a company uses the network to obtain and improve organizational performance. The literature confirms that networking is positively related to a performance (Priyono, 2020 and Wang, 2020).

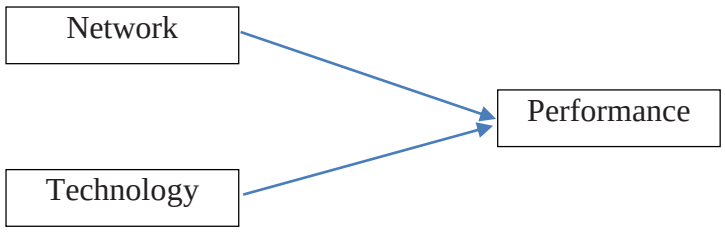
HI. Network affects SME performance

The ability of SMEs to apply technology will greatly affect performance, especially in increasing competitiveness (Lamprinopoulou, 2011). A successful and successful organization will always outperform its competitors in providing products, services, distribution channels, networking and application of technology (Moran, 2011). The adoption of technology is very helpful in improving the economic performance of Small and Medium Enterprises (SMEs). The fast changing business environment has made SMEs incorporate new technologies into it. This innovation has become a necessity for technology-oriented businesses that encourage economic competitiveness and the welfare of entrepreneurs in society (Cocca, 2010). SMEs of all sizes are very enthusiastic in adopting technology so that it becomes a potential for innovation (Gunasekaran, 2011). The successful adoption of innovation by SMEs can be attributed to several factors, such as technological factors, organizational factors, environmental factors, etc. The active status of the SME group in the innovation process has resulted in a rapid increase in patent rights and new products. Furthermore, technology adoption has helped SMEs to increase employment and contribute

to economic growth, in particular thereby gaining a competitive advantage and improving their economic performance.
H2. Technology affects the performance of SMEs

Performance

Organizational performance is an important element in an organizational perspective, because it leads to the success and development of the organization as a whole (Cocca, 2010). Performance serves as a significant predictor of organizational commitment and retention (Kim, et.al., 2004: 672-681). Organizational performance, especially in small and medium enterprises, is usually more focused on increasing income and the ability to adapt (Durowoju, 2017). According to Day (2016), performance is a measure of the company's success rate in carrying out its goals. Performance also has a strong relationship with strategic objectives. Max & Moullin (2007) state that performance will provide information to assess the extent of an organization's excellence. In measuring organizational performance, Booci (2004) divides two things in measuring the performance of SMEs, (1) based on financial and (2) non-financial measurements. In formulating a strategy based on finance it takes only the stakeholders, but in formulating a non-financial strategy it will involve innovation, motivation, adaptation, and services provided so that sales increase (Max Moulin, 2007).
Every organization may be measured by finances, but to achieve this it will also be responsible for the volume of sales it does. Sales volume cannot be achieved if the company cannot adjust the product to the trend, the network is built, and the use of technology that is currently a trend. Therefore, to be able to compete, companies must accommodate as much information as possible both about products, managing relationships, and applying technology, including marketing or payment methods (Max Moulin, 2007). Organizational flexibility is one of the measures of organizational performance, because if a company cannot adjust its business to developing trends, it will be far behind its competitors and this will have an impact on sales volume (Moran, 2011). Activities to improve organizational control in order to have good performance must be able to respond to information on the environment. Priyono (2020) mentions the importance of flexibility in improving the performance of SMEs, given that the business environment changes rapidly. So, flexibility in business strategy is a prerequisite for an organization to achieve company sales growth (Priyono, 2020 and Wang, 2020).
H3. Organizational performance is influenced by networks and technology



Conceptual framework

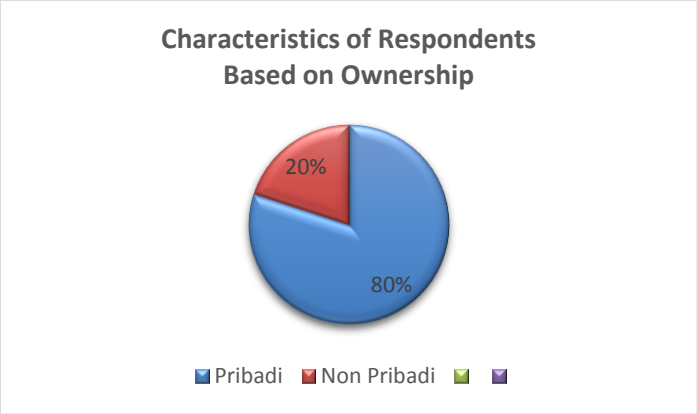
Research methods

The research was conducted on songket woven fabric UKM located in the village of Sidemen, Bali province. In this study 90 SMEs became respondents and used a quantitative analysis approach by adopting multiple regression analysis techniques. Primary data in this study were questionnaires given directly to respondents and interviews with several actors. Meanwhile, secondary data were collected from several local government publications and

business magazines, journals and textbooks. The technique used to measure Network, Technology, and SME performance is a Likert scale which has five alternative answers: 1. Strongly Disagree (SD) to 5. Strongly Agree (SA).

Results and Discussion

Data from the responses of 90 SMEs are shown in Table 2. Description of the characteristics of the respondents analyzed in this study is based on ownership and length of time in the business that was established. Respondents in this study on average (80%) owned privately, and (20%) not personally owned. Based on the length of business, respondents who dominate the testablishment are 20-35 years.



Results of Validity and reliability

Table 1. Validity

Variable	Item	r count	r critical	Information
Network	x.1	0,755	0,30	Valid
	x.2	0,829	0,30	Valid
	x.3	0,473	0,30	Valid
	x.4	0,606	0,30	Valid
	x.5	0,929	0,30	Valid
Technology	x.6	0,946	0,30	Valid
	x.7	0,887	0,30	Valid
	x.8	0,888	0,30	Valid
	x.9	0,693	0,30	Valid
	x.10	0,643	0,30	Valid
SME Performance	Y.1	0,542	0,30	Valid
	Y.2	0,676	0,30	Valid
	Y.3	0,547	0,30	Valid

Source: Data processed (2019)

The table above shows that all items in network-level construction, technology, and SME performance are considered valid and reliable.

Table 2. Reliability

Variable	Item	Cronbach's Alpha	Information
Leadership	x.1	0,763	Reliable
	x.2	0,762	Reliable
	x.3	0,775	Reliable

	x.4	0, 734	Reliable
	x.5	0,765	Reliable
Managemnt policy	x.6	0,770	Reliable
	x.7	0,751	Reliable
	x.8	0,753	Reliable
	x.9	0,732	Reliable
	x.10	0,725	Reliable
Work environment atmosphere	y.1	0,754	Reliable
	y.2	0,755	Reliable
	y.3	0,765	Reliable

Multicollinearity

Table 3. Multicollinearity

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Network (X1)	.693	1.443
	Technology (X2)	.741	1.350
	a. Dependent Variable: SME performance (Y)		

Source: Data processed (2019)

The calculation results presented in the table above indicate that there is no multicollinearity problem.

Multiple Regression Analysis

The results of the calculation of the regression coefficient obtained can be seen in the following table:

Table 4. Multiple Regression Analysis

Coefficients[a]									
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	2.734	2.507		1.091	.278			
	Network (X1)	.299	.120	.179	2.499	.014	.487	.222	.154
	Technology (X2)	.520	.102	.379	5.098	.000	.629	.422	.315
a. Dependent Variable: SME performance (Y)									

Source: Data processed (2019)

From the table above, the constant value (a) is 2.734, the regression coefficient for X1 (b1) is 0.299, the regression coefficient value for X2 (b2) is 0.520.

$$Y = 2{,}734 + 0{,}299\ X1 + 0{,}520\ X2$$

The regression coefficient is positive, indicating that the greater the network and technology, the better the performance of SMEs.

Correlation Analysis

Table 5. Correlation analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.735[a]	.542	.530	3.79173
a. Predictors: (Constant), Technology (X2), Network (X1)				

Source: Data processed (2019)

Based on the results of the calculations in Table 5, it can be seen that the value of the multiple correlation coefficient (R) obtained is 0.735. These results indicate that 0.735 is between 0.60 - 0.79. This means the network and technology with the performance of SMEs have a strong level of relationship.

Hypothesis testing results

Table 6. Hypothesis Testing Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2038.085	3	679.362	47.243	.000[b]
	Residual	1725.262	120	14.377		
	Total	3763.347	123			
a. Dependent Variable: SME performance (Y)						
b. Predictors: (Constant), Technology (X2), Network (X1)						

Source: SPSS output (processed results)

Based on the calculation results as presented in the table above, it can be seen that the regression model has an F-count of 47.243 with p-value = 0.000. So that the conclusion of the test is significant, thus H1 is accepted. Networks and technology have an influence on the performance of SMEs. The results of the calculation in the table below show that the t value for the network variable (x1) is 5.068 with a significance value of 0.000.

Effect of Network on SME Performance

Table 7. Results of Network Effect on SME Performance

Variable	T_{count}	Prob (sig)	H_0	Information
Network (X1)	5,068	0,000	rejected	Significant on α = 0,05

It can be seen that the value of the t-count when compared with the t-table, it is obtained that the t-value is greater than the t-table value at the 5% significance level (5.068> t table = 1.980), thus H0 is rejected at the level α = 0.05. By looking at the significance value, the results of the H0 test are rejected because 0.000 <0.05.

Effect of Technology on SME Performance

Table 8. Effect of Technology on SME Performance

Variable	T_{count}	Prob (sig)	H_0	Information
Technology (X2)	2,489	0,014	rejected	Significant on α = 0,05

Source: SPSS output (processed results)

It can be seen that the value of the t-count when compared with the t-table, the t value is greater than the t-table value at the 0.05 significance level (2.489> t table = 1.980), thus H0 is rejected at the α = 0.05 level. By looking at the significance value, the results of the H0 test are rejected because 0.014 <0.05, the test decision is significant at the 5% significance level. So, there is a significant effect of technology on SME performance.

The coefficient of determination

Table 9. Coefficient of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736[a]	.532	.530	3.79173
a. Predictors: (Constant), Technology (X2), Network (X1)				

Source: SPSS output (processed results)

Based on the calculation results in the table above, the coefficient of determination (R^2) obtained is 0.542. The results obtained indicate that simultaneously the effect of Network and Technology on SME Performance is 54.2%. Meanwhile, 100% - 53.2% = 44.8% were influenced by other factors that were not included in the variables studied in this study. The influence of each independent variable partially on the performance of SMEs can be calculated by multiplying the value of standardized coefficients with the zero-order correlation found in the table below:

Table 10. Value of standardized coefficients and Zero-order correlation Partial Determination Coefficient

Coefficients[a]					
Model		Standardized Coefficients	Correlations		
		Beta	Zero-order	Partial	Part
1	(Constant)				
	Network (X1)	.379	.629	.422	.315
	Technology (X2)	.179	.488	.222	.154
	1667				
a. Dependent Variable: SME performance (Y)					

Source: SPSS output (processed results)

The influence of the network on the performance of SMEs is obtained 0.379 x 0.629 = 0.238. This means that there is a contribution of 23.8% in explaining / influencing the performance of SMEs. The magnitude of the influence of technology on the performance of SMEs 0.179 x 0.488 = 0.087. This means that there is a contribution of 8.7% in explaining / influencing the performance of SMEs.

Table 11. Recapitulation of Hypothesis Testing Results

No.	Hypothesis	Test	Coef.	T_{count}	Sig.	α	Test Decision	Great

		Statistic	Reg β_i					Influence
1.	Network affects SME performance	H_0: $\beta_2 = 0$ H_1: $\beta_2 \neq 0$	0,520	5,098	0,000	0,05	H0 is rejected X1 has a direct effect on Y	23,8%
2.	Technology affects the performance of SMEs	H_0: $\beta_1 = 0$ H_1: $\beta_1 \neq 0$	0,120	2,499	0,014	0,05	X2 has a direct effect on Y	8,7%
	Total Influence							54,2%

Source: SPSS output (processed results)

Conclusion

The results of the study concluded that there was a positive influence between networks and technology on the performance of SMEs in Bali Province. This finding is supported by research by Durpwoju (2017); Samuel and Wang (2020) and Priyono (2020) state that networks and technology affect SME performance. These findings reinforce the need for a marketing strategy in the context of SMEs to be able to improve their performance, especially in the current situation where competitors are increasingly emerging. In order for the SME industry, especially in the Province of Bali, to remain productive and have good performance, several alternatives can be made through coaching, technological learning, creative and innovative.

References

1. Bogoviz, A. V., Litvinova, T. N., Lobova, S. V., & Ragulina, Y. V. (2018). Infrastructural provision of international entrepreneurship: Theory and practice. International Journal of Trade and Global Markets, 11(3), 190–199.
2. Burnes, B. (2009). Managing change: A strategic approach to organization dynamics. Harlow: Pearson Education Limited.
3. Bek, M. A., Bek, N. N., Sheresheva, M. Y., & Johnston, W. J. (2013). Perspectives of SME innovation clusters development in Russia. Journal of Business & Industrial Marketing, 28(3), 240–259.
4. Cocca, P., & Alberti, M. (2010). A framework to assess performance measurement systems in SMEs. International Journal of Productivity and Performance Management, 59(2), 186–200.
5. Day, G. S., & Schoemaker, P. J. (2016). Adapting to fast-changing markets and technologies. California Management Review, 58(4), 59–78.
6. Durowoju, T. (2017). Impact of technological change on small and medium enterprises performance in legos state. Economic and Environmental Studies, 17(4).
7. Graafland, J. (2018). Does corporate social responsibility put reputation at risk by inviting activist targeting? An empirical test among European SMEs. Corp. Soc. Responsib. Environ. Manag., 25(1), 1 – 13.
8. Gunasekaran, A., Rai, B. K., & Griffin, M. (2011). Resilience and competitiveness of small and medium size enterprises: An empirical research. International Journal of Production Research, 49(18), 5489–5509.
9. Joensuu-Salo, S., Sorama, K., Viljamaa, A., & Varamäki, E. (2018). Firm performance among internationalized SMEs: The interplay of market orientation, marketing capability and digitalization. Administrative Sciences, 8(3), 31.
10. Lamprinopoulou, C., & Tregear, A. (2011). Inter-firm relations in SME clusters and the link to marketing performance. Journal of Business & Industrial Marketing, 26(6), 421–429.

11. Moran, J. W., & Brightman, B. K. (2001). Leading organizational change. Career Development International, 6(2), 111-119.
12. Mbuyisa, B., & Leonard, A. (2017). The role of ICT use in SMEs towards poverty reduction: A systematic literature review. Journal of International Development, 29(2), 159-197.
13. Moulin, M. (2007). Performance Measurement Definitions-Linking Performance Measurement and organizational excellence. International Journal of Health Care Quality Assurance, 20(3), 181-183.
14. Priyono, A., Nursyamsiah, S., & Darmawan, B. A. (2020). Network-based dynamic capabilities in internationalisation of SMEs: Case studies in emerging economy. International Journal of Trade and Global Markets, 13(1), 11-20.
15. Pinho, J. C., & Prange, C. (2016). The effect of social networks and dynamic internationalization capabilities on international performance. Journal of World Business, 51(3), 391-403.
16. Tambunan, T. (2008). SME Development in Indonesia: Do Economic Growth and Government Supports Matter? SSRN 1218922.
17. Chege, S. M., & Wang, D. (2020). The influence of technology innovation on SME performance through environmental sustainability practices in Kenya. Technology in Society, 60, 101210.