Successful Buyer Supplier Relationship’s Antecedents and Outcomes: An Empirical Study

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Abstract

Over the recent years, reduced product life spans and increasing customer expectations have put immense pressure on supply chain managers for increasing responsiveness of their supply chains in order to meet the organizational objectives. Role of successful buyer-supplier relationship is critical in the responsiveness of the supply chains. This thesis investigates the role of successful buyer-supplier relationship in supply chains in a developing country perspective. A research model is developed stating that effective supplier selection, buyer-supplier engagement, and information sharing capability help in developing successful buyer-supplier relationship in terms of reduction in product development time and production cost, and increase in product quality. Purposed research model also states that this successful buyer-supplier relationship enhances the financial and market performance of the supply chain firm. In order to test this model, seven hypotheses were formulated. Quantitative research strategy is implied using cross sectional data. A total of 87 responses are collected from manufacturing sector of Pakistan out of which 80 were useable. The measurement and structural model is assessed using Partial Least Squares (PLS) Structural Equation Modeling (SEM). Six hypotheses are supported indicating that effective supplier selection, buyer supplier engagement, information system integration, and business process integration positively impact the success of buyer supplier relationship. This successful buyer supplier relationship positively impacts the supply chain firm’s financial and market performance. However there is not sufficient evidence to conclude that decisions system integration positively impacts the success of buyer supplier relationship.

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1. Introduction

Since the last decade, companies all over the world are trying to manage their supply chains as a broader business strategy. Products life cycle span over the years is reducing due to the rapidly changing customers preferences which is increasing pressure on supply chains for fast product design (Fugate *et al.*, 2012). The trend of globalization has opened borders and the intensity of competitive forces has also significantly increased (Hsu *et al.*, 2008). The supply chains in such a highly competitive environment thus need to be more responsive (Kannan and Tan, 2006). Researchers over the period are trying to identify a set of variables which can help supply chains to enhance responsiveness. Literature indicates that collaborative relationship among supply chain firms can help supply chains to be responsive by considerably reducing product design time, increasing product variety and customization (Bozarth *et al.*, 2009; Fugate *et al.*, 2012; Hsu *et al.*, 2008; Kannan and Tan, 2006). Therefore the trend to develop strong collaborative relationships among supply chain firms is noticed (Barratt, 2004; Barratt and Oliveira, 2001; Cai, 2008; Han *et al.*, 1993; Hoyt *et al.*, 2000; Petersen *et al.*, 2005). Successful collaborative relationships improve supply chain firm's financial and market performance (Hsu *et al.*, 2008; Kannan and Tan, 2006).

In supply chains, firms are generally playing the role of supplier as well as buyer at the same time. End product of a firm is usually the inputs for the others. Collaborative relationships among buyer-supplier in supply chains result sharing of knowledge, experiences, expertise, and resources (Petersen *et al.*, 2008; Fugate *et al.*, 2011) which enable supply chains to be responsive and to quickly develop new products (Enz *et al.*, 2012). This helps supply chains to better cope with the rapidly changing preferences of the customers, and to improve market shares. Therefore the role of buyer-supplier relationship in contemporary business environment is critical. Successful buyer-supplier relationship enhances financial and market performances of supply chain firms (Kannan and Tan, 2006). Supply chain partners engaged in stronger buyer-supplier relationship share customer demand related information across their supply chains which reduces uncertainties and prevent stock outs or building larger inventories at various points in the supply chain (Hsu *et al*., 2008). Thus stock out and inventory holding cost reduce and both buyer and supplier engaged in relationship are the beneficiaries.

Sufficient literature highlights the success of buyer supplier relationship as a source of improving firm's performance (Corsten and Felde, 2005; Field and Meile, 2008; Frödell, 2011; Hong *et al.*, 2011; Hsu *et al*., 2008; Kannan and Tan, 2006; Lambert and Schwieterman, 2012; Park *et al.*, 2010; Sanders *et al.*, 2011; Squire *et al.*, 2009). However in most of the previous studies, researchers try to show that factors like supplier engagement, collaboration, integration, supplier selection, information sharing etc. directly enhance the supply chain performance. For example Corsten and Felde (2005) identified positive relationship between supplier collaboration and firm performance. However they argue that it is not necessary that supplier collaboration will always improve performance unless a strong bond of successful relationship is developed. Researchers after conducting similar studies reached to the point that supplier collaboration, integration, selection, management, and information sharing in-fact provide platform for developing successful relationships (Carr *et al.*, 2008; Field and Meile, 2008; Hsu *et al*., 2008; Kannan and Tan, 2006; Squire *et al*., 2009). These successful relationships turn into long term partnerships and then improve the firm's performance.

Literature on buyer-supplier engagement (BSE) indicates that it plays key role in determining the success of buyer-supplier relationship (SBSR) (Azadegan, 2011; Barratt, 2004; Claro *et al.*, 2006; Kannan and Tan, 2006; Petersen *et al*., 2005; Squire *et al*., 2009). BSE is the extent to which buyer-supplier is taking collaborative decisions, integrating activities and setting future strategic goals. BSE helps firms in developing long term successful partnerships which become a source of gaining competitive advantage through improving product quality, lowering product cost, and reducing product development time (Azadegan, 2011; Corsten and Felde, 2005). BSE enables supply chain firms to integrate the activities throughout their supply chains and help in bringing them closer. This improves relationships which help in eliminating uncertainties and delays and help in delivering product to end customers on time (Hsu *et al*., 2008; Kannan and Tan, 2006).

Literature on information sharing capability (ISC) reveals that it improves the level of engagement of supply chain firms, brings them closer and helps them in developing successful relationships (Agnihotri *et al.*, 2009; Barratt, 2004; Barratt and Oliveira, 2001; Carr and Smeltzer, 2002; Hsu *et al*., 2008; Petersen *et al*., 2005). Information sharing plays key role in developing long term partnerships between buyers and suppliers by enabling them to timely access the data and collaborate on the production, logistics and other activities. Thus ISC is considered to be the back-bone of any supply chain (Agnihotri *et al*., 2009; Hsu *et al*., 2008). Researchers argue that compatible information sharing systems across buyer-supplier firms help them to share information timely and effectively, bring them closer, help them in eliminating wastes, and improve their relationships (Agnihotri *et al*., 2009; Barratt, 2004; Barratt and Oliveira, 2001; Cristina Gimenez, 2012). Effective information sharing behavior gives rise to successful relationships which help in reducing supply chain in-efficiencies (Hsu *et al*., 2008). Poor communication and lack of strong bond of relationship among supply chain partners generate "derived demand" and cause "bull-whip" effect (Agnihotri *et al*., 2009). This "bull-whip" badly affects the profitability of the supply chains as inventories build in the system resulting in higher inventory associated costs. On the other hand closer relationships encourage sharing of information among supply chain partners which prevent "bull-whip" effect and thus improve supply chains performance (Hsu *et al*., 2008). Appropriate information sharing infrastructure promotes relationship building behavior among supply chain partners and helps them to cope with rapidly changing customer needs and expectations (Agnihotri *et al*., 2009; Carr and Smeltzer, 2002; Hsu *et al*., 2008). Kannan and Tan (2006) argue that supply chain firms must be very cautious in selecting supply chain partners, and should select those suppliers which have compatible information sharing infrastructure to enhance collaboration and build stronger relationships.

The role of effective supplier selection (ESS) in building stronger buyer-supplier relationship is critical (Claro *et al*., 2006; González *et al*., 2004; Hsu *et al.*, 2006; Kannan and Tan, 2006; Ndubisi *et al.*, 2005; Squire *et al*., 2009). Researchers argue that suppliers tendency to have shared vision and goals can help in predicting successful buyer supplier relationship (Kannan and Tan, 2006; Ndubisi *et al*., 2005). If a wrong supplier is selected whose objectives and goals do not match the firm's goals and objectives then it's more likely that this relationship will not last for longer period. Selection of right suppliers leads towards long term partnership which results in reduction of production costs and increase in profitability through co-creation of value (Enz *et al*., 2012) at both buyer and supplier ends. Therefore supplier selection process should be carefully designed to ensure that firm's needs must match the capabilities of the suppliers. ESS traditional criteria based on price and delivery performance is undoubtedly important, but now firms need to go beyond these criteria towards supplier's strategic orientation and willingness to meet shared goals and objectives (Kannan and Tan, 2006). Such suppliers which have shared vision are more likely to engage closely with other supply chain partners and are willing to achieve better outcomes of the relationship. Therefore selecting a right supplier, who has compatible information sharing infrastructure and has willingness to engage closely with other supply chain partners helps in building successful partnerships (Agnihotri *et al*., 2009; Azadegan, 2011; Barratt, 2004; Cannon, 2001; Fugate *et al*., 2012; B. Fynes *et al*., 2004; Hsu *et al*., 2008; Kannan and Tan, 2006; Ndubisi *et al*., 2005).

Current research aims to understand *success of buyer-supplier relationship* and its relationship with *supply chain firm performance*. It attempts to address the following research questions:

Q1: What is the impact of *effective supplier selection, buyer supplier engagement and information system integration* on success of buyer-supplier relationship?

Q2: What is the impact of *success of buyer-supplier relationship* on firm financial and market performance?

Previously, many studies have attempted to examine the direct relationship of BSE, ESS, and ISC on supply chain firm performance; however they came to conclusion that these factors do not necessarily improve the performance. It suggests that there was something missing in the theory. Literature revealed that it is the successful buyer-supplier relationship (SBSR) which was not previously considered (Corsten and Felde, 2005; Field and Meile, 2008; Frödell, 2011; Hong *et al*., 2011; Hsu *et al*., 2008; Kannan and Tan, 2006; Lambert and Schwieterman, 2012; Park *et al*., 2010; Sanders *et al*., 2011; Squire *et al*., 2009). Few studies were conducted to empirically test the role of SBSR only in developed countries perspective. None of the studies has been conducted in developing countries in similar context. Current study is conducted in developing countries perspective to empirically test that BSE, ESS, and ISC help in building successful relationship which then leads to higher performance, because in developing countries SBSR may have different implications. Current study will help practitioners by highlighting the importance of building successful relationships in current business scenarios in developing countries perspective.

2. Literature review:

This section reviews literature about success of buyer supplier relationship antecedents to supply chain firm's performance. It also provides insights from literature about the factors which impact the success of relationships.

Section 2.1 will provide detailed literature review about success of buyer-supplier relationship in context of firm performance in supply chain. Section 2.2 will illustrate the previous studies about the role of buyer-supplier engagement. Section 2.3 will provide insights about supplier selection. Section 2.4 will discuss the role of information sharing capability in success of buyer-supplier relationship.

2.1 – Success of buyer-supplier relationship antecedent to firm performance:

In contemporary business environment, supply chains are competing against supply chains and managers are under strong competitive pressure to find ways to enhance the overall performance of their supply chains (Bozarth *et al.*, 2009; Fugate *et al.*, 2012; Hsu *et al.*, 2008). Since last decade the product life cycle span is reducing, therefore supply chains need to become responsive in order to survive (Kannan and Tan, 2006). Researchers have identified number of variables which can help supply chain firms to reduce product development time and improve financial and market performance. Corsten and Felde (2005) found that supplier collaboration positively influences the firm's performance. Their study shows that collaboration with key suppliers helps in reducing material purchasing costs, and provides firms a platform towards introducing innovative products rapidly. However they argue that it is not necessary that supplier collaboration will results in higher firm performance until their collaboration converts into successful relationship. A successful relationship is defined as, 'a relationship which results in reduction in costs and lead time, while maximizing value' (Frödell, 2011). Park *et al*. (2010) developed a five step supplier relationship model and argued that information systems for collaboration purposes do not directly influence the firm performance. Instead collaboration provides basis for developing long term partnerships which leads to better financial outcomes by eliminating production inefficiencies and delivering superior quality products to end customers. Squire *et al*. (2009) conducted an empirical study in buyers perspective which showed that buyer-supplier engagement moderates the positive relationship between supplier capabilities and buyer's responsiveness. However this positive relationship exists when both parties associated in a relationship have shared values and goals. Further the length of relationship also influences the firm's responsiveness. Hong *et al*. (2011) proposed supplier selection matrix by integrating standardized supplier selection process and total cost of ownership model. Their study found that this supplier selection matrix helps in selecting the right supplier for engaging in long term successful relationship. This long term relationship then helps both parties to achieve their objectives. Many other similar studies have been conducted. However none of the studies conducted before 2006 incorporated success of buyer-supplier relationship as an intervening construct between buyer-supplier engagement, collaboration, integration, supplier selection, supplier management, information sharing, information sharing infrastructure and supply chain firm performance. In most of previous studies, researchers however argue that such relationships between firm performance and other factors like buyer-supplier engagement, collaboration, information sharing etc. do not necessarily exist unless a successful relationship is build between two parties (Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Frödell, 2011; Hong *et al*., 2011; Lambert and Schwieterman, 2012; Ndubisi *et al*., 2005; Park *et al*., 2010; Sanders *et al*., 2011; Squire *et al*., 2009). In other words, such factors help in developing successful relationships which then drive the supply chain firm's performance.

There are only couple of studies conducted in similar context only in developed countries which attempt to empirically test that buyer-supplier engagement, collaboration, supplier selection, information sharing infrastructure etc. help firms to develop successful relationships, which then drives the firm's financial and market performance (Agnihotri *et al*., 2009; Cannon, 2001; Hsu *et al*., 2008; Kannan and Tan, 2006). Table 2.1 provides key literature on success of buyer supplier relationship.

Supply chain management literature acknowledges that "relational capital" of a firm has positive impact on the profitability of that firm (Cannon, 2001; Gimenez *et al.*, 2012; Kannan and Tan, 2006; Kaufman *et al.*, 2006). Relational capital theory supports the fact that successful relationships between parties help in resolving conflicts, and thus help them to achieve shared goals and objectives. Relational capital builds on trust leads toward knowledge sharing, and provide opportunity to firms engage in relationship to learn from other's experiences (Kale *et al.*, 2000). However firms generally try to avoid building relationships as they are afraid from opportunistic to get access to sensitive information and misuse their core property assets. Relational capital theory argue that successful relationships curb the opportunistic behavior of the relationship partners, and prevents the leakage of secret information to competitors(Kale *et al*., 2000).

Successful buyer-supplier relationship (SBSR) leads towards shorter lead time and lower production costs, and delivers superior quality at comparatively low prices, thus enhances customer's loyalty (Hsu *et al*., 2008). In an environment where customer's needs and preferences are changing rapidly, reduction in lead time through closer relationship with suppliers enables manufacturers to become more responsive (Kannan and Tan, 2006; Squire *et al*., 2009; Vereecke and Muylle, 2006). Companies having successful buyer-supplier relationship generally deliver higher customer services level comparative to those which are not engaged in successful relationship with their suppliers. Successful relationship among supply chain partners enables firms to share information quickly thus eliminates uncertainties in the supply chains, helps in better forecasting the demand and devises accurate production plans, thus enhance the financial and market performance of the supply chains (Hsu *et al*., 2008; Kannan and Tan, 2006).

Successful buyer-supplier relationship helps manufacturers in achieving higher performance, and plays important role in successfully introducing new product in the market (Lin and Chang, 2012). Researchers argue that in order to increase the chances for the acceptance of new product in the market, manufacturers must incorporate retailers in the process of introducing new product (Barratt, 2004; Kaufman, Rose *et al*., 2006). Therefore, strong relationship only among the suppliers and manufacturers is not enough; each entity in the supply chain must put efforts to fulfill the goals of the supply chain. Each supply chain entity should engage in long term successful buyer-supplier relationship which will improve the supply chain firm performance (Hsu *et al*., 2008; Kannan and Tan, 2006).

The word *buyer-supplier relationship* has been discussed in literature widely since 1990s (Bensaou, 1999; Han *et al*., 1993; Heide and John, 1990; Hsu *et al*., 2008; Kannan and Tan, 2006; Leenders and Blenkhorn, 1988; Tang *et al*., 2001). There are few studies which solely focused on the question *what is relationship?* Kannan and Tan, (2006) citing Campbell (1997) states that in late 1990's, relationship was classified into four categories i.e. "self centered, personal loyalty, mutual investment, and political control". Self centered relationship is a relationship where individual needs are at central, or a relationship in which main objective of the partners of the relationship is to fulfill their individual firm's needs, regardless whether other partner of the relationship also get benefit or not. In such relationships one partner even tries to fulfill his goals even at the expense of other-one. Second type of relationship is "mutual loyalty" in which mutual responsibilities and commitments are at the core. Here partners of the relationship are loyal to each other and do not intentionally try to defeat others. Third type of relationship i.e. "mutual investment" is a long term relationship in which parties do commitment to bring strategic advancement in the system. Parties involved in such relationships make commitments with others to work in a *win*-win state. Usually such relationships are base on long term partnerships. Political control is the last type in which integration among parties is very high. The objective of such relationships are to satisfy individuals own stakes (Hsu *et al*., 2008). In such relationships generally both parties are the beneficiary and are able to fulfill their individual objectives in a well manner.

Table 2.1: Literature on SBSR				
Author(s)	*Performance Perspective*	*Independent Variable(s)*	*Dependent Variable*	*Key Findings*
Lambert and Schwieterman (2012)	Buyer, Supplier	N/A	N/A	Proposed a model for managing relationship among supply chain partners. Authors conclude that a relationship is successful if it improves the financial performance of the firms. Successful relationships lead towards sharing of benefits and risks thus pass on incentives throughout the supply chains.
Frödell (2011)	Buyer	N/A	N/A	Proposed supplier selection criteria for developing long term relationships between contractor and buyer. Author conclude that both parties must have aligned core values, and willingness and capability for collaboration to enter into successful long term partnerships in order to reduce costs and lead time while maximizing the value
Hong *et al*. (2011)	Buyer, Supplier	N/A	N/A	Proposed supplier selection matrix by combining standardized supplier selection process and total cost of ownership model. Authors

				further argue that this model will help in selecting right supplier to build long term relationship and help in reducing total costs
Sanders *et al*. (2011)	Supplier	Buyer to supplier information sharing (IS), Buyer to supplier performance feedback (PF), Buyer's investment in information infrastructure (IIT)	Communication openness (CO), Supplier performance improvement (SPI)	IS, PF, and IIT are key enablers for CO between buyer and supplier. This CO bring two parties closer and work in collaboration and results in SPI
Park *et al*. (2010)	Buyer, Supplier	N/A	N/A	Proposed five step supplier relationship management (SRM) models. Further, argue that information system (IS) for collaboration provide basis for developing good relationship which help in lowering cost, developing products on time, and deliver superior quality to end customers
Squire *et al*. (2009)	Buyer	Supplier flexibility (SF), Supplier responsiveness (SR), Supplier modularity (SM), Buyer-supplier collaboration (BSC) (Moderator)	Buyer responsiveness (BR)	SF, SR, and SM positively influence the BR. Finding of the study shows BSC enhances BR however nature of relationship must aligned with capabilities
Hsu *et al*. (2008)	Buyer	Information system integration (ISI), Decision system integration (DSI), Business process integration (BPI)	Supply chain architecture (ScA), Relationship architecture (RA), Firm performance (FP)	ISI, DSI, and BPI positively influence the ScA and RA. Further, ScA and RA positively and directly drive the buying firm financial and market

				performance
Carr *et al*. (2008)	Supplier	Supplier dependence (SD), Supplier involvement (SI) and Supplier training (ST) (Intervening variables)	Supplier operational performance (SOP)	SD positively influences the SI and ST. Further SI and ST positively drive the SOP. Authors concluded that suppliers active participation in product development and other buyer's operational activities results higher supplier's operational performance
Field and Meile (2008)	Supplier	Better supplier relations (BSR), Supplier coordination (CO), Supplier cooperation (CP), Supplier long term commitment (LC), Supplier information sharing (IS), Supplier feedback (SF)	Satisfaction with overall supplier performance (SSP)	IS and BSR are directly associated with SSP, while CP and LC are correlated with SSP. However CO and SF are not related to SSP
Kannan and Tan (2006)	Buyer	Buyer supplier engagement (BSE), Supplier selection (SS)	Success of buyer-supplier relationship (SBSR), Firm performance (FP)	BSE and SS positively and directly influence the SBSR. SBSR positively and directly influence the buying firm financial and market performance
Corsten and Felde (2005)	Buyer	Supplier collaboration (SC), Trust & Dependence (T&D) (Moderator)	Financial performance (FP), purchasing cost reduction (PcR), Innovation (I)	SC has positive effect on FP in term of PcR and I. However SC does not guarantee performance improvement unless a long term relationship with particular objectives does not exist
Ndubisi *et al*. (2005)	Buyer	Supplier selection strategy (SSS), Supplier management	Buyer's manufacturing flexibility (BMF)	SSS and SMS positively influence the BMF. It is

		strategy (SMS)		concluded that after selecting the right supplier, firms must focus on ‘supplier early involvement’ and engage them in devising production plans, inventory management, and quality and technology roadmaps to achieve desired outputs

Scholars and practitioners both agreed that relationship is not uni-directional (O'Toole and Donaldson, 2000), i.e. if there is a relationship where one partner is getting benefits at the expense of other, it is more likely that this relationship will not go ahead for a longer period of time. In fact there must be a *win-win* state in every business relationship to make it successful. Previously many studies illustrate that relationship among buyer-supplier should be such that both buyer and supplier enjoy the positive outcomes of the relationship (Hsu *et al*., 2008; Kannan and Tan, 2006).

In strong relationship, trust plays central role (Kannan and Tan, 2006). Trust is when both parties engaged in the relationship are confident that none of them will try to cheat or harm other intentionally. Researchers argue that the effectiveness of buyer-supplier relationship enhances as the level of trust improves. This element of trust leads to better cooperation and higher level of commitments and efforts to produce innovative products while the risks will be minimal (Rose *at al*., 2006).

Supplier early involvement is an evolving concept in contemporary business environment. Buyer-supplier relationship and supplier development literature indicate that it is more likely that suppliers will participate in product development planning phase if a strong bond of relationship exist among buyers / manufacturers and suppliers. Technologically advanced suppliers provide assistance in upgrading the production processes / technologies of their buyers thus help firms in achieving competitive advantage (Azadegan, 2011). Collaborative relationship with suppliers helps to enhance organizational learning through knowledge creation. It saves significant time, and reduces other costs related to making arrangements of supplier screenings, evaluation and selection processes (Cannon *et al*., 2001). There are various examples around the globe which indicate that companies tend to build longer partnership with suppliers to save costs, for example the top ten suppliers of “United Kingdom Department for Work and Pensions” are supplying more than half of the total material purchased. Toyota Motors also strongly believe on long term relational bonds with its key suppliers. In planning phases Toyota Motors’s suppliers actively participate, and provide suggestions including process improvements. Concluding the section, involvement of key suppliers helps in building successful relationships, which reduce product development time and costs, and improves firm financial and market performance.

There are many other factors which also drive the success of buyer-supplier relationship. Three major factors are Effective supplier selection (SS), buyer-supplier engagement (BSE), and information sharing capability (ISC) (Agnihotri *et al*., 2009; Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Hong *et al*., 2011; Hoyt and Huq, 2000; Hsu *et al*., 2008; Kannan and Tan, 2006; Lin and Chang, 2012; Ndubisi *et al*., 2005; Park *et al*., 2010; Petersen *et al*., 2005; Squire *et al*., 2009; Thomas *et al*., 2011).

2.2 - Buyer-supplier engagement (BSE):

Buyer supplier engagement can be defined as the extent to which buyer-supplier is engaged in collaborative decision making, integrating activities, sharing information and setting collaborative future strategic goals. Claro *et al*. (2006) citing Yilmaz (2001) defines collaboration as “situations in which parties in a business relationship work together to achieve mutual goals and each party’s organizational boundaries become penetrated by the integration of activities as the supplier becomes involved in activities that traditionally are considered the buyer’s responsibility and vice-versa”. Supply chain management literature suggests that there is no concept of individualism in contemporary businesses. All firms in a supply chain should put their best efforts to deliver end-customers a superior quality product in order to satisfy their needs (Barratt, 2004). Therefore the satisfaction of end customers cannot be achieved without the efforts of all individual firms in supply chain. All firms in the supply chain should engage in closer relationship, should share resources, and should devise collaborative future plans to achieve the supply chain goals (Bozarth *et al*., 2009). Researchers identified buyer-supplier engagement as a source of building successful relationship among supply chain firms (Azadegan, 2011; Carr *et al*., 2008; Kannan and Tan, 2006)

Field and Meile (2008) citing (Frohlich, 2001; Narasimhan, 2002; Salvador, 2001) state, in supply chain management area integration and collaboration have discussed in various dimensions. Some researchers discussed it in perspective of suppliers, while other discussed in perspective of customers. However in any supply chain, integration initiatives taken either from buyers to suppliers or suppliers to buyers help both parties to achieve successful relationship in terms of cost reduction and product quality improvement (Azadegan, 2011; Lambert and Schwieterman, 2012; Vereecke and Muylle, 2006).

Sufficient literature is available on buyer-supplier engagement and relationship building which shows positive relationship between buyer-supplier engagement and success of buyer-supplier relationship (Kannan and Tan, 2006) however limited number of empirical testing has been done so far. A study was conducted by Kannan and Tan, (2006) in which they empirically tested the relationship of buyer-supplier engagement with success of buyer-supplier relationship. They concluded that firms actively engaged with their suppliers have long term successful buyer-supplier relationship and enjoy superior financial and market performance as compare to others. Working closely with suppliers build trust among them and encourage the sharing and creating knowledge in order to learn from each other's experiences (Kale *et al*., 2000). With the passage of time, this trust results in longer partnerships which help in shorten lead time, enhancement in product quality and reduction in cost. Successful relationships help in collaboration of operational activities with key suppliers which then help to introduce new technologies and innovate manufacturing processes to enhance the efficiency of manufacturer's operations (Azadegan, 2011). As the level of collaborative relationship among buyer-supplier enhances, hidden values of the suppliers start becoming the source of competitive advantage of the firm (Azadegan, 2011).

Two special issues of *International Journal of Physical Distribution & Logistics Management* (2003) were published to highlight that collaborative management with some of the key suppliers of the firm play critical role in the success of buyer-supplier relationships. Closer relationships help lowering lead times through efficient logistics and distribution management. Collaborative buyer-supplier relationship based on collaborative planning, processes, trust among parties and information sharing enabled firms to respond quickly to dynamic customer preferences (Hsu *et al*., 2008). Couple of empirical studies conducted in developed countries supports the positive relationship of buyer-supplier engagement, collaboration, and information sharing with success of relationship which helps in improving firm financial performance. Dedicated cross functional teams can help to improve supplier engagement through understating, communicating, and improving the processes of key suppliers.

In buyer-supplier engagement, the element of trust has central place. Trust in buyer-supplier engagement is defined as a "psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" Claro *et al*. (2006) citied Rousseau (1998). Trust is the belief that a partner expect from other not to take unethical / unexpected actions that can harm their relationship or the firm performance. Business literature defined trust as an integral part of buyer-supplier engagement. In a trusty-full buyer-supplier engagement, parties tend to share knowledge, experience, and help each others in devising future plans to meet the needs of the customers through effective planning (Claro *et al*., 2006). Claro *et al*. (2006) citing Moorman, (1992) states that, trust helps firms to take joint actions, work for others thus enable both parties to engage in long term partnerships to deliver more than what they can deliver individually. Firms having trustful relationships are more likely to engage in collaborative future plans and having shared goals.

Buyer-supplier engagement leads towards long term partnership and is critical in the success of any supply chain. Supply chain success requires collaboration, integration, supervision, and sharing information among various supply chain partners. However same level of integration, supervision and relationship is not required among all suppliers (Lambert and Knemeyer, 2004). There is still ongoing debate that whether integration and coordination is required with all suppliers of the firms or not, however most of the researchers argued that firms should integrate their activities and should engaged closely only with key suppliers. In order to have a longer successful partnership with suppliers, firms must engage those supplier which have *relational strategy* (Field and Meile, 2008). Collaboration boosts the over-all supply chain out-put value by developing stronger relationships, however careful analyses are required while taking decision to go in collaboration with only key suppliers supplying high value ingredients of your product and having identical strategy with your firm's strategy, not necessarily to get engaged with all the suppliers. For example, Wendy's, a name in fast food has around 225 suppliers, however it worked closely with top 40 key supplies and has developed strong relationship only with them.

2.3 – Effective supplier selection (ESS):

Supplier selection can be defined as the process through which any firm short-list and select the suppliers or the criteria upon which suppliers are selected for souring material in order to add value to it and deliver superior quality products to customers. In determining the success of buyer-supplier relationship the role of supplier selection is critical (González *et al*., 2004; Kannan and Tan, 2006). Ndubisi *et al*. (2005) citing (Handfield, 1993; Monczka *et al*., 1998; Monczka, 1995) states that ESS positively influences the success of buyer-supplier relationship. Suppliers tend to have shared vision and goals can help in predicting successful buyer supplier relationship (Kannan and Tan, 2006). If a wrong supplier is selected whose objectives and goals does not match the firm's goals and objectives then it is more likely that relationship will be broken. Therefore procurement departments should be very cautious in the selection of suppliers. Now days a trend is noticed that procurement department is interested in selecting suppliers having ISO 9000 certification (Ndubisi *et al*., 2005). ISO 9000 certification is linked with the quality related problems in firms and provides firms a criterion for supplier selection process. In supplier selection process, a trend is noticed generally in larger size of firms to formulate cross functional panel to evaluate and select the best possible suppliers (Braglia and Petroni, 2000). Frödell (2011) proposed a supplier selection model for selecting the right suppliers. He argued that firms should select those suppliers whose strategies align with their firm's strategies to ensure long term relationships. Ndubisi *et al*. (2005) argued that supplier selection strategy has a key role in predicating the successful buyer-supplier relationship. Firms must incorporate the suppliers strategic orientation while selecting suppliers which will helps in building longer partnerships (Ndubisi *et al*., 2005). However there are always possibilities to select a wrong supplier therefore purchase department needs to periodically evaluate their suppliers based on established supplier performance indicators and should take necessary actions accordingly.

Supplier selection process can be based on two general criteria, "evaluation and choice" (Braglia and Petroni, 2000). Evaluation element is basically to measure the supplier's attributes, or factor which are related to the supplier selection decisions and then help in rating each supplier based on scores against each factor. Whenever there is a need to select a supplier, managers usually list down the desired elements which are supposed to be present in the potential suppliers. These elements then become the criteria for supplier selection and help in ranking the suppliers to select the best one.

In such a competitive and diverse environment, manufacturers alone are unable to meet the changing needs of the customers. Therefore manufacturers have started dependency on the supplier's strengths to cope up the challenges. Supply chain management researchers suggest the supply chain partners to be very cautious while selecting suppliers. Many researchers around 2000's started forecasting that ESS will become a critical part towards strategic contribution in supply chains and even the selection of second tiers suppliers will become crucial in determining the success of supply chains firms relationships (Wagner *et al.*, 2011). For example those companies which select suppliers having shared vision and goals tend to have successful relationship. Such relationships help firms by providing alternative solutions to overcome hurdles in the process, thus efficiency enhances. More-over this leads towards competitive advantage and higher supply chain performance. Thus the role of ESS is undoubtedly very crucial in particularly contemporary business environment. Organizations are using ESS criteria to select the right suppliers in order to build effective relationships with suppliers.

There are many other key reasons to cautiously select suppliers. Firstly, the "just-in-time" trend is very much based on the availability of supply of materials on time. Scarcity in the key resources can be another reason to select right suppliers to build long-term relational partnerships with them. During product development planning phase, the positive role of relationship with suppliers can helps to tackle various issues. Key suppliers can participate to reduce product development and delivery time thus both parties including the whole supply chain can be the beneficiary. Successful relationship promotes the sharing of knowledge and experiences and helps in adaptation of new technologies (Azadegan, 2011; Hoyt and Huq, 2000; Lambert and Schwieterman, 2012; Ndubisi *et al*., 2005; Squire *et al*., 2009). Adaptation of new technologies results in improving production costs, time, and helps in achieving higher production flexibility. (Ndubisi *et al*., 2005). Thus firms through ESS process can enhance their relational capital which helps in attaining competitive advantage (Azadegan, 2011). The selection of strategic suppliers can help firms in maintaining long term buyer-supplier relationships. For example there is a company whose strategy is to deliver higher quality to its customers and achieve long term growth most likely cannot work for a longer period with a supplier focusing on short-term profits by offering below the promised quality. In contemporary business environment, management is more interested in strategic suppliers, therefore it has become a challenge for procurement department to select the right suppliers for the right materials (Ndubisi *et al*., 2005).

Researchers suggest various criteria for the supplier selection process however basic criteria generally use are price, delivery speed, services and most importantly the product quality. Many criteria are available in the literature among which six most frequently used criterion for supplier selection are "on-time delivery, quality, price/costs targets, professionalism, responsiveness to customer needs and long-term relationships with the purchasing company" Hsu *et al*. (2006) citied Mummalaneni (1996). Which criterion is good or not is based on the situation and type of sourcing material. For example firms which are interested in purchasing key production ingredients by heavy capital investment are generally sensitive to quality, technology, services and capabilities, while others interested in purchasing commodities may incline towards lower prices. Thus the ESS criteria are totally based on related attributes demanded by the firms. Various empirical studies conducted in later half of 1990's worldwide especially in United States to find out the supplier-selection criteria used by the merchandising firms. Studies revealed that the product price is considered to be the most important supplier selection criteria among merchandising firms located in United States. Product quality and delivery speed however were after the price (Hsu *et al*., 2006). Later research in the area revealed that supplier orientation and shared future goals should also take into consideration along with traditional supplier selection criteria based on just price and product quality (Kannan and Tan, 2006). Studies conducted during last decade supported the fact that product quality and services are the dominating factors in supplier selection process than price and the delivery speed (Hsu *et al*., 2006; Ndubisi *et al*., 2005). However few researchers argued that although purchase managers says that quality is the most important criterion in supplier selection than others yet in reality they are taking most of their decisions based on price offered by the suppliers.

Although extensive literature is available on supplier selection criteria, yet there are no single criteria applicable to all firms / industries. Managers still have to decide themselves which criteria they should use from situation to situation in order to select the right suppliers to build long term partnerships.

2.4 - Information sharing capability (ISC):

Since last many years the concept of supply chain management has changed the dynamics of businesses, and has shifted it from individualism towards a supply chain, where the role of information sharing capability (ISC) is critical (Agnihotri *et al*., 2009). ISC bring supply chain partners closer, and thus behave as a bond in developing successful buyer-supplier relationship (Agnihotri *et al*., 2009; Hsu *et al*., 2008; Lambert and Schwieterman, 2012). *Information sharing capability* refers to the extent to which any firm is interested and has deployed the information sharing systems in order to share timely information within and outside the firm. Information sharing capability can also defined as, "the extent to which access to crucial and/or proprietary information are available to members of the supply chain" (Hsu *et al*., 2008). There is enough literature in support of the argument that effective communication among all supply chain partners is essential to the success of relationships (Agnihotri *et al*., 2009; Barratt, 2004; Carr and Smeltzer, 2002; Hoyt and Huq, 2000; Hsu *et al*., 2008; Ray *et al.*, 2005; Sanders *et al*., 2011). Information sharing is an essential tool in bringing two parties closer and engage them in successful relationship which turns into reducing inefficiencies in the system thus improves their financial performance (Hsu *et al*., 2008; Sanders *et al*., 2011). Among supply chain management pillars, integration and collaboration are considered more important (Matopoulos *et al.*, 2007). Collaborative relationship among supply chain partners is possible only if they tend to share information with suppliers and other supply chain partners. Therefore many firms are now investing heavily in advance information technologies infrastructure to ensure higher level of collaboration and successful relationships among supply chain partners. Researchers of the information technology area found that investments in information systems help in sharing information related to production processes, routines, plans, demand patterns etc. among their suppliers and other supply chain partners (Richey *et al.*, 2007). Generally all supply chain partners now days are likely to use the application of information systems as a source of improving relationship strengths; however firms are increasingly interested to establish the information connectivity systems with their suppliers. Such initiatives turn into successful relationships which improve the firm’s performance. Suppliers are also the beneficiary as performance gains at both party’s ends has been reported in literature (Sanders *et al*., 2011). Successful relationships give rise to “win-win” scenarios, thus long term buyer-supplier partnerships can be expected.

Information sharing capability is considered the back-bone of any successful supply chain (Carr and Smeltzer, 2002). Researchers argue that efficient and effective supply chains are those in which supply chain partners are engaged in closer bonds of relationships. Many of the critical supply chain issues arise because of weaker bonds among firms due to inefficient information sharing systems (Hsu *et al*., 2008). For example “bullwhip effect”. It happens when derived demand in the system generates because of weak information sharing capability among supply chain partners. There are various examples in the past where companies have faced major losses because of “bullwhip effect”. The consequences associated with “bullwhip effect” include wrong forecasting, build large inventories, shortage, poor customer services level etc. (Shore and Venkatachalam, 2003). Poor information sharing systems leads poor relationships which cause inefficiencies in the supply chain and thus cause issues related to inventory turnover, inventory costs, shortage costs, longer order fulfillment time, and lower customer satisfaction levels (Ramdas and Spekman, 2000). Literature reveals that advance information sharing capability improves buyer-supplier relationships which help in significantly reducing the chances of occurrence of “bullwhip effect” (Shore and Venkatachalam, 2003).

Information can be tactical or strategic. Tactical information is related to purchasing, operations scheduling, etc while strategic information is about long term corporate objectives and goals. Another classification of the information could be the formal or informal information sharing. Hsu *et al*., (2008) citing Brennan, (1999) and Handfield, (2002) states that prior studies in the field show that both formal and informal information sharing among supply chain partners help in improving success of relationships which reduce uncertainties and enhances visibility in the supply chains. It can also help firms to devise accurate future plans in collaboration with other supply chain partners, thus relationship improves and whole supply chain becomes the beneficiary (Agnihotri *et al*., 2009).

Question arises how to measure the *information sharing capability* of a supply chain firm? Researchers provided various dimensions to cover information sharing capability construct. Hsu *et al*., (2008) measured it in term of the level of *information system integration, decision system integration,* and *business process integration*.

2.4.1 - Information system integration:

Information system integration is defined as the ability to exchange information with supply chain members efficiently and effectively (Hsu *et al*., 2008). Information system integration indicates the level of sharing of informal, formal and confidential information with key suppliers. It indicates how much a firm is engaged in communicating the sensitive information like "customers future strategic needs" with suppliers and through-out the supply chain partners. Information system integration enhances the relationship capital which then improves the overall efficiency of the supply chain (Hsu *et al*., 2008; Petersen *et al.*, 2008). Another element covered under the construct is the level of compatible information systems among supply chain partners. When the element of compatibility is higher, information sharing capability becomes more effective and ultimately the strength of buyer-supplier relationship improves (Hsu *et al*., 2008). Therefore, firms should promote the culture of frequently contacting their suppliers to give feedback regarding product / services in order to identify gaps and to remove them (Field and Meile, 2008). Relational success among buyers and suppliers result elimination or minimization of "operational duplicate" thus prevent resources wastage. Reduction in wastage improves buyer and supplier firms' competitive position by lowering production costs. Stronger buyer-supplier relationship brings product quality improvement thus enhances the profitability of the firms. Therefore investments in information systems have become inevitable in order to improve the relationships.

2.4.2 - Decision system integration:

Decision system integration can be defined as "the extent to which buyer-suppliers are sharing information related to decisions taken by the firms" (Hsu *et al*., 2008). Decision system integration generally measure the level of involvement of suppliers in taking firm strategic decisions, the use of information technology like phone, fax, email, internet for communication purposes, and disclosing very confidential information to key suppliers for example related to production plans. Decision system integration thus results higher relational capital (Hsu *et al*., 2008). In order to enhance decision system integration, firms can make cross functional teams and ensure the participation of key suppliers for example to determine the key factors which can help to improve customer satisfaction level. Such initiatives improve relationships and help in eliminating the supply chain in-efficiencies (Hsu *et al*., 2008). Hsu *et al*., (2008) citing Gao *et al*., (2005) states that decision system integration make information visible to the supply chain partners, thus help to reduce uncertainties throughout the supply chain and leads towards better supply chain relationships.

2.4.3 - Business process integration:

Business process integration highlights the level of deployment of advance technology in order to make business processes smooth and efficient. Literature supported the fact that adaptation of advance technologies like information management systems for example enterprise resource planning (ERP) increases the level of collaboration among supply chain partners, improve buyer-supplier relationship and eliminate uncertainty, thus enhances supply chain profitability (Carr and Smeltzer, 2002; Hsu *et al*., 2008; Saeed *et al.*, 2005). Resource-based view (RBV) of the firm states that, "capital resources may be utilized to create competitive advantage" (Hsu *et al*., 2008; Ray *et al*., 2005; Wernerfelt, 1984). Advancement in information technology (IT) although does not directly become source of competitive advantage, yet it provides a base for successful relationships which improve performance and leads towards competitive advantage. IT impacts the level of engagement by involving supply chain partners into closer relationships. This capability along with other organizational capabilities, provides organizations sustainable competitive advantage (Wernerfelt, 1984).

3. Theoretical frame-work:

Based on literature review in section 2, following theoretical model is formulated:

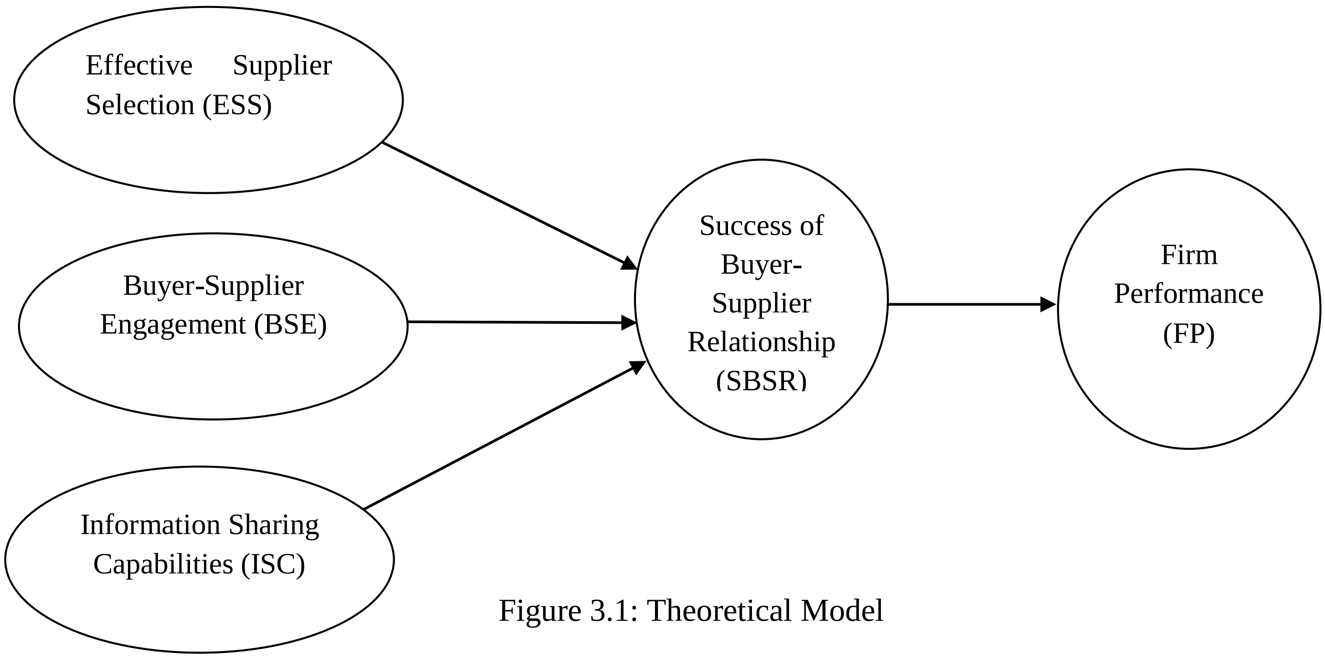

Figure 3.1: Theoretical Model

This model shows that buyer-supplier engagement, supplier selection, and information sharing capability help firms in developing successful relationship. Successful relationship results in reduction in product development time and cost, and improvement in product quality, and therefore impacts the supply chain firm's financial and market performance (Frödell, 2011; Hsu *et al*., 2008; Kannan and Tan, 2006; Lambert and Schwieterman, 2012).

Previously, many studies have been conducted which empirically tested influences supplier engagement, collaboration, selection, management, and information sharing on the firm's performance (Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Ndubisi *et al*., 2005; Sanders *et al*., 2011; Squire *et al*., 2009). However none of these studies conducted in developing countries perspective incorporated success of buyer-supplier relationship as an intervening construct between buyer-supplier engagement, collaboration, integration, supplier selection, supplier management, information sharing, information sharing infrastructure and supply chain firm performance. In most of such studies, researchers reached to the conclusion that the factors like buyer-supplier engagement, collaboration, information sharing etc. do not necessarily improve the firm's performance unless a successful relationship is built between two parties (Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Frödell, 2011; Hong *et al*., 2011; Lambert and Schwieterman, 2012; Ndubisi *et al*., 2005; Park *et al*., 2010; Sanders *et al*., 2011; Squire *et al*., 2009). Further they concluded that such factors help in developing successful relationships which then drive the supply chain firm's performance. This discussion leads to the conclusion that buyer-supplier engagement, supplier selection and information sharing capability are the sources of building successful relationships which then help supply chain firms in enhancing performance (Agnihotri *et al*., 2009; Cannon, 2001; Hsu *et al*., 2008; Kannan and Tan, 2006).

3.1- Hypotheses formulation:

Buyer-supplier relationship is successful, if those suppliers are selected which are willing to develop long term partnerships (Kannan and Tan, 2006). Therefore effective supplier selection plays important role in success of buyer-supplier relationship (Ndubisi *et al*., 2005). Suppliers that tend to have shared vision and goals can help in predicting successful buyer supplier relationship. While selecting suppliers, along with traditional criteria like price and delivery speed, the consideration of subjective criteria like technical expertise, production flexibility, the willingness of a supplier to work in collaboration can play significant role in developing long term successful buyer-supplier relationship (Carr and Smeltzer, 2002; Field and Meile, 2008; Rose *et al*., 2006). Based on prior evidence, we can say that the criteria used to select suppliers can positively influence the success of the buyer-supplier relationship. Hence we propose that:

H1: Effective supplier selection positively impacts the success of buyer-supplier relationship.

Buyer supplier engagement is defined as the degree to which buyer and supplier integrate their activities and are setting future strategic goals in collaboration in order to fulfill the customers future needs (Bozarth *et al*., 2009; Kannan and Tan, 2006). Buyer-supplier engagement is a source of building long term partnership. Its role in the success of buyer-supplier relationship is critical. It enhances the level of collaboration, integration, supervision and information sharing in supply chains (Agnihotri *et al*., 2009; Carr and Smeltzer, 2002). However same level of engagement is not necessary with all suppliers of the firm, instead closer relationships with key suppliers are required (Lambert and Knemeyer, 2004). Literature suggests that buyer-supplier engagement positively impacts the success of buyer-supplier relationship (Azadegan, 2011; Barratt and Oliveira, 2001; Hsu *et al*., 2008; Kannan and Tan, 2006; Petersen *et al*., 2005).

In literature there is lack of consensus on the assessment of success of buyer-supplier relationship. We define it in the perspective of buyer's perception for example Kannan and Tan, (2006) and Hsu *et al*, (2008) assessed it in the same way. Hence we propose that:

H2: Buyer-supplier engagement positively impacts the success of buyer-supplier relationship.

In the last decade, the concept of supply chain management has changed the dynamics of businesses, and has shifted it from individualism towards a supply chain, where the role of relational capital is crucial (Agnihotri *et al*., 2009). It is empirically evident that information sharing capability improves the buyer-supplier relationship (Agnihotri *et al*., 2009; Hsu *et al*., 2008). Information sharing capability can be defined as, the extent to which any firm is willing and has deployed the information sharing systems in order to share timely information within and outside the firm (Hsu *et al*., 2008). Information sharing capability provides platform for developing long term successful partnerships which help firms to devise accurate production plans in collaboration with other supply chain partners (Carr and Smeltzer, 2002). Supply chain management literature encourages the bond of successful relationships among firms, and information sharing systems provide platform for it, therefore this capability is considered to be the back-bone of any successful supply chain (Hsu *et al*., 2008).

Researchers provided various dimensions to cover information sharing capability construct, however, Hsu *et al*., (2008) measured it in term of the level of *information system integration*, *decision system integration*, and *business process integration*. Information system integration can be defined as, "the ability to exchange knowledge with supply chain members and the ability to serve downstream customers efficiently and effectively" (Hsu *et al*., 2008). Decision system integration is "the extent to which buyer-suppliers are sharing information related to decisions taken by the firms" (Hsu *et al*., 2008). Business process integration highlights the level of deployment of advance technology in order to make business processes smooth and efficient (Hsu *et al*., 2008). All these three indicate the level of information sharing capability (Hsu *et al*., 2008) and positively influence the success of buyer-supplier relationship (Agnihotri *et al*., 2009; Hsu *et al*., 2008; Sanders *et al*., 2011). Hence we propose that:

H3a: Information system integration positively impacts the success of buyer-supplier relationship.

H3b: Decision system integration positively impacts the success of buyer-supplier relationship.

H3c: Business process integration positively impacts the success of buyer-supplier relationship.

Supply chain management literature has shown positive relationship between success of buyer-supplier relationship and firm performance (Field and Meile, 2008; Fynes *et al*., 2004; Fynes and Voss, 2002; Schwieterman, 2012). Closer relationships with key suppliers at operational level help to improve product quality and delivery speed through knowledge sharing (Schwieterman, 2012; Fugate *et al*., 2011) while at strategic level help in product development and innovation, thus enhance competitiveness and improve market shares which can be reflected from financial performance of supply chain partners (Kannan and Tan, 2006). Buyer-supplier relationship helps in shortening lead time, enhancing efficiency of production systems and delivering superior quality, resulting enhancement in customer's loyalty thus improve market shares (Hsu *et al*., 2008).

Hence we propose that:

H4a: Successful buyer-supplier relationship positively impacts the firm financial performance.

H4b: Successful buyer-supplier relationship positively impacts the firm market performance.

4. Research methodology:

Research methodology provides scientific way to solve the research problems and understand the phenomenon (May, 2011). This section is about the research methods deployed to answer the research questions proposed in this study. Section 4.1 discusses the purpose of the research. In sections 4.2 and 4.3 there are research strategy, and research design respectively. Population and sample related details are presented in section 4.4. Section 4.5 narrates survey instrument design, section 4.6 describes pilot testing, and section 4.7 describes data collection process for this study.

4.1- Purpose:

There are three common types of research i.e. *exploratory, descriptive and explanatory*. Each type of research is conducted for a different purpose. Exploratory research's objective is to explore a phenomenon (Kothari, 2009). Research questions starting with "why" are handle with exploratory research (Kothari, 2009). Such research is conducted when a new phenomenon which is previously not researched much is under study (Babbie, 2012). Descriptive research's objective is to describe a phenomenon (May, 2011). Descriptive research tends to answer research questions starting with "what, when, where, and how". Explanatory research helps examine causality between research variables and explore relationships among them (Bryman, 2012; Kothari, 2009).

This research is explanatory in nature, as it examines the relationship of effective supplier selection, buyer-supplier engagement, and information sharing capability with success of buyer-supplier relationship. It also examines the relationship between success of buyer supplier relationship and firm performance.

4.2- Research strategy:

Research strategy helps to identify ways in order to respond to research questions (Walliman, 2005). There are two well known research strategies, i.e. qualitative and quantitative (Bryman, 2012). When the under-study phenomenon is new and complex and enough literature is not available to identify the associated constructs, and variables then a qualitative approach is suggested (Eng and Retail, 2005). In such situations field data is collected to understand the grounded realities to explain the phenomenon. Qualitative research strategy generally uses inductive logic and helps in discovering and exploring the concepts. These concepts may help in building new theories or strengthening the existing theories (Bryman, 2012). On the other hand, when the phenomenon under study is well described through earlier researches, and researchers can confidently indentify relevant constructs and variables, quantitative approach is suggested (Eng and Retail, 2005). Here researchers generally discover gaps and develop research instruments (Babbie, 2012). Quantitative research strategy generally uses deductive logic, and provides explanations and predictions. These explanations and predictions are generalize-able to the population.

The purpose of current study is theory testing therefore quantitative (deductive) strategy will be implied. Earlier, comprehensive literature review was conducted to identify and define the constructs and research variables. Literature review also helped in stating hypotheses. To test these hypotheses, data is collected and analyzed. There are two types of data i.e. *primary* and *secondary* data. When data is collected for a specific purpose, it is called primary data (Diamantopoulos and Schlegelmilch, 1997). On the other hand, secondary data is not gathered for that particular study, however its relevance with that study allows researchers to use it for the study (Diamantopoulos and Schlegelmilch, 1997). For this study, primary data is collected.

4.3- Research design:

There are many research designs; however two commonly used research designs are cross-sectional and longitudinal designs. In cross-sectional research design, data is collected at one point of time. In longitudinal research design, data is collected at various points of time (two or more) to respond to research questions. (Bryman, 2012).

This study is using cross-sectional design because of time and budget constraints. Further most of the studies in the buyer-supplier relationship and supply chain firm performance area have also used cross-sectional design (Choo *et al.*, 2009; Cristina Gimenez, 2012; Fugate *et al*., 2012; Hsu *et al*., 2008; Kannan and Tan, 2006).

4.4- Population & sample:

In current study, the unit of analysis is the manufacturing firm in supply chain, in Pakistan. Manufacturing sector was selected because it provides opportunity to study the buyer-supplier relationship and supply chain management related issues which are also central to this study. Population for this study is the manufacturing companies of Pakistan. Sampling frame includes the list of manufacturing companies registered in Karachi Stock Exchange (KSE). Respondents for current study are the managers working in the supply chain /research & development /product design /procurement /production /distribution departments, CEO’s, and General Managers.

4.5- Survey instrument:

Measurement scales for the current research were adopted from the following studies:

- Measures related to buyer-supplier engagement, supplier selection, and success of buyer-supplier relationship were adopted from Kannan and Tan (2006)

- Measures related to information sharing capability and firm financial and market performance were adopted from Hsu *et al*., (2008)

Five points likert scales were used to measure the constructs. Responses for the buyer-supplier engagement, supplier selection, and information sharing capability range between “not important” (=1) to “very important” (=5). Responses for success of buyer-supplier relationship range between “not successful” (=1) to “very successful” (=5). Responses for firm financial and market performance range between “low” (=1) to “high” (=5).

4.6- Pilot test:

A pilot study was conducted to test the measurement instrument before formally collecting the data. The purpose of conducting pilot testing was to check whether each question is understandable by the respondent or not and whether each question measures what it is supposed to measure or not. Twenty five responses were collected from manufacturing industry. Alpha values for all the constructs were computed. All the values of Cronbach alpha were above 0.7 threshold indicating sufficient reliability of the instrument (Hair, 2009). Following the quantitative judgment, the instrument was also reviewed by the experts in the area of supply chain management. Based upon their suggestions the instrument was finalized.

4.7- Data collection:

This study uses cross-sectional design; therefore data was collected through survey data collection method. Random sampling technique was used to collect responses. Current study uses Partial Least Square (PLS) Structural Equation Modeling (SEM) technique in which a common method to determine potential sample size is "10 Times Rule of Thumb" (Fernandes, 2012; Peng and Lai, 2012). This "10 Times Rule of Thumb" states that adequate sample size can be determined by multiplying the items of the most complex relationship in the model by 10. However many other studies suggest that a sample size of 30-100 is appropriate for PLS based SEM (Carrascal *et al.*, 2009; Haenlein and Kaplan, 2004; Ringle *et al.*, 2012). Considering the two approaches, current study is using the later sample determining approach with an objective to collect around 100 responses. Actually, if this study uses the first approach, then the most complex relationship construct has four items and suggests a sample size of 40 (10 X 4 = 40). It could create the generalize-ability issues. Most of the researchers suggest a sample size of around 100. Therefore, current study used the later sample size determining approach. Details about the manufacturing companies registered in KSE were obtained from their website. A sample of 200 manufacturing companies was selected randomly. Questionnaires were sent through email to the multiple target respondents in each firm. Multiple respondents were target to minimize the error of biasness. A cover letter including details of each construct was also attached for the convenience of the respondents. During first week, unfortunately none of the response was received. Two reminders were sent in the following two weeks to those who have not responded. However this effort generated only three responses. Unfortunately it is very common issue particularly in developing countries that the managers are very reluctant in sharing information (Carr *et al.*, 2000). Few other studies also reported that in Asian firms managers generally do not respond unless some relationship prevails between researcher and respondent (Carr *et al.*, 2000; Rungtusanatham, 2001). In order to generate sufficient data for the analysis, snow balling technique was applied. Snow balling is defined as, 'a technique in which researcher begins by identifying an individual perceived to be an appropriate respondent. Each respondent is then asked to identify another potential respondent. The process is repeated until the researcher has collected sufficient data.' This effort resulted in total 87 responses from 27 different firms with an average of 3.22 responses per firm and a maximum of 6 responses from a single firm. Out of these 87 responses 80 were useable. In order to make results more generalize-able, data was collected from different industries according to their size. Table 4.1 shows the size of different industries as per the number of companies registered in KSE.

Table 4.1: Industry Descriptive*

Industry	*Percentage of Total manufacturing industry*
Textile	54
Food Products	17
Cement	11
Chemicals	10
Others	08
Total	100

*This data was accessed on 08 November 2013 from KSE website http://www.kse.com.pk/

5. Data analysis:

This section provides details about results based on analyses conducted on data collected for the study. Once the data was collected, descriptive measures were determined. Later on construct validity was analyzed through content validity, reliability, convergent validity, and discriminant validity. Finally structural model was assessed through PLS-SEM. PLS was selected based on the appropriate tool selection criteria: These criteria are (Carrascal *et al*., 2009; Haenlein and Kaplan, 2004; Peng and Lai, 2012; Ringle *et al*., 2012):

- The phenomenon being studied is relatively new or changing
- Research model is relatively complex
- Issues related to collecting large number of responses

Current study incorporates success of buyer-supplier relationship (SBSR) as an intervening construct between buyer-supplier engagement (BSE), supplier selection (SS), information sharing capability (ISC) and supply chain firm's market and economic performance. Traditionally researchers believe that supplier engagement, collaboration, selection, management, and information sharing directly influence the firm's performance (Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Ndubisi *et al*., 2005; Sanders *et al*., 2011; Squire *et al*., 2009). However after conducting number of empirical studies in the field, researchers reached to the conclusion that the factors like buyer-supplier engagement, collaboration, information sharing etc. do not necessarily improve the firm's performance unless a successful relationship is built between two parties (Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Frödell, 2011;

Hong *et al*., 2011; Lambert and Schwieterman, 2012; Ndubisi *et al*., 2005; Park *et al*., 2010; Sanders *et al*., 2011; Squire *et al*., 2009). They concluded that such factors in-fact help in developing successful relationships which then drive the supply chain firm's performance. Current study is among few initial attempts toward building and testing theory that BSE, SS, and ISC help in developing SBSR and then SBSR helps in improving firm's performance. Therefore PLS is an appropriate technique for model testing (Carrascal *et al*., 2009; Haenlein and Kaplan, 2004; Peng and Lai, 2012; Ringle *et al*., 2012).

Another reason for selecting PLS is the small sample size. PLS based SEM requires relatively very small sample size as compare to other SEM techniques e.g. AMOS, LISREL etc. Empirical studies in social sciences research area generally take firms or organizations as the unit of analysis that are by their very nature less numerous and more difficult to involve in questionnaire based studies as compared to population of customers or citizens (Fernandes, 2012). Also in developing countries, managers are very reluctant in sharing information especially when there is no prior relationship existing between the researchers and the practitioners (Carr *et al*., 2000). Therefore the sample sizes are small in general. Same issue was experienced while conducting current study. Current study was able to generate a total of 87 responses out of which 80 were useable. Since PLS requires relatively small sample sizes, and studies have shown that it generate consistent and accurate results even with small sample sizes, therefore PLS-SEM was selected (Fernandes, 2012; Haenlein and Kaplan, 2004; Peng and Lai, 2012; Tenenhaus *et al.*, 2005). Furthermore, Peng and Lai (2012) and Fernandes (2012) examined published studies to investigate the reason for choosing PLS-SEM. They found that most of the published studies which have used PLS-SEM reported that they used it because of small sample sizes. Therefore for current study, PLS-SEM was selected and Smart PLS version 2.0 M3 was used to assess the structural model.

5.1- Sample descriptive:

For current study multiple responses were collected from each company with an average response rate of 3.22 responses per organization. A total of 87 responses were collected out of which 80 were useable. All the analyses were conducted using these 80 responses. Table 5.1 shows sample descriptive:

Table 5.1: Sample Descriptive

Industry	*Frequency*	*Percentage of total sample size*
Textile	25	31
Food Products	20	25
Chemicals	16	20
Others	19	24
Total	80	100

As shown in table 5.1, most of the responses (31%) were collected from textile industry. Textile is the largest industry in Pakistan. Second largest number of responses was collected from food industry (25%) which is also the second largest industry in Pakistan. The third and fourth largest industries in Pakistan are cement and chemical respectively with a slight difference in sizes. Due to time, budget and other constraints, we were unable to collect responses from cement industry. However sufficient responses were collected from chemical industry which comprises 20% of total responses. In-fact this effort was very much successful to establish generalize-ability to some extent as the textile, food and chemical industry comprises around 81% of the total manufacturing industry of Pakistan and in our sample these three industries comprises 76% of total sample size. Table 5.2 shows the sample descriptive in terms of department and organizational size.

Table 5.2: Sample Descriptive (Departmental)		
Department	*Frequency*	*Percentage of total sample size*
Supply Chain	14	18
Procurement	13	16
Production	18	22
Product Design	11	14
Quality Control	10	12
General Manager	8	10
CEO	2	3
Others / Not specified	4	5
Total	80	100
Organization size		
Approximate number of employees	*Frequency*	*Percentage of total sample size*
50 – 249	17	21
250 - 499	12	15
500 – 999	15	19
1000, and more	21	26
Not specified	15	19
Total	80	100

5.2- Construct validity:

Validity is the degree to which a measure accurately represents what it is supposed to. Typically construct is validated through analyzing content validity, construct reliability, convergent validity, and discriminant validity (Hair, 2009; Peng and Lai, 2012). Content validity is established through literature review. In section 2 extensive literature review was conducted. Literature supported the measurement model items. Furthermore, experts in the field of supply chain also approved the scale thus sufficient content validity established.

5.2.1- Reliability:

Reliability indicates the extent to which observed variable represents the true value in error free form. Measurement scale reliability specifically assess the ability of measurement scales to yield consistent and stable results (Hair, 2009). A well known measurement to evaluate reliability is the internal consistency. Using the guidelines provided by Fornell and Larcker (1981) and Hair (2009), internal consistency was analyzed through composite reliability (CR), Cronbach alpha and average variance extracted (AVE). All the values of CR, and Cronbach alpha were above 0.7, except one Cronbach alpha value, however, its CR was higher than 0.7 threshold. AVE for each scale was higher than 0.5 threshold, thus established sufficient construct reliability (Fornell and Larcker, 1981; Hair, 2009). The values of CR, Cronbach alpha and AVE are shown in table 5.3.

5.2.2- Convergent validity:

Another measure available to validate measurement scale is called convergent validity. Convergent validity indicates the level of convergence or sharing proportion of items towards the specific measurement construct (Hair, 2009). In-fact a set of items that are the indicators of a specific construct should share maximum proportion of variance towards that specific construct. However Hair (2009) states that these values should be higher than 0.5 threshold.

There are several ways to analyze convergent validity however current study examined it through factor loadings obtained through confirmatory factor analysis (CFA) and average variance extracted (AVE). A factor loading indicates the level of variance explained in latent variable by the particular item. In CFA all the factors loading were higher than 0.6 threshold except two loadings in effective supplier selection and one in decision system integration construct. These three items were removed and final analysis was run on remaining 28 items. The AVE of all constructs was also higher than the 0.5 threshold. This helps in concluding that there is sufficient convergent validity. Items loading and AVE are presented in table 5.3 and figure 5.1.

5.2.3- Discriminant validity:

Discriminant validity is a measure to assess that a construct is truly different from other constructs present in the model. It helps by providing evidence that constructs are different and each constructs explains some part of the phenomena which others do not (Gentle *et al.*, 2010; Hair, 2009; Peng and Lai, 2012). The level of correlation between constructs is an indicator of whether a construct is different from others or not. For example if the correlation between two constructs is equal to one, it specifies that the items measuring two constructs could just as well make up only one construct. If the correlation between constructs is not too high, then it may be the indication of discriminant validity. However this method does not provide strong evidence about the discriminant validity because researchers have reported various scenarios in which correlation were higher than 0.9, while those constructs were significantly different from each other (Hair, 2009). Therefore taking decision just on the basis of correlations is not appropriate. A more rigorous and widely accepted way of analyzing discriminant validity is to compare the square root of AVE with the correlations of the constructs. If the square root of the AVE of the two constructs is higher than their correlations then the two constructs are significantly different from each other (Peng and Lai, 2012). In order to measure the discriminant validity, the square roots of AVE of each construct were compared against their correlations with all other constructs. The result indicates that the square roots of AVE of each construct are higher than its correlation with all other constructs, thus discriminant validity established. Results are shown in Table 5.4.

Now days statistical software are so powerful that they can solve complex problems in short amount of time. Smart PLS has the ability to provide items cross loading which helps in determining discriminant validity (Gentle *et al*., 2010). In order to verify the discriminant validity, current study analyzed the items cross loading. Items cross loading matrix, given in Table 5.5., indicates that in each row an item measuring particular construct has highest loading in the column of that measuring construct and is also greater than 0.6 threshold (Gentle *et al*., 2010; Hair, 2009; Peng and Lai, 2012). There are few rows in which multiple item loadings are greater than 0.6, however, still the highest item loading is loaded on its measuring construct with a minimum difference of 0.15. For example in sbsr4 row, there are two loadings greater than 0.6 i.e. 0.88 and 0.68. The item loading of 0.88 is loaded on its measurement construct (i.e. success of buyer-supplier relationship (SBSR)) column and 0.68 is loaded on financial performance construct column. In such situations researchers generally think that they are in trouble, but Gentle *et al*. (2010) suggested to take square of the two values which is variance explained and then compare them. For example the square of 0.88 and 0.68 is 0.77 and 0.46. It indicates that sbsr4 is explaining 77% variance towards SBSR construct which is quite high as compared to 46% towards financial performance. Therefore in cross items loadings matrix analysis, the important thing is that the highest item loading should load on its measurement construct column. This cross loadings matrix analysis verifies the discriminant validity.

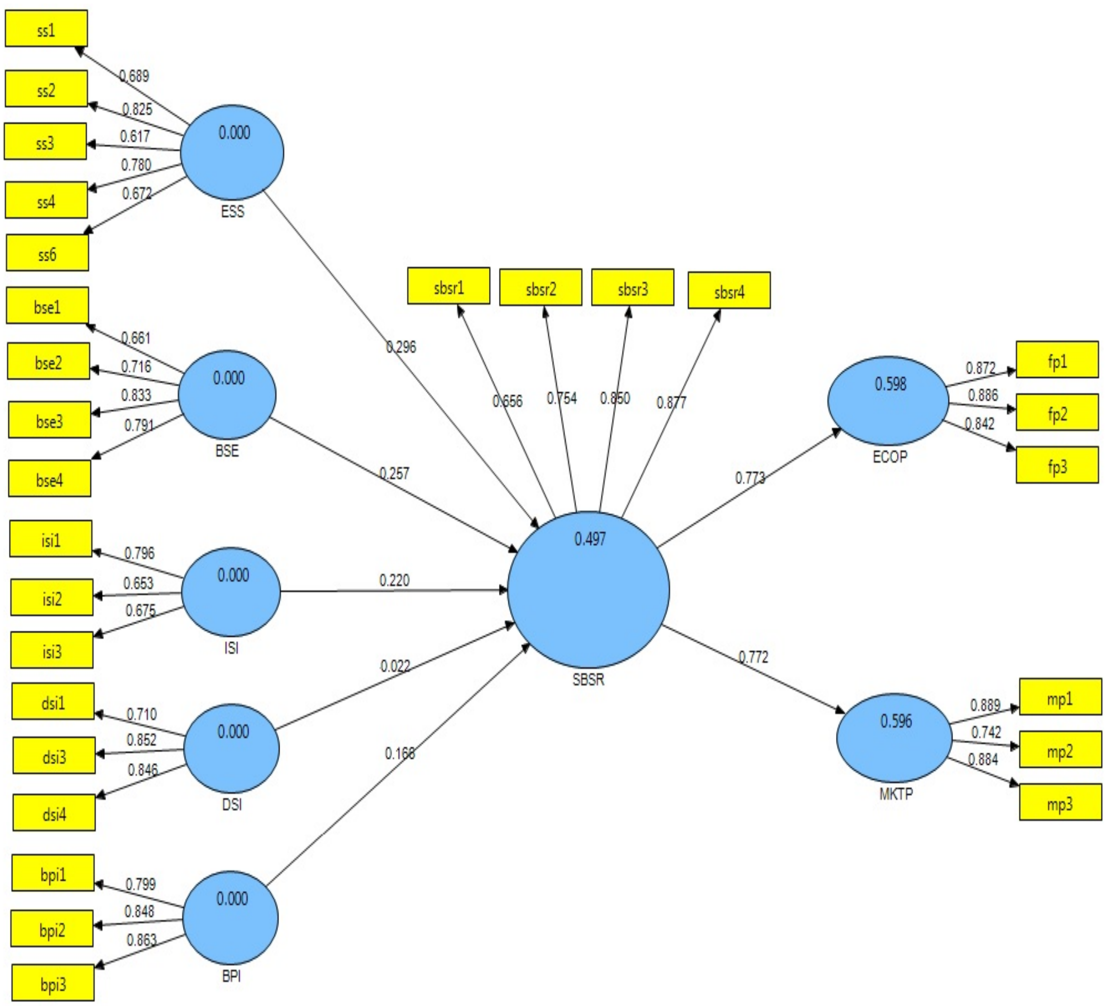

Figure 5.1: Measurement Model

Table 5.3: Measurement Model							
Item	*Loading*	*T-Value**	*CR*	*AVE*	*Mean*	*S.D.*	*α*
Effective Supplier Selection			0.84	0.52	4.37	0.49	0.74
Scope of resources	0.69	14.85					
Technical expertise	0.83	26.37					
Supplier's process capabilities	0.62	9.52					
Ability to meet delivery dates	0.78	20.86					
Commitment to continuous improvement in products and processes	0.67	13.93					
Buyer-Supplier Engagement			0.84	0.57	4.08	0.63	0.72
Participating in the sourcing decision of your suppliers	0.66	13.59					
Improving the integration of activities	0.72	20.11					
Communicating your firm's future strategic needs to your suppliers	0.83	38.47					
Creating a greater level of trust among your firm's suppliers	0.79	34.31					
Information System Integration			0.75	0.51	4.23	0.49	0.59
Communicating customer's future strategic needs throughout the supply chain	0.80	30.91					
Creating a compatible information systems with your suppliers and customers	0.65	15.24					
Contacting your end-users to get feedback on performance, and customer services	0.68	12.26					
Decision System Integration			0.85	0.65	4.21	0.61	0.70
Willingness to share sensitive information	0.71	24.55					
Determination of key factors for improving customer satisfaction	0.85	32.57					
Sharing of confidential information	0.85	37.33					
Business Process Integration			0.88	0.70	4.30	0.70	0.77
Use of EDI / ERP	0.80	22.45					
Supplier's order entry and invoicing system	0.85	33.57					
Use of EDI / ERP communications frequently	0.86	34.01					

Table 5.3: Measurement Model (Contd.)							
Item	*Loading*	*T-Value**	*CR*	*AVE*	*Mean*	*S.D.*	*α*
Success of Buyer-Supplier Relationship			0.87	0.62	4.27	0.59	0.76
Increasing product quality	0.66	15.04					
Reducing product development time	0.75	21.69					
Lowering product cost	0.85	54.01					
Increasing buyer-supplier cooperation	0.88	37.33					
Financial Performance			0.90	0.75	4.00	0.62	0.81
Market share	0.87	48.95					
Return of assets	0.89	56.88					
Average selling price (High price means higher performance)	0.84	28.35					
Market Performance			0.88	0.71	4.23	0.52	0.74
Overall product quality	0.89	70.14					
Overall competitive position	0.74	21.02					
Overall customer's service level	0.88	58.47					
CR = Composite reliability, AVE = Average variance extracted, *All items loading are significant at an alpha level of 0.01.							

Table 5.4: Correlation Matrix								
	ESS	*BSE*	*ISI*	*DSI*	*BPI*	*SBSR*	*FinP*	*MktP*
ESS	**0.71***							
BSE	0.56	**0.75**						
ISI	0.56	0.35	**0.71**					
DSI	0.55	0.45	0.43	**0.81**				
BPI	0.42	0.37	0.37	0.49	**0.84**			
SBSR	0.59	0.53	0.54	0.43	0.45	**0.79**		
FinP	0.41	0.35	0.44	0.48	0.41	0.77	**0.87**	
MktP	0.46	0.45	0.40	0.39	0.26	0.77	0.67	**0.84**
*Square root of AVE is shown on diagonal, ESS = Effective supplier selection, BSE = Buyer supplier engagement, ISI = Information system integration, DSI = Decision system integration, BPI = Business process integration								

Table 5.5: Items Cross Loading Matrix								
	ESS	*BSE*	*ISI*	*DSI*	*BPI*	*SBSR*	*FinP*	*MktP*
ess1	**0.69**	0.51	0.33	0.54	0.19	0.37	0.30	0.31
ess2	**0.83**	0.27	0.49	0.36	0.35	0.53	0.38	0.39
ess3	**0.62**	0.15	0.28	0.29	0.26	0.33	0.22	0.20
ess4	**0.78**	0.28	0.46	0.25	0.30	0.46	0.34	0.34
ess6	**0.67**	0.54	0.41	0.39	0.24	0.43	0.23	0.38
bse1	0.34	**0.66**	0.29	0.20	0.07	0.33	0.18	0.32
bse2	0.36	**0.72**	0.27	0.39	0.25	0.41	0.30	0.30
bse3	0.38	**0.83**	0.33	0.37	0.43	0.49	0.32	0.36
bse4	0.37	**0.79**	0.23	0.37	0.30	0.36	0.22	0.38
isi1	0.40	0.39	**0.80**	0.38	0.29	0.49	0.30	0.38
isi2	0.40	0.27	**0.65**	0.30	0.25	0.29	0.32	0.19
isi3	0.41	0.10	**0.68**	0.35	0.29	0.32	0.34	0.24
dsi1	0.30	0.39	0.18	**0.71**	0.47	0.29	0.37	0.28
dsi3	0.37	0.31	0.41	**0.85**	0.30	0.31	0.40	0.32
dsi4	0.50	0.39	0.53	**0.85**	0.43	0.41	0.39	0.34
bpi1	0.30	0.29	0.40	0.41	**0.80**	0.30	0.28	0.21
bpi2	0.44	0.42	0.39	0.50	**0.85**	0.39	0.37	0.27
bpi3	0.21	0.22	0.22	0.33	**0.86**	0.42	0.37	0.19
sbsr1	0.31	0.37	0.42	0.37	0.28	**0.66**	0.52	0.59
sbsr2	0.40	0.29	0.42	0.26	0.22	**0.75**	0.51	0.53
sbsr3	0.51	0.50	0.34	0.26	0.46	**0.85**	0.70	0.63
sbsr4	0.62	0.49	0.51	0.46	0.42	**0.88**	0.68	0.67
finp1	0.30	0.30	0.33	0.32	0.41	0.67	**0.87**	0.59
finp2	0.44	0.33	0.44	0.50	0.27	0.68	**0.89**	0.63
finp3	0.34	0.28	0.38	0.42	0.40	0.66	**0.84**	0.53
mktp1	0.41	0.40	0.39	0.40	0.23	0.71	0.58	**0.89**
mktp2	0.23	0.23	0.22	0.19	0.23	0.55	0.55	**0.74**
mktp3	0.50	0.48	0.39	0.38	0.20	0.68	0.57	**0.88**

5.3- Structural model estimation and assessment:

As discussed in earlier sections, current study used Smart PLS version 2.0 M3. By using the guidelines provided by Hair (2009), Peng and Lai (2012), Gentle *et al*. (2010), and Fernandes (2012) the structural model was assessed. The details are provided in the next sections.

5.3.1- Hypotheses testing:

PLS based SEM is a newer technique which instead using traditional technique of multivariate normal distribution, uses bootstrapping procedure to estimates results (Peng and Lai, 2012). Bootstrapping is the practice of estimating properties of an estimator (such as its variance) by drawing multiple samples from original data. Statisticians and researchers have different opinions about the appropriate bootstrapping sample sizes. For example Chin (1998) suggests that the bootstrapping sample size should be 500. Chung (2001) argues that the bootstrapping sample size should equal to the original sample size. Similarly Peng and Lai (2012) suggest bootstrapping sample sizes of 100, 250, and 500. Keeping in view the availability of the computing power, current study used bootstrapping sample sizes of 80 (Chung, 2001), 100, 250, 500, and 600 (Chin, 1998; Peng and Lai, 2012) to verify the results. Consistent results were found with all recommended bootstrapping sample sizes. The results are shown in Figure 5.2.

As shown in Figure 5.2, all hypotheses are supported except H3b i.e. *Decision system integration positively impacts the success of buyer-supplier relationship.* The R^2 value of 0.497 of SBSR indicates that 49.7% variance of SBSR is explained by exogenous latent variables (LV). Similarly the R^2 values of 0.589 and 0.596 indicate that the SBSR causes 58.9% and 59.6% variance in financial and market performance respectively.

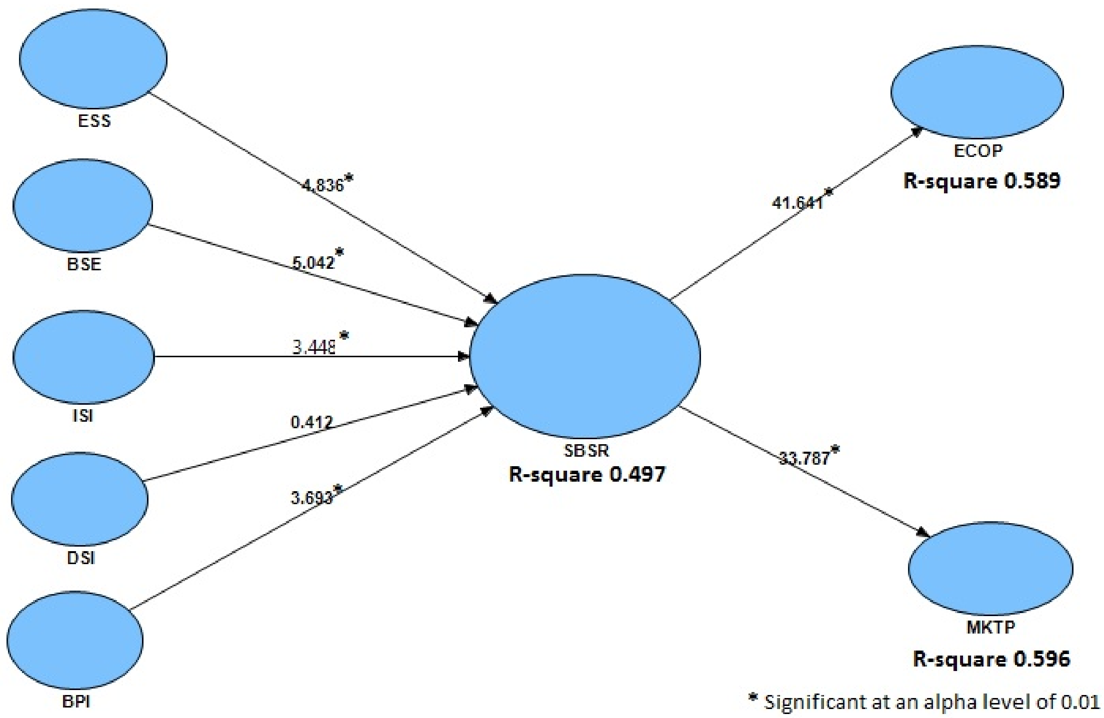

Figure 5.2: Structural Model

In order to examine the possible issue of multicollinearity, the variance inflation factor (VIF) of all the antecedents was calculated. All the VIF's were below 2.0 threshold (Chu and Wang, 2012), eliminating the any possible issue of the multicollinearity. The VIF of each antecedent is shown in Table 5.6.

5.3.2- Effect size:

In order to assess the effect size of each exogenous / predictor variable on endogenous / dependent variable, Cohen's f^2 is computed. Cohen's f^2 indicates that whether each exogenous / predictor variable has substantial effect on the endogenous /

dependent variable (Cohen, 1988). Cohen's f^2 for each exogenous / predictor variable was computed using following formula:

$$\text{Cohen's } f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

Cohen's f^2 values indicates that BSE has substantial effect on SBSR, while ESS, ISI, and BPI have low effect (Cohen, 1988; Peng and Lai, 2012). However ESS as compare to BPI, and ISI has more effect on SBSR. A detail of Cohen's f^2 is provided in Table 5.6.

5.3.3- Predictive relevance:

Stone (1974) and Geisser (1975) developed a sample reuse technique to analyze the predictive relevance of the structural model. Predictive relevance is often measured by calculating the values of Stone-Geisser's Q^2 (Geisser, 1975; Stone, 1974). In Smart PLS, there is a function named *blindfolding* which provides values of Stone-Geisser's Q^2 for the endogenous variables. By using omission distance *D* = 7, *blindfolding* function was run and values for *success of buyer-supplier relationship, firm financial performance, and firm market performance* were computed. All the Stone-Geisser's Q^2 were above 0 indicating predictive relevance of the structural model (Geisser, 1975; Gentle *et al*., 2010; Peng and Lai, 2012; Stone, 1974). Values of Stone-Geisser's Q^2 are provided in Table 5.6.

5.3.4- Goodness of Fit (GoF):

Finally, the overall quality of the research model was assessed through GoF index using the guidelines provided by Tenenhaus *et al*. (2005). Smart PLS does not provide GoF statistics however Tenenhaus *et al*. (2005), Peng and Lai (2012), Gentle *et al*. (2010) and many other researchers / statisticians suggested that it can be calculated by using the following formula:

$$\text{GoF} \quad = \quad \sqrt{(\overline{\text{Communality}} \times \overline{R^2})}$$

As shown in equation, GoF index is the square root of the product of weighted average communality (i.e. AVE) and average R^2. Weighted average communality is obtained by using the number of items as weights and it indicates the overall quality of the measurement model. The quality of the structural model is indicated by the average R^2. The GoF index for the current study is 0.59 > 0.35, which is sufficiently large (Peng and Lai, 2012).

Table 5.6: Structural Model Estimates

	Std. weights	*VIF*	*R-Square*	*Cohen's ƒ²*	*Stone-Geisser's Q^2*	*GoF*
ESS	0.296	1.70	-	0.11	-	0.59
BSE	0.257	1.34	-	0.15	-	
ISI	0.220	1.43	-	0.09	-	
DSI	0.022	1.34	-	-	-	
BPI	0.168	1.20	-	0.07	-	
SBSR	-	-	0.497	-	0.31	
FinP	0.773	-	0.589	-	0.41	
MktP	0.772	-	0.596	-	0.39	

Cohen's ƒ² 0.02 = Small, 0.15 = Moderate, and 0.35 = Large effect size (Peng and Lai, 2012)
If Stone-Geisser's Q^2 > 0, then predictive relevance (Peng and Lai, 2012)

6. Discussion

Current study started with the phenomenon that the product life span over the years is reducing and supply chains are under enormous pressure to cope up the issues. Supply chain managers at one side need to reduce product development time while on the other side forced by the organizations to increase profits. Supply chain managers are tensed that how to meet the needs of customers with achieving organizational objectives of maximizing profits at the same time. Literature reveals that effective supplier selection, buyer-supplier engagement, and information sharing capability help in developing successful buyer-supplier relationship which helps in reducing product development time and costs, and enhance product quality. Successful buyer-supplier relationships enhance the economic and market performance of the supply chain firms. Current study was undertaken to identify the antecedents and outcomes of successful buyer-supplier relationship in developing country's perspective. After investigating the issue, brief literature review was conducted at introduction stage to set objectives and research questions of the study. Following the objectives and research questions, extensive literature review was conducted. Literature review not only enriched the researcher's knowledge to better understand the phenomenon, it also helped to identify relationships between latent variables to develop a research model to find a solution in order to overcome the issue. Following the research model, hypotheses were developed. Data was collected from manufacturing industry to test research model. We will discuss the findings and their implications in next sections.

6.1- ESS positively impacts the SBSR:

First hypothesis in our study is *effective supplier selection (ESS) positively impacts the success of buyer-supplier relationship (SBSR).* This hypothesis is supported in current study. Literature also suggests that supplier selection plays key role in determining the success and length of relationship between buyers and suppliers (Field and Meile, 2008; Frödell, 2011; Hong *et al*., 2011; Kannan and Tan, 2006; Lambert and Schwieterman, 2012; Ndubisi *et al*., 2005; Park *et al*., 2010). Kannan and Tan (2006) conducted a study to investigate the role of supplier selection in the success of buyer-supplier relationship. Their study indicates that if a supplier is selected whose objectives and goals match the firm's objectives and goals; then it's more likely that they will engage into long term successful partnerships. Further they argue that the firms should investigate whether the potential supplier is willing to develop successful partnerships or not before contracting. They even suggest that firms should include it into the supplier selection criteria. Similarly Lambert and Schwieterman (2012) highlight the importance of supplier selection in the relationship success. They proposed a model for developing successful relationships among buyer and supplier and argue that supplier selection is the first and critical step heading towards successful partnerships. Frödell (2011) also highlights the role of supplier selection in the development of successful partnerships. Author concludes that both parties must have aligned core values, and should show willingness and capability for collaboration to enter into successful long term partnerships in order to reduce costs and lead time while maximizing the value. Hong *et al*. (2011) propose supplier selection matrix with core objective to select right supplier to enter into long term successful partnerships. Ndubisi *et al*. (2005) talks about supplier selection strategy and argue that supplier's and buyer's strategy should align to move toward achieving desired results. In short, effective supplier selection plays key role in turning a relationship successful.

6.2- BSE positively impacts the SBSR:

The second hypothesis is *buyer-supplier engagement positively impacts the success of buyer-supplier relationship.* This hypothesis was also supported at an alpha level of 0.01. Sufficient support in favor of the hypothesis is also provided by the literature (Carr *et al*., 2008; Corsten and Felde, 2005; Field and Meile, 2008; Frödell, 2011; Kannan and Tan, 2006; Squire *et al*., 2009). Kannan and Tan (2006) conducted a research to test the impact of BSE on SBSR. Their study shows that BSE positively impacts the SBSR. If the buyers and suppliers are integrating key activities, taking strategic level decision in collaboration then it's more likely that the both parties will enjoy the positive outcomes of the relationship. Carr *et al*. (2008) conducted research to investigate the role of supplier's involvement and training on building long term partnerships in order to enhance operational efficiency. Researchers came to the point that supplier's active participation particularly at product development stage and in other operational activities bring them closer to develop long term partnerships to enjoy superior operational performances. Similarly Field and Meile (2008) argue that supplier coordination and cooperation help in improving the supplier satisfaction level and build trust among them. This element of trust then leads towards partnerships between supply chain partners. Squire *et al*. (2009) found that buyer-supplier collaboration helps in enhancing the responsiveness however the nature of relationship plays critical role among two entities. In other words, buyer-supplier collaboration through buyer-supplier relationship helps in improving the responsiveness of the supply chain. Thus this discussion helps in concluding that the results of our study are aligned with the findings / suggestions of the previous studies.

6.3- ISC positively impacts the SBSR:

Current study segregates the *information sharing capability (ISC)* into three sub-categories i.e. information system integration (ISI), decision system integration (DSI) and business process integration (BPI). Three hypotheses were formulated to test the positive impact of each on *success of buyer supplier relationship* (SBSR). Based on data analysis, it was found that all three dimensions of measuring ISC have positive impact on SBSR. ISI and BPI's positive impact were statistically significant hence supported H3a and H3c. However there wasn't sufficient evidence to conclude that the DSI's positive impact is significant. Therefore H3b was not supported. Sufficient literature is available in favor of our findings except H3b (Agnihotri *et al*., 2009; Carr and Smeltzer, 2002; Claro *et al*., 2006; Field and Meile, 2008; Hsu *et al*., 2008; Sanders *et al*., 2011). Hsu *et al*. (2008) conducted research to investigate the relationship of ISC with buyer-supplier relationship. Their findings show that the ISC has positive impact on the SBSR. Further they argue that the ISCs of both buyer and supplier should match so that the sharing of information becomes effective in order to achieve positive outcomes of the relationship. Similarly many researchers try to emphasize the importance of information sharing capability in contemporary business environment.

Current study failed to find support for H3b i.e. DSI positively impacts the SBSR. When we look at the items measuring the DSI construct, we find that these items are trying to extract the level of sharing of sensitive and very confidential information with suppliers. Since current study is conducted in an under-developed country and firms of such countries generally avoid to disclose very sensitive and confidential information. They may believe that sharing of such information may damage their privacy and therefore is not necessary to share with any other entity of the supply chain. They generally have a fear that their suppliers may misuse the sensitive information and thus may cause damages. In our point of view, that is the possible reason due to which H3b was not supported. However in developed countries the case is very different. Very similar study was conducted among the firms of United States of America, Europe and New Zealand by Hsu *et al*. (2008) and the case was very different. Their study indicates that the firms in such developed countries believe that the sharing of sensitive and confidential information is necessarily required in order to bring supply chain entities closer to each other, to build trust among them, and to develop successful relationship bonds.

6.4- SBSR positively impacts FP:

Finally it was tested that *success of buyer supplier relationship (SBSR) positively impacts the financial (FinP) and market performance (MktP)*. Data analyses show that SBSR positively impact the FinP and MktP at an alpha level of 0.01. Sufficient literature is available in favor of our results (Barratt and Oliveira, 2001; Cannon, 2001; Carr and Smeltzer, 2002; Claro *et al*., 2006; Field and Meile, 2008; Frödell, 2011; Hong *et al*., 2011; Hsu *et al*., 2008; Kannan and Tan, 2006; Lambert and Schwieterman, 2012; Ndubisi *et al*., 2005; Park *et al*., 2010; Sanders *et al*., 2011; Squire *et al*., 2009). Hsu *et al*. (2008) and Kannan and Tan (2006) conducted research and argued that SBSR improve the firm’s financial and market performance by significantly reducing product development time, costs, and through improving product quality. When product development time reduces, a supply chain has an edge over the competitors in terms of shorter time to introduce new product in the market. This gives the supply chain a distinction over competitors and gets it in a position to sell its product at premium and capture larger market share and higher profits, hence improve overall market performance. SBSR enable firms to share resources, experiences, and other core capabilities and thus improve the operational performance of the supply chain entities (Cannon, 2001; Carr *et al*., 2008; Enz *et al*., 2012). This improvement in operational capabilities on one side cuts costs and helps in enhancing financial performance while on the other side improves product quality and thus improves market performance. Therefore building SBSR should be the core objective of the supply chain firms in contemporary business environment to successfully satisfy the customer’s needs while meeting the organizational objectives.

7. Research implications and conclusion

7.1- Literature implications:

Since last couple of decades the concept of supply chain has attracted researchers extensively. Researchers are trying to cover different aspects of supply chain. However the central question remains the same that is how to enhance profitability. Most of the studies conducted before 2005 tried to prove that the profitability of the supply chains can be enhanced through effective supplier selection, supplier involvement, integration, management, information sharing etc. However researchers found that these factors do not necessarily enhance the overall profitability. So the questions started arising that *why it is the case?* From 2005 onwards an additional thing in supply chain research articles was noticed i.e. *relationship*. Researchers started arguing that there is something missing in the theory that intervenes the relationship between these factors and supply chain profitability / performance. Current study along with few other studies identifies and empirically proves that it is the successful buyer supplier relationship which builds through factors like effective supplier selection, buyer supplier engagement, and information sharing capability. This successful buyer supplier relationship then enhances the performance of the supply chain entities.

7.2- Managerial implications:

Current study not only contributes towards academia, but it also has managerial implications for the corporate. First of all current study highlights the importance of building successful buyers supplier relationship in contemporary business environment. Such relationships enhance the financial and market performance of the supply chain firms. But most importantly, current study provides criteria for supply chain managers to build successful partnerships. No doubt, all three factors i.e. effective supplier selection, buyer-supplier engagement and information sharing capability play role in determining the success of relationship however the role of buyer-supplier engagement is critical. As our analysis shows that buyer-supplier engagement has the largest effect size on determining the success of relationship. The effective supplier selection is the second most influencing factor of success of relationships. Finally, the role of information sharing capability is also important.

Mangers can use the items measuring each construct as a guide or indicators to take initiatives in order to enhance the level of buyer-supplier engagement, information sharing capability, and to improve the supplier selection process. This will lead towards building successful relationships and ultimately to improvements in the performance of supply chain.

8. Limitations and future research

Current study tried to establish generalize-ability by ensuring sufficient representation of different industries according to their industry size. However due to resource and time constraints, current study failed to get responses from cement industry. Therefore its results may not be applicable on cement industry. Future studies can be conducted on cement industry. Current study is conducted in a developing country. Although the developing countries share common practices, yet each country has its own business environment. Therefore current study has limited generalize-ability. Such studies in other developing countries should be conducted in future and results should be cross verified to establish better generalize-ability. Generalize-ability is also limited due to small sample size. Due to time and budget constraints, current study used cross-sectional data. Researchers argue that causal relationships should be tested through time series data to get better insights (Bryman, 2012; Walliman, 2005).

9. References

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