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# Effect of Supply Chain Integration on Business Performance and Competitiveness of Philippine SMEs

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## ABSTRACT

This study aims to determine the relationship of supply chain integration with the performance and competitiveness of small and medium enterprises (SMEs) in the Philippines. A survey of 384 companies was conducted to measure the customer integration, supplier integration, and internal integration of SMEs. Structural equation modelling was used to test the hypotheses. The results show that the internal integration of SMEs strongly influences their business performance or growth and competitiveness. Customer integration directly and indirectly (through internal integration) influences the business performance and competitiveness of SMEs. Accordingly, the effect of supplier integration on business performance (growth) and competitiveness of companies is fully mediated by internal integration.

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### INTRODUCTION

In 2016, leaders of the Asia-Pacific Economic Cooperation (APEC) acknowledged the need to create a “development path for APEC technical assistance and capacity building activities that build towards an equitable and inclusive APEC region” (APEC 2016, p.1). To this end, the Small and Medium Enterprises Working Group (SMEWG) laid down its strategic plan for 2017 to 2020. The SMEWG was first established by APEC in 1995 to “encourage the development of small and medium enterprises (SMEs) and to build their capacity to engage in international trade”. As such, the trajectory of SMEWG was aimed at enabling SMEs to become more competitive and successful in the global value chain. Committed to promoting “competitive, balanced, inclusive, sustainable, innovative, and secure growth” in the Asia Pacific region, SMEWG identified as its priorities the areas of entrepreneurship, innovation, and the internet and digital economy; financing for business expansion and capability development; inclusive business ecosystem that supports SME growth; and market access for SMEs (APEC 2016, p.2).

The establishment of the ASEAN (Association of Southeast Asian Nations) Economic Community in 2015, however, led to trade liberalization and purportedly made local micro, small, and medium enterprises (MSMEs) more vulnerable to the arrival of new competitors.

In 2018, Philippine MSMEs accounted for 99.52 percent of the total 1,003,111 business enterprises in the country. Of this number, 0.49 percent are medium enterprises, 10.58 percent are small enterprises, and 88.45 percent are microenterprises (DTI 2018a).

To this day, a great number of Philippine MSMEs that export commodities from other regions experience various challenges (International Trade Centre 2016). According to a survey conducted by the International Trade Centre (2016), Philippine MSMEs experience obstacles in the exportation of their products, such as conforming to their partner’s regulations (i.e., technical requirements and conformity assessment), complying with government regulations (i.e., export technical measures and export quantity control), and meeting private standards (i.e., certification and other related requirements). Such barriers that often hinder the growth of MSMEs can be addressed by enhancing the organizational resources of businesses and integrating them into the whole supply chain. It is imperative to identify factors of supply chain integration that can contribute to the competitiveness of local firms for them to adapt and flourish in the current business environment.

Supply chain management enhances the competitiveness of companies by integrating their internal functions and linkages with the external operations of their customers, suppliers, and other stakeholders. This can lead to better performance in terms of cost, time, flexibility, and quality (Kim 2009). Integration includes material and product flow from suppliers to consumers. As such, it requires an intra and intercompany integration across the chain for businesses to perform as a single unit (Alfalla-Luque and Medina-Lopez 2009) that is driven by the demand of customers (Farhoomad 2005).

Past studies (Frohlich and Westbrook 2001; Vickery et al. 2003; Moyano-Fuentes 2012) have shown that having a higher level of supply chain integration helps businesses achieve better organizational performance. A study on Vietnam’s manufacturers found that supply chain integration positively affected the competitive advantage of companies (Nguyen and Nguyen 2017).

Moreover, supply chain integration among Japanese and Korean firms showed positive effects on their performance (Narasimhan and Kim 2002). According to Sofyalıoğlu and Öztürk (2012), however, there were fewer studies that tested the direct relationship between supply chain integration and the performance of businesses.

This study attempts to address gaps in the supply chain integration of SMEs, particularly in the case of the Philippines. It aims to: (1) determine supply chain integration factors that can enhance

the performance and competitiveness of SMEs in the country; (2) show possible impacts of supply chain integration on the performance and competitiveness of SMEs; and (3) aid policymakers in crafting support interventions to help Philippine SMEs compete amid challenges brought by the ASEAN economic integration.

This paper aims to help entrepreneurs and managers improve the utilization of their strategic resources, thereby increasing their level of competitiveness. This study is significant for entrepreneurship education, entrepreneurial support, and entrepreneurship growth of SMEs through supply chain integration as a source of competitive advantage. It contributes to the collective knowledge on resource-based theory and the impact of supply chain integration as a valuable, distinctive, and induplicable resource for firms. Moreover, research emphasis on business competitiveness augmented by supply internal integration, supplier integration, and customer integration is limited. In the case of Philippine SMEs, no empirical study on the said factors has been done yet.

## **REVIEW OF RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT**

Supply chain integration, according to Flynn et al. (2010), is the degree to which firms strategically collaborate with their chain partners and manage inter- and intra-organizational processes. It aims to “achieve effective and efficient flow of services, information, products, money, and decisions in order to offer maximum value to customers” (Flynn et al. 2010, p.59). This leads to reductions in the firms’ purchases and distributions or even minimal inventory turnover efficiencies (Christopher 1993). Better customer value is a result of improvements in the strategic performance of companies because supply chain integration allows them to provide their supply chain members with customized products or services that satisfy their needs. Moreover, supply chain partners purchase a higher volume of goods from firms that offer higher customer value (Chen and Dubinsky 2003).

Thus, supply chain integration can help increase a company’s sales and market share. Several studies (Ragatz et al. 1997; Frohlich and Westbrook 2001; Lee 2004) emphasized that integration with the downstream customers and upstream suppliers could be advantageous for firms.

Likewise, Flynn et al. (2010) identified internal integration, customer integration, and supplier integration as the three main dimensions of supply chain integration. Often termed as external integration, customer and supplier integration is the degree to which firms collaborate with the external chain to structure their processes, practices, and organizational strategies (Stank et al. 2001).

On the other hand, internal integration focuses on the activities of firms and is the degree to which they structure their processes, practices, and organizational strategies to meet customer requirements (Kingman-Brundage et al. 1995; Cespedes 1996). The structural contingency theory suggests that firms’ fit with the external environment leads to consistency in their structure and strategies (Burns and Stalker 1961; Lawrence and Lorsch 1967). As the external environment changes, such as the characteristics of the suppliers and customer, firms should be able to respond by implementing strategies that maintain their fit with the external environment (Hambrick 1983; Kotha and Nair 1995). According to Ketchen and Hult (2007), the best value supply chains are considered an inimitable resource. As a strategic resource, supply chain integration equips firms to be more competitive and attain better organizational performance (Barney 1991). It allows them to excel in their value-added activities while relying on their supply chain partners, which may complement capabilities that they lack (Dyer and Singh 1998; Fawcett et al. 2007; Jin et al. 2013).

Customer integration occurs when firms collaborate with customers to administer downstream organizational activities through joint decisionmaking, information sharing, and collaborative planning.

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It allows firms to integrate information and resources from customers with their decisions and other processes (Vargo 2008). A close relationship with customers enables firms to get accurate demand information, which can help them avoid obsolescence or failure in production planning and product design. It also allows firms to gather data on market needs to have a better design for their goods and services, leading to a higher level of customer acceptability (Griffin and Hauser 1996).

Moreover, it allows firms to build a common understanding with customers and achieve process flexibility (Ettlie and Reza 1992; Scannell et al. 2000; Frohlich and Westbrook 2001; Wong et al. 2011). Customer integration offers an opportunity to leverage on information embedded in the collaboration process, thereby enabling firms to reduce costs, detect demand changes, create more value, and have better operational performance (Scannell et al. 2000; Rosenzweig et al. 2003; Wong et al. 2011). According to Homburg and Stock (2004), customer integration is directly related to customer satisfaction. Thus, it is hypothesized that:

H1.1: Customer integration positively affects the business performance of SMEs.

H1.2: Customer integration positively affects the competitiveness of SMEs.

Supplier integration is the partnership and collaboration of firms with suppliers to manage upstream organizational activities through collaborative planning, information sharing, and joint decisionmaking (Petersen et al. 2003; He et al. 2014). It allows firms to have access to resources from outside the organization in an attempt to decrease transaction costs. It facilitates mutual understanding between suppliers and firms themselves (Petersen et al. 2003).

Sharing information with suppliers empowers firms to have better operational performance and offer customers with products or services that have better quality, becoming more reliable and flexible (Ettlie and Reza 1992; Frohlich and Westbrook 2001; Rosenzweig et al. 2003; Wong et al. 2011; Huo 2012; Prajogo et al. 2012; Ataseven and Nair 2017). According to Flynn et al. (2010), a stronger and more strategic partnership between firms and suppliers help anticipate the needs of the latter and can help both meet their changing requirements. The exchange of information on processes, capabilities, products, and schedule between firms and suppliers can help them improve their delivery performance. Based on the study by Koufteros et al. (2007), supplier integration positively affects the product development of firms as well as their communication with stakeholders and overall performance. Thus, it is hypothesized that:

H2.1: Supplier integration positively affects the business performance of SMEs.

H2.2: Supplier integration positively affects the competitiveness of SMEs.

Internal integration includes joint decisionmaking, collaboration, and information sharing across internal functions, which can lead to streamlined workflows and collaborative decisions among companies (Lau et al. 2010; Wong et al. 2011). Thus, internal integration disrupts functional barriers and allows cooperation among the internal departments of firms to meet customer requirements (Kingman-Brundage et al. 1995; Flynn et al. 2010). It also allows sharing of knowledge across the functional teams of firms (Roth 1996; Caridi et al. 2012), which improve their capability to utilize their internal resources. Study by Saeed et al. (2005) noted the positive relationship between internal integration and process efficiency of firms. Past studies showed that internal integration had a positive effect on the performance and operational outcomes of firms, such as process flexibility, quality, and delivery performance (Narasimhan and Kim 2002; Swink et al. 2007; Lai et al. 2008; Narasimhan et al. 2010; Wong et al. 2011). Thus, it is hypothesized that:

H3.1: Internal integration positively affects the business performance of SMEs.

H3.2: Internal integration positively affects the competitiveness of SMEs.

Moreover, internal integration mediates the effect of external integration on the performance of firms (Sanders and Premus 2005). Study by Stank et al. (2001) showed that the external focus of firms on information, risk collaboration, measurement, and reward had affected their logistical performance through internal collaboration. Firms need to improve business performance by integrating their internal processes with suppliers and customers. Thus, it is hypothesized that:

H4.1: Internal integration mediates the relationship between customer integration and business performance of SMEs.

H4.2: Internal integration mediates the relationship between customer integration and competitiveness of SMEs.

H4.3: Internal integration mediates the relationship between supplier integration and business performance of SMEs.

H4.4: Internal integration mediates the relationship between supplier integration and competitiveness of SMEs.

## **METHODOLOGY**

### **Sources of data**

Snowball and convenience sampling of 1,900 SMEs (upstream and downstream) from various cities and provinces in the Philippines (i.e., Pangasinan, Nueva Vizcaya, Bulacan, Pampanga, National Capital Region [NCR], Rizal, Camarines Sur, Catanduanes, Sorsogon, Aklan, Iloilo, Cebu, Leyte, Davao City, Cotabato City, and General Santos) were conducted. Supply chain managers, directors, business owners, and chief executive officers or presidents were targeted as key informants. The survey questionnaire was distributed to key informants personally and through email. In-person interviews and self-administration were also conducted. Follow-up with key informants through telephone calls and email was done to improve response rate. Meanwhile, 384 out of the 535 responses received were used in this study.

### **Research instrument**

This study utilized subjective evaluation to measure the constructs. The questionnaire was divided into four parts. The first part contains the demographic information of respondents while the second part contains items to measure business performance and competitiveness. Business performance (growth) was measured using Likert scale anchored by much worse (1) to much better (7). On the other hand, competitiveness was measured using Likert scale anchored on strongly disagree (1) to strongly agree (7). The third part contains a set of items that measure customer integration, supplier integration, and internal integration. Likert scales anchored by strongly disagree to strongly agree were used. The fourth part consists of questions on the characteristics of firms such as their age and size based on the number of employees.

### **Dependent variables**

The dependent variables are the perceptual and objective measures of business performance (growth) and competitiveness. In terms of business performance, the respondents were asked to rate from much worse to much better than last year the following items: (1) growth in sales, (2) return on

sales, (3) growth in return on sales, (4) growth in profit, (5) growth in market share, (6) return on investment, and (7) growth in return on investment (Venkatraman 1989). Competitiveness of firms was assessed using a subjective rating relative to the major industry competitors on a seven-point scale. The items include: (1) in relation to my competitors, my company has higher sales; (2) in relation to my competitors, my company has a larger market share; (3) in relation to my competitors, my company gets a higher level of benefits; (4) in relation to my competitors, my company gets a higher return; (5) in relation to my competitors, customer satisfaction in my company is higher; (6) in relation to my competitors, the quality of the products of my company is higher; and (7) in relation to my competitors, my company is technologically superior (Jorge et al. 2015).

### *Independent variables*

#### *Customer integration*

Customer integration involves dealing with customers and understanding their needs in the business processes of firms (Thun 2010). It was measured using modified versions of the questions developed by Speakman et al. (1998), Gimenez and Ventura (2005), Flynn et al. (2010), and Alfalla-Luque et al. (2015). The respondents were asked to rate from strongly disagree to strongly agree with the following statements: (1) We are frequently in close contact with our customers; (2) Our customers give us feedback on our quality and delivery performance; (3) Our customers are actively involved in our product design process; (4) We strive to be highly responsive to our customers' needs; (5) Our customers involve us in their quality improvement efforts; (6) We work as a partner with our customers; and (7) We have a quick ordering system with our customers. A seven-point Likert scale was used.

#### *Supplier integration*

Supplier integration is defined as having close cooperation with the suppliers of firms (Thun 2010). Given this, the respondents were asked to rate from strongly disagree to strongly agree 17 statements that were modified from Speakman et al. (1998), Ellinger et al. (2000), Gimenez and Ventura (2005), Alfalla-Luque et al. (2015), and Flynn et al. (2016). Among these statements are: (1) We actively engage suppliers in our quality improvement efforts; (2) We maintain cooperative relationships with our suppliers; (3) We help our suppliers improve their quality; (4) Our key suppliers provide input into our product development projects; and (5) We maintain close communications with suppliers about quality considerations and design changes. A seven-point Likert scale was used.

#### *Internal integration*

Internal integration was referred to by Kingman-Brundage et al. (1995) and Cespedes (1996) as the degree to which firms structure their own processes, practices, and organizational strategies to meet customer requirements. It was measured using a seven-item scale modified from Speakman et al. (1998), Ellinger et al. (2000), Gimenez and Ventura (2005), Alfalla-Luque et al. (2015), and Flynn et al. (2016) to assess cooperation, information sharing, and joint planning among functional teams of firms. The respondents were asked to rate from strongly disagree to strongly agree the following sample statements: (1) The functions in our company are well integrated; (2) Problems between functions are solved easily in our company; (3) Functional coordination works well in our company; (4) The functions in our company cooperate to solve conflicts between them when they arise; and (5) Our company's departments coordinate for their activities.

As shown in Table 1, all instruments used have reliabilities of greater than 0.70. SME classification or the size of firms served as a control variable to remove confounding effects due to firm size.

Table 1. Predictor measures

Variable	Number of items	Format	Cronbach's Alpha
Growth	7	Likert-type response scales	0.977
Competitiveness	7	Likert-type response scales	0.931
Customer integration	7	Likert-type response scales	0.897
Supplier integration	5	Likert-type response scales	0.872
Internal integration	17	Likert-type response scales	0.969

Source: Authors' calculations

**Data analysis**

Descriptive data were generated to obtain the general characteristics of respondents. Common method bias was assessed through exploratory factor analysis using principal axis factoring with varimax rotation. Structural equation modelling (SEM) was used to test the hypotheses. SEM estimates interrelated and multiple dependence relationships and can represent unobserved concepts while accounting for measurement error (Hair et al. 2010). The fit of the model was assessed using the Normed Chinormed chi-square (CMIN/df), root mean square error of approximation (RMSEA), and comparative fit index (CFI).

**Results**

Table 2 summarizes the demographic characteristics of respondents in this study. Firm age ranges from 0.2 years to 88 years old while the number of employees ranges from 1 to 1,000. Female managers or owners comprise 58 percent of the respondents (n=384). The majority of respondents are from the NCR (38.3%) followed by Pampanga (12.2%), Aklan (8.6%), and Cotabato City (8.1%). In terms of business registration status, 45.1 percent are sole proprietorship, 33.1 percent are corporations, and 19 percent are partnerships. In terms of industry classification, 52.6 percent are restaurants, 18.2 percent are engaged in wholesale and retail operations while 11.7 percent are manufacturing.

Table 2. Respondent profile (n=384)

Demographic information	Minimum	Maximum	Mean
Firm age (years)	0.2	88	14
Number of employees	1	1,000	33
Characteristics	Frequency	Percent	
<b>Gender of owner/manager</b>			
Male	162	42	
Female	222	58	
<b>Location</b>			
Aklan	33	8.6	
Bulacan	2	0.5	
Camarines Sur	27	7.0	

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Table 2. (continuation)

Characteristics	Frequency	Percent
Catanduanes	20	5.2
Cebu	1	0.3
Cotabato City	31	8.1
Davao City	6	1.6
General Santos	6	1.6
Iloilo	10	2.6
Leyte	28	7.3
National Capital Region	149	38.8
Nueva Vizcaya	1	0.3
Pampanga	47	12.2
Pangasinan	1	0.3
Rizal	21	5.5
Sorsogon	1	0.3
<b>Business Registration Status</b>		
Corporation	127	33.1
Partnership	73	19.0
Sole proprietorship	173	45.1
Others	2	0.5
Undeclared	9	2.3
<b>Industry Classification</b>		
Agriculture	1	0.3
Education	5	1.3
Electricity/gas/water supply	2	0.5
Finance	2	0.5
Fishing	1	0.3
Health and social work	2	0.5
Hotel	16	4.2
Hotel/restaurant	17	4.4
Manufacturing	45	11.7
Others	14	3.6
Real estate	1	0.3
Restaurant	202	52.6
Transport, storage, communication	4	1.0
Wholesale and retail trade	70	18.2

Source: Authors' compilation

Harman's one-factor test shows that the factor with the highest variance (37.82%) does not account for the majority of the variance, and, therefore, a general factor is absent. The variances due to the measurement method do not affect the validity of the results of this study. Multicollinearity is absent

as all variance inflation factors are below 10 (Hair et al. 2010). Discriminant validity, which indicates whether a construct was unrelated with another construct (Hair et al. 2010), was established since the average variance extracted estimates (Table 3) of the constructs were greater than the square of the interconstruct correlations (Table 4).

Table 3. Average variance extracted estimates

Construct	Average variance extracted estimate
Growth	0.855
Competitiveness	0.66
Internal integration	0.62
Supplier integration	0.59
Customer integration	0.56

Source: Authors' calculations

Table 4. Squared interconstruct correlation

	Growth	Competitiveness	Internal integration	Supplier integration	Customer integration
Growth	1				
Competitiveness	0.36	1			
Internal integration			1		
Supplier integration			0.398161	1	
Customer integration			0.465124	0.332929	1

Source: Authors' calculations

The values of the fit indices (Table 5) of the measurement model show a good fit {CFI > 0.90; RMSEA <0.08; CMIN/df < 2.0}. CFI implies how well the estimated model fits compared with alternative baseline model while RMSEA and CMIN/df tell how the theory fits well with the sample data (Hair et al. 2010). All factor loadings of items associated with the constructs have values of at least 0.70 and are significant. Therefore, convergent validity was established. The Cronbach Alphas are over 0.70 and thus construct reliability was successfully verified.

Table 5. Fit indices

	Original	Modified	Structural
CMIN/DF	4.763	1.849	1.922
CFI	0.717	0.960	0.957
RMSEA	0.099 (.097-.101)	0.047(.043-.05)	0.049(.045-.053)
X <sup>2</sup>	7835.643	1514.097	1577.911
df	1645	819	821
p	0.000	0.000	0.000

CMIN/DF = minimum discrepancy divided by the degrees of freedom; df = degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation

Source: Authors' calculations

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Model equivalents to confirmatory factor analysis (CFA) models were developed to examine the relationships of the competitiveness and growth of firms with customer integration, supplier integration, and internal integration. Fit statistics of the structural regression model did not differ significantly. Standardized factor loadings were almost the same. Therefore, model equivalence was verified and the measured indicator variables were stable. These support the model validity of the CFA (Hair et al. 2010).

Table 6 shows the standardized structural path estimates. Two structural path estimates are significant at  $p < 0.05$  and four structural path estimates are significant at  $p < 0.001$  and are in the expected direction. Moreover, internal integration mediates the effects of supplier integration and customer integration on the business performance and competitiveness of firms. The solution of the model produced an acceptable fit.

Table 6. Standardized structural path estimates

	Standardized regression Weights-without mediation	Standardized regression Weights-with mediation
Business performance <---Customer integration	0.288**	0.237*
Business performance <--- Supplier integration	-0.061	-0.055
Business performance <--- Internal integration	0.328**	0.325**
Competitiveness <--- Customer integration	0.215*	0.160
Competitiveness <--- Supplier integration	0.000	-0.016
Competitiveness <--- Internal integration	0.480**	0.484**
Internal integration <--- Supplier integration		0.372**
Internal integration <--- Customer integration		0.531**

\* significant at  $p < 0.05$

\*\* significant at  $p < 0.001$

Source: Authors' calculations

## DISCUSSION

The results of this study suggest that internal integration strongly influences business performance (growth,  $\beta = 0.328$ ,  $p < 0.001$ ) and competitiveness ( $\beta = 0.480$ ,  $p < 0.001$ ) of SMEs. Moreover, customer integration influences business performance (growth,  $\beta = 0.215$ ,  $p < 0.05$ ), but not the competitiveness of firms.

However, the effect of supplier integration on the business performance (growth) and competitiveness of companies is fully mediated by internal integration ( $\beta = 0.372$ ,  $p < 0.001$ ). Meanwhile, the effect of customer integration on business performance (growth) and competitiveness is partially mediated by internal integration ( $\beta = 0.531$ ,  $p < 0.001$ ). Full mediation implies that supplier integration strongly influences business performance and competitiveness of respondents through its effect on internal integration. On the other hand, partial mediation implies that customer integration directly and indirectly (through internal integration) influences business performance and competitiveness of firms because of internal integration and some other factors not considered in the study.

Customer integration predicts positive ( $p < 0.05$ ) business performance (growth) of SMEs because it allows firms to conduct collaborative planning, information sharing, and joint decisionmaking (Vargo 2008). These integrations enable firms to get accurate demand information from customers and prevent them from failing in production planning and product design.

Moreover, customer integration allows firms to leverage on the information embedded in collaboration processes, thereby enabling them to reduce costs, create more value for customers, and have better performance (Scannell et al. 2000; Rosenzweig et al. 2003; Wong et al. 2011).

Supplier integration is supposed to induce positive effects on business performance (growth) and competitiveness of firms such as reliable delivery, better product quality, and flexibility (Ettlie and Reza 1992; Frohlich and Westbrook 2001; Rosenzweig et al. 2003; Wong et al. 2011). This study noted the absence of a direct association between supplier integration and business performance (growth) and the competitiveness of firms. While similar studies (Stank et al. 2001; Flynn et al. 2010) showed the same results, this paper has gone further by testing the mediation effect of internal integration on supplier integration and showed that the effect of supplier integration is recognized through internal integration.

Internal integration positively affects the ( $p < 0.001$ ) business performance (growth) and competitiveness of SMEs and this supports other studies conducted by Narasimhan and Kim (2002), Lai et al. (2008), Swink et al. (2007), Narasimhan et al. (2010), and Wong et al. (2011). Internal integration allows cooperation among the internal departments of firms and helps decrease functional barriers (Kingman-Brundage et al. 1995; Flynn et al. 2010), thereby sustain process efficiency (Saeed et al. 2005). Internal integration also mediates the relationship between external integration (suppliers and customers) and the business performance (growth) and competitiveness of SMEs.

## **CONCLUSION AND POLICY RECOMMENDATIONS**

This study was designed to determine the effect of supply chain integration on the growth and competitiveness of Philippine SMEs on a resource-based theory. The majority of the respondents in this study are located in the NCR and are from the foodservice industry, particularly the restaurant sector. The conclusion of this study, therefore, is industry and geography-specific. Moreover, the study used subjective measures on the endogenous and exogenous variables. The empirical findings show that customer integration positively affects the business performance (growth) of firms while internal integration positively affects both the business performance (growth) and competitiveness of the SMEs. While other studies (Huo 2012; Prajogo et al. 2012; Ataseven and Nair 2017) showed a direct relationship between supplier integration and business performance (growth) and competitiveness, this study reveals that the effect of supply chain integration on two variables is realized through the effectiveness of internal integration.

This paper supports the resource-based theory in explaining the business performance (growth) and competitiveness of SMEs in the country that do not have enough resources to be fully integrated into the whole supply chain and thus conceive and implement strategies according to what they think is effective (Miller 1987).

This study found that internal integration significantly affects business performance (growth) and competitiveness. It suggests that firms should structure their internal organizational processes and strategies to meet customer requirements. They should promote collaboration and cooperation across their internal processes to perform better and be more competitive as companies.

Firms can attain internal integration by ensuring functional coordination among their departments, integrating their internal functions and communications, and generating effective operational and production plans.

Moreover, firms should be integrated with their customers to achieve downstream organizational activities, such as information sharing, collaborative planning, and joint decisionmaking.

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Customer integration can be accomplished by getting feedback from the customers on the quality and delivery performance of a firm, involving the customers in the product or service design process, sharing production plans with customers, and making joint decisions with key customers.

This study further implies that all kinds of integration are important but managers should pay attention to internal integration because the effectiveness of customer and supplier integration works through internal integration of firms.

The government can help strengthen the internal integration of SMEs by supporting them in enhancing the application of their management skills such as generating effective operational and production plans. SMEs should be encouraged to use information systems that can fast-track the integration of their internal processes. The government can invest in technologies like enterprise application integration to help firms integrate their processes through sharing of information (Charles et al. 2001; Chen et al. 2011).

Mechanisms for information technology adoptions among businesses should be promoted. The government should have more initiatives to help SMEs catch up with rapid advances in technology. For instance, the government of Taiwan built a national information and communications infrastructure that serves as a platform for information sharing across the supply chain (Wang 1999; Lee and Kim 2007; Chen et al. 2011). The government can also assist in improving the technological know-how and business-to-business digital e-commerce experience of SMEs to augment their international competencies and promote more efficient business transactions and communications in the country (Chen et al. 2011). The Department of Trade and Industry has included in its Micro, Small and Medium Enterprise Development Plan 2017–2022 the promotion of the digital and internet economy under cross-cutting strategies. The plan “welcomes different developments to further pursue its goals by leveraging technological improvements and extending it to all MSMEs” (DTI 2018b, p.35). Moreover, the government should be able to set up an effective mechanism to unify all regulatory bodies in the country and reduce redundancies and excess costs that affect the supply chain performance of firms.

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