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Comparison of Supply Chain Management (SCM) adoption at Small and Medium-Sized Enterprises (SMEs): A review from Hungary and Indonesia

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Abstract. Large enterprises recognized first the importance of Supply Chain Management (SCM) strategy to achieve competitive advantage and process efficiency. Small and Medium-Sized Enterprises (SMEs) have specific challenges in adaptation. The authors conjectured that geographical and supply chain differences have a major effect on the adaptation level of SCM strategy and methods, especially for SMEs. To investigate it, this paper compares two countries, Hungary, and Indonesia. The research focus is on SMEs, based on a cross-sectional survey of 274 Hungarian and 110 Indonesian enterprises with informants mainly related to top management. The data indicated that in Indonesia, with a larger, more complex geographical structure and more advanced SCM capabilities, the SMEs have a higher implementation level of SCM strategy in their organization strategy compared to Hungary. However, the sample indicates that the tendencies are similar in both countries interpreting the inter-enterprise value chain and in utilizing SCM methods for cooperation with other parties, mostly using Vendor Managed Inventory (VMI) and Just in Time (JIT).

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1. INTRODUCTION

Small and Medium-Sized Enterprises (SMEs) are the backbone of the economy in most countries. For example, in the EU-28 Member States, the SMEs made a significant contribution with €4,357 billion of added value and employing 97.7 million people (European Commission, 2019). SMEs have simple systems and procedures, but they run the business more flexibly by fast decision making, quick response to their customer, fast feedback, in comparison to larger enterprises (LEs) (Singh et al., 2008). SMEs are also a major source of entrepreneurial skills, innovation, and employment. However, they face difficulty in the early start-up phase obtaining capital or credit which leads to the restriction of access to technologies and innovations (Szira, 2014).

Supply Chain Management (SCM) is a set of methods that are utilized to efficiently integrate suppliers, manufacturers, warehouses, and stores to share the product or service to be produced and distributed at the right time, quantity, and location to minimize cost and satisfy its service level requirement (Simchi-Levi et al., 1999). On the other hand, the supply chain is dynamic, it involves a constant flow of information, product, and funds among different stages for customers (Chopra and Meindl, 2016). SMEs have a significant impact on SCM playing the role of suppliers, distributors, producers, and customers (Singh et al., 2008). SCM is very beneficial for SMEs to improve their competitive advantage through real-time collaboration with partners (Bátori, 2010), such as customer service improvement, improved forecast, reduced logistic cost, improved planning, and scheduling, etc. (Koech and Ronoh, 2016). However, since SMEs are relatively small in size and scale, they often have disadvantages due to a lack of supply chain workforce or a sophisticated IT infrastructure to support the SCM system (Wu et al., 2006).

Considering the literature of SCM as well as the entrepreneurship area, authors found two major gaps. First, only a few studies have addressed different SCM systems utilizing cross-country comparison perspectives from different continents. Second, few studies explored the SCM implementation for the countries in which the SME is dominated by micro-enterprises.

Kherbach and Mocan (2016) published the latest research considering logistics and SCM in the enhancement of micro-enterprises among Romanian SMEs. The study stated that the logistics function is not yet properly developed in Romania, despite some progress lately. The main reasons are the poor transportation infrastructure, public policies, and the economic crisis. There is plenty of evidence that large companies require and support SCM software installation and application for connecting with their partner SMEs including micro-enterprises, so they can get access to sophisticated SCM tools. On the other hand, through Internet collaboration, all participants can gain a breakthrough advantage. According to Baymout (2015), smaller companies seem to use the Internet more, both in general terms (98% versus 84%) but also in most of the individual SCM application areas based on a survey in Sweden.

This study addresses those realities but extends the literature in two areas – 1) in utilizing distinct samples from two different countries (Hungary and Indonesia) with different SCM system capabilities and 2) in looking deeper into the implementation of SCM methods.

Hungary's SME sector is dominated by micro-enterprises. Hungarian SMEs employ one employee fewer on average than their EU peers (3.3 compared to the EU average of 4.3) (Szira, 2014). Similarly, in Indonesia where 98% of SMEs are micro-enterprises (BPS, 2018). These two countries have different geographical structures and SCM capabilities. In Indonesia, which is an archipelago country, SCM has critical and vital importance. The country is not a homogenous land such as China, India as well as Hungary. Indonesia has a fragmented, multimodal transportation system. Plane, ship, train, and truck are all used as alternatives for product delivery. However, Hungary as a part of a homogenous land area can use land transportation so it has a simple SCM system compared to Indonesia. Traffic volume is also much higher for Indonesia's SCM, therefore many companies started to outsource their SCM to a third party, driven by

their lower costs as well as their ability to reach remote areas throughout the archipelago (Oxford Business Group, 2012). Understanding such facts may lead to valuable insight on how the adoption of SCM strategy and methods is influenced by different geographical structures and SCM capabilities.

After a brief literature review, the authors discuss the research design, the motivation, and the validity of the survey questionnaire. Next, the results of the survey are presented using descriptive and statistical analysis to compare the two countries. The authors check if the sample supports the conjecture that geographical and supply chain differences have a major effect on the adaptation level of SCM strategy and methods, especially for SMEs. Limitations and suggested future research conclude the paper.

2. LITERATURE REVIEW

2.1. SCM in SMEs

As mentioned in the previous section, SMEs comprise more than 90% of enterprises in most emerging countries (World Bank, 2021). SMEs act as first and second-tier suppliers for LEs. SMEs contribute to generating employment and economic growth. Besides, SMEs are also part of the largest group of manufacturing firms that can provide specialty manufacturing and support services to LEs (Thakkar et al., 2011). The meaning of SCM for SMEs is relatively different from SCM's meaning for LEs.In this case, SCM can be a set of business activities including purchasing from the open market, manufacturing, or processing of subcomponents within the plant, and delivery to Les using hired transportation to enhance the value of end product and in turn to ensure long-term partnership (Thakkar, et al., 2008).

The definition of SCM in SMEs is an approach that helps the organization to function in a more agile and cost-effective manner by integrating the process of various partners in three levels – strategic, tactical, and operational. Globalization forces every company to serve products at lower prices, SCM can improve the performance of SMEs and increase their profitability by enhancing their ability to obtain supplies of the right quality and at the right time. But still, even though SMEs understand the benefit of SCM, most SMEs are not utilizing it well. The level of SCM implementation in SMEs is divided into two big areas such as supply chain integration and strategic planning (Baymout, 2015).

Supply chain integration, in general terms, involves information sharing, planning, coordinating, and controlling materials, parts, and finished goods at the strategic, tactical, and operational levels. The benefit of SCM integration can improve customer service and have better costs in terms of inventory management (Lam, 2013). The way of integration for SMEs in SCM could be improving by the partnership, alliances, cooperation, collaboration, trust, information sharing. Even though small enterprises do not have sophisticated information systems and technology, however, sharing can support its collaboration (Lotfi et al., 2013).

The more expansion the business of SMEs leads to the more complexity of its business in terms of size and scope. SMEs will possibly carry higher expenditure and carry more risk. Therefore, it needs to have simple financial plans and budgets for forecast-based planning where SMEs can begin to plan their future rather than responding to changes within the marketplace. This strategic planning is a crucial point for SMEs to survive and grow. It can be tackled by good collaboration with partners in better information sharing (O'Gorman, 2001). The four strategic planning methods that SMEs can use are as follows (1) network optimization by designing the least cost network focusing on customer demand, (2) network simulation by testing alternative models to predict supply chain behavior, (3) policy optimization by developing the best operating rules, and (4) robustness designing by anticipating unforeseen circumstances and possibilities (Baymout, 2015).

Several studies examine the different implementation of SCM between SMEs and LEs (Hong and Jeong, 2006; Thakkar et al., 2008). It differs in between the priorities, external and internal control structure, and the goal of SCM processes (Hong and Jeong, 2006). Even though SMEs have less than 250 employees as well as less than 43 million Euro in terms of the balance sheet (European Commission, 2021), they can connect with SCM strategy to collaborate with LEs in several activities such as procurement, manufacturing, replenishment, and customer order (Thakkar et al., 2009).

2.2. Research Gap for SCM in SMEs

To achieve supply chain excellence there are two stages, the development of information technology and the change in the social system. Both provide better conditions for implementation (Kuei et al. 2002). To adapt to globalization, organizations initiate radical changes in their organizational strategies (Androniceanu and Drăgulănescu, 2012). It has a direct positive effect on the company performance (Bouwman et al., 2018) including the implementation of the SCM strategy.

A few studies focused on how far SMEs implement their SCM strategy and methods in their daily activities. LEs are well established and applied SCM due to their innovative approach and competitive advantage. Chin et al. (2012) explored that SMEs have a lack of SCM knowledge as well as underestimate the benefit to apply it in their strategy. The SCM implementation of SMEs focused on cost-effectiveness is critical for their survival and growth. The SMEs' benefits of the SCM strategy include the reduction of inventory level and lead time in the production process, accuracy on forecasting calculation, and resource planning (Koh et al., 2007). Although SMEs understand the benefits of SCM, sometimes they need to concentrate mostly on many other problems such as a gap in finances, skills, knowledge, and technology (Chin et al., 2012).

Vaaland and Heide (2007) explored SMEs' readiness to face SCM challenges using modern planning and control methods. However, the SMEs lack the focus on the adoption of technology-based planning and control methods compared to LEs that have a larger organizational structure enabling them to separate SCM functions. Sharifi et al. (2013) revealed that SMEs typically do not consider their SCM strategy before product introduction, so they face supply chain problems that prevent the company's potential growth.

A case study that used Romanian SMEs about applying SCM strategy has revealed that the logistics part is still not properly developed although the location as well as the logistics market already improved since joining the European Union. Slowly they started to improve their logistics by gaining experience. Since SMEs dominate the Romanian economy, the development of the Romanian economy is based on the development of Romanian SMEs (Kherbach and Mocan, 2016). Authors consider two countries dominated by SMEs but having different geographical structures and SCM capabilities.

In current competitive markets, selling products and services to customers enquires relationships through many channels and marketing activities. In consequence, the manufacturer-dominated supply chain gradually decreases and turns into retailer dominated supply chain (Pan et al., 2020). Research from Gölgeci et al. (2018) presented three types of behavior of each company in the supply chain affecting the satisfaction of the collaboration. Dominance, egalitarian, and submissive are those three types of behaviors that can lead to the dynamic of power within SCM. On the other hand, Yvon, et al. (2019) explored the global existence of dominant behavior and the type of dominant supply chain practice to smaller supply chain affiliates. Both papers did not focus on the dominancy behavior of SMEs that is included in the study.

The studies mentioned above gave the idea for a new research direction. This study has a goal to see whether SMEs overlook the application of SCM strategy at their company because SMEs need to focus on several urgent things, apart from SCM focus. Previous research has also failed to explain how SCM implementation differs depending on the country's geographical and supply chain differences. This study

also looks at the interaction between SMEs and their partners in terms of SCM implementation, dominance, and collaboration variables.

3. QUANTITATIVE RESEARCH DESIGN

The qualitative data method is trying to find tendencies based on personal observation of situations, events, interactions as well as document analysis using open-ended interviews with the result of in-depth and oral testimonies (Dana and Dana, 2005). However, the finding cannot be extended to a wider population with the same degree of certainty which is a major limitation of the qualitative data method (Atieno, 2009). That is the main reason why the quantitative data method has frequently been used (Hussain et al., 2019). Quantitative sampling methods are more structured than qualitative data collection methods. In this research, the authors used descriptive statistics as well as statistical analysis specifically utilize t-test analysis to describe tendencies based on the quantitative sample. Since the data covers two subsets of samples (Hungarian and Indonesian enterprises), it also helps to detect sample characteristics that may support conclusions (Thompson, 2009). The focus of its research is on SMEs, but a sample from LEs was also used as a control variable.

3.1. Design of data collection

To examine the research questions stated previously, a cross-sectional survey of Hungary and Indonesia-based companies was used. Self-administered internet-mediated questionnaires were conducted and completed by the respondents. The survey questionnaire has 3-sets of questions that contain general information about the company (three questions), strategy consciousness (two questions), and SCM cooperation with partners and applied SCM cooperation methods (four questions). The motivations, validity, and literature support behind the questions are discussed next.

3.1.1. General information

The general information questions are about location, the number of employees, and approximately their net income for one year. The enterprises surveyed were classified as micro-enterprises with up to 10 employees, small enterprises with 10 to 49 employees, medium-sized enterprises with 50 to 249 employees, and LEs with more than 250 employees (Eurostat: Structural Business Statistics, 2020).

3.1.2. Strategy consciousness

The questionnaire asked respondents about the changes that the company made related to its organizational strategy. There are various routes to internationalization, one of which can be done by small firms is by changing the organizational strategy (Nummela et al., 2006). Operational efficiency and business improvement are the efforts carried out by SMEs. Those efforts can be done by implementing SCM as part of the company's strategy to achieve a competitive advantage (Wu et al., 2006). Therefore, in this section top management was asked about "When was the last time the company's strategy has changed substantially?" and "Does your strategy already include logistics and/or SCM?".

3.1.3. SCM Cooperation with partners

The internally driven value chain deals with external resources flowing into enterprises, on the other hand, an externally driven supply chain deals with the resources flowing in and out between internal and external enterprises (Li and Zhang, 2012). Respondents were asked, "How do you interpret the phrase

'supply chain' at your company?" The answer could be either a corporate (internal) value chain or an inter-enterprise (extended) value chain. The difference between the value chain and the supply chain is the main driver.

A major concern for SMEs is that they are victimized in comparison to LEs. Their dominancy is relatively less due to high vulnerability to resented practices and economic, political, legal, as well as environmental pressures (Yvon et al., 2019).

The follow-up question to the top management is "What kind of supplier/customer collaboration methods does your company maintain currently?" The six methods that being considered are the Vendor Managed Inventory (VMI), Just in Time (JIT), risk sharing, financial sharing, Electronic Data Interchange (EDI), and market information sharing. With these questions, authors are trying to understand how SMEs implement SCM in their daily activities. Another question was about the dominancy that the enterprise has with its partners, "How could you rate the power (dominance) relations between your company and your customers? Please give your answer as a proportion (a share) of 100%".

Better integration with preferred partners indicates the interest of enterprises to show their partners that they are reliable logistics service providers for long-term cooperation (Koskinen, 2009). "Do you consider that the following factors for closer cooperation with your suppliers and customers are important in your company?" The seven options were 'a long-term view', 'commitment to partnership', 'resolutions of conflict with the partner', 'effective decision-making, flexible, skilled labor force', 'inter-enterprise information flow, open communication', 'process-oriented approach', and 'common based IT and smart application'. Top management was asked to indicate their preferences on a five-point Likert scale (1 = I do not consider it as important at all, 5 = I consider it is a very important factor).

3.2. Translation and adaptation

The original questionnaire was designed in English. The translation followed the forward-backward translation procedure, with independent translations (Marinozzi et al., 2009). Independent Hungarian translations were carried by three bilingual translators (native Hungarian speakers that have a background in a university profession) and Indonesian translation was carried by eleven bilingual translators (native Indonesian speakers of which one was an English instructor and ten Industrial engineers).

The goal of backward translation was to find the nearly identical result to the source of the document. The final Hungarian and Indonesian versions were then pre-tested on different samples. One misleading question from this tested questionnaire required a wording revision.

3.3. Sample and data collection

To understand the current condition of SCM strategy adoption, it required input from top management and strategic decision-makers. The authors collected the data from Hungary and Indonesia in 2018 and 2019. The pre-testing of the questionnaire has been done after the questionnaire translation process to ensure the validity of the questionnaire. Next, researchers mailed a survey to several SME communities in both countries. The enterprises were selected randomly in both countries. A cover letter explained the purpose of the survey, also showed the contact information and the instruction on how to complete the questionnaire summarized at the beginning of the questionnaire. The researcher also got the explanation that the results are strictly confidential and only the aggregated findings are reported. The questionnaires were sent to 304 Hungarian enterprises and 150 Indonesian enterprises. It resulted a 90% return of valid questionnaires from Hungarian enterprises including 253 SMEs and 21 LEs. In Indonesia, it resulted in a 73% return of valid questionnaires with 94 SMEs and 16 LEs. LEs were used for control in this research.

3.4. Statistical analysis

Statistical analytics can be a complex process, generally, descriptive methods are used to describe differences or inferential methods are used to determine the likelihood of a real difference being present in the population (Thompson, 2009). This research used both methodologies.

First, descriptive statistics will be used to highlight the characteristics in the adoption of SCM strategy and SCM method usability in Tables 3 to 6. The comparison highlights the differences between the two countries having different geographical structures and SCM capabilities. Furthermore, to measure the internal consistency, it used the Cronbach's alpha test to see if the survey questions with the Likert scale are reliable. The result of the calculations is in Tables 10 and 11. The general rule of thumb is that a Cronbach's alpha of 0.7 and above is good (Bonet and Wright, 2014), however, there is research that vaguely referred to "the acceptable values of 0.7 or 0.6" (Griethuijsen et al., 2014).

Inferential statistics is applied in the subsequent analysis to compare the two countries related to the presumed dominance in SCM cooperation as well as the importance of different SCM methods in cooperation with their partners. These results are summarized in Tables 7 to 11. The authors selected the t-statistic test with the formula:

T-test Statistic

$$t=(m - \mu)/(s- \sqrt{n}) \quad (1)$$

Description:

t = t-test statistics

m = mean

μ = theoretical value

s = standard deviation

n = variable set size

This formula is widely used to determine the likelihood of a real difference being present in the population when the sample faces normality and independence conditions(Kim, 2015). Since the standard deviation of the variables is unknown, the sample standard deviation (SD) is used (Achi, 2019).

4. DATA ANALYSIS

In this section, authors summarize the results of the survey and analyze them organized according to the questions of the survey (shown in italics in the next sections).

4.1. General information about the SME´

Type of Enterprise in Hungary and Indonesia

The SMEs sample in this research consists of 253 Hungarian SMEs and 94 Indonesian SMEs. Besides, it used the data of Hungary's 21 LEs and Indonesia's 16 LEs as a control variable. In the sample, SMEs are dominated by micro and small enterprises in both countries (Table 1).

Table 1

Research Sample

Company Type	Micro Enterprises (0-9 Employees)	Small Enterprises (10-49 Employees)	Medium Enterprises (50-249 Employees)	Total
HU SMEs	79 (31%)	110 (43%)	64 (25%)	253
ID SMEs	65 (69%)	22 (23%)	7 (8%)	94

Source: Authors' results

Net Income of the Enterprises in 2018

More than half of enterprises in each country still had less than a 2-million-Euro net income in 2018 (Table 2). The reason why Indonesia's enterprises are more skewed towards less than 2-million-Euro net income is because of lower sales volume or cheaper product prices.

Table 2

SMEs Net Income in 2018

Company Net Income 2018	Less than 2 Million Euro	2-10 Million Euro	10-50 Million Euro	More than 50 Million Euro	Total
HU SMEs	161 (64%)	54 (21%)	32 (13%)	6 (2%)	253
ID SMEs	92 (98%)	1 (1%)	1 (1%)	0 (0%)	94

Source: Authors' results

4.2. Strategy consciousness analysis

Latest Period of Strategy Changes

Most of Indonesia's SMEs stated that they changed strategy substantially in the past year, however for Hungarian SMEs it was mostly in the past two or three years (Table 3). The answer is confirming the expectation since the change of the company's strategy is one of the ways to keep up with the global change (Nummela et al., 2006) which showed its effects earlier in Hungary.

Table 3

SMEs' Substantial Strategy Change

Organization Strategy Changes	1 Year Ago	2 Years Ago	3 or More Years Ago	Maintaining a rolling strategic plan	Total
HU SMEs	41 (16%)	52 (21%)	94 (37%)	66 (26%)	253
ID SMEs	49 (52%)	18 (19%)	5 (5%)	22 (23%)	94

Source: Authors' results

On the other hand, the majority of LEs in Indonesia stated that they changed their company's strategy in the past year (Table 4). This result matched with the statement from a previous study that LEs are more adept to innovation (Szira, 2014) and internationalization (Nummela et al., 2006). However, this seems to be different for LEs in Hungary where rolling strategic planning is common.

Table 4

LEs Substantial Strategy Change

Organization Strategy Changes	1 Year Ago	2 Years Ago	3 or More Years Ago	Maintaining a rolling strategic plan	Total
HU LEs	5 (24%)	2 (10%)	3 (14%)	11 (52%)	21
ID LEs	9 (56%)	3 (19%)	2 (13%)	2 (13%)	16

Source: Authors' results

Inclusion of SCM in the Organization Strategy

The survey asks whether the organization where they are working now implemented the SCM strategy or not? More Indonesia's SMEs have implemented SCM strategy (65%) in comparison to Hungary's SMEs (45%) (Figure 1). The data is gathered in this research supports the hypothesis that the country's landscape and SCM functionality may influence the SCM strategy implementation. Furthermore, it reflects clearly that LEs in both countries implement more the SCM strategy in comparison to SMEs in their organization's

strategy. This observation is also supporting the previous statement that LEs are well-established and applied to SCM due to their innovative approach and competitive advantage.

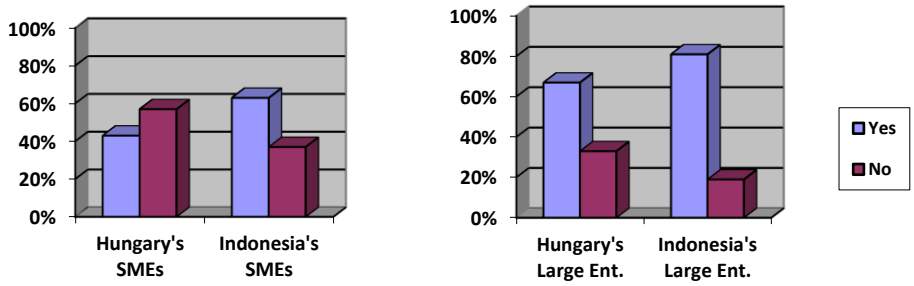

Figure 1 Implementation of SCM in the Organization's Strategy

Source: Authors' results

4.3. Supply chain cooperation with partners analysis

A strategy involves employees and strategic partners to improve continuously for the operation (Luthra and Mangla, 2018) therefore cooperation is a key issue of competitiveness.

SCM is a Corporate Value Chain or Inter-Enterprise Value Chain

The question is trying to figure out their definition related to SCM. Based on this question, in both countries, the respondents selected the inter-enterprise value chain option with more than 50% of the answers (Figure 2). It happened across all enterprises, not only SMEs but also LEs. The respondents' answers quite well match with the previous study from Sukati et al. (2012) that explained SCM as a strategy that connects the enterprise's suppliers and its customers.

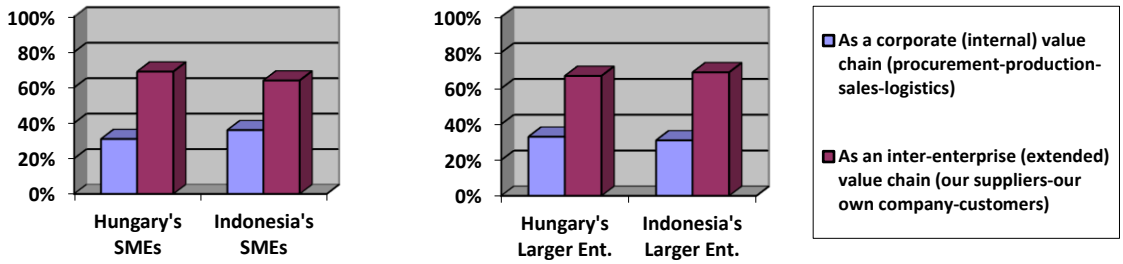

Figure 2 Supply Chain Interpretation

Source: Authors' results

SCM Methods Implementation in Collaboration with Partners

Table 5 shows that Hungary's SMEs are using more the VMI when they collaborate with the supplier site and JIT when they collaborate with the customer site. Both methods are the most used in collaboration with suppliers and customers. The least utilized method is the incorporation of both parties in sharing financial operations.

Table 5

Hungary's SMEs towards SCM Collaboration Methods

Hungary's SMEs	SCM Collaboration Methods					
	VMI	**JIT**	**Risk Sharing**	**Sharing Financial Operation**	**EDI**	**Real-Time Sales Data**
Customer Site	21%	36%	23%	31%	21%	29%
Supplier Site	37%	25%	28%	22%	26%	22%
Both Sites (Customer & Supplier)	8%	11%	15%	9%	17%	16%
None of the Sites	35%	28%	34%	39%	37%	32%

Source: Authors' results

Some of the results from Indonesia's SMEs are very different from the Hungarian sample as it is shown in Table 6. The less utilized method is the real-time sales data, and the most common utilization method is JIT. JIT is a system based on the highest supply turnover rate that can be maintained without suffering a breakdown in service attempting to create an advantage in cost and value fronts (Germain and Dröge, 1997). Similarly, the answers reflected that VMI is mostly used in cooperation with suppliers and JIT with customers. VMI is a well-known practice where vendor manages their inventory in retailers' location and decide the time of replenishment as well as total quantity by accessing retailer's inventory and demand data (Poorbagheri and Niaki, 2014). Apart from that, sharing financial operations and EDI have been highly unutilized in Indonesia's SMEs (Table 6).

Table 6

Indonesia's SMEs towards SCM Collaboration Methods

Indonesia's SMEs	SCM Collaboration Methods					
	VMI	**JIT**	**Risk Sharing**	**Sharing Financial Operation**	**EDI**	**Real-Time Sales Data**
Customer Site	18%	40%	14%	6%	13%	9%
Supplier Site	37%	18%	37%	32%	23%	14%
Both Sites (Customer & Supplier)	6%	24%	11%	2%	9%	9%
None of the Sites	38%	17%	38%	60%	55%	69%

Source: Authors' results

Dominance Relationship between the Company and theirPartners

Authors considered three dominance relationship alternatives the companies may experience with their customers: the dominance of their own company, equal dominance, and partners dominance. It was asked the proportions among the three alternatives perceived by their own company (in %). In Table 7, it can be seen the comparison of SMEs within the two countries and in Tables 8 and 9, the differences between SMEs and LEs are analyzed.

Partners' dominance is the highest by the perception of the Hungarian SMEs followed by equal dominance. The Indonesian SMEs have a completely reverse dominance perception, from the highest of own dominance to the lowest of partner dominance (see Table 7). Table 7 also includes the results of the t-statistic test to reveal statistical differences. It contains, df, the statistical degree of freedom in the sample, and the corresponding t Critical two-tail value.

There is no statistical evidence that the average of the two samples is significantly different if the absolute value of the calculated sample t-statistic test is less than the Critical two-tail. The significance level is the P(T<=t) two-tail value that is compared on the commonly used alpha = 0.05 significance level. On

the other hand, the larger the absolute value of the t-statistic and the smaller the P(T<=t) two-tail value, the higher is the likelihood of a real difference being present in the population.

Table 7

Comparing Dominance Relation between Partners for SMEs in Hungary and Indonesia

Dominancy Comparison For SMEs	Company's Dominance the Most		Equal Dominance		Partners' Dominance the Most	
	HU	ID	HU	ID	HU	ID
Mean	26.38	39.38	32.71	35.28	40.91	25.34
Variance	584.32	450.21	619.84	422.95	842.49	273.76
Observations	253	94	253	94	253	94
df	188		200		288	
t-Statistic	-4.87		-0.97		6.23	
P(T<=t) two-tail	2.27E-06		0.3308405		1.643E-09	
t Critical two-tail	1.9726626		1.9718962		1.9682352	

Source: Authors' results

Table 7 shows that SMEs in the two countries have a significant difference in the company's dominancy as well as in customer's dominancy, supported by the t-statistic test (the P-values on >0.05 confidence level). However, no significant difference was seen for the equal dominancy. The reason might be that the two countries have very different SCM strategy that is related to their geographical location and the SCM structure impacted their SMEs' dominancy character. It can be seen from the table that the company's dominancy and equal dominancy have a negative result of t-Statistic. A negative t-value denotes a reversal of the effect's directionality, but it has no consequence on the significance of the difference between groups (Gillespie, 2018).

The study of Yvon, et al. (2019) is claiming that SMEs' dominancy is relatively less due to the high vulnerability to resented practices and economic, political, legal, as well as environmental pressures. Using the t-statistics test, authors check if there is a significant difference in dominancy relations between SMEs and LEs based on the sample from the two countries. Tables 8 and 9 include the results of the t-statistic tests to reveal the statistical differences.

Table 8

Dominance Relation between Partners for Hungarian Enterprises

Dominancy in Hungary	Company's Dominance the Most		Equal Dominance		Partners' Dominance the Most	
	SMEs	LEs	SMEs	LEs	SMEs	LEs
Mean	26.38	22.10	32.71	27.52	40.91	50.38
Variance	584.32	485.19	619.84	202.76	842.49	770.55
Observations	253	21	253	21	253	21
df	24		31		24	
t-Statistic	0.85		1.48		-1.49	
P(T<=t) two-tail	0.4033875		0.1463601		0.1473765	
t Critical two-tail	2.0638986		2.0395134		2.0638986	

Source: Authors' results

Table 9

Dominance Relation between Partners for Indonesian Enterprises

Dominancy in Indonesia	**Company's Dominance the Most**		**Equal Dominance**		**Partners' Dominance the Most**	
	SMEs	**LEs**	**SMEs**	**LEs**	**SMEs**	**LEs**
Mean	39.38	43.39	35.28	33.86	25.34	22.76
Variance	450.21	468.91	422.95	252.97	273.76	130.25
Observations	94	16	94	16	94	16
df	20		24		27	
t-Statistic	-0.68		0.31		0.77	
P(T<=t) two-tail	0.5005357		0.7552311		0.4435855	
t Critical two-tail	2.0859634		2.0638986		2.0518305	

Source: Authors' results

The only result that supports the authors expectation is coming from Indonesia's enterprises that their own dominance is the most frequent relationship in SCM cooperation. The sample also showed that LEs were at a higher rate dominant in the relationship compared to SMEs. The comparison for other dominance behaviors is statistically not significantly different according to the t-statistics test (the P-values on >0.05 confidence level). The sample from Hungary did not show any statistical difference between SMEs and LEsin-dominance relationships. This result may be because Hungary's enterprises differently interpret the dominance relationship. Apart from dominance type behavior, they consider other types of relationships in dominance behavior, such as egalitarian or submissive type of behavior (Gölgeci et al., 2018) which possibly are frequent at Hungarian enterprises. Also, customer dominance is the most common for both SMEs and LEs in Hungary, differently from Indonesian companies where it is the least frequent dominance relation.

The Cooperation Factors between SCM Partners (Here it is applied a five-point Likert scale: 1 = I consider it as not important at all, 5 = I consider it as a very important factor).

To survive in the competitive global economy, enterprises are required to create, share, disseminate appropriate up-to-date knowledge and information for supply chain integration (Lotfi et al., 2013). Several factors that support cooperation between SCM partners can improve competitive advantage. It was asked the SME managers which cooperation factors do they apply out of the following seven: 1. Created a long-term contract to improve efficiency (A long-term view); 2. Commitment to partnerships; 3. Resolution of conflicts with the partner; 4. Effective decision-making, flexible, skilled labor force; 5. Building trust and avoid the fear of sharing information (Inter-enterprise information flow, open communication); 6. Process-oriented approach; 7. Coordinate to have a similar IT-based system for the SCM cooperation (Common IT-based and "smart" applications).

To validate the reliability of the questions, authors used the internal consistency test and calculated the Cronbach's alpha values (see Tables 10 and 11). The Cronbach's alpha is higher than the 0.70 threshold value for both countries. The reliability of Indonesian data is better ($\alpha = 0.965$) than Hungarian data ($\alpha = 0.7$).

To test the significance of the difference between Hungary and Indonesia in the cooperation factors, authors used the t-statistic test. The result also shows a tendency that the SMEs from Hungary consider those cooperation factors more important and apply more frequently compared to Indonesia's SMEs. The question is whether the differences are significant or not based on the sample data? The result of the t-statistics test (the t-Statistic values and P-values > 0.05) suggests that most of the factors are significantly

different in the two countries (Tables 10 and 11). The exception is the factor 'Common IT-based and "smart" applications.

Table 10

Cooperation Factors between SCM Partners for SMEs (1)

Cooperation Factors with SCM Partners	A long-term view		Commitment to partnerships		Resolution of conflicts with the partner		Effective decision-making, flexible, skilled labor force	
	HU	ID	HU	ID	HU	ID	HU	ID
Mean	4.63	3.49	4.48	3.69	4.66	3.39	4.17	3.64
Variance	0.37	1.63	0.46	1.83	0.31	1.75	0.69	1.85
Observations	253	94	253	94	253	94	253	94
df	109		111		106		120	
t-Statistic	8.34		5.39		9.02		3.53	
P(T<=t) two-tail	2.50749E-13		3.96637E-07		8.72012E-15		0.0005913	
t Critical two-tail	1.9819675		1.9815667		1.9825972		1.9799304	

Source: Authors' results

Table 11

Cooperation Factors between SCM Partners for SMEs (2)

Cooperation Factors with SCM Partners	Inter-enterprise information flow, open communication		Process-oriented approach		Common IT-based and "smart" applications	
	HU	ID	HU	ID	HU	ID
Mean	3.92	3.44	4.02	3.29	3.35	3.23
Variance	0.92	1.60	0.79	1.24	1.24	1.36
Observations	253	94	253	94	253	94
df	135		140		160	
t-Statistic	3.39		5.70		0.84	
P(T<=t) two-tail	0.0008931		6.71192E-08		0.3995800	
t Critical two-tail	1.9776922		1.9770537		1.9749015	

Source: Authors' results

5. CONCLUSIONS

Since there is limited research on the impact of the country specifics on SCM implementation, the authors tested this connection. The starting point of this research was to collect survey data on how companies utilize SCM strategy in their organization, how they cooperate with their SCM partners including the dominance relationship, and which SCM methods are used in their daily operations. It was conjectured that geographical and supply chain differences have a major effect on the adaptation level of SCM strategy, partnership, dominancy, and methods, especially for SMEs. To test it, authors used the data sets from Hungary and Indonesia as the two countries have a major difference in geography and SCM strategy. In the sample, it had also LEs' data and used them as control variables for comparisons. The major findings are summarized in the next paragraphs related to the adaptation of organizational and SCM strategy, cooperation with their supply chain partners, and utilization of different SCM methods.

In the organizational strategy implementation, most of Indonesia's SMEs changed their strategy just lately while Hungary's SMEs earlier, that may be because the global change showed its effects earlier in Hungary. Most of Hungary's LEs in the sample did not specify a change date in their organizational strategy rather applied a rolling horizon so they could continuously change their strategy and adapt quickly to global changes as suggested by Androniceanu and Drăgulănescu (2012). For the SCM strategy, the sample is supporting the authors expectation that LEs are more advanced in implementing SCM strategy compared to SMEs having deficiency in supply chain workforce or sophisticated IT infrastructure. It is valid in both countries. However, if it is consider only SMEs, then only Indonesia's SMEs are using the SCM strategy in a higher percent. This result supports the main hypothesis that the country's more complex landscape and advanced SCM infrastructure has a large positive influence on SCM strategy implementation.

Concerning the cooperation with supply chain partners, a large majority of SMEs in both countries agree that the supply chain is more an extended inter-enterprise value chain between suppliers, their own company, and customers, rather than a corporate (internal) value chain. The collaboration with another party in SCM pushes them to become a connected unit. It creates a dependency on SCM, so it is reliant on information and physical flows. However, the dependency itself also influences the dominancy of the players either positively or negatively (Yvon et al., 2019). According to the survey data, customer dominance is the highest by the perception of Hungary's SMEs followed by equal dominance. Indonesia's SMEs have a completely reverse dominance perception, from the highest of their own dominance to the lowest of customer dominance. It resulted also that in Indonesia, LEs have more dominance in SCM partnerships compared to SMEs. The authors supported these statements also by statistical significance tests. On the other hand, there is no significant difference in the proportion of other comparisons.

The implementation of the different SCM methods also has several similarities between the two countries. There is a similar perception towards VMI that is being used to cooperate more with suppliers and JIT for cooperation with customers. However, there is a considerable difference in non-utilized methods, such as 'Sharing Financial Operation' for Hungary's SMEs and 'Real-Time Sales Data', 'EDI', and 'Sharing Financial Operation' for Indonesia's SMEs. This research also examines which factors are considered important for the cooperation between partners in SCM. The answers show a tendency that the SMEs from Hungary consider those factors such as 'a long-term view', 'commitment to partnership' more important and apply them more frequently compared to Indonesia's SMEs. The result of the t-statistics test suggests that most of the factors are significantly different in the two countries. The exception is the 'Common IT-based and "smart" applications' factor.

In conclusion, the results of this study indicate that the infrastructure, the landscape, and SCM capabilities of a country highly influence the SCM strategy implementation and to some degree influence the SMEs' perceptions of SCM partnership as well as the SCM method implementation.

6. LIMITATIONS AND FUTURE RESEARCH OPPORTUNITIES

The present research is subject to several limitations. The two countries in this research represent two types of SCM structures. In Indonesia, SCM is essential due to the archipelago landscape while it has lower importance than SCM in Hungary having a homogenous land. However, this research still cannot be generalized globally since different cultures, backgrounds, and infrastructure in other countries might have a different impact on the implementation of SCM methods. Second, most of the sample is micro and small enterprises that might have resource constraints that necessitate further process adaptations to SCM models as well as high cooperation with their SCM partners. Third, this research is not able to cover all areas from these two countries, one of the major reasons is the population in Indonesia is concentrated mostly in the West Java area and Budapest area in Hungary. However, other areas are under-represented.

The findings from this research also provide avenues for further research. First, adding more countries, for example, a developed country, to the study would be a fruitful extension. Similar research has been published by Zhu et al. (2008) that explored cross-country analysis for environmental supply chain management practices. The expansion from current research can be beneficial for the management of countries that are still not able to utilize the benefits of SCM methods and the close relationship between partners. Second, expand the number of SMEs to cover larger areas in the countries. Third, from this sample, it can be seen that most of Hungary's SMEs still do not have SCM strategy in their organization, hence further research is needed regarding barriers or challenges and drivers to implement SCM strategy. Several studies that explored the barrier and driver factors such as research from Koh et al. (2011); Meyer and Tores (2019) and Abualrejal et al. (2017) can become references for further research. Fourth, further extending the research methods, including a case study approach could enhance the research and evaluation.

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