

## Supply chain integration in Philippine SMEs

*Elaine Q. Borazon and Vivien T. Supangco*

In 2016, micro, small, and medium enterprises (MSMEs) account for 99.57 percent of the total establishments in the Philippines (DTI 2018a). Of this figure, 89.63 percent are micro, 9.50 percent are small, and 0.44 percent are medium enterprises (DTI 2018a).

Given the recent trade liberalizations and decreased barriers to entry within the Association of Southeast Asian Nations, however, MSMEs, particularly the exporting ones, are experiencing trade obstacles. These obstacles relate to Philippine regulations (export technical measures, export quantity control), partner-country's regulations (technical requirements, conformity assessment), and private standards (certification and other related requirements) enforced by the end customers (ITC 2016).

Such barriers can be addressed by focusing on the enhancement of their organizational resources and integration with the whole supply chain to meet regulatory requirements. Thus, supply chain integration factors that contribute to the competitiveness of local firms should be identified to help firms survive and grow in their business environment.

This *Policy Note* discusses these supply chain integration factors and delves into possible approaches the government and small and medium enterprises (SMEs) can adopt to enhance their business performance and competitiveness (Borazon and Supangco 2018). Given that majority of the respondents of the study are from the services sector in the National Capital Region, the conclusion is industry- and geography-specific.

### **Competitiveness and business performance**

Competitiveness is the ability of firms to thrive in a business environment (Porter 1990). Given that SMEs have potential for resilience during economic situations and are significant contributors to economic development, their competitiveness should be enhanced.

Per resource-based theory, firms attain competitive advantage when their resources are valuable, have no direct substitutes, or are difficult to copy (Barney 1991). They implement strategies to manage these resources, which then affect their business performance (Mosakowski 1993; Daft et al. 2010). One of these strategies is the supply chain integration.

Supply chain integration refers to the degree in which firms strategically collaborate with their chain partners and manage inter- and intraorganizational processes (Flynn et al. 2010). Firms can integrate with their supply chain, for example, by coordinating their production demand or service demand with their suppliers or coordinating with their consumers regarding their product preferences.

Supply chain integration aims to achieve effective and efficient flow of services, information, products, money, and decisions to offer maximum value to the customer (Frohlich and Westbrook 2001). Moreover, it allows firms to excel in their value-added activities or those activities which generate positive returns, while relying on their supply chain partners to complement the capabilities they lack (Dyer and Singh 1998; Fawcett et al. 2010; Jin et al. 2013). Thus, a producer of intermediate goods or services can focus on its manufacturing or service functions while depending on its end-consumer demand projections done by its customers if its production or services is integrated with its direct customers. This setup decreases the additional task of getting consumer demand and preferences for the intermediate good manufacturer.

Among others, this integration leads to reductions in purchasing and distribution inefficiencies (Christopher 1993), such as the inability of the suppliers to meet the requirements of their customers because of failure in communicating product quality requirements. Production plans should be linked with material requirement and distribution requirement plans to ensure that the producer manufactures only what the market needs and purchases supplies according to the requirements of its customers.

Better customer value or the positive returns experienced by the customer, such as customer satisfaction, is also due to strategic performance

improvements because of integration, as supply chain integration allows the firm to provide supply chain members with more customized services that satisfy their needs. This is achieved through coordination of requirements and information sharing along the chain.

Thus, supply chain management enhances competitiveness and leads to high supply chain performance in terms of cost, time performance, flexibility, and quality through the integration of internal functions and linkages with the external operations of customers, suppliers, and other stakeholders in the chain (Kim 2009). Several studies have emphasized that integration with the downstream customers (i.e., the customers' customers) and upstream suppliers (i.e., suppliers' suppliers) is a source of competitive advantage and leads to better organizational performance (Barney 1991; Ragatz et al. 1997; Frohlich and Westbrook 2001; Lee 2004; Hillebrand and Biemans 2011).

### **Supply chain integration factors**

Flynn et al. (2010) have identified internal, customer, and supplier integration as three main dimensions of supply chain integration. The areas that need to be integrated include physical or material flow, information flow, financial flows, technologies, processes, innovations, strategies, procedures, knowledge, and actors (Fabbe-Costes and Jahre 2007; Barber 2008) because these are key business processes or aspects that add value to the stakeholders.

### **Internal integration**

This integration includes joint decisionmaking, collaboration, and information sharing across internal functions of the firm (e.g., a company's various departments are linked by an information technology system that makes communication process more efficient), leading to streamlined workflows and collaborative decisions (Lau et al. 2010; Wong

et al. 2011). It can be attained through functional coordination, integration of internal functions, internal communication, and generation of effective operational and production plans.

Among others, this integration decreases functional barriers and allows cooperation among the internal departments of the firm in meeting customer requirements (Kingman-Brundage et al. 1995; Flynn et al. 2010). It also allows the sharing of knowledge across functional (i.e., marketing, finance, human resource, operations, etc.) teams and firms (Roth 1996; Caridi et al. 2012) and helps the firm improve its capability to integrate processes to ensure that internal resources are used efficiently. Therefore, internal integration strongly influences both business performance and competitiveness.

### **Customer integration**

This integration deals with the collaboration between the firm and its customers so that downstream organizational activities, such as distribution, transportation, and warehousing done to deliver the products to the end customers, are managed through joint decisionmaking, information sharing, and collaborative planning (Petersen et al. 2003; He et al. 2014). A manufacturer or service provider can coordinate its production plans with its end customers to prevent supply in excess of demand. Such can be accomplished by getting feedback from the customers regarding quality and delivery performance, getting



*The supply chain integration has three main dimensions, one of which is the customer integration. This integration deals with the collaboration between the firm and its customers so that downstream organizational activities, such as distribution, transportation, and warehousing done to deliver the products to the end customers, are managed through joint decisionmaking, information sharing, and collaborative planning. Through customer integration, firms are able to get data about market needs, which leads to better design and development and higher level of acceptability. (Photo: Rotary Club of Mandaluyong / Flickr)*

the involvement of customers in product or service design process, sharing production plans with the customers, and making joint decisions with the key customers. These approaches allow the firm to have an integration of information and resources from the customers to the decisions of the firm (Vargo 2008).

A close relationship with the customer enables the firm to accurately get information and reduce obsolescence and failure in production planning and product design. It also allows the firm to get data about market needs, which leads to better design and development and higher level of acceptability (Griffin and Hauser 1996).

### **Supplier integration**

This integration refers to firms' collaboration with the suppliers to manage upstream organizational activities or those business activities (e.g., procurement)

with the suppliers through collaborative planning, information sharing, and joint decisionmaking (Petersen et al. 2003; He et al. 2014). A manufacturer or service provider can integrate with its suppliers by actively engaging the suppliers in their quality design process or by coordinating its production plans with its suppliers. This allows the firm to access competencies and resources outside its organization and decrease transaction costs. It also facilitates mutual understanding between the supplier and the firm (Petersen et al. 2003) leading to a more efficient and effective production or service delivery (e.g., minimization of rejects, excess supply, etc.).

Among SMEs in the Philippines, internal integration strongly influences both business performance and competitiveness (Borazon and Supangco 2018). Meanwhile, customer integration influences business performance, and its effect on competitiveness works through internal integration. This implies that internal integration should be in place before customer integration becomes effective.

On the other hand, the effect of supplier integration on business performance and competitiveness is fully mediated by internal integration. Thus, such will work also through internal integration.

### **Policy implications**

As shown earlier, internal integration significantly affects growth and competitiveness. As such, firms should structure their internal organizational processes and strategies to meet their customer requirements and promote collaboration across their various internal processes to achieve better business performance and competitiveness.

All kinds of integration are important. However, particular attention should be given to internal integration given that both customer integration and

supplier integration work through it. This implies that the impact of external integration (customer and supplier integration) on business performance and competitiveness will only take effect if the internal integration is in place.

All areas that need to be integrated, such as financial flow, information flow, physical flow, processes, technologies, innovations, strategies, knowledge, procedures, and key players, should be strengthened among the SMEs. These will enable them to meet their customer requirements by attaining their quality requirements and global quality standards, achieve cost reductions through minimization of wastes and rejections, and enhance productivity, leading to better business performance and competitiveness.

### **Recommendations**

#### ***Assist SMEs in strengthening internal integration***

The government can aid SMEs in terms of strengthening their internal integration. This can be done through the provision of support for human capital development (e.g., education, training, consultation, coaching) that will enhance the SMEs' application of management skills, such as the generation of effective operational and production plans and functional coordination.

It should also encourage and educate the SMEs on the use of information systems that will aid in the integration of various internal processes. The government can invest in technologies, such as enterprise application integration (EAI), which can help firms integrate their processes through sharing of information (Charles et al. 2001; Chen et al. 2011).

According to EAI Industry Consortium (2004), EAI refers to "the process of integrating multiple applications that were independently developed, may use incompatible

technology, and remain independently managed". Among others, it addresses the need for intra- and interorganization systems and combines traditional integration technologies with new EAI technologies to enable efficient incorporation of various information systems (Themistocleous et al. 2002).

Aside from investing in EAI, the government should also promote mechanisms for information technology adoptions, such as educational programs, and help SMEs catch up with the rapid advances in technology. The Philippines can learn from the Taiwan government, which has built a national information and communications technology infrastructure, which aids its enterprises in supply chain integration by acting as a platform for information sharing across the supply chain (Wang 1999; Lee and Kim 2007; Chen et al. 2011).

### **Assist SMEs in digital economy**

Assistance, in terms of technological capabilities and business-to-business e-commerce, can also enhance the international competencies of SMEs (Chen et al. 2011). For this, the Department of Trade and Industry has included in its *MSME Development Plan 2017–2022* the promotion of digital and internet economy under the cross-cutting strategies. The said plan “welcomes different developments to further pursue its goals by leveraging technological improvements and extending it to all MSMEs” (DTI 2018b, p. 35).

### **Address regulatory bottlenecks**

The government should also set up an effective mechanism that will unify all regulatory bodies and reduce redundancies and excess costs, which affect supply chain performance. 📄

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## Contact us

**Address:** Research Information Department  
Philippine Institute for Development Studies  
18/F Three Cyberpod Centris - North Tower  
EDSA corner Quezon Avenue, Quezon City

**Telephone:** (+63-2) 877-4000, 372-1291 to 92

**Email:** [publications@mail.pids.gov.ph](mailto:publications@mail.pids.gov.ph)

**Website:** [www.pids.gov.ph](http://www.pids.gov.ph)

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