

The Effect of Knowledge Management on SMEs' Competitiveness

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Abstract

Small and medium-sized enterprises known as SMEs do extensively exploit knowledge throughout their day-to-day activities and alternatively transfer and utilize knowledge. KM can bring the power of competitiveness to SMEs. Despite this, current literature has not captured the relation between SME competitiveness and knowledge management, and this research utilized the International Trade Center known as ITC model to identify the correlation between knowledge management and competitiveness variables. The data has been collected from the International Trade Center database including 69 countries in four regions (Asia, Africa, America, and Europe). The research employed the quantitative method and used correlation analysis. The results revealed that there is a high positive correlation between knowledge management and the layer dimensions of SMEs' competitiveness grid except in the Americas where there is no significant correlation between knowledge management and the business ecosystem.

Keywords: SME, Knowledge Management, Competitiveness, ITC Model

INTRODUCTION

Knowledge is a vital strategic resource for modern business and controls access to opportunity and advancement (Jelenic, 2011). Knowledge, in the case of managing efficiently and effectively (Santoro et al., 2018) and accompanying technology (Jabeen & Al Dari, 2020), develops systems and processes to acquire and share intellectual assets. Knowledge management maintains that successful businesses are a collection not of products but distinctive knowledge bases. This Intellectual capital is the key that will give the company a competitive advantage with its targeted customers. Knowledge management seeks to accumulate intellectual capital that will create unique core competencies and lead to superior results (Dalkir, 2017). KM can be one of the main organizational strategies as it helps to create new business processes to enhance the organizations' performance. The organizations that are rich in knowledge can enhance their

creativity and efficiency as well as reach a new quality level (Xue, 2017). Knowledge and KM are unique concepts as they are both explicitly and implicitly utilized within a wide range of industries, businesses, and organizations, including Small to Medium Enterprises, known as SMEs (Alavi & Leidner, 2001; Kaminski et al., 2008; Kishore & Sundaram, 2018; Ngah & Jusoff, 2009). A wide range of literature highlights the pivotal role now played by knowledge management (KM) in the competitiveness of large firms and especially small and medium enterprises (SMEs) (Cerchione & Esposito, 2017). However, there are differences between large firms with SMEs. Kianto et al. (2018) stated that SMEs do not differ from large firms only in their resource constraints; they also differ in organizational structures, management styles, closeness to the customer, and market agility. Even some researchers (Durst & Edvardsson, 2012) emphasize that the heterogeneity between SMEs needs to be considered as small firms are hardly comparable with medium-sized firms.

Despite this, SMEs play a major role in most economies, particularly in developing countries. They account for the majority of businesses worldwide (about 90%) and are important contributors to job creation (more than 50%) and global economic development (40% of GDP). According to the estimates, 600 million jobs will be needed by 2030 to absorb the growing global workforce, which makes SME development a high priority for many governments around the world (The World Bank, 2020). The success of an SME can be linked to how well they manage and utilize knowledge, both from a technological and non-technological standpoint (Durst & Edvardsson, 2012). KM allows SMEs to disseminate knowledge to meet deadlines, increase creativity and further differentiate themselves from competitors without the facilitation of technology (Kaminski et al., 2008). However, while many studies analyze the processes of dissemination of knowledge and highlight the adoption of KM in large companies, as regards SMEs the framework of knowledge is still fragmented (Cerchione et al., 2016; Durst & Edvardsson 2012). Lack of KM may result that SMEs' business misses their knowledge storage when their employees do leave and take their know-how, experience, and insights with themselves (Boxall & Purcell, 2011). SMEs can benefit from KM activities concerning employee development, innovation, customer satisfaction, and organizational success (Edvardsson & Durst, 2013). For this reason, several factors which have a significant influence on implementing KM effectiveness should be considered. These are support and leadership commitment (Almohtasb et al., 2021; Curado & Vieira, 2019; Gourova, 2010), culture (Ansari et al., 2009; Le, 2017), strategy (Gourova et al., 2013; Handzic, 2006), resources (Ansari et al., 2009; Hussain et al., 2019), processes and activities (Cerchione et al., 2015), training and education (Hassan, 2020; Lee & Lan, 2011), human resource management (Lo et al., 2015; Tee et al., 2012), information technology (Alawneh, 2009), organizational infrastructure (Lee & Lan, 2009) and measurement (Omerzel, 2010). Hutchinson & Quintas (2008) illustrated SMEs do have systems and instruments relate to KM but they do not refer to as KM programs. Le (2017) revealed that unsystematic approaches in SMEs refer to the natural characteristics of SMEs. Studies highlighted a substantial lack of systematically managing knowledge within SMEs as well as resource limitations (Beek, 2017; Kianto et al., 2018; Salojärvi, 2005). Implementation of a KM system in SMEs needs chief executive officer (CEO) support and commitment (Wibowo, 2014), though a unique environment resulted from the business work fields in SMEs may consequence them to face unique challenges (Centobelli, Cerchione, and Esposito, 2017; Jones et al., 2013) and as a result, it gets hard to find a comprehensive pattern for all SMEs. Cerchione et al. (2015) considered the spread of KM in SMEs and issued that SMEs increasingly have access to new knowledge management systems.

It can bring the power of competitiveness for SMEs. Competitiveness is a multifaceted concept whose understanding comes from economics, management, history, politics and culture. It has been described as a complex, multidimensional and relative concept, the relevance of which changes with time and context (Bhawsar & Chattopadhyay, 2015). Knowledge, as a resource, has the greatest potential to serve as source of sustainable advantage generating economic rents that enhance firms' position on their competitors. Knowledge generates causal ambiguity between actions and results that affects SME's competitive strategies aimed at altering its position in the industry, defending existing market share or seeking new markets (Caiazza et al., 2015). The SME Competitiveness is intended as a tool to classify determinants of firm competitiveness according to how they affect competitiveness and according to the layer of the economy at which they intervene. The knowledge system is a signal and a symbol of competitiveness for SMEs (Bharati & Chaudhury, 2015). From the academic perspective, the power of knowledge management on SMEs' competitiveness has emerged recently in the field. Moreover, the correlation between KM and SMEs' competitiveness has not been studied before. Hence, to bridge the research gap mentioned above, future studies can be formed with the following questions;

- What is the effect of capacity of connect on SME competitiveness?

LITERATURE REVIEW

Creating a competitive advantage has always been one of the strategic goals in business and is considered a resource and an asset for companies. The more this asset is connected to the company's knowledge resources, the more successful and sustainable it will be for companies. The development and practice of KM are continuously and dramatically increasing in organizations. And due to improvements in KM, the race for seeking a competitive edge through knowledge increases at an even faster rate. Therefore, to achieve sustainable competitive advantage, knowledge management has a significant role. Knowledge management makes companies' core competencies stronger than before, especially with the distribution and production of knowledge to gain a competitive advantage that is not imitated by other competitors (Lee et al., 2018; Orge et al., 2018 & Rahimli, 2012). Research on KM and competitive advantage has emphasized describing how rather than systematically why KM can lead to such an advantage through case descriptions (Halawi et al., 2005 & Kamukama et al., 2011).

Mohamad & Zin (2019) researched the mediating effects of innovation on the relationship between knowledge management and firm competitiveness and wound up that Knowledge management had a direct and significant positive effect on firm competitiveness. Nonetheless, the effect of knowledge management on firm competitiveness was mediated by innovation. This indicates that knowledge management should be supported by technical and administrative innovations in the firm.

Hamdani (2018) investigated the building knowledge-creation for making a business competition atmosphere in SMEs of Batik and wrapped up that knowledge-creation influences on creating the business competition atmosphere with the support of the technology and entrepreneurship and orientation and due to the lack of media infrastructure to keep the knowledge, it is difficult to organize the collection of explicit Knowledge into a more systematic media.

Lafuente et al. (2020) probed a system dynamics approach for assessing SMEs' competitiveness and

concluded that the impact of competitiveness-enhancing strategies is conditional on the configuration of the system of competencies. Low-competitive businesses benefit more from investments in the weakest competitive pillar, while strategies oriented to improve more than one competitive pillar yield higher competitiveness improvements among high-competitive businesses. Furthermore, competitiveness positively impacts performance and the exploitation of competitive strengths leads to superior results among high-competitive businesses.

Dvouletý & Blažková (2020) considered the firm-level drivers of competitiveness of the Czech SMEs using the complex firm-level competitiveness index and explored the relationship between firm competitiveness and firm characteristics such as size, age, industry affiliation, and location. They mainly found a significant relationship between the firm size and competitiveness of the Czech SMEs and confirmed that the least competitive enterprises are those operating in the agricultural sector and that regional location plays an important role in the determination of firm competitiveness.

Yanah et al. (2018) surveyed what factors can improve the competitiveness of SMEs, how big those factors affect the improvement of competitiveness of SMEs, what strategies should be done by SMEs in the face of ASEAN economics for the business actors of SMEs in Indonesia, and what strategies can compete with foreign business actors in terms of products and trained human resources. The results of the research noted that funding variables, entrepreneurship training, business assistance, and partnership have an effect on competitiveness in facing ASEAN economics.

Taçoğlu et al. (2019) aimed to develop strategy and policy suggestions to increase the competitiveness of SMEs in the textile industry by analyzing the variables that affect competitiveness and contribute to competitiveness literature by adopting a holistic approach to the analysis of competitiveness variables. The results showed employee skills are a high influencer and one of the key variables for focus and improvements to product quality should be another priority. Also, a good pricing strategy is not influenced by product cost as much as product quality and Influencer variables have no considerable impact on the degree of customer orientation.

Mustafa et al. (2019) studied the impact of organizational changes on increasing SMEs' competitiveness and resulted that a well-managed change helps SMEs to be more successful in relation to the competition, the biggest challenge facing any successful manager is constantly directing the organizational system towards the highest phases in overall development. Also, results have shown that the change in organizational dimensions factors will increase the SMEs' competitiveness and will decrease the firm's operating costs; as well change in organizational characteristics factors increase the SMEs' competitiveness and decrease the firm's operating costs.

Efendi et al. (2020) researched the relationships between organizational learning, imitating capability, innovation, and competitiveness advantage in the SME and examined the mediation effect of innovation in the relationship between organizational learning and imitating capability to competitiveness advantage. They revealed that organizational learning and imitating capability were important determinants of organizational innovation and competitive advantage, moreover, SMEs can increase their competitiveness through learning and imitating strategies that are applied simultaneously.

Kiveu et al. (2019) studied the effect of innovation on firm competitiveness in manufacturing SMEs in Nairobi County, Kenya and their findings indicated 97% of the manufacturing SMEs were innovating with majority implementing incremental innovations. Process, marketing and organisational innovations had positive significant effect on competitiveness, while product innovation had positive non-significant effect.

Chang & Webster (2019) examined how SMEs in different industry segments utilized government, industry, and professional networks and tested the influence of SME innovativeness, environmental competitiveness, and network type on SME export likelihood. Their results indicated SME innovativeness contributes positively to export likelihood and a significant, positive relationship existed between government networks and export likelihood, and a positive though the weaker relationship between industry networks and export likelihood.

The existing literature does not capture the relation of the SME competitiveness and the knowledge management, hence, this research unfolds the mentioned relation through the International Trade Centre model. In this model, there are two core dimensions in the SME Competitiveness (ITC, 2016):

1- The components of competitiveness, identified as the three pillars: Compete, connect and change. Capacity to Compete centers on present operations of firms and their efficiency in terms of cost, time, quality and quantity. It refers to the static dimension of competitiveness. The way firms organize knowledge plays a key role in their capacity to compete with other firms, domestically and abroad (Cruz et al., 2018). Capacity to Connect centers on the gathering and exploitation of information and knowledge. While capacity to connect is not strictly a time-sensitive phenomenon, information gathering and exploitation are so central to current and future competitiveness that they act as an essential link between the two pillars of static competitiveness and dynamic competitiveness (International Trade Centre, 2017). Capacity to change centers on the capacity of a firm to execute change in response to, or in anticipation of market forces and to innovate through investments in human and financial capital. These three pillars reflect traditional static and dynamic notions of competitiveness. They emphasize the importance of connectivity for competitiveness in modern economies. The pillars are reflected in the vertical axis of the grid (Poufinas et al., 2018).

2- The layer of the economy at which this determinant intervenes: Firm capabilities that reflects the strength of the firm's management, the immediate business environment includes local or industry-related factors that are external to the firm and the national environment that encompasses all structural factors that exist at the national

level, such as policies on entrepreneurship and ease of doing business, trade related policies, governance, infrastructure and resource endowments (ITC, 2016).

Together, this arrangement produces nine cells, in which it is possible to place any indicator related to firm competitiveness. The picture 1 gives an in-depth description of the layers and pillars of competitiveness, to provide a better understanding of logic behind the grid.

Picture 1 – SME competitiveness grid



Adapted from ITC model

Among all variables, capacity to connect is directly connected to the knowledge management. It includes information about consumer trends, compliance requirements, demographics, trade size and flows, trade agreements, preferential status, barriers to trade and competition intensity. Hence, the main question is:

METHODS

The data has been collected from International Trade Center database includes of 69 countries in four regions (Asia, Africa, America and Europe). There are five main reasons for ITC’s focus on these regions: economies of scale in the implementation of parallel country programs within a region, strengthening regional trade integration and support institutions, promotion of intraregional trade, strengthening regional value chains, regional export strategies, and regional trade-policy initiatives. The variables that are used as measures of SME competitiveness are the pillars and layers of the SME Competitiveness Grid of ICT; the former includes of the capacity to compete, the capacity to connect and the capacity to change, and the latter includes of firm capabilities, business environment and national environment.

The research employs the quantitative method and uses correlation analyze. The term correlation is used in the context of a linear relationship between 2 continuous variables and expressed as Pearson product-moment correlation. The Pearson correlation coefficient is typically used for jointly normally distributed data (data that follow a bivariate normal distribution) (Schober et al., 2018). In this research, the correlation of the capacity of connect as a knowledge management variable and the variables of the layer of SMEs' competitiveness is calculated.

RESULTS

Before calculating a correlation coefficient, the distribution of the variables should be identified. Table 1 reveals the type of distributions:

Table 1 - One-Sample Kolmogorov-Smirnov Test

	Firm Capabilities	Firm Capabilities-Connect	Business Ecosystem	Business Ecosystem-Connect	National Environment	National Environment-Connect
N	69	69	69	69	69	69
Kolmogorov-Smirnov Z	0.401	0.475	0.737	0.46	0.732	0.64

The Z test statistic is the product of the square root of the sample size and the largest absolute difference between the empirical and theoretical the cumulative distribution functions. The significant result shows that all the variables are normally distributed and Pearson's correlation can be used that measures the linear association between two scale variables.

Table 2 demonstrates the result of correlation test for Firm capabilities and Capability of connect:

Table 2 - Correlations between Firm capabilities and capacity to connect

		Firm Capabilities-Connect			
		Asia	Africa	America	Europe
Firm Capabilities	Pearson Correlation	.890**	.850**	.867**	.906**
	Sig. (2-tailed)	0	0	0.001	0
	N	14	19	11	25

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation reported in table 2 is positive, significantly different from 0, and the p-value of 0.000 is less than 0.05. This suggests that the Capability to connect has an appreciable effect on Firm Capabilities in all regions. However, it is not the same for all and the highest number is 90.6% for Europe and the least number is 85% for Africa.

Table 3 demonstrates the result of correlation test for Business Ecosystem and Capability of connect:

Table 3 – Correlations between Business Ecosystem and capacity to connect

		Business Ecosystem-Connect			
		Asia	Africa	America	Europe
Business Ecosystem	Pearson Correlation	.864**	.722**	0.559	.672**
	Sig. (2-tailed)	0	0	0.074	0
	N	14	19	11	25

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation reported in table 3 is positive except for America, significantly different from 0, and the p-value of 0.000 is less than 0.05. This suggests that the Capability to connect has an appreciable effect on Business Ecosystem. Among these regions, the highest number is 86.4% for Asia and the least number is

67.2% for Europe. The correlation reported in America is positive but not significantly different from 0 because the p- value of 0.074 is greater than 0.05. Hence, there is no significant correlation between Business ecosystem and capacity to connect in America region.

Table 4 demonstrates the result of correlation test for National Environment and Capability of connect:

Table 4 - Correlations between National Environment and capacity to connect
Nationa Environment-Connect

		Asia	Africa	America	Europe
National Environment	Pearson Correlation	.919**	.919**	.937**	.899**
	Sig. (2-tailed)	0	0	0	0
	N	14	19	11	25
**. Correlation is significant at the 0.01 level (2-tailed).					

The correlation reported in table 4 is positive, significantly different from 0, and the p-value of 0.000 is less than 0.05. This suggests that the Capability to connect has an appreciable effect on National Environment in all regions. However, it is not the same for all and the highest number is 93.7% for America and the least number is 89.9% for Europe.

DISCUSSION

In this paper, the impact of knowledge management on the competitiveness of SMEs was examined. In this research, the International Trade Center model was used, which was a competitive network of SMEs. This network examines competitiveness in two dimensions of pillars and layers. The pillars included Compete Capacity, Connect Capacity, and Change Capacity, and the layers included Firm Capacity, Business Environment, and National Environment. This study examined the model by dividing the continents into four groups and emphasizing the knowledge management dimension. Knowledge management data were obtained from the connection capacity of SMEs. The results showed that there is a high positive correlation (average 0.878) between knowledge management and Firm Capabilities in all four continents studied. Moreover, another high positive correlation (average 0.918) is seen between knowledge management and National Environment in all four continents studied.

However, in the relation between knowledge management and Business Ecosystem dimension, while the correlation average is positive (0.704), in the Americas there is no significant correlation between knowledge management and Business Ecosystem. In this continent, the correlation is positive and 0.559, but, the p-value of 0.074 and greater than 0.05. This result may be related to the main limitation of the research. The study utilized only data from countries whose statistics were released by the International Trade Center, and while the Americas has 35 countries, this result was obtained using data from 11 countries. Furthermore, the US country data was not in the database, and the results of 11 countries were extended to the entire American continent.

This research shows that well-known approaches such as the capabilities of firms and National Environment continue to be considered, while future approaches such as the Business Ecosystem, a UN Sustainable

Development Plan for 2030, require to be paid more attention, especially on a continent like America. For futurere search, it is recommended that data from as many countries as possible be used to obtain more accurate results. It is also possible to use other indicators to manage knowledge, although it may be a little difficult to use a few of these indicators. In this research, knowledge distribution has been used as an indicator of knowledge management and other indicators of knowledge management can be used in the future. Finally, more practical targeting of countries in the field of sustainability and development of artificial intelligence may provide better results.

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