SUPPLY CHAIN PARTNERSHIP, COLLABORATION, INTEGRATION AND RELATIONSHIP COMMITMENT AS PREDICTORS OF SUPPLY CHAIN PERFORMANCE IN SOUTH AFRICAN SMEs

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Abstract
Despite increasing awareness of the importance of organisations to join venture, research on the relationship among supply chain Partnership, collaboration, integration, relationship commitment and performance has received little attention. Therefore, using a data set of 450 from the small medium enterprise (SMEs) in South Africa, this study examines the influence of supply chain partnership on collaboration, collaboration on integration, integration on relationship commitment and relationship commitment on performance. All the proposed five hypotheses were empirically supported indicating that supply chain performance positively influence manufacturing SMEs’ collaboration, integration, relationship commitment and performance in a significant way. Interesting to note from the results is the fact that supply chain partnership has the most significant impact on integration than collaboration and relationship commitment respectively. Managerial implications, limitations and future research directions are suggested.

KEYWORDS: Supply chain partnership, collaboration, integration, relationship commitment, supply chain performance. provided.

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1.0. Introduction

Supply management performance is a powerful driver and a significant strategic tool for firms striving to achieve competitive success (Tan, 2002:1). Multi-dimensional and inter-organizational characteristics of supply chain performance measurement systems can lead to a large number of metrics and difficulty in sharing data through-out the chain, making it complex to measure the supply chain performance (Ganga & Carpinetti 2011: 2130).

Supply management performance is an important organisational outcome that has attracted interest from both academicians and practitioners alike. Therefore, the existing management literature is awash with empirical studies on the experience of business performance (Lee, Kim & Kim, 2007:68; Watsona, Cooper, Pavur & Torres, 2011:605; Chang, Chang, Ho, Yen & Chiang, 2011:2131). The general observation, therefore, is that most of the prior studies have largely focused on the influence of IT on firm performance (Spanos & Lioukas, 2001:909; Rivard, Raymond & Verreault, 2006:31; Sarkees, 2011:786) in developed countries and in the context of large firms. A number of prior studies have measured Supply management performance using both financial and market criteria, including return on investment, market share, profit margin on sales, the growth of ROI, the growth of sales, the growth of market share, and overall competitive position (Vickery, Droge, Yeomans & Markland, 1995:15). The challenge in supply chain collaboration is to coordinate activities between buyer and supplier so that both parties can improve the supply chain performance by as reducing cost, increasing service level, better utilising resources, and effectively responding to changes in the marketplace (Simchi-Levi 2008:1493).

Based on the gap the study will investigate how supply chain strategic partnership, collaboration, integration and relationship commitment, companies within a good supply chain performance can establish long-term relationships with their partners and enhance the level of external integration. In a recent study (Zhao, Huo, Flynn & Yenung, 2008: 369) found that relationship commitment to the customer significantly influenced the degree of customer integration.

By investigating supply chain strategic partnership, collaboration, integration, integration and relationship commitment on supply chain performance.

The rest of the study is organised as follows. First, the problem statement, theoretical background, conceptual framework and hypotheses are then provided. These are followed by the discussion of methodology, the constructs and scales used, and the analysis and conclusions are outlined. Finally, managerial implications, limitations and future research directions are given.

1.2 Problem statement

Drawing from the identified research gaps the thesis submits the study purpose thereafter. Previous studies on none supply chain partnership, collaboration, integration and relationship commitment focused on large size B2B firms and therefore little is known about the same in the small-to-medium size enterprises (SMEs hereafter) context. This is surprising and unfortunate given that SMEs are widely regarded as the vehicle for employment generation, economic growth and development in both developed and developing countries (Biekpe 2004:30). These studies have basically assumed that manufacturers wield channel power and yet this is not always the case in the context of the SMEs manufacturing sector where the major dealers (hereafter referred as dealers) may actually wield channel power given the SMEs manufacturers’ shortcomings.
Relationship outcomes in such a reverse scenario have rarely been examined in marketing channels of distribution and therefore, warrant further empirical scrutiny (Chinomona & Pretorius, 2011:172).

1.3 Purpose of the study
The primary objective of the study is to investigate the influence of supply chain partnership, supply chain collaboration, supply chain integration and relationship commitment as predictors of supply chain performance in South African SMEs.

1.4 Empirical objectives
- To investigate the influence of supply chain partnerships on supply chain collaboration
- To investigate the influence of supply chain partnerships on supply chain integration
- To investigate the influence of supply chain collaboration on relationship commitment
- To investigate the influence of supply chain integration on relationship commitment
- To investigate the influence of relationship commitment on supply chain performance

2.0 Theatrical review
2.2.1 SMEs in South Africa
As SMEs are characterised by flexibility (Kayanula & Quartey, 2000:6) and innovativeness (Temtime & Pansiri, 2004:18; Wong, Ho & Autio, 2005:335) and possess the ability to create a considerable number of jobs (Fida, 2008:65), they hold a compelling claim to augmented relevance, and it is understandable that strategies have been developed world wide in an effort to expand and incorporate the sector into conventional economic activities (Luiz, 2002:53). Small businesses contribute significantly to a country’s national product, either by the production of valuable goods or through the rendering of services to consumers and/or other enterprises (Abor et al., 2010:223). They enhance the proficiency of domestic markets, have the ability to make productive use of scarce resources thereby aiding the effort towards long-term economic growth through ingenuity (Kayanula et al., 2000:6) and they supply products and services to foreign buyers and in so doing contributing by and large to export performance (Abor et al., 2010:223). Small firms thus play a vital role in the development of the country (Feeney & Riding, 1997:68). It is conceivably for this reason that Kongolo, (2010:2290) urges the government to recognize and acknowledge SMEs as a significant part of South Africa’s development process. The contribution of SMEs differs considerably across countries. In South Africa, the economy is dominated by small medium and micro firms (Sawers, et al., 2008:173). These SMEs play an essential role in strengthening the South African economy (Butcher, 1999:1) and are to a very large extent, associated with economic empowerment, job creation and employment within disadvantaged communities (Davies, 2001:4). In 2007, the sector encompassing small medium and micro firms accounted for 93% of all enterprises, contributed 27-34% of total gross domestic product (GDP) in 2006 and were responsible for 38% of employment in the country (Rogerson in Department of Trade and Industry (DTI), 2008). In spite of the elevated level of unemployment estimated at 25.2% (Statistics South Africa, 2014), such conduct is significant if the country is to progress towards optimum development.

In particular, small firms are accountable for a large percentage of employment in South Africa since they represent the majority of SMEs (nearly 70%) in comparison to medium-sized and micro
firms who constitute about 15%, respectively (Jeppesen, 2005:469). Nonetheless, SMEs are not only perceived as the creators of employment but are also adopters of retrenched people coming from the private and public sector (Ntsika, 2001:45). Such actions by Small and Medium Enterprises have as well spawned praise which is evident from the 2003 Human Development Report (UNDP, 2003) for South Africa. Since these SMEs hold a key role in the development of South Africa, the country has even come to be viewed as an “engine of growth” for the African continent, generating 45% of the continent’s GDP (Van Wyk, Dahmer & Custy, 2004:259). To the rest of the world, the country ranks 29th in terms of economic output and is one of the 10 leading emerging markets (Van Wyk et al., 2004:259). Since South Africa is in the process of engaging more in the world economy and in a transition to globalisation while battling against challenges such as poverty, unemployment (Sawers et al., 2008:172), income inequality (Maas & Herrington, 2006:21), low economic growth, high inflation (Fatoki, 2011:193) and uncertain market conditions (Urban & Naidoo, 2012:150) the government has come to view SME development as a matter that is of utmost importance (Sawers et al., 2008:172). The belief is that not only can the SMEs alleviate difficulties, but they can also enhance the competitiveness of the country (Kesper, 2001:8; Swanepoel, Strydom & Nieuwenhuizen, 2010:60; Sawers et al., 2008:172; Maas et al., 2006). According to Kongolo, (2010:2290) small businesses in comparison to large-scale businesses have more advantages in that they have the ability to adjust to market conditions with ease and can withstand unpleasant economic conditions given their supple character. Since they are more labour intensive than larger firms and therefore have lower capital costs, they possess the ability to fluently address the high levels of unemployment in South Africa (RSA, 1995:10). In actual fact, the 1995 White Paper on National Strategy for Development and Promotion of Small Business in South Africa (RSA, 1995:10), identified SMEs not only as key to unemployment alleviation but also as drivers for:

- Stimulating local competition through the creation of market niches and unlocking opportunities by tapping into international markets.

- Redressing the disparities that exist as a result of the Apartheid period.

- Buffering the endorsement of Black Economic Empowerment and part-taking a vital role in the process of supporting people with basic needs in absence of social support systems.

In addition to the aforementioned contributions, literature further highlights that SMEs contribute to:


**Economic flexibility:** SMEs possess the ability to drive competition with their larger counterparts through their ability to produce small quantities, thus increasing economic plasticity (Lussier & Pfeifer, 2001:228; Gibbon, 2004:156; Kangasharju, 2000:28). **Innovation and technology promotion:** SMEs are known for introducing new products and services, excavating and serving new markets as well as endorsing technological change and entrepreneurship (Rwigema & Venter, 2004:315; OECD, 2002:10).

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Skills development: SMEs provide individuals with the opportunity to develop themselves to best suit the work environment (Gbadamosi, 2002:95; Nieman, 2001:445).

The course to improvising: SMEs are resourceful in that they can make the best use of local technologies, local raw material and local knowledge base (Rwigema & Karungu 1999:112; Luiz, 2002:54; Romijn, 2001:58). They also have the ability to overcome a crisis in relation to an economic recession, natural disasters and conflicts (Gurol & Atsan, 2006:26; USAID, 2003; Nichter & Goldmark, 2009:1459).

Socio-economic transformation: SMEs are believed to be key in empowering their local community with a particular focus on the marginalised segments and reducing poverty through support for entrepreneurship and providing income through employment (Ladzani & van Vuuren, 2002:154; Mogale, 2005:135; Tustin, 2001:24; Abor et al., 2010:218).

Small and Medium enterprises are a sector that is perceived to serve as an entrepreneurial ‘seed bed’ where some SMEs may graduate to run larger industries (Mcpherson, 1996:254). Although the business environment greatly impacts on the development of Small and Medium Enterprises (Delmar & Wiklund, 2008:437) in South Africa, the environment is somewhat accommodative of SMEs growth as it is composed of a refined infrastructure, legal system, natural and human resources, telecommunication network and financial services (van Wyk et al., 2004:259). Perhaps, this is the case owing government efforts to support the SME sector ever since the country became democratic (Berry, Von Blottnitz, Cassim, Kesper, Rajaratnam & Seventer, 2002; Laforet & Tann, 2006:363).

The assertion that small and medium enterprises (SMEs) are drivers of economic growth is undisputable (Fatoki & Garwe 2010:59; Chinomona& Pretorius, 2011:172). Academicians, policy makers, economists, and business owners all agree that a healthy SMEs sector contributes prominently to the economy through creating more employment opportunities, generating higher production volumes, increasing exports and introducing innovation and entrepreneurship skills (Chinomona, Lin, Wang & Cheng, 2010:21; Chinomona, 2012:10127). According to Fatoki and Garwe (2010:172), SMEs are the first vital step towards industrialization. Also buttressing the same notion, Chinomona and Cheng (2013:201), assert that one of the significant characteristics of a flourishing and growing economy is a vibrant and blooming SMEs sector. A recent research by Abor and Quartey (2010:215), estimates that 91% of the formal business entities in South Africa are SMEs. In addition to that, these SMEs contribute between 52 to 57% of GDP and account for approximately 61% of employment in South Africa.

According to the National Small Business Act of South Africa of 1996, as amended in 2003, an SMEs is “a separate and distinct entity including cooperative enterprises and non-governmental organizations managed by one owner or more, including its branches or subsidiaries if any is predominantly carried out in any sector or sub-sector of the economy mentioned in the schedule of size standards and can be classified as a SMEs by satisfying the criteria mentioned in the schedule of size standards” (Government Gazette of the Republic of South Africa, 2003). However, the quantitative definition of SMEs in South Africa is expressed in Table 2.1.
Table 2.1 schedule of size for the definition of SMEs in south Africa

<table>
<thead>
<tr>
<th>Type of firm</th>
<th>Employees</th>
<th>Turnover</th>
<th>Balance sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>1-49</td>
<td>Maximum R13m</td>
<td>Maximum R5m</td>
</tr>
<tr>
<td>Medium</td>
<td>51-200</td>
<td>Maximum R51m</td>
<td>Maximum R19m</td>
</tr>
</tbody>
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2.3 Theoretical Framework: Partnership Theory

In order to explain the supply chain performance in South African SMEs, the study will be grounded in partnership theory. The theory argues that the popularity of partnerships is rooted in its perceived mutual benefits. On a conceptual level, partnering is a strategy that increases access to human, financial technical and intellectual resources that might otherwise be out of reach for a single organization (Michael, Hatton & Schroeder 2011:157). Partnerships approaches have received widespread support from across the political spectrum, including policy makers, officials and local communities. They are likely to remain high on the policy agenda at all levels (see for example, Audit Commission, 1991:531). At the supra-national level the European Union (EU) promotes partnerships as it operates with and through Member States and more local agencies to achieve its policy aims, taking account of national rules and practices (CEC, 1996:235). At the national level in many countries, including the UK, there has been government pressure to move away from public provision of services towards joint private-public partnerships or greater private provision. At the local level continued or greater involvement in partnership approaches is likely between public bodies and/or private bodies and non-governmental organisations due to pragmatic factors such as resource constraints, as well as more ideological factors (Leach et al., 1994:402).

The term “partnership” covers greatly differing concepts and practices and is used to describe a wide variety of types of relationship in a myriad of circumstances and locations. Indeed, it has been suggested that there is an infinite range of partnership activities as the “methods for carrying out such (private-public) partnerships are limited only by the imagination, and economic development offices are becoming increasingly innovative in their use of the concept” (Lyons and Hamlin, 1991:55). The natures of partnerships, particularly “private-public partnerships” but also partnerships between quasi-public and/or public agencies are altering due to changing global economic patterns, government funding and changing economic structures, in both the US (Weaver and Dennert, 1987:42) and the UK (Harding, 1990:56; McQuaid, 1994:35, 1998:78). One broad context for the growth of partnerships is the transformation of central-local government and changing state-private sector relationships, in which partnerships may be the result of, but in other cases the cause of, such changing relationships. Indeed this has given rise to a paradox concerning the fragmentation of publicly funded agencies and the multifaceted nature of issues that government must deal with.

2.4 Empirical review

2.4.1 Supply chain partnership
Mohr and Spekman (1994:133) define partnerships as purposive strategic relationships between independent firms who share compatible goals, strive for mutual benefit, and acknowledge a high level of mutual interdependence. Partnership performance related issues have received less attention than other areas because of various research difficulties (Gulati, 1998:294). The first main difficulty is that there are few consensus and available measure (Glaister & Buckley, 1998:90) and this is related to the fact that the definition of the partnership performance remains unclear (Geringer, 1998:357). Also, the partnership performance can be expected to vary with the nature of the organization’s environment and its recourse capability (Sodhi, & Son, 2009:938). This creates the compatibility and reliability problems of the partnership performance measures (Glaister et al., 1998:91).

A good partnership quality between the buyer and its supplier, based on mutual trust, joint problem solving, and fulfillment of pre-specified promises, helps in avoiding complex and lengthy contracts, that are costly to write and difficult to monitor and enforce (Fynes, De Bu’rea, & Marshall, 2004:181; Zaheer & Venkatraman, 1995:374). Firms that rely on high quality partnerships with suppliers are better equipped to adapt to unforeseen changes, identify and produce well-crafted solutions to organizational problems, and reduce monitoring costs, all of which help improve the economic outcomes (Ryu, Park, & Min, 2007:54).

Extant literature suggests that relationships characterised by higher partnership quality are associated with mutual sharing of business risks, trust, commitment, mutual adaptation, reciprocity, and durability (Lahiri & Kedia, 2012:11; Wu & Cavusgil, 2006:83). In a recent study, Lahiri and Kedia (2011:13) noted that benefits associated with such close partnerships between the focal firm and its suppliers may include “customer satisfaction, enhanced perception of fairness and justice, customer loyalty, relationship satisfaction, positive word-of-mouth, repeat transactions and business continuity”. Close relationships based on trust and cooperation, mutual sharing of risks and benefits, between the buyer and the supplier, may have beneficial performance effects (Mahesh, Debmalya & Ajai, 2011:262.).

Supply chain partnerships operate at the cooperative end of the spectrum and are strategic in nature and purpose. They are likely to be preferred when items need to be sourced that are strategic in terms of their importance to the organisation and the complexity of the supply market, either because there are limited sources in the market place or because supply is at risk (Squire, Cousins & Brown, 2009:463). Supply chain partnerships are designed to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant on-going benefits (Stuart, 1997:223).

A partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts (Gunasekaran, Patel & Tirtiroglu, 2001:72). Partnerships with suppliers enable organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the product offerings by the organization (Gallear, Ghobadian, & Chen, 2012:84). Firms that rely on high quality partnerships with suppliers are better equipped to adapt to unforeseen changes, identify and produce well-crafted solutions to organizational problems, and reduce monitoring costs, all of which help improve the economic outcomes (Ryu, Park, & Min, 2007:1226).

2.4.2 Supply chain collaboration

Supply chain collaboration has been defined as a business process whereby two or more supply chain partners work together toward common goals and mutual benefits (Cao & Zhang 2011:166). Many businesses around the world have been practicing supply chain collaboration for many years.
for improving business performance such as reducing cost and increasing profit (Horvath, 2001:205; Barratt, 2004:32; Danese, 2007:183). Companies such as Wal-Mart collaborate have transparent information exchange (electronic point of sales data) with Procter & Gamble. Such supply chain collaborations help companies to improve forecasting accuracy (Aviv, 2007:778; Smaros, 2007:703; Ramanathan & Muyldermans, 2010:539). Companies that collaborate for information sharing and forecasting may need to accept organizational changes, both internal and external to the company, to improve their performance (Barratt & Oliveira, 2001:267). Supply chain collaboration encourages future planning of promotional sales (Ramanathan & Muyldermans, 2011:5545) and also improves environmental management in manufacturing (Vachon & Klassen, 2008:301). Successful SC collaboration can be represented in terms of sales growth, market share (Mishra & Shah, 2009:325) and satisfaction of supply chain partners. Success of collaborative partnership normally motivates the businesses to engage in future projects (Ramanathan et al., 2011:5545). Subsequently, SC partners will try to retain the successful partnership to establish future businesses (Nyaga, Whipple & Lynch, 2010:102).

The major objective of supply chain collaboration is to create synergies for competitive advantage among supply chain partners through sharing information (Zeng, Wang, Deng, Cao, & Khundker, 2012:547). Most of the existing research on supply chain collaboration emphasizes on two issues (Zou & Yu, 2008:7) supply chain collaboration process modeling and information sharing. Supply chain collaboration process modeling aims to provide a mechanism whereby supply chain partners can jointly plan, forecast and manage supply chain activities. Collaborative Planning, Forecasting and Replenishment model is a representative solution of this issue, which is often used to induce collaboration and coordination through information sharing between supply chain partners (Min & Yu, 2008:5). Moreover, several researchers have modeled the supply chain collaboration process using other theories and technologies.

For example, (Fawcett, Magnan & Mccarter, 2008:94) developed a three-stage implementation model in order to manage the dynamic and changing collaboration process based on organizational theories. (Zou et al., 2008:7) built a model-driven decision support system to simulate the collaboration process using artificial intelligence techniques. Information sharing is a major approach to realize supply chain collaboration process, as for the Collaborative product development (CPD) environment, many researchers have proposed different models of information sharing adapted to the diverse structures of supply chains (Zeng et al., 2012:547). Studied vertical information sharing in a divergent supply chain, in which two downstream retailers competed on either quantity or the price of output (Zhang, 2002:532). Recently, radio frequency identification (RFID) technology has been widely used in supply chain collaboration (Attaran, 2007:450), the information among supply chains can be captured automatically and the visibility of items in supply chains is enhanced. RFID technology can facilitate information sharing among supply chain partners and improves the information sharing between supply chain partners. Barriers to supply chain collaboration can be broadly classified into two categories: organizational and operational. Smaros (2007:704) argued that lack of internal integration (organizational barrier) would be a great obstacle for manufacturers to efficiently use demand and forecast information (operational barrier). Sometimes behavioral issues within organization may also lead to failure of collaborative relationships. Fliedner (2003:15) considered lack of trust, lack of internal forecast, and fear of collusion as three main obstacles to implement collaboration. Boddy, Cahill, Charles, Fraser-Kraus, and MacBeth (1998:144) identified six underlying barriers for partnering: insufficient focus on the long term, improper definition of cost and benefit, over reliance on relations, conflicts on priority, underestimating the scale of change and turbulence surrounding partnering.

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2.4.3 Supply chain integration

Supply chain integration (SCI) is the degree to which manufacturers strategically collaborate with their supply chain partners and collaboratively manage intra and inter organisation processes (Flynn, Huo & Zhao, 2010:59). Growing evidence suggests that SCI has a positive impact on operational performance outcomes, such as delivery, quality, flexibility and cost (Rosenzweig, Roth & Dean 2003:438; Droge, Jayaram & Vickery, 2004:558; Devaraj, Krajewski & Wei, 2007:1200; Flynn et al., 2010:58).

The value of a best practice, such as SCI, is supported by empirical evidence; research should shift from the justification of its value to the understanding of the contextual conditions under which it is effective (Sousa & Voss, 2008:698). The challenge of supply chain integration is the managerial capacity for combining resources and competencies from various supply chain partners and business units, and directing all relevant parties towards an expanded resource base and competitive advantage (Yeung, Selen, Zhang & Huo, 2009:67). They are two types of SCI firstly, internal integration is defined as the strategic system of cross functioning and collective responsibility across functions (Follett, 1993:36), where collaboration across product design, procurement, production, sales and distribution functions takes place to meet customer requirements at a low total system cost (Morash, Droge & Vickery, 1997:352). Internal integration efforts break down functional barriers and facilitate sharing of real-time information across key functions (Wong, El-Beheiry, Johansen & Hvolby, 2007:5). Second, external integration comprises supplier and customer integration. SCI involves strategic joint collaboration between a focal firm and its suppliers in managing cross-firm business processes, including information sharing, strategic partnership, collaboration in planning, joint product development, and so forth (Lai, Wong & Cheng, 2010:274; Ragatz, Handfield & Peterson, 2002:388). SCI is a rare resource because, like strategic supply management skills, it cannot normally be copied at a cost that affords economic rent (Rungtusanatham, Salvador, Forza & Choi, 2003:105). When the supply management function integrates its decisions and operations with suppliers, the resulting connections are exclusive to the extent that these links exclude competitors from forming the same connections with the same critical suppliers for the same purpose.

SCI is an imperfectly transportable resource. The effect of supplier integration is deferent with suppliers that ease the management of the quality flow of materials the organisation. Restricted access to links with suppliers prevents rivals from acquiring information about these links (Hoopes, Madsen & Walker, 2003:888). SCI has turned into a vital performance attracting initiative that has gained broad acceptance among organisations. Firms can position inter-organizational systems to support processes ranging from operational information exchange to pursuing strategic initiatives such as sharing ideas, identifying new market opportunities, and pursuing a continuous improvement approach (Klein, Rai & Straub, 2007:620). SCI make use of a supply chain optimization approach to reduce the supply chain base through intensive information sharing, supplier involvement and supplier development, based on the rationale that collaborating with key suppliers can improve the operational efficiency and responsiveness of the entire supply chain (Yeung et al., 2009:68).

SCI have two key themes which are information sharing and process coordination. Information sharing is the degree to which an organization can coordinate the activities of information sharing, and combine core elements from heterogeneous data management systems, content management systems, data warehouses and other enterprise applications into a common platform, in order to substantiate integrative supply chain strategies (Jhingran, Mattos & Pirahesh, 2002:54; Roth,
Wolfson, Kleewein & Nelin, 2002:563). Only when information sharing is coordinated is when a firm will develop a capability to effectively link those diverse systems (Yeung et al., 2009:67). For example, buyers sharing information about production plans and demand forecasts with their suppliers can reduce the well-known “bullwhip effect” (Lee, Padhamanabhan & Whang, 1997:546). The second theme of supply chain integration is process coordination, which is the degree to which a firm can structure its operational processes, as well as the sharing of resources, rewards and risks across organizations into consensus agreements, in order to achieve competitiveness. Process coordination views inter-firm relationships as strategic assets (Anderson, Hikansson & Johanson, 1994:2) and firms must maintain ongoing buyer–supplier relationships in order to facilitate progressive involvement between partnering firms (Webster, 1992:3). SCI is not as simple as it looks. The absence of relationship management mechanisms might hold back the activities related to it, and cause problems of free riding, hold-ups, and leakages, which lead to less satisfactory supply chain performance or even supply chain defection (McCarter & Northcraft, 2007:450). SCI cannot be successful with no supplier's contribution to capability and understanding of two or more organization that are willing to enter into an agreement. From this perspective, supplier's resources are vital to the effectiveness and efficiency of supplier integration.

2.4.4 Relationship commitment

Relationship commitment is defined as an exchange partner's belief that the relationship is worth the expenditure of effort required to ensure its survival (Morgan & Hunt, 1994:22). In channels, commitment among exchange partners is a key to achieving valuable outcomes, such that firms attempt to develop and maintain this important attribute in their relationships (Morgan & Hunt, 1994:22). A number of studies support the role of commitment in compliance with requests for joint action or cite it as the most influential of relational elements in terms of its impact on joint action (Kumar, Scheer, & Steenkamp, 1995:55; Lancastre & Lages, 2006:775).

Scholars have identified several different antecedents of commitment in different buyer–seller relationship contexts. Some scholars have even noted interrelationships between the antecedent variables as well as mediating roles between some of the variables (Bennett & Gabriel, 2001:425). More specifically, in highly competitive international market places, international business scholars as well as marketing practitioners are focusing more on relational exchange perspectives (Nes, Solberg & Silkoset, 2007:407). Relationship commitment will enhance better comprehension of the nature of the interactions and will provide more valid implications in an emerging market setting (Saleh, Ali & Julian, 2014:330). Scholars have emphasised the impact of cultural variations, environmental changes /volatility, communication, knowledge capability/ competency of the importer and supplier, parties’ opportunistic proclivity, and the inclination of sustainable competitive advantages in the relationship (Matanda & Freeman, 2009:90; Nes et al., 2007:407; Skarmeas, Katsikeas, & Schlegelmilch, 2002:758). Wilson & Vlosky, (1998:215) identify commitment as the variable that discriminates between relationships that continue and those that break down. Kwon and Suh (2000:273) suggest that “any enduring business transactions among supply chain partners require commitment by two parties in order to achieve their common supply chain goals.” When both parties in supply chain interact, supply chain relationship occurs (Qin, Yong-Tao, Zhao, & Ji 2008:264). The process of interaction includes short-term exchanges and long-term relationship behaviors. Long-term relationship behaviors are essential for maintaining long-term cooperation, and supply chain relationship tends to be considered as a long-term relationship.

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Keller (2002:650) found that supply chain may be strengthened through the long-term, mutually beneficial relationships among supply chain members. Lages, Lages and Lages (2005:1041) considered long-term orientation as the key dimension of relationship quality in their study on the relation-ship quality in exporter and importer. Saad, Jones and James (2001:174) also identified long-term and steady relationship intra- and inter-organizations as the key feature of supply chain management. Fynes, Debu and Marshall (2004:181) stressed that one of the most significant uncertainties in supply chain comes from behavioral uncertainty, which includes opportunities and bounded rationality, and they stressed that the formation of close long-term relationship is an effective means to reduce uncertainty.

Moreover, the existing close long-term relationships between buying and selling companies in supply chain are a powerful barrier to the entry of another company. For an enduring relationship to develop, commitment and joint action of the involved parties is required to support the recurring exchanges (Heide & John, 1990:26). Commitment is an important variable for long-term success because supply chain partners are willing to invest resources, sacrifice short-term benefits for long-term success (Kwon & Suh, 2005:27; Mentzer, Min & Zacharia, 2000:550). Organizations build and maintain long-term relationships if they perceive mutually beneficial outcomes accruing from such a commitment (Morgan & Hunt, 1994:21).

2.4.5 Supply chain performance

Performance refers to how well a firm fulfills its financial goals compared with the firm’s primary competitors (Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006:107). According to Carr and Pearson (2002:1032) a strategic supply management function can help a firm to sustain its competitive advantage in a number of ways. First, it provides value in the area of cost management. Traditionally, most studies have assesses organizational performance based largely on financial indicators (Levy, Loebbecke & Powell 2003:3; Prajogo, & Olhager, 2012:514). These indicators are important to assess whether operational changes are improving the financial health of a company, but insufficient to measure supply chain performance (Wu, Chuang, & Hsu, 2014:124.)

These indicators do not relate to important organizational strategies and non-financial performances, such as product quality and customer satisfaction (Lapide, 2000:287; Ranganathan, Dhaliwal & Teo, 2004:127). More specifically, several studies have proposed a classification for supply chain strategies with the nature of different products, such as efficient supply chains for functional products and responsive supply chains for innovative products (Fisher, 1997:105; Lee, 2002:79). This implies that product-related characteristics are crucial in determining the types of supply chain strategies either more efficient or more responsive, and accordingly, are considered as the potential measures of supply chain performance (Wu et al., 2014:124). Improving supply chain performance has become one of the critical issues in sustaining competitive advantages for companies (Estampe, Lamouri, Paris & Djelloul, 2010:11). Performance measurement has evolved during the last three decades from using accounting and budgeting systems as tools to measure business performance to incorporating non-financial measures such as competitors, suppliers, and customers (Chae, 2009:422).

Banomyong and Supatn (2011:21) developed a supply chain performance assessment tool (SCPAT) for SMEs and proposed three areas for performance evaluation: cost, time and reliability. Wong and Wong (2007:362) used a multifactor performance measurement model that considered multiple inputs and output factors and addressed the day-to-day need to measure supply chain performance using new customer-centric metrics such as the number of times orders were filled on time and the order delivery rate in addition to financial metrics. Attempts to directly optimize organizational performance may prove to have a detrimental impact on overall supply chain
performance, thus damaging the competitive advantage of the chain (Chopra & Meindl, 2004:321; Meredith & Shafer, 2002:564). Chopra and Meindl (2004:54) argue that supply chain performance is optimized only when an ‘inter-organizational, inter-functional’ strategic approach is adopted by all partners operating within the supply chain. Optimization at the supply chain level maximizes the supply chain surplus available for sharing by all supply chain partners. Strategies that strengthen the competitive position of the supply chain serve to directly enhance supply chain performance, which will, in time, positively influence performance at the organizational level for each supply chain partner (Green, Whitten & Inman, 2012:1009).

D'Avanzo, Lewinski and Wassenhove (2003:40) investigated the link between supply chain and financial performance and found a statistical correlation between companies' financial success and the depth and sophistication of their supply chains. Bowersox, Closs, Stank, and Keller (2000:72) surveyed 306 senior North American logistics executives and concluded that cutting-edge supply chain practices result in improved financial performance for the organisation. Although organisational managers are ultimately held accountable for organisational performance, organisational success depends on upon the performance of the supply chains in which the organisation functions as a partner (Rosenzweig et al., 2003:54). Supply chain performance is dependent on the supply chain partners' ability to adapt to a dynamic environment (Vanderhaeghe & Treville, 2003:64).

**Conceptual Research model**

Drawing from the literature review, a research model is conceptualised. Hypothesised relationships between research constructs will be developed thereafter. In the conceptualised research model, supply chain partnership is the predictor, collaboration, integration and relationship commitment is the mediator and supply chain performance is the outcome. Figure 3.1 below illustrates the proposed conceptual model.

![Figure 3.1 conceptual model](image-url)

**Author:** Nematatane Pfanelo
3.3 Hypothesis development

3.3.1 Supply chain partnership and collaboration

Supply chain partnerships operate at the cooperative end of the spectrum and are strategic in nature and purpose. They are likely to be preferred when items need to be sourced that are strategic in terms of their importance to the organization and the complexity of the supply market, either because there are limited sources in the market place or because supply is at risk (Squire, Cousins & Brown, 2009:463). Supply chain partnerships are designed to leverage the strategic and operational capabilities of individual participating organizations to help them achieve significant on-going benefits (Stuart, 1997:223). A partnership emphasizes direct, long-term association and encourages mutual planning and problem solving efforts (Gunasekaran, Patel & Tirtiroglu, 2001:72). Partnerships with suppliers enable organizations to work more effectively with a few important suppliers who are willing to share responsibility for the success of the product offerings by the organization (Gallear, Ghobadian, & Chen. 2012:84). Firms that rely on high quality partnerships with suppliers are better equipped to adapt to unforeseen changes, identify and produce well-crafted solutions to organizational problems, and reduce monitoring costs, all of which help improve the economic outcomes (Ryu, Park, & Min, 2007:1226). Consistent with the empirical evidence on the linkage between supply chain partnership and collaboration, the current research proposes that higher levels of supply chain partnership will likely have higher positive collaboration. Hence, the following hypothesis is formulated:

H1: Supply chain partnerships have a positive influence on collaboration South African SMEs

3.3.2 Supply chain partnership and integration

A good partnership quality between the buyer and its supplier, based on mutual trust, joint problem solving, and fulfillment of pre-specified promises, helps in avoiding complex and lengthy contracts, that are costly to write and difficult to monitor and enforce (Fynes, De Bu’Rca, & Marshall, 2004:181; Zaheer & Venkatraman, 1995:374). Firms that rely on high quality partnerships with suppliers are better equipped to adapt to unforeseen changes, identify and produce well-crafted solutions to organizational problems, and reduce monitoring costs, all of which help improve the economic outcomes (Ryu, Park, & Min, 2007:54). Extant literature suggests that relationships characterized by higher partnership quality are associated with mutual sharing of business risks, trust, commitment, mutual adaptation, reciprocity, and durability (Lahiri & Kedia, 2012:11; Wu & Cavusgil, 2006:83). In a recent study, Lahiri and Kedia (2011:13) noted that benefits associated with such close partnerships between the focal firm and its suppliers may include “customer satisfaction, enhanced perception of fairness and justice, customer loyalty, relationship satisfaction, positive word-of-mouth, repeat transactions and business continuity”. Close relationships based on trust and cooperation, mutual sharing of risks and benefits, between the buyer and the supplier, may have beneficial performance effects (Mahesh, Debmalya & Ajai, 2011:262.) Consistent with the empirical evidence on the linkage between supply chain partnership and integration, the current research proposes that higher levels of supply chain partnership will likely have higher positive integration. Hence, the following hypothesis is formulated:

H2: Supply chain partnerships have a positive influence on supply chain integration in South African SMEs.
Supply chain integration (SCI) is the degree to which manufacturers strategically collaborate with their supply chain partners and collaboratively manage intra and inter-organization processes (Flynn, Huo & Zhao, 2010:59). Growing evidence suggests that SCI has a positive impact on operational performance outcomes, such as delivery, quality, flexibility and cost (Rosenzweig, Roth & Dean, 2003:438; Droge, Jayaram & Vickery, 2004:558; Devaraj, Krajewski & Wei, 2007:1200; Flynn et al., 2010:58). The value of a best practice, such as SCI, is supported by empirical evidence; research should shift from the justification of its value to the understanding of the contextual conditions under which it is effective (Sousa & Voss, 2008:698). The challenge of supply chain integration is the managerial capacity for combining resources and competencies from various supply chain partners and business units, and directing all relevant parties towards an expanded resource base and competitive advantage (Yeung, Selen, Zhang & Huo, 2009:67). SCI has turned into a vital performance attracting initiative that has gained broad acceptance among organizations. Firms can position inter organizational systems to support processes ranging from operational information exchange to pursuing strategic initiatives such as sharing ideas, identifying new market opportunities, and pursuing a continuous improvement approach (Klein, Rai & Straub, 2007:620). SCI make use of a supply chain optimization approach to reduce the supply chain base through intensive information sharing, supplier involvement and supplier development, based on the rationale that collaborating with key suppliers can improve the operational efficiency and responsiveness of the entire supply chain (Yeung et al., 2009:68). Consistent with the empirical evidence on the linkage between supply chain collaboration and relationship commitment, the current research proposes that higher levels of supply collaboration will likely have higher positive influence of relationship commitment. Hence, the following hypothesis is formulated:

\[ H3: \text{Supply chain collaboration has a positive influence on relationship commitment in South African SMEs.} \]

3.3.4 Integration and relationship commitment

SCI is a rare resource because, like strategic supply management skills, it cannot normally be copied at a cost that affords economic rent (Rungtusanatham, Salvador, Forza & Choi, 2003:105). When the supply management function integrates its decisions and operations with suppliers, the resulting connections are exclusive to the extent that these links exclude competitors from forming the same connections with the same critical suppliers for the same purpose. SCI is an imperfectly transportable resource. The effect of supplier integration is deferent with suppliers that ease the management of the quality flow of materials the organization. Restricted access to links with suppliers prevents rivals from acquiring information about these links (Hoopes, Madsen & Walker, 2003:888). The value of a best practice, such as SCI, is supported by empirical evidence; research should shift from the justification of its value to the understanding of the contextual conditions under which it is effective (Sousa & Voss, 2008:698). The challenge of supply chain integration is the managerial capacity for combining resources and competencies from various supply chain partners and business units, and directing all relevant parties towards expanded resource base and competitive advantage (Yeung, Selen, Zhang & Huo, 2009:67). Consistent with the empirical evidence on the linkage between supply chain integration and relationship commitment, the current research proposes that higher levels of supply chain integration will likely have higher positive influence of relationship commitment. Hence, the following hypothesis is formulated:

\[ H4: \text{Supply chain integration has a positive influence on relationship commitment in South African SMEs.} \]
3.3.5 Relationship commitment and performance
When both parties in supply chain interact, supply chain relationship occurs (Qin, Yong-Tao, Zhao, & Ji 2008:264). The process of interaction includes short-term exchanges and long-term relationship behaviors. Long-term relationship behaviors are essential for maintaining long-term cooperation, and supply chain relationship tends to be considered as a long-term relationship. Keller (2002:650) found that supply chain may be strengthened through the long-term, mutually beneficial relationships among supply chain members. Lages, Lages and Lages (2005:1041) considered long-term orientation as the key dimension of relationship quality in their study on the relationship quality in exporter and importer. Saad, Jones and James (2001:174) also identified long-term and steady relationship intra- and inter-organizations as the key feature of supply chain management. Fynes, Debu and Marshall (2004:181) stressed that one of the most significant uncertainties in supply chain comes from behavioral uncertainty, which includes opportunities and bounded rationality, and they stressed that the formation of close long-term relationship is an effective means to reduce uncertainty. Moreover, the existing close long-term relationships between buying and selling companies in supply chain are a powerful barrier to the entry of another company. Consistent with the empirical evidence on the linkage between supply chain integration and relationship commitment, the current research proposes that higher levels of supply chain integration will likely have higher positive influence of relationship commitment. Hence, the following hypothesis is formulated:

\[ H5 \]: Relationship commitment has a positive influence on supply chain performance in South African SMEs.

RESEARCH METHODOLOGY

4.4 Sampling design
Sampling design in this study will cover target population, sampling frame, sample size and sampling method.

4.4.1 Target population
The target population refers to the entire group under study (Burns & Bush, 2002:58; Sin, Cheung & Lee, 1999:52). The identification of the study population is necessary for the setting up and running of a theoretical test (Klein & Meyskens, 2001:562). To complement the research stream angle, a quantitative study is conducted from the SMEs manufacturer’s perspective. The population of the sample comprises manufacturers from the small and medium enterprises (SMEs) sector. The targeted population was that of manufacturing SMEs that have 100 or less employees in Gauteng in South Africa. These SMEs manufacturers encompass almost every side of the economy in South Africa, such as food processing, toiletry making, garments, leather, rubber, metal fabrication, furniture manufacturing, construction, art and so on (Gono, 2006:9).

4.4.2 Sample Frame
A sample frame is defined as “aselection of subjects from an overall population group that has been clearly defined” (Santy & Kneale, 1998:142). It refers to the researched environment (Pedhazur & Schmelkin, 1991:210) and the subjects used in a study (Yang et al., 2006:321). After deciding the population of the sample, the next step was to choose the sample frame against which the sample was to be drawn. According Fowler (1993:45), there are three characteristics of a good sample frame to consider i.e. comprehensiveness, probability of selection, and efficiency. In this
study the research sampling frame was the Small to Medium Enterprise Association of South Africa.

4.4.3 Sample size

The sample size refers to the number of elements to be included in the study. A good sample has two properties: representativeness and adequacy (Singh, 1986:234). When attempting to draw a sample, it is important to identify the most favorable point between the costs and sufficiency of the sample size (Yang et al., 2006:32). According to Randall and Gibson, (1990:41) the adequacy of the sample size is determined by certain aspects of the study such as the manner in which respondents are selected, the constructs understudy, the rationale behind the research as well as the intended processes of data analysis. Sample size provides a basis for the estimation of sampling error. It has a direct impact on the appropriateness and the statistical power of structural equation modeling to be used in the current study. The determination of the final sample size involves judgment as well as calculation. According to Kumar et al. (2002:318), four factors determine the sample size: the number of groups within the sample, the value of the information and the accuracy required of the results, the cost of the sample, and the variability of the population. Considering Kumar et al.’s (2002:318) suggestions this study randomly selected 450 SMEs manufacturers in Gauteng Province.

4.4.4 Sample method

A critically important decision for a quantitative study involving a sample is how the sample units are to be selected. The decision requires the selection of a sampling method. The choice between probability and non-probability sampling methods often involves both statistical and practical considerations. Statistically, probability sampling allows the researcher to demonstrate the sample’s representativeness, an explicit statement as to how much variation is introduced, and identification of possible biases (Kumar et al., 2002:306). Therefore, based on this reason probability sampling is considered appropriate for this survey-based study. According to Fowler (1993:16), almost all samples of populations of geographic areas are stratified by some regional variable so that they will be distributed in the same way as the population as a whole. Because some degree of stratification is relatively simple to accomplish and it never hurts the precision of sample estimates, as long as the probability of selection is the same across all strata, it usually is a desirable feature of a sample design. Stratified sampling improves the sampling efficiency by increasing the accuracy at a faster rate than the costs increase (Kumar et al., 2002:421). In the study, since the data in the sampling frame are considered comprehensive and can be easily divided into strata based on Gauteng, a proportional stratified sampling technique for the distribution of questionnaires is adopted. Students from the Vaal University of Technology were recruited to distribute and collect the questionnaires after appointments with target SMEs manufacturers were made by telephone. Part of the research plan that indicates how cases are to be selected for observation, i.e. is it probability sampling or non-probability sampling.

4.2 Measurement Instrument

A structured questionnaire is designed for the study to collect data from a relatively big size of samples. The questions in the study are mainly involved with attitude or perception measurement. Research scales were set mainly on the basis of previous works. Minor adaptations were made in order to fit the current research context and purpose. Some five-item scales used to measure non-mediated power were adapted from the previous works of Cao and Zhang (2011:65) for Collaboration, Flynn, Huo and Zhao (2010:354) for integration and supply chain performance,
Megha, Shada, Wesley and Cheng (2014:123) for relationship commitment and Gallear, Ghobadian and Chen (2012:59) for supply chain partnership. As pointed out earlier on, all the measurement items were measured on a 5-point Likert-type scales that was anchored by 1= strongly disagree to 5= strongly agree to express the degree of agreement.

4.3 Data collection technique

4.3.1 Face-to-face surveys

Face to face method was implemented for the study, involves considerably higher administration costs, due the organising appointments, travel and the fact that each survey must be administered separately. Face-to-Face surveys tend to go into more detail than any of the other methods, which adds to the considerable time required for each survey. The responses are usually staggered due to the lengthy process and the availability of respondents. This approach differs from informal interviews in that survey follows a more structured procedure of asking questions (Blaxter, et al., 1996:153). The benefits of this approach are that the surveyor interacts with the respondents and is able to clarify any misunderstandings and the results are more detailed and possible more accurate than e-mail and mail out methods.

DATA ANALYSIS AND INTERPRETATION

Participants’ profile data

Firstly Number of employee 1-25 made 16.61%, 26-35 made 28.78%, 36-45 made 22.88%, 46-55 made 23.62% and 50 & more made 8.12%. Secondly, Type of business Cooperatives made 19.56%, sole proprietors’ made19.19%, close corporations made19.56%, 21.40% private companies made, partnerships made 16.97 and other made 3.32%. Thirdly the Current position in the company which Owners made 35.79%, buyers made 11, 44%, senior manages made 26.20, junior managers made 18.45% and others made 8.12%. Fourthly the Department/industry/sector in which Supply chain made 8.86%, logistics made 22.14, mining/quarrying made 6.27%, wholesale/retails made 36.90%, motor trade & repairs services made 8.12%, finance & business services made 7.01%, community/social/personal service made 8.12% and others made 2.5%. Lastly, all the questionnaires were distributed and collected in Gauteng province making it 100%.

Table 5.1: Participants’ profile data

<table>
<thead>
<tr>
<th>Number of Company employees</th>
<th>Freq</th>
<th>%</th>
<th>Current position in the company</th>
<th>Freq</th>
<th>%</th>
<th>Region of the company</th>
<th>Freq</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-25</td>
<td>45</td>
<td>16.6</td>
<td>Owner</td>
<td>97</td>
<td>35.8</td>
<td>Gauteng</td>
<td>271</td>
<td>100</td>
</tr>
<tr>
<td>26-35</td>
<td>78</td>
<td>28.8</td>
<td>Buyer</td>
<td>31</td>
<td>11.4</td>
<td>Limpopo</td>
<td></td>
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</tr>
<tr>
<td>36-45</td>
<td>62</td>
<td>22.9</td>
<td>Senior Manager</td>
<td>71</td>
<td>26.2</td>
<td>Free State</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td>64</td>
<td>23.6</td>
<td>Junior Manager</td>
<td>50</td>
<td>18.5</td>
<td>Mpumalanga</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Form of business ownership</td>
<td>Freq</td>
<td>%</td>
<td>Company industry</td>
<td>Freq</td>
<td>%</td>
<td></td>
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<tr>
<td>-----------------------------</td>
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<tr>
<td>Sole proprietor</td>
<td>53</td>
<td>19.6</td>
<td>Supply chain</td>
<td>24</td>
<td>8.9</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Partnership</td>
<td>52</td>
<td>19.2</td>
<td>Logistics</td>
<td>60</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Close corporation</td>
<td>53</td>
<td>19.6</td>
<td>Mining/quarrying</td>
<td>17</td>
<td>6.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private company</td>
<td>5</td>
<td>21.4</td>
<td>Wholesale/Retail</td>
<td>100</td>
<td>36.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public company</td>
<td>46</td>
<td>17.0</td>
<td>Motor trade</td>
<td>22</td>
<td>8.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>3.3</td>
<td>Finance</td>
<td>19</td>
<td>7.0</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Personal services</td>
<td>22</td>
<td>8.1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Other</td>
<td>7</td>
<td>2.6</td>
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<tr>
<td>Total</td>
<td>271</td>
<td></td>
<td>Total</td>
<td>271</td>
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</tbody>
</table>

**Reliability**

In the current study, three tests i.e. Cronbach’s Alpha, Composite reliability (CR) and Average Variance Extracted (AVE) were conducted in order to assess the reliability of the measures. Table 6.3 below provides the results of the tests which will be elaborated on hereafter. The Descriptive statistics column indicates the mean value regarding responses otherwise described above as well as respective Standard Deviation values.
Table 5.3: Scale accuracy analysis

<table>
<thead>
<tr>
<th>Research constructs</th>
<th>Descriptive statistics</th>
<th>Cronbach’s test</th>
<th>CR</th>
<th>AVE</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Item-total</td>
<td>α-value</td>
<td></td>
</tr>
<tr>
<td>Supply chain partnership</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCPS1</td>
<td>3.92</td>
<td>0.72</td>
<td>0.538</td>
<td>0.793</td>
<td>0.95</td>
</tr>
<tr>
<td>SCPS2</td>
<td></td>
<td></td>
<td>0.571</td>
<td></td>
<td></td>
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<tr>
<td>SCPS3</td>
<td></td>
<td></td>
<td>0.564</td>
<td></td>
<td></td>
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<tr>
<td>SCPS4</td>
<td></td>
<td></td>
<td>0.562</td>
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<tr>
<td>SCPS5</td>
<td></td>
<td></td>
<td>0.540</td>
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<tr>
<td>Supply chain collaboration</td>
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<td></td>
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<tr>
<td>SCC1</td>
<td>4.04</td>
<td>0.76</td>
<td>0.634</td>
<td>0.848</td>
<td>0.97</td>
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<td>SCC2</td>
<td></td>
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<td>0.661</td>
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<td>SCC3</td>
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<td>0.674</td>
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<tr>
<td>SCC4</td>
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<td>0.700</td>
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<td>SCC5</td>
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<td>Supply chain integration</td>
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<tr>
<td>SCI1</td>
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<td>0.81</td>
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<td>0.799</td>
<td>0.96</td>
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<td>SCI2</td>
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<td>SCI3</td>
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<td>0.679</td>
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<td>SCI4</td>
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<td>SCI5</td>
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<td>SCI6</td>
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<td>Relationship commitment</td>
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<td>3.72</td>
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<td>SCP5</td>
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<td>0.602</td>
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<td>SCP6</td>
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<td>0.363</td>
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<td>Supply chain performance</td>
<td>SCP1</td>
<td>SCP2</td>
<td>SCP3</td>
<td>SCP4</td>
<td>SCP5</td>
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<td>SD= Standard Deviation</td>
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<td></td>
</tr>
<tr>
<td>CR= Composite Reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVE= Average Variance Extracted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** SCSP=Supply chain partnership, SCC=Supply chain collaboration SCI= supply chain integration, RC= relationship commitment and SCP= supply chain performance.

5.4.1 Cronbach’s Alpha test

Proceeding from the discussion of Cronbach’s alpha, literature asserts that a higher level of Cronbach’s coefficient alpha indicates a higher reliability of the measurement scale (Chinomona, 2011:108). From the results provided in table 5.3, the Cronbach’s alpha value for each research construct range from 0.776 to 0.850 and therefore evidently, are above 0.7 as recommended by Nunnally and Bernstein, (1994). Furthermore, the item to total values ranged from 0.538 to 0.700 and were therefore above the cutoff point of 0.3 as advised by Dunn, Seaker and Waller, (1994:145). The Cronbach’s alpha results indicated in table 5.3 therefore validate the reliability of measures used in the current study.

5.4.2 Composite Reliability (CR)

The Composite Reliability test was also conducted in order to examine the internal reliability of each research construct, as recommended by Chinomona, (2011:108) and Nunnally, (1967). The composite reliability was examined using the following formula:

\[ CR_\eta = \frac{(\sum \lambda_yi)^2}{(\sum \lambda_yi)^2 + (\sum \epsilon_i)} \]

Composite Reliability = (square of the summation of the factor loadings)/ {(square of the summation of the factor loadings)+(summation of error variances)}

A Composite Reliability index that is greater than 0.6 signifies sufficient internal consistency of the construct (Nunnally, 1967:125). In this regard, the results of Composite Reliability that range from 0.94 to 0.97 in table 6.3 confirm the existence of internal reliability for all constructs of the study.

5.4.3 Average Variance Extracted (AVE)

According to Chinomona, (2011:109), “The average variance extracted estimate reflects the overall amount of variance in the indicators accounted for by the latent construct”. The Average
Variance Extracted was examined using the following formula:

\[ V_\eta = \frac{\sum \lambda^2_yi}{\sum \lambda^2_yi + \sum e_i} \]

\[ \text{AVE} = \frac{(\text{summation of the squared of factor loadings})}{(\text{summation of the squared of factor loadings}) + (\text{summation of error variances})} \]

A good representation of the latent construct by the item is identified when the variance extracted estimate is above 0.5 (Sarstedt et al., 2014:109; Fornell et al., 1981:39; Fraering & Minor 2006:284). Therefore the results of AVE that range from 0.76 to 0.87 in table 5.3 authenticate good representation of the latent construct by the items.

5.5 Validity

5.5.1 Convergent validity

Convergent validity determines the degree to which a construct converges in its indicators by giving explanation of the items’ variance (Sarstedt et al., 2014:108). Apart from assessing the convergent validity of items through checking correlations in the item-total index (Nusair et al., 2010:316), factor loadings were also examined in order to identify convergent validity of measurement items as recommended by Sarstedt et al., (2014:108). According to Nusair et al., (2010:316) items exhibit good convergent validity when they load strongly on their common construct. Literature maintains that a loading that is above 0.5 signifies convergent validity (Anderson et al., 1988:411). In this regard, the final items used in the current study loaded well on their respective constructs with the values ranging from 0.570-0.790 (see table 5.3). This therefore indicates good convergent validity where items are explaining more than 50% of their respective constructs. Furthermore, since CR values are above the recommended threshold of 0.6, this substantiates the existence of convergent validity.

5.5.2 Discriminant validity

Proceeding from the discussion of discriminant validity in chapter five, Hair, Hult, Ringle and Sarstedt, (2014:108) assert that when determining if there is discriminant validity, what must be done is to identify if whether the observed variable displays a higher loading on its own construct than on any other construct included in the structural model. To check if whether there is discriminant validity is to assess if whether the correlation between the research constructs is less than 1.0, as recommended by Chinomona, (2011:110). As indicated in table 5.4 below, the inter-correlation values for all paired latent variables are less than 1.0, hence confirming the existence of discriminant validity.
Table 5.4: Correlation between the constructs

<table>
<thead>
<tr>
<th>Research constructs</th>
<th>SCSP</th>
<th>SCC</th>
<th>SCI</th>
<th>RC</th>
<th>SCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain partnership</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain collaboration</td>
<td>0.633**</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain integration</td>
<td>0.576**</td>
<td>0.625**</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Relationship commitment</td>
<td>0.554**</td>
<td>0.617**</td>
<td>0.567**</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Supply chain performance</td>
<td>0.628**</td>
<td>0.652**</td>
<td>0.578**</td>
<td>0.668**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: SCSP=Supply chain partnership, SCC=Supply chain collaboration SCI= supply chain integration, RC= relationship commitment and SCP= supply chain performance.

5.6 Confirmatory Factor Analysis (CFA) Model

Figure 5.1 below is an illustration of the Confirmatory factor analysis model. On the model, the circles or ovals represent the latent variables while the rectangles or squares represent the observed variables with their adjacent measurement errors in circular or oval shape too. The bidirectional arrows signify the correlation between the variables. “The CFA model is a pure measurement model with un-gauged covariance between each of the possible latent variable pairs” (Jenatabadi et al., 2014:27). The outcome of this procedure is goodness-of-fit values that additionally improve the measurement scale levels that are the observed variables, through measuring the related research constructs (Hair et al., 1998). These goodness-of-fit values are used to assess the measurement model as recommended by Bone et al., (1989:105), Hair et al., (1998:18), Joreskoget al., (1993:65), and Schumackeret al., (2004:44). This assessment is discussed in the section below.
5.6.2 CFA Model fit assessment

Following the two-step procedure of Structural Equation Modelling (Anderson et al., 1988:411), the measurement model validation was assessed through CFA using AMOS 22. According to literature the purpose of the model fit evaluation is to check how well the conceptual model is represented by the sampled data (Jenatabadi et al., 2014:27). Firstly, deletion of some measurement items was carried out in order to elicit acceptable fit and the resultant scale accuracy. Thereafter, model fit was inspected through examining goodness-of-fit values i.e. Chi-square/degrees of freedom ($\chi^2$/DF), NFI, TLI, IFI, CFI and RMSEA. According to Jenatabadi et al., (2014:27) the goodness-of-fit values can be employed to examine the overall model and the hypothesis and to determine how much the expected covariances can be fine-tuned to the observed covariances in the data. If the goodness-of-fit indices are acceptable, then it can be concluded that the items’ targeted constructs can be measured adequately (Jenatabadi et al., 2014:27). Table 5.6 below provides the model fit results elicited through carrying out CFA. They are discussed hereafter.

Table 5.6: Model Fit

<table>
<thead>
<tr>
<th>Model fit criteria</th>
<th>Chi-square($\chi^2$/DF)</th>
<th>NFI</th>
<th>TLI</th>
<th>IFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator value</td>
<td>2.626</td>
<td>0.900</td>
<td>0.900</td>
<td>0.912</td>
<td>0.911</td>
<td>0.069</td>
</tr>
</tbody>
</table>

Figure 5.1: CFA model

Note: SCSP=Supply chain partnership, SCC=Supply chain collaboration, SCI= supply chain integration, RC= relationship commitment and SCP= supply chain performance
7 Structural equation modelling (SEM)

As the second procedure in structural equation modelling (Chen et al., 2011:243) structural modelling was conducted. This procedure includes "multiple regression analysis and path analysis and models the relationship among latent variables" (Chen et al., 2011:243). Figure 5.2 below is a representation of the path model. Much like the CFA model, the circles or ovals represent the latent variables while the rectangles or squares represent the observed variables with their adjacent measurement errors in circular or oval shape too. The unidirectional arrow signifies the influence of one variable on another. Normally, an intact path diagram is comprised of three features: regression coefficient of independent variables on dependent variables, measurement errors related to observables variables and residual error of prognostic value of latent values (Kaplan, 2000:350; Amorim, Fiaconne, Santos, Santos, Moraes, Oliveira, Barbosa, Santos, Santos, Matos &Barreto, 2010:2251; Beranet al., 2010:267). The model fit assessment will be discussed in the section hereafter.

**Figure 5.2: Structural equation modelling (SEM)**

Note: SCSP=Supply chain partnership, SCC=Supply chain collaboration SCI= supply chain integration, RC= relationship commitment and SCP= supply chain performance
5.7.1 Path Model fit assessment

Much like table 6.6, table 5.7 below exhibits goodness-of-fit values elicited through carrying out structural model testing. In this instance, the description provided in the model fit assessment in CFA and the recommended threshold stipulated, apply here as well. In the table below, the indicator value (2.810) for the chi-square over degree of freedom falls below the recommended threshold that is 3. As such, this result signifies acceptable model fit. The goodness-of-fit index, that is NFI, TLI, IFI and CFI are exhibiting indicator values that is 0.900 which are meeting the recommended threshold of ≥0.9. These results are therefore an indication of acceptable model fit. Furthermore, as a value that falls below 0.05 and 0.08 is an indication of good model fit with regard to RMSEA, the RMSEA value (0.073) exhibited in the table below supports the existence of good model fit as it conforms to the recommended threshold. Given that all six goodness-of-fit indices provided in table 5.7 are meeting their respective recommended threshold here too, it can be concluded that the data is fitting the model.

Table 5.7: Model fit results (Structural model)

<table>
<thead>
<tr>
<th>Model fit criteria</th>
<th>Chi-square(χ²/DF)</th>
<th>NFI</th>
<th>TLI</th>
<th>IFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator value</td>
<td>2.810</td>
<td>0.900</td>
<td>0.900</td>
<td>0.900</td>
<td>0.900</td>
<td>0.073</td>
</tr>
</tbody>
</table>

Note: (χ²/DF)= Chi-square/degrees of freedom  NFI= Norm Fit Index  TLI= Tucker-Lewis Index;  IFI= Incremental Fit Index  CFI= Comparative Fit Index  RMSEA= Root mean square error of approximation

5.7.2 Hypothesis testing

As the hypothesized measurement and structural model has been assessed and finalized, the next stride was to examine causal relationships among latent variables by path analysis (Nusair et al., 2010:316). According to Byrne, (2001) and Nusair et al., (2010:316) SEM asserts that particular latent variables directly or indirectly influence certain other latent variables with the model, resulting in estimation results that portray how these latent variables are related. For this study, estimation results elicited through hypothesis testing are indicated in table 5.8. The table indicates the proposed hypothesis, factor loadings and the rejected/supported hypothesis. Literature asserts that p<0.05, p<0.01 and p<0.001 are indicators of relationship significance and that positive factor loadings indicate strong relationships among latent variables (Chinomona, Lin, Wang & Cheng, 2010:191).

All factor loadings were at least at a significant level of p<0.001. The study hypothesized that the predicting role of knowledge sharing and business strategy alignment and the mediating effect of long-term relationship orientation will positively influence the supply chain performance of SMEs buyers and suppliers in South Africa. All four hypotheses (H1-H4) were supported therefore indicating that supply chain management has an important significant effect on Small and Medium Enterprises in South Africa. Generally, these results indicate that knowledge sharing; business strategy alignment and long-term relationship orientation have a strong influence on the supply chain performance of South African SMEs than those knowledge sharing and long-term relationship alone. Also, it is important to note that long-term relationship orientation and supply chain performance had the strongest relationship while the opposite is true for knowledge
sharing and long-term relationship orientation which is the weakest relationship.

Table 5.8: Hypothesis testing results

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
<th>Label</th>
<th>Rejected/Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCC</td>
<td>1.004</td>
<td>.176</td>
<td>5.693</td>
<td>***</td>
<td>par_26</td>
<td>Supported and significant</td>
</tr>
<tr>
<td>SCI</td>
<td>.769</td>
<td>.152</td>
<td>5.057</td>
<td>***</td>
<td>par_27</td>
<td>Supported and significant</td>
</tr>
<tr>
<td>RC</td>
<td>1.081</td>
<td>.166</td>
<td>2.155</td>
<td>***</td>
<td>par_24</td>
<td>Supported and significant</td>
</tr>
<tr>
<td>RC</td>
<td>.950</td>
<td>.140</td>
<td>6.373</td>
<td>***</td>
<td>par_25</td>
<td>Supported and significant</td>
</tr>
<tr>
<td>SCP</td>
<td>.921</td>
<td>.152</td>
<td>6.059</td>
<td>***</td>
<td>par_23</td>
<td>Supported and significant</td>
</tr>
</tbody>
</table>

Note: SCC=Supply chain collaboration, SCSP=Supply chain partnership, SCI= supply chain integration, RC= relationship commitment and SCP= supply chain performance.

Significance level p<0.05; significance level p<0.01; significance level p<0.001

Discussion and Conclusions
This research investigated the direct influence of supply chain performance on supply chain collaboration, supply chain integration on relationship commitment and supply chain performance in South African SMEs. In order to test the hypotheses, data were collected from manufacturing SMEs in South Africa around Gauteng province. All the proposed five hypotheses were empirically supported indicating that supply chain performance positively influences manufacturing SMEs' collaboration, integration, relationship commitment and performance in a significant way. Interesting to note from the results is the fact that on supply chain partnership has the most significant impact on integration than collaboration and relationship commitment respectively.

By implication, this finding indicates that manufacturing SMEs in South Africa are more likely to perform when collaborating with other companies than they do to operate in isolation.

On the academic side, this study makes a significant contribution to the supply chain performance by exploring the supply chain partnership, collaboration, integration and relationship commitment on emerging South African economy. Overall, the current study findings provide tentative support to

Author: Nematatane Pfanelo
the proposition that hedonic and monetary motivations should be recognised as significant antecedents for risk-taking behaviour in manufacturing firms.

This study, therefore, submits that organisers can benefit from supply chain partnership, collaboration and relationship commitment on the implications of these findings. For instance, given the positive and significant relationship between supply chain integration and relationship commitment, collaboration and relationship commitment will improve supply chain performance in South African SMEs.

6.3 Implications
The current study is not without both academic and practical ramifications. Firstly, on the academic fraternity, an attempt was successfully made to apply the partnership theory in the small business field. This study, therefore, submits that partnership theory can be extended to explain supply chain performance, collaboration, integration, relationship commitment on supply chain performance in South African SMEs. Secondly, this study investigated current topical firm performance and yet often most overlooked by researchers who focus on the SMEs. Therefore, this study is expected to expand further the horizons of firm performance issues. If the SMEs companies are able to join forces for a common goal, they are likely to cooperate with one another and creating joint synergies and competences that can give the SMEs a competitive edge and the drive to succeed in future.

6.4 Limitations and future research
Despite the usefulness of this study aforementioned, the research has its limitations. First and most significantly, the present research is conducted from the perspective of SMEs employees only. Perhaps if data is collected from both the SMEs employees and their employers; and a comparative study is done, insightful findings about the supply chain performance might be revealed.

Second, further research could also investigate the effects of a joint venture in the context of the SMEs sector. Such researches might potentially expand our understanding of these supply chain performance matters largely studied in large firms’ context but rarely studies in small business environment. However, many researchers adopt these constructs as a multidimensional. Therefore, future research might investigate the effects of supply chain performance on different dimensions in South African SMEs. All in all, these suggested future avenues of study stand to immensely contribute new knowledge to SMEs in and around South Africa.

REFERENCE


Author: Nematatane Pfanelo
For a detailed review of the literature and findings, please refer to the original sources cited in the academic journals. The references are as follows:


Author: Nematatane Pfanelo


Author: Nematatane Pfanelo

**APPENDIX: MEASUREMENT INSTRUMENTS**

**SUPPLY CHAIN PARTNERSHIP**

Below are statements about supply chain partnership. You can indicate the extent to which you agree or disagree with the statement by ticking the corresponding number in the 5 point scale below:

Please tick only one number for each statement

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly disagree</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Our company benefits from problem solving with our major suppliers.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>B2</td>
<td>Our company involve our major suppliers in new product/service development.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>B3</td>
<td>Our company share important/technical information with our major suppliers.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>B4</td>
<td>Our company wants to make long-term commitment with our major suppliers to achieve mutually acceptable outcomes.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>B5</td>
<td>Our company view our major suppliers as suppliers of capabilities.</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>
### SUPPLY CHAIN COLLABORATION

| C1 | Our company and our major suppliers have agreed on the goals of the company. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| C2 | Our company and our major suppliers have agreed on the importance of collaboration across the company. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| C3 | Our company and our major suppliers have agreed on the importance of improvements that benefit the company as a whole. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| C4 | Our company and our major suppliers are working together to achieve the goal of the company. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| C5 | Our company and our major suppliers implement collaboration plans to achieve the goals of the company. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |

### SUPPLY CHAIN INTEGRATION

| D1 | Our company exchange information with our major suppliers through information networks. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| D2 | Our company maintain stable procurement through networks with our major suppliers. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| D3 | Our company and our major suppliers share information on available inventory. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| D4 | Our company and our major suppliers share production schedules. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| D5 | Our company and our major suppliers share their production capacity. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
| D6 | Our company help our major supplier to improve its process to better meet the needs of our company. | Strongly disagree | 1 | 2 | 3 | 4 | 5 | Strongly agree |
### RELATIONSHIP COMMITMENT

<table>
<thead>
<tr>
<th>E1</th>
<th>The relationship that our company has with our major suppliers is efficient.</th>
<th>Strongly disagree</th>
<th>1 2 3 4 5</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2</td>
<td>Our company wants to stay in the relationship with our major suppliers as they enjoy working with them.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>E3</td>
<td>Our company wants to stay in the relationship with our major suppliers as they share the same philosophy.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>E4</td>
<td>Our company wants to stay in the relationship with our major suppliers as we think positively about them.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>E5</td>
<td>Our company wants to stay in the relationship with our major suppliers as they are loyal to them.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

### SUPPLY CHAIN PERFORMANCE

<table>
<thead>
<tr>
<th>F1</th>
<th>Our company can quickly modify products to meet our major customer’s requirements.</th>
<th>Strongly disagree</th>
<th>1 2 3 4 5</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2</td>
<td>Our company can quickly introduce new products into the market.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>F3</td>
<td>Our company can quickly respond to change in the market demand.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>F4</td>
<td>Our company has an outstanding on-time delivery record to our major customer.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>F5</td>
<td>Our company’s lead time for fulfilling customer orders is short.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>F6</td>
<td>Our company provide a high level of customer service to our major customer.</td>
<td>Strongly disagree</td>
<td>1 2 3 4 5</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>