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Abstract

Supply chain management (SCM) emphasises the necessity and advantages of abandoning organisational boundaries, and directs organisations to coordinate, cooperate and integrate intra- and inter-organisational relationships as well as coordination of information, material and financial flows throughout the supply chain (SC).

This dissertation is a single case study of “Zerde” a pharmaceuticals wholesaler in Kazakhstan, which aims to explore the impact of Internal Integration (II) on External Integration (EI) from its major elements such as organisational capabilities, information sharing, cross-functional teams and joint planning.

Secondary data was obtained from the literature review. Primary data was obtained with qualitative research, which included semi-structured interviews with the staff of the company. Four representatives of the company were interviewed via Skype calls and telephone call, the information obtained was recorded by taking hand-written notes. Three research objectives were addressed on the base of the collected data.

The results of the research indicated that the company successfully coordinated and integrated information, material and financial flows within its boundaries. Despite, the company failed to externally integrate with suppliers and customers.

Key words: Supply chain integration, internal integration, supplier integration, customer integration
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Chapter 1 Introduction

Increased customer demand for better services and increasing global competition have led many organisations to integrate supply chain practices among supply chain partners Wong and Bonn-itt (2008). Supply chain integration is defined as an extent to which a company strategically collaborates with its supply chain partners, and manages intra- and inter-organisational processes to achieve efficient and effective flows of information, material, services, decisions, and finances (Zhao et al., 2008). Supply chain integration has two dimensions: internal integration and external integration (Vallet-Bellmunt and Rivera-Torres, 2013).

II can be defined as an extent to which an organisation structures its own organisational strategies, processes and practices into collaborative and synchronised processes, in order to respond to customer requirements and interact with suppliers (Flynn et al., 2010). It is recognised that II facilitates production planning, scheduling, customer order management and demand planning processes to meet the requirements schedules (Rosenzweig et al., 2003). Also information regarding the customer orders, inventory levels, purchasing and production schedule effectively communicated among functional departments, which in turn, helps companies to allocate the available resources at suitable costs.

External integration defines the degree of collaboration an organisation builds with its main SC partners to meet customer requirements and form its inter-organisational strategies and procedures into manageable processes (Zhao et al., 2011). Chen and Paulraj (2004) describe the customer integration as the degree to which an organisation effectively interacts with its major customers to structure its inter-organisational strategies and processes into collaborative and synergistic processes to meet customer requirements. Swink et al. (2007) assert that customer integration emphasizes frequent customer interactions, which enables better understanding of customer preferences, and improve demand
forecasts by detecting demand changes. SI is defined as the combination of internal resources of the focal firm with the resources and capabilities of its major suppliers through the meshing of intercompany business processes to achieve a competitive advantage (Wagner, 2003).

Kazakhstan is a relatively young country located in Central Asia with high potential market and very healthy future (Bateman, 1998). The country has winning geographical position, which makes it attractive to foreign companies. Although, it presents a number of difficulties for overseas firms to enter the market due to the lack of retail sector and low development of transportation system, the number of foreign companies entering Kazakh markets increased (Price, 2006). According to Price (2006) distributors are considered to be the most powerful members of supply chain for Western countries, therefore it is important to realise the systematic approach to SCI among partners. The lack of theory on SCM field in Kazakhstan recognises the need for further investigation in this area of research, therefore the study concentrates on SCI in Kazakhstan.

Pharmaceuticals are special commodities playing important role in people’s health; moreover, pharmaceuticals distribution industry significantly contributes to the national economy of the state (Zhan, 2010). Thus, pharmaceuticals wholesaler “Zerde” in Kazakhstan, being a major player in this sector, was selected for the research.

The structure of the dissertation is presented with following chapters: Chapter 2 provides a conceptual framework on SCI, chapter 3 describes the research site and methodology used in the research, chapter 4 interprets the data obtained from the research, chapter 5 presents findings and analyses the data with respect to the research questions, and chapter 6 concludes the results obtained from the research. The dissertation finishes with limitations and conclusions.
Chapter 2 Literature review

2.1. Introduction

This section reviews the literature on supply chain integration, especially those papers studying the concept itself, classifications, different aspects
and dimensions. Furthermore, supply chain integration has been classified into internal integration and external integration, considering their elements. Then, the impact of internal integration on external integration has been analysed. Finally, research questions were presented.

2.2. Definitions of Supply Chain and Supply Chain Management

Ayers (2001) describe Supply Chain (SC) as life cycle processes which involve physical, information and financial flows from origin to final destination, whose objective is the satisfaction of customer requirements for goods and services. According to Christopher (1998) SC is a network of organisations involved in the distinct processes and activities, through upstream and downstream linkages in order to offer value in the form of products and services to the ultimate customer. While Pienaar (2009) define SC as a process integration which involves organisations to transform raw materials into finished goods to the end user. Although, there are various definitions of SC in the literature, they all recognised that SC involved flows of information, goods and finance among members of the SC engaged in transformation of inputs into outputs with the aim of providing goods to the customer.

According to Mentzer et al. (2001) Supply Chain Management (SCM) is the systemic, strategic coordination of the traditional business function of the focal firm with its SC partners, for the purposes of improving the long-term performance of the individual organisations and the SC as a whole. Similarly, Christopher (2011 book, p.3) defines SCM as the management of upstream and downstream relationships with suppliers and customers with the purpose of delivering superior customer value at reduced cost to the whole SC. Gunasekaran and Ngai (2004) argue that SCM is based on integration of all activities throughout the SC, which add value to the customers starting from product design to delivery. All definitions view SCM from a boundary spanning perspective, where all the members of SC
must extend their efforts and initiatives to add value to the ultimate customer.

2.3. Conceptual framework for Supply Chain Integration

SCM recognises the need and advantages of abandoning the organisational boundaries (Lejeune and Yakova, 2005) and directs organisations to integrate, coordinate and cooperate inter and intra-organisational relationships as well as coordination of different flows throughout the SC (Ellinger, 2000; Yu et al., 2009). Intensified global competition and increased customer demand for better products and services have significantly emphasized the need to integrate SC practices between companies and rethink the need for cooperative, mutually beneficial SC partnerships (Ellinger, 2000; Wong and Boon-itt, 2008). Many authors agree that a high level of integration and integrative practices positively affect the corporate and SC performance (Wu et al., 2004; Van der Vaart and Van Donk, 2007). For example, Swink et al. (2007) argue that companies with well integrated SCs outperform their less integrated peers due to better alignment of objectives, business processes, coordination and fit.

Research on Supply Chain Integration (SCI) has offered numerous definitions and dimensions characterising the concept (Flynn et al. 2010, Gimenez, 2011; Schoenherr and Swink, 2012; Huo, 2012). Pagell (2004) argued that there is no single and accepted definition for integration; however he recognised that various interpretations share some common themes and there is an overlap among them. Thus, SCI can be defined as a process of interaction and collaboration at both internal and external levels of SC (Ellinger, 2000; Daugherty et al., 2006; Wong and Bon-itt, 2008; Vallet-Bellmunt and Rivera-Torres, 2013). Interaction philosophy treats contact as transactions, where functional departments at internal level and SC entities at external level are considered to be independent of each other (Kahn and Mentzer, 1996). In contrast, perspective of
collaboration philosophy stresses the importance of continuous ongoing relationships followed by mutual understanding, common vision and sharing resources between functional departments at internal level and SC partners at external level to jointly achieve success (Vallet-Bellmunt and Rivera-Torres, 2013). Furthermore, recognition of inter-dependence among all SC members is supposed to be an important precursor of SCI (Power, 2005; Kannan and Tan, 2010).

Chen and Daugherty (2009) view SCI from the process-oriented view. Fawcett and Magnan (2002) argue that SCI vary, ranging from cross-functional process integration within an organisation to complete forward and backward SCI. To support, Richey et al. (2009) argue that SCI requires the integration of processes from sourcing, to manufacturing, and to distribution across the SC. Figure 2.1 illustrates the integration process within and across SC.

Figure 2.1 Supply Chain Integration
Source: Rosenzweig et al., 2003, p.440

Prajogo and Olhager (2011) state that SCI recognises the existence of two flows: information flow, which refers to the exchange of information among SC partners and material flow, which is concerned with physical flow of materials from suppliers to customers. However, Bagchi and
Skjoett-Larsen (2002) identified four flows in SC: requirement information from buyer to seller which triggers all later activities, the movement of goods from sellers to buyers, transfer of ownership rights from seller to buyer, payment from buyer to seller. Mentzer et al. (2001) in turn, identified three flows: information, product and finance. Although, there are inconsistent findings regarding the flows in the SC, SCI requires the coordination of these flows in a network, to ensure unhindered flows at each interface. Indeed, it is argued that SCI is the degree to which an organisation strategically collaborates with suppliers and customers and cooperatively manages intra- and inter-organisational processes to achieve coordinated flows of products, services, information, money, and decisions to provide the maximum value to the final customer at low cost and high speed (Van der Vaart and Van Donk, 2004; Van der Vaart and Van Donk, 2007; Liu et al., 2011; Huo, 2012; Zhang and Huo, 2012; Otchere et al., 2013). Moreover, SCI removes all boundaries and barriers in order to ease the flow of material, information, resources and cash (Naylor et al., 1999; Van der Vaart and Van Donk, 2004). Figure 2.2 displays the flows in the SC that must be coordinated by SCI.

Figure 2.2 Flows in the supply chain

Otchere et al. (2013) concluded that the basis of integration can be characterised by information sharing, cooperation, collaboration, long-term partnerships, shared technology and a fundamental shift away from managing individual functional processes to managing integrated chains
of processes. Aryee et al. (2008) specified that contributory factors to SCI can be classified into “hard” issues such as technology, and the “soft issues”, such as relations and collaborative strategies. Moreover, they concluded the use of only “hard issues” or “soft issues” will not strengthen the level of SCI, conversely, interaction or combination of these variables will result in enhanced level of SCI.

The theoretical foundation for SCI can be traced to the Value Chain Model (Porter, 1991), and specifically, its notion of linkages (Rungtusanatham, 2003; Vickery et al., 2003; Swink et al., 2007; Kannan and Tan, 2010; Kocoglu et al., 2011). Porter (1991) advocated the identification and strategic exploitation of linkages within a firm’s value chain (i.e., horizontal linkages) and between the firm’s value chain and the value chains of its suppliers and customers (i.e., vertical linkages). Barlow and Li (2005) argue that coordination of activities of different functional areas of the company with suppliers and customers is not enough to achieve superior company performance; conversely, linking of internal activities and inter-organizational activities of suppliers and customers is a prerequisite for success. Thus, it can be noted that core purpose of SCI is the optimisation of horizontal and vertical linkages throughout the SC (Vickery et al., 2003).

Stevens (1989) identified four stages to achieve an integrated SC. SCI stages are displayed in the figure 2.3:

1. The baseline case – is characterised by separate departments with little synchronisation
2. Functional integration - with a primary focus on inbound flow of goods
3. II - characterised by effective management of flow of goods in and out of the organisation
4. EI – integrates the focal firm with suppliers and customers
Vallet-Bellmunt and Rivera-Torres (2013) assert that SCI concept has been studied from different perspectives. For example, Flynn et al. (2010) argue that there are various configurations of SCI, since different companies may place different degrees of emphasis on the individual dimensions of SCI. For instance, Frohlich and Westbrook (2001) and Narasimhan and Kim (2002) measured the strength of SCI, providing a framework for comparison. Study by Frohlich and Westbrook (2001) proposed five levels of EI defined by the direction and degree of integration: outward-facing, periphery-facing, supplier-facing, customer-facing and inward-facing. Narasimhan and Kim (2002) proposed six distinct types of SCI strategy: ineffective integration, internal integration, external integration, supplier-based integration, customer-based integration, system wide integration. Figure 2.4 illustrates the degrees of EI with suppliers and customers.
Furthermore, studies by Van der Vaart and Van Donk (2007) and Vallet-Bellment and Rivera-Torres (2013) made an assessment of factors and items used to conceptualise and understand the concept of SCI, and distinguished three categories: attitudes, patterns, and practices. Thus, studies considered SCI as a three-dimensional structure, where each dimension represents a different approach to the concept of integration. Table 2.1 displays the factors of SCI and examples how these factors can be accomplished.
Table 2.1 Three-dimensional concept of SCI

<table>
<thead>
<tr>
<th>Factors of SCI</th>
<th>Attitudes</th>
<th>Patterns</th>
<th>Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capture the relationship of the firm regarding its suppliers and customers.</td>
<td>Measure the interaction and/or collaboration of the focal firm regarding its suppliers and customers</td>
<td>Tangible activities, practices and technologies used in the process of integration.</td>
</tr>
<tr>
<td></td>
<td>Examples: buyer-supplier relationships, closer customer relationships, relationship commitment, relationship strength, relationship quality and social bonding</td>
<td>Examples: Frequent face-to-face communication, corporate level of communication on important issues with key suppliers and customers, formal and periodic evaluation of partner’s performance, regular visits to supplier’s plants</td>
<td>Examples: Electronic data Interchange (EDI), integrated product planning, packaging congruence, Vendor Managed Inventory (VMI) and deliveries synchronisation</td>
</tr>
</tbody>
</table>

Source: Van der Vaart and Van Donk (2008)

Moreover, SCI can be categorised into internal and external integration (Stank et al., 2001; Pagell, 2004; Vallet-Bellmunt and Rivera-Torres, 2013). Flynn et al. (2010) argue that external integration further can be collapsed into supplier integration and customer integration.

2.3.1. Internal Integration

Gimenez and Ventura (2005) state that internal integration (II) must be studied within organisation’s boundaries, as opposed to the external integration (EI) that crosses organisation’s boundaries and extends to the SC (Chen et al., 2007; Braunschneider, 2010; Flynn et al., 2010). II aims to eliminate traditional functional "silo approaches" and recognise the need for better coordination among functional departments (German and Iyer, 2006; Basnet, 2013). It is argued that task interdependence is the catalyst for
interdepartmental integration and the customer satisfaction is dependent on the output of more than one worker (Ellinger, 2000). Germain and Iyer (2006) proposed that II unifies processes and functions within the organisation, and includes those related to demand planning, purchasing, production, inventory management, warehousing, and transportation. II refers to the extent to which a focal firm structures its own organisational strategies, practices and procedures into collaborative synchronised processes, in order to fulfil customers’ requirements (Chen and Paulraj, 2004; Flynn et al., 2010; Zhao et al., 2011; Huo, 2012; Zhao et al., 2013).

II has been studied as the interactions of the logistics department with other functional departments (Gimenez and Ventura, 2005). Some authors measured the integration of logistics department with other functional areas such as marketing (Ellinger et al. 2000), operations (Gimenez and Ventura, 2003), marketing and operations (Sezen, 2005), information technology (Narasimhan and Kim, 2001). Since purchasing and marketing are the departments which most frequently contact with suppliers and customers, integration among them is crucial; this form of integration enables to identify potential opportunities and align firm’s activities with capabilities of trading partners (Smirnova et al., 2010; Vallet-Bellmunt and Rivera-Torres, 2013). Logistics department appears as an area that shares responsibilities with both departments, due to this reason most of the studies measured II as integration of logistics department with other functions (Gimenez and Ventura, 2005; Vallet-Bellmunt and Rivera-Torres, 2013).

Wong and Bon-Itt (2008) say that II provides full system visibility from the point of purchasing to distribution within an organisation to achieve customer satisfaction. II mainly involves data and information system integration through the use of Enterprise Resource Planning (ERP), real-time searching of inventory and operating data, and integration of activities of different business functions (Lee et al., 2007; Zhao et al.,
Information sharing, cross—functional teams, joint planning and working together are important elements of II (Flynn et al., 2010; Zhao et al., 2011; Otchere et al., 2013). II can create combinations of unique skills, knowledge and joint capabilities of various workers (Schoenherr and Swink, 2012). An organisation is considered to be highly integrated if its information systems used by different functional departments are linked together, and all the departments are able to access to accurate and real-time data from other functions and there are effective means of communication among them (Frohlich and Westbrook, 2001; Vickery et al., 2003).

2.3.2 External Integration

External integration (EI) emphasizes the importance of cooperation and collaboration with customers and suppliers through various activities, such as strategic alliance, information sharing, communication, process coordination, joint product development, and working together (Swink et al., 2007; Flynn et al., 2010; Zhao et al., 2011; Zhang and Huo, 2012). Success in today’s business environment is largely dependent on degree to which a focal firm is able to integrate across traditional functional boundaries (Ellinger, 2000). Furthermore, interdependence among SC members is considered to be an important precursor for successfully leveraging inter-organisational integration among SC entities, and is crucial for achievement of long-term strategic partnerships (Lejeune and Yakova, 2005; Das et al., 2006). EI can be classified into supplier integration and customer integration (Frohlich and Westbrook, 2001; Narasimhan and Kim, 2002; Flynn et al., 2010; Zhao et al., 2011; Huo, 2012).

2.3.2.1 Supplier Integration

Danese (2013) argues that supplier integration (SI) has been conceptualised in various ways and numerous terms. For example, Carr and Pearson (1999) define SI as buyer-supplier relationships, some
authors refer to SI as supplier involvement (Carr and Pearson, 2002; Koufteros et al., 2007), while others argue that SI can be considered as supplier collaboration (Corsten and Felde, 2005; Squire et al. 2009). Although, there is no agreement to what SI is, the common goal of integration with suppliers is to go beyond the firm’s boundaries in order to coordinate business processes smoothly (Danese, 2013).

SI is defined as a degree to which a focal firm shares information and develops partnerships with its suppliers by collaboratively managing information and material flows, hence optimizing and levelling procurement and production processes (Swink et al., 2007; Flynn et al., 2010; Danese 2013). Swink et al. (2007) state that SI deals with strategic linkages with suppliers, involvement of suppliers into new products during the design stage, production planning and inventory management, developing a rapid response order processing system with suppliers, establishment of supplier network which assures reliable delivery and exchange of information.

Lee et al. (2007) concluded that such elements as buyer-supplier information and data exchange, strategic buyer-supplier relationships, purchasing investment in supplier development, direct investments with suppliers, high levels of trust and joint problem solving, development of collaboration structures are the elements of the external dimension of SI.

In fact, these initiatives facilitate the process of sharing of complementary resources and information within the supply network, and also generation of fundamental tacit knowledge (Ragatz et al., 2002; Petersen et al., 2005; Das et al. 2006; Danese et al., 2013). Danese et al. (2013) emphasizes the importance of two key elements of SI: 1) information-sharing in production plans, that results in the reduction of demand variability and stock holding costs; and 2) development of partnerships and long-term relationships with suppliers, which guarantees more efficient problem solving and the creation of inter-company decision-
making routines. The mutual sharing of information about schedules, products, processes and capabilities enables manufacturers to develop production plans and produce goods on time, improving delivery performance (Simatupang et al., 2002). By understanding of manufacturers operations, suppliers achieve a high level of customer service, which in turn, helps the organisation to improve its customer service (Flynn et al., 2010).

Integration can be accomplished with technology initiatives such as electronic data interchange (EDI) and web-based integration systems, application software such as ERP systems and supply-chain-optimization software, and relational capital development initiatives such as cross functional involvement, supplier relationship development and joint problem solving (Das et al., 2006). The close integration among the organisation and its suppliers provides a unity of effort in meeting customer requirements for products and services, and responding to the changes in the market, reduces costs and improves quality (Koufteros et al., 2005).

2.3.2.2 Customer integration

Customer integration (CI) is defined as the degree to which an organisation partners with its key customers to structure their inter-organisational strategies, practices, procedures and behaviours into collaborative, synchronised and manageable processes in order to fulfil customer requirements (Chen and Paulraj, 2004; Schoenherr and Swink, 2012). Piller et al. (2004) considers CI as a form of industrial value creation, where customers take part in activities and processes that used to be seen as the domain of an organisation. Moreover, customer becomes a co-producer and respectively a “prosumer”. To support, Vargo (2008) also states that CI is a value creation process for the production of valuable output. Figure 2.5 illustrates the contextual nature of CI of value creation:
CI involves sharing demand information, which in turn, helps the manufacturer to better understand customer needs and to forecast customer demand more precisely, as well as involvement of customers into new product design, provision of better quality products at lower costs, and more flexibility in responding to the customer demand (Ochere et al., 2013). This form of integration with customers due to intelligence embedded in collaborative processes, allows manufacturers to detect demand variations more quickly, create greater value and reduce costs (Stank et al., 2001; Flynn et al., 2010; Lau et al., 2010).

In order to achieve high level of CI, an organisation has to deeply penetrate into the customer organisation, to better understand its product, culture, market and organisation so that the focal firm will be responsive to customer needs and requirements (Wong and Bonn-itt, 2008; Lau et al., 2010). Furthermore, it is argued that a strong linkage among customers and focal firm ensures that the voice of the customer plays a crucial role within the organisation (Koufteros et al., 2005). Activities such as frequent customer contacts, communication of satisfaction surveys, and both formal and informal employee-customer interactions are associated activities for building strategic CI (Swink et al.,
Gunasekaran and Ngai (2004) argue that when information systems of the focal firm and the customer are linked, where both parties are able to access real-time information and there are effective means of information among both parties, this reflects the high level of CI.

**2.4 Impact of Internal Integration on External Integration**

II is considered to be an important enabler of EI and has significant effect on the level of EI (Stevens, 1989; Morash and Clinton, 1998; Koufteros et al., 2005; Lejeune and Yakova, 2005; Braunscheidel and Suresh, 2009; Flynn et al., 2010). Germain and Iyer (2006) assert that there is an interaction effect among II and EI. They argue that lack of II may not translate inter-firm integration into better performance as evidenced by improvements in lot sizes, lead times, inventory turns, and flexibility. It is argued that in case of absence of II, EI would hit a disintegrative wall at the interface between the two firms. For example, Flynn et al. (2010) propose that II forms a background for the development of EI with suppliers and customers. Hence, before implementation of EI, company should have an ability to manage collaborative processes and practices within the company.

Zhao et al. (2011) argued that there are different contradictory findings regarding the relationship of II and EI. They state that II positively affects EI from organisational capability perspective and from major aspects of SCI such as information integration, strategic cooperation and working together. To support, Jayaram et al. (2010) concluded that aspects as information sharing, inter-organisational decision making and proactive planning with SC partners facilitate the implementation of SCI.

Hillebrand and Biemans (2003) argue that information which originates outside the organisation’s boundaries needs to be diffused within the firm, with the aim of attaining consensus on importance and implications of this information and further translate it into the action. Since information integration, cross-functional teams, and joint-decision making are
considered to be important elements of II (Flynn et al., 2010), it can be concluded that each of these elements will facilitate EI with suppliers and customers. Thus, this research focused on such elements of II as organisational capabilities, information integration, cross-functional decision making as major perspectives from which II can influence on EI.

![Figure 2.6 The impact of Internal Integration on Supplier Integration and Customer Integration](image)

2.4.1 Organisational capability perspective.

Organisational capabilities (OC) can be defined as an organisation’s ability to perform repeatedly a productive task which relates either directly or indirectly to the organisation’s capacity for creating value through affecting the transformation of inputs into outputs (Grant, 1996). From the perspective of OC, it is argued that when a company has a high level of internal communication and coordination capabilities, it will be more capable of achieving a high level of EI (Huo, 2012; Zhao et al., 2011). Indeed, Flynn et al. (2010) argue that in order to begin SCI companies initially should develop II capabilities and then to build external customer and supplier integration capabilities. They state that II is a bridge between SI and CI, without which companies are unable to reap full benefits.
Kusunoki et al. (1998) proposed a dichotomy of OC and classified them into three categories: 1) local capabilities (including information technology, information systems, and financial and human resources), 2) architectural capabilities (including joint-product development and cross-functional teams), and 3) process capabilities (including information sharing, communication and inter-firm relationships). Huo (2012) argue that II and EI represent internal OC and external OC respectively. Furthermore, he proposed that local internal integrative capabilities such as (IT/IS and human resources) have a direct influence on local external capabilities, since internal IT/IS human resources can act as a base to develop external IT/IS and human resources. Similarly, internal integrative architectural capabilities positively impact external integrative architectural capabilities, since the cooperative culture based on joint design and the teamwork of the internal operations of the companies are usually applied to the operation of the whole supply chain. Equivalently, internal integrative process capabilities (e.g. information sharing, communication, inter-firm relationships) can also directly enhance external integrative process capabilities, because information exchange and a partnership atmosphere can spread for within the company to outside and to the whole supply chain. Thus, it can be seen that internal integrative OC positively impact external integrative OC.

Since, SCI aims to integrate all the flows in the SC (Zhang and Huo, 2012), perspective of interorganisational capabilities, which integrate a focal firm with its suppliers and customers, require the focal firm to develop capabilities to acquire, integrate, reconfigure, and release resources which are embedded in their social, structural and cultural aspects (Rai et al., 2006). Furthermore, development of these capabilities is a long-term process that requires firms to make a series of linked strategic decisions and actions to IT resources, so as to blend them with organisational processes and knowledge resources (Barua et al., 2004). These capabilities are required to unbundle the three complementary
flows of materials, information and finances and integrate each of them with SC partners (Rai et al., 2006). Indeed, information technologies and ERP create the infrastructure for II, which in turn, create a fertile ground, where new opportunities identified through EI can take roots (Schoenherr and Swink, 2012).

The study by McCone-Sweet and Yoo-Taek Lee (2009) identified four OC that facilitate SCI: coordination and planning required for II, and supplier involvement and customer involvement required for EI. Coordination refers to the ability of the firm to integrate across business processes, while planning indicates the organisation’s ability to integrate their planning processes with information from other members of the SC. Supplier and customer involvement indicate the organisation’s ability to integrate and collaborate with upstream and downstream partners (McCone-Sweet and Yoo-Taek Lee, 2009). Huo (2012) states that organisation’s with high level of internal coordination and collaboration capabilities will be more likely to achieve a high level of EI.

Agan (2011) also supports the statement that OC facilitate SCI. He states that OC like collaboration with SC partners and learning from them create fertile ground for EI with suppliers and customers. Indeed, Schroeder et al. (2002) consider learning and knowledge management capabilities as important enablers of EI. It is argued that II generates information processing capabilities which enable the absorption and application of knowledge attained through EI processes (Schoenherr and Swink, 2012; Zhao et al., 2011; Huo, 2012). Schoenherr and Swink (2012) concluded that organisations with higher level of II will be better able to recognise, disseminate and apply the knowledge obtained through external linkages with suppliers and customers, since established predetermined rules, procedures, systems and internal personnel can more easily and effectively share and access the information. Thus, II can be defined as absorptive capability for learning from external supply chain partners, as
well as internal coordination capability for external coordination (Hillebrand and Biemans, 2004; Lane et al., 2006).

2.4.2 Information integration

Information integration is an important element of SCI (Barratt, 2004; Chen and Paulraj, 2004; Li and Lin, 2006; Ding et al., 2011; Jayaram et al., 2010), and refers to the extent to which critical and proprietary information is exchanged among SC partners (Kulp et al., 2004; Liu et al., 2011). Information integration allows organisations to assess the operations of the organisation as a whole system, rather than fragmented (Bagchi and Skjoett-Larsen, 2002). Kulp et al. (2004) classified two forms of information integration: information exchange, which facilitates the transfer of relevant information between SC partners, and collaborative planning, which involves the synchronisation of SC members’ activities.

Information exchange among SC partners enables to make better decisions on ordering, production and material planning, capacity allocations through increased visibility of supply, demand and inventory (Ding et al., 2011; Kocoglu et al., 2011; Yu et al., 2010). Visibility along the SC, induced by information integration, creates congenial ground for collaborative planning and forecasting (Bagchi and Skjoett-Larsen, 2002; Jayaram et al., 2010). Furthermore, information sharing regarding demand significantly reduces impacts of bullwhip effect, the phenomenon, where the size of inventory shortages and overages increases the further a firm is from final consumer demand in a SC (Lee et al., 2000; Yu et al., 2001; Yao et al., 2007; Yu et al., 2010; Kocoglu et al., 2011; Liu et al., 2011). The value of information sharing increases when customers share demand patterns and inventory levels, thus assisting in balancing the capacity tightness of suppliers (Yu et al., 2010). This in turn, enhances the capability of the supplier to react for the retailer’s needs, reduces uncertainties in the demand process faced by the focal firm and reduces SC operating costs (Ding et al., 2011; Liu et al., 2011). In addition,
effective information sharing increases mutual understanding among members, reduces miscommunication and prevents unnecessary mistakes, thereby decreasing transaction costs across the SC (Wu et al., 2006; Liu et al., 2011). Information sharing also facilitates the knowledge exchange among SC partners (Bagchi and Skjoett-Larsen, 2002; Kocoglu et al., 2011).

Study by Carr and Kaynak (2007) indicates that information and data sharing within the company should precede information and data sharing between suppliers and customers. Thus, in order to manage and coordinate the information flow coming outside the organisation's boundaries, organisation should initially integrate its business units and enable the information exchange among them. SC members can be linked by information technology for such logistics activities as order fulfilment, inventory management, delivery planning and coordination (Romano, 2003). Integrative information technologies are the core enabler of SCI (Marquez et al., 2003; Vickery et al., 2003). Integrated information systems enable all functional departments within the organisation to access and transmit information from one area to another engendering cross-functional integration (Vickery et al., 2003). Information technologies not only improve relationships among functional departments, but also provide linkages through which external information can be externally absorbed (Bergeron and Raymond, 1992).

Ward and Zhou (2006) closely relate inter-firm and intra-firm integration to each other, they suggest that organisations initially should implement and manage internal IT systems, and then expand the scope of their IT integration throughout the SC. Organisations without high-quality information from internal environment will not be able to effectively communicate with its SC partners. To support, Zhou et al. (2011) state that if a company does not have a communication infrastructure (such as EDI technology, ERP, VMI) to integrate the data and information among its functional departments, it is less likely to manage the information flow
coming from external partners. Furthermore, Zhao et al. (2011) argue that companies which have well-established IT systems and capabilities for integrating data and sharing information among its departments can more readily add functional modules to link with suppliers and customers. Thus, it can be concluded that IT systems facilitate the information and data exchange within the organisation, which in turn, enhances an organisation’s capabilities to coordinate and exploit the information coming from SC partners.

2.4.3. Cross-functional teams

The use of cross-functional teams is considered to be the most common approach for fostering of II (Vickery et al., 2003; Swink et al., 2007). Cross-functional teams aim to collaborate by linking people and departments to reach win-win outcomes. The establishment of cross-functional teams brings benefits to SC operations and facilitates the collaboration among the whole SC (Oliva and Watson, 2011). Swink et al. (2007) argue that cross-functional teams internalise and share these external inputs within the company. Vickery et al. (2003) suggested that cross-functional teams may include representatives of suppliers or customers in order to facilitate vertical integration among the SC. Thus, involvement of suppliers and customers into cross-functional teams is the other aspect when II has an impact on EI. Study by Jayaram et al. (2010) suggests this can be accomplished by commissioning cross-organisational teams, which includes representatives from different SC entities for data gathering, analysing, interpreting and joint decision making for the achievement of strategic direction of SC members.

For example, concurrent engineering is the early involvement of cross-functional team that consists of carefully selected array of specialists, in a process to plan product design, process design and manufacturing activities simultaneously (Koufteros et al., 2005). At the same time cross-functional team members seek to integrate with external partners, who
can provide valuable information regarding the product design, process design and manufacturing processes. Customer involvement in decision-making processes may ensure that the voice of the customer is considered and customers’ suggestions and recommendations are embedded in designing new products, whereas supplier participation may involve execution of engineering activities, components and subassemblies (Vickery et al., 2003; Koufteros et al., 2005). Koufteros et al. (2005) argue that efforts to integrate suppliers and customers without an internal integrated sensory and interpretive system may be futile.

Zhou et al. (2011) state that effective internal teamwork positively affects organisation’s capability to communicate and solve problems with SC partners. For example, Kaynak (2002) state that cross-functional teams are commonly used to detect supplier quality processes.

2.4.4. Joint decision making

Jayaram et al. (2010) argue that inter-organisational decision making with trading partners is another important aspect of SCI. Biehl et al. (2006) state that joint decision making process involves the maintenance of an information flow, problem solving, preparation of detailed activity reports, interorganisational strategic decision-making with SC partners, and assignment of resources. Zhao et al. (2011) argue that if an organisation is not able cooperatively plan tasks to achieve common goals, organisation processes within the firm will be fragmented and disconnected. These circumstances will inhibit the process of joint planning with SC partners. As a result the capability to jointly resolve potential conflicts, synchronized process planning and the ability to facilitate its operations with SC partners will suffer due to the lack of internal coordination within the firm.

According to Biehl et al. (2006) joint decision-making with SC partners can be required in following areas:
Cost improvement
Order entry procedures
Delivery schedules
Facilitate product/service design
Quality and process improvement initiatives

Wong and Acur (2010) propose that decision making of trading partners should be coordinated, so that the rate of order fulfilment is aligned with the rate of consumption. Green et al. (2006) assert that involvement of SC partners into development of marketing plans of the focal firm is a way of leveraging a focal firm's market orientation by improving customer responsiveness. Furthermore, Tan et al. (2002) proposed that buyers should reconsider their purchasing processes to integrate externally with suppliers’ engineering teams and with product designers into their own decision making processes. This approach will allow developing alternative conceptual solutions, selecting the best components and technologies, and helping in design assessment. Prior research has also suggested that dedicated relationships among SC partners and the use of advanced information technologies enable firms to participate in the sourcing decisions of suppliers (Jayaram et al., 2010; Christiansen and Maltz, 2004).

Similarly, Varma et al. (2006) commented on the use of appropriate network design decisions and formal customer feedback from end users to obtain early customer feedback on customer levels and performance. At the other end of the spectrum, information technologies and programmes such as customer relationship management and quality function deployment programme can be used to transform and streamline marketing, research and development, and manufacturing functions (Min and Mentzer, 2000; Green et al., 2006; Jayaram et al., 2010). This can lead to more efficient and effective marketing efforts from the firm’s customers to the end users, which in turn can lead to an efficient overall customer oriented SC (Green et al. 2006).
2.5. Emergence of research questions

The literature review on SCI, its dimensions, aspects and classifications has helped to gain theoretical knowledge in this area of research. The research on II identified critical elements such as information integration, joint planning, and cross-functional teams.

Table 2.2 Conceptual framework for further research

<table>
<thead>
<tr>
<th>Aspects</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Integration</td>
<td>Stevens (1989); Morash and Clinton (1998); Koufteros et al. (2005); Lejeune and Yakova (2005); Braunscheidel and Suresh (2009); Flynn et al. (2010); Germain and Iyer (2006); Flynn et al. (2010); Jayaram et al. (2010); Hillebrand and Biemans (2003); Gimenez and Ventura (2005); Chen et al. (2007); Braunscheidel (2010); Basnet (2013); Ellinger (2000); Chen and Paulraj (2004); Zhao et al. (2011); Huo (2012); Zhao et al., (2013); Gimenez and Ventura, (2003); Sezen (2005); Narasimhan and Kim (2001); Smirnova et al. (2010); Vallet-Bellmunt and Rivera-Torres (2013); Wong and Bon-Itt (2008); Otchere et al. (2013); Schoenherr and Swink (2012); Frohlich and Westbrook (2001); Vickery et al. (2003)</td>
</tr>
<tr>
<td>Organisational capabilities</td>
<td>Grant (1996), Huo (2012), Zhao et al. (2011), Flynn et al., (2010), Kusunoki et al. (1998), Rai et al. (2006); Barua et al. (2004); Schoenherr and Swink (2012); McConne-Sweet and Yoo-Taek Lee (2009); Agan (2011); Schroeder et al. (2002); Hillebrand and Biemans (2004); Lane et al. (2006)</td>
</tr>
<tr>
<td>Information sharing/integration</td>
<td>Barratt (2004); Chen and Paulraj (2004); Li and Lin (2006); Ding et al. (2011); Jayaram et al. (2010); Kulp et al. (2004); Liu et al. (2011); Bagchi and Skjoett-Larsen (2002); Kocoglu et al. (2011); Yu et al. (2010); Lee et al. (2000); Yu et al. (2001); Yao et al. (2007); Wu et al. (2006); Carr and Kaynak</td>
</tr>
</tbody>
</table>
## Research questions

1. **Identify aspects of II practiced by “Zerde”**

The research aimed to investigate how the company accomplishes the integration of information, material and financial flows between its functional departments, considering the main elements of II such as information sharing, cross-functional team, and joint decision making.

2. **Identify how the elements of II impact the process of EI with suppliers**
This research question aimed to investigate how the aspects of II such as information integration, cross-functional team and joint decision making influence on EI with suppliers

3. Identify how the elements of II impact the process of EI with customers

This research question aimed to investigate how the aspects of II such as information integration, cross-functional teams and joint decision making influence on EI with customers.

2.6. Conclusion

To conclude, SCI can be defined as an extent to which an organisation establishes collaborative relationships with suppliers and customers to structure their inter-organisational strategies, practices, procedures into synchronised and manageable processes in order to fulfil customer requirements. SCI can be categorised into II that refers to the collaboration and cooperation among functional departments, and EI that can be further collapsed into SI and CI, which reflects the degree of collaboration and cooperation with suppliers and customers respectively. It has been widely argued that II is perceived as an antecedent of EI, thus companies should manage internal processes before initiation of EI with suppliers and customers. Researchers argue that II impacts EI from different perspectives, such as organisational capabilities, information sharing, cross-functional team and joint decision making. This research aimed to explore the impact of II on EI on the case of pharmaceutical wholesaler in Kazakhstan.
Chapter 3 Methodology

3.1. Introduction

This report applied a “Qualitative Research” method to accomplish the objectives of this research and was based on the case study of wholesaler pharmaceutical company “Zerde”. This method allowed the researcher to explore aspects of II practised in “Zerde”, provided an understanding of how major elements of II identified from literature review impact the EI of the company.

3.2. Reasons for research

The growing importance of SCI and its classifications requires the further investigation in order to improve the understanding of these constructs and their associated relationships (Zhao et al., 2011). The previous research conducted by Zhao et al. (2011) investigated effects of II elements on EI in Chinese controlled companies and foreign controlled companies in China. The study recognised the need to further investigate the impact of II on EI in other countries. Furthermore, a lack of theory and previous research in the field of SCM in Kazakhstan recognises the need to explore it in depth, in order to gain knowledge in this area of study. Very few studies have looked at SCM in Kazakhstan (Nathan, 2008; Price, 2006; Bateman, 1998). These studies investigated the nature of SCs in Kazakhstan. Due to these reasons, the research seeks to partially replicate the study by Zhao et al. (2011) on the case of wholesaler company “Zerde”, and contribute to the literature of SCM in Kazakhstan.

3.2.1. Company background

“Zerde” – is one of the largest distributors of pharmaceutical products in the market of the Republic of Kazakhstan, and offers a wide range of high-quality and available medicines and products for medical purposes. "Zerde" aims to provide safe, effective and high-quality medicines to the
pharmaceutical market of the country. The range of offered products includes three and a half thousand medicines and medical equipment.

The company has the widest package of contracts on direct deliveries from Europe and Commonwealth of Independent States (CIS), Asia, and domestic manufacturers. There is also a wide commodity range of foreign manufacturers of pharmaceutical production such as Nycomed, Ratiopharm, GlaxoSmithKline, Inotec, Solvay Pharma and others.

Customers of “Zerde”, include treatment-and-prophylactic organisations, medical centers, regional departments of health care, medical divisions of public institutions, drugstores, wholesale and small wholesale companies.

Mission of the Company is realisation of a state policy on formation of a competitive, distributor complex, by providing available pharmaceutical services on the basis of high standards of business, stability and reliability. 15 years of continuous work enabled the company to become the leader in the pharmaceutical market, which took leading positions in ratings of foreign pharmaceutical companies (Zerde).

3.2.2. Rationale for choice of distribution industry

Kazakh distribution sector presents several characteristics that make it an ideal empirical setting for a study on the impact of II on EI. First, the Kazakh Government – is the active player and the regulator of the pharmaceutical market, capable to define its development – plans to implement a project on launch of new system of distribution of the pharmaceuticals for medical institutions, which will be carried out through the uniform operator (Vestnik, 2010). The implementation of this project can cardinally change the conditions of the market, where existing wholesalers would lose a considerable share of sales in the hospital market. The Government forecasts that in the long term the number of pharmaceutical wholesalers will considerably decrease (Vestnik, 2010).
Second, many exporters are seeking ways to reduce expenses, start reducing distribution channels, eliminating an intermediary link and approaching for a direct interaction with larger retailers, this in turn, affects the role of wholesalers on the market (Mossialos et al., 2004; Vestnik, 2010).

Third, the Customs Union of Belarus, Kazakhstan, and Russia which removes all custom barriers between these three countries and provides a single economic space, granted access to the pharmaceuticals produced in Russia and Belarus. According to Shirina (2010) the contribution of Russian and Belarus pharmaceuticals has considerably increased in the pharmaceutical market of Kazakhstan. This in turn, has complicated the position of wholesalers which cooperate with pharmaceutical manufacturers from other countries. This leads to the conclusion, that in order to stay in the distribution market of Kazakhstan, organisations should call for a systematic approach to SCI, and rethink the need for cooperative, mutually beneficial SC partnerships and the joint improvement of inter-organisational processes.

There are reasons that make “Zerde” a representative case. The company operates in the distribution market relatively recently, for 15 years in the market company has proved itself as a company that constantly offers high quality pharmaceuticals. From the date of the basis the company’s supply list has started from 15 suppliers, whereas now it has more than 90 contracts with leading pharmaceuticals manufacturers over the world. Also, the company has been certified on Goods Distribution Practices (GDP), which assures that the entire SC and distribution network is focused on supplying a quality product that complies at every point with regulatory requirements and is fit for use when it reaches the consumer. Due to these reasons “Zerde“ was a special interest for this research.
3.3. Research on Zerde

3.3.1. Selection of the research methods

Qualitative research is an important mode of inquiry to the study of social sciences (Marshall and Rossman, 1999). It explores and understands the meaning of individuals and groups ascribed to a social or human problem (Creswell, 2009). Qualitative research emphasizes the perception of the social world from the viewpoint of the “actor”, where actors are the people - working in organisations, doing particular jobs, they form the respondents. What they say and do is an important element of qualitative research (Hannabuss, 1996). This approach involves emerging questions and procedures, data usually collected in the participant’s setting, data analysis building from particular to general themes, and the researcher interpreting the meaning of the data (Creswell, 2009). Furthermore, there are five most important strategies of inquiry classified in the qualitative research: narrative, phenomenology, ethnography, case study and grounded theory. Following Eisenhardt (1998), Yin (2009) the pilot single case study was chosen to explore the impact of II on EI in “Zerde”.

Yin (2009) argues that case study is a common way to explore topics by answering “why” and “how” questions. According to Gerring (2004) case study is an intensive study of a single unit for the purpose of generalizing it across a large set of units. Where a unit can be a cultural group, program, event, activity, process, or one or more individuals (Creswell, 2009). Case study may be used in the research for different purposes (Eisenhardt, 1998):

- To provide description
- Test theory
- Generate theory

Case study approach involves data collection methods such as archives, documents, questionnaires, interviews and observations (Eisenhardt,
1994). Yin (2009) proposed that sources of data for case study like observations, questionnaires and interviews are appropriate for collection of primary data, whereas documents, archival records are often used to collect secondary data.

Since the aim of the research is to explore the impact of II on EI on the example of wholesaler company in Kazakhstan, the case study inquiry is the most relevant strategy to follow the study of Zhao et al. (2011) and conduct this research in Kazakhstan.

Yin (2009) categorizes two types of case studies: a single case design and a multiple-case design. Single case study involves the in-depth investigation of a single unit, whereas multiple-case study explores more than one unit to gather data from different sources. According to Benbasat et al. (1987) single case studies are most useful at the outset of theory generation and late in theory testing. Since the single case study allows the researcher to explore the phenomena in depth, single case study is more appropriate to explore the impact of II on SI and CI.

3.4. Methods of data collection

3.4.1. Secondary data

Secondary data is the data collected by others not specifically for the research question at hand (Cowton, 1998). The secondary research provides the author with necessary information, which assists to formulate the basic research clue required for the primary research. The chapter 2 “Literature review” of this dissertation comprises secondary data which has been gathered from books and articles in academic journals that have been compiled in the field of Supply Chain Management by various scholars. Obtained data was summarised in Table 2.2 and served as a base for further research. Apart from scholarly sources, the data was collected from magazines and online websites to gather valuable company’s and industry information.
3.4.2. Primary data

Interviews, observations, and questionnaires are considered to be the main sources of primary data collection (Yin, 2009). The table 3.1 summarizes strengths and weaknesses of primary data collection methods.

Table 3.1 Strengths and weaknesses of interviews and observations

<table>
<thead>
<tr>
<th>Methods</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>Researcher has a first-hand experience with respondent</td>
<td>Researcher may be seen as intrusive</td>
</tr>
<tr>
<td></td>
<td>Unusual aspects can be noticed during observation</td>
<td>Expensive method</td>
</tr>
<tr>
<td></td>
<td>Useful in exploring topics with that may be uncomfortable for participants to discuss</td>
<td>Private information can be observed that researcher cannot report</td>
</tr>
<tr>
<td></td>
<td>Researcher notes the respondent’s body languages and affect in addition to words</td>
<td>Information provided by this method is very limited</td>
</tr>
<tr>
<td></td>
<td>Subjective bias is eliminated</td>
<td>Unforeseen factors may interfere</td>
</tr>
<tr>
<td></td>
<td>Information obtained is related to what is happening currently, it is not complicated by past behaviour or future intentions</td>
<td>Difficulties in interpretation of seen behaviours</td>
</tr>
<tr>
<td></td>
<td>Less demanding of active cooperation on the part of respondents</td>
<td></td>
</tr>
<tr>
<td>Interviews</td>
<td>More information may be obtained in this method of data collection (participants can provide historical information)</td>
<td>Provides indirect information filtered through the views of participants</td>
</tr>
<tr>
<td></td>
<td>Allows researcher control over the</td>
<td>Researcher’s presence may bias</td>
</tr>
<tr>
<td>line of questioning</td>
<td>responses</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Is a useful way to get a data very quickly (especially in focus-group interviews)</td>
<td>Interviewees may be unwilling or uncomfortable to share all that the interviewer hopes to explore</td>
<td></td>
</tr>
<tr>
<td>Flexible method of data collection, since it provides the opportunity to restructure the questions</td>
<td>Requires superb listening skills, and skills in personal interaction</td>
<td></td>
</tr>
<tr>
<td>Skills of researcher may help to overcome the resistance of respondents</td>
<td>Expensive method of data collection</td>
<td></td>
</tr>
<tr>
<td>Researcher has the ability to clarify the meaning of the question when it is misunderstood</td>
<td>Respondents (especially important officials, executives) may not be easily approachable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The presence of interviewer on the spot may over-stimulate respondents</td>
<td></td>
</tr>
</tbody>
</table>

Source: Creswell (2009), Kothari (2004)

Considering the advantages and limitations of the primary data collection methods, interviewing was selected out of given data collection methods in order to reach research objectives. In addition, Qu and Dumai (2011) assert that the research interview is one of the most important qualitative data collection methods. The purpose of interviewing is “to find out what is on someone’s mind” (Hannabuss, 1996). It is argued that this method provides a reflection of the reality that exists in the real words (Creswell, 2009).

Furthermore, interviews can be categorised into three formats: one-to-one interviews with participants, interview participants by telephone, or engagement into focus group interviews (Creswell, 2009). Interview methods can be categorised into three categories: structured, semi-structured and unstructured (DiCicco and Crabtree, 2006).
The structured interview is the method where interviewer asks respondents a set of pre-established questions, allowing only a limited number of response categories. This method of interviewing is rigid, since the researcher reads from a script and deviates from it as little as possible. Miles and Huberman (1994) argue that structured approaches allow greater clarity of the investigated phenomena and the avoidance of data overload. Unstructured interviews, in turn, do not have a series of pre-established questions; most of the data gathered through participant observation is gleaned from informal conversations on the field. The unstructured interview proceeds from the assumption that the researcher does not know all necessary questions in advance. The use of semi-structured interviews is considered to be the most common method in all qualitative researches (Qu and Dumai, 2011). Semi-structured interview is generally organised around a set of predetermined open-ended questions, with other questions emerging from the dialogue between interviewer and respondent (DiCicco-Bloom and Crabtree, 2006). It received popularity because of its flexibility, accessibility and capability to disclosure important and often hidden facets of human and organisational behaviour. This method allows the interviewer to modify the style, pace and ordering of questions to evoke the fullest responses from the respondent (Qu and Dumai, 2011). Considering merits and demerits of each interview method, the semi-structured interview is selected to conduct interviews with respondents.

Thus, qualitative strategy is used to collect data and investigate the impact of II on EI with suppliers and customers in “Zerde”. Considering the strengths and weaknesses of data collection methods, semi-structured interviews with participants were selected to gain better understanding of explored phenomena and for getting a high response rate. Next, the data collection was accomplished through telephone calls and via the Internet (Skype calls).
3.5. Execution of the Research

The research conceptualised SCI from three dimensions: II, supplier integration and customer integration. The study used two major dyadic relationships (manufacturer-major supplier, and manufacturer-major customer) in order to represent the relational horizon of II and EI. The questions used in the interviewing participants were limited on EI towards organisation’s major supplier and customer. The reasons for limiting the SC partnerships into the major supplier and major customer can also be justified for several reasons.

First, focus on dyadic relationship with a major supplier and customer is a commonly used method in SCM (Zhao et al., 2011). Second, it is argued that company cannot integrate with all SC members; it should carefully select key suppliers and customers to establish collaborative relationship with them (Lambert et al., 1998). And finally, Zhao et al. (2011) proposed that it is likely that respondents will be more familiar with major suppliers and customers, and able to provide accurate data on EI with supplier and customer.

This research used semi-structured interviews to collect primary data. To provide initial answers to the study’s research question, interviews were conducted with CEO of the company, and representatives of purchasing, marketing and sales departments. All informants participating in interviews were selected according to the knowledge in SCM, and familiarity with processes for purchasing, distribution and marketing, and customer and supplier relationship management. The main reason for choosing these respondents to interview is because these employees are in continuous contact with suppliers and customers. Purchasing manager deals with acquiring goods and services and negotiates with company’s suppliers, whereas coordination among sales and marketing managers is crucial to produce and serve customer demand, how and when they want.
The questions used in the interview are displayed in Appendix 1. Interviews included 35 questions to measure the aspects of II and EI. Most of the interview questions have been adopted from the previous studies that focused on investigation of SCI, such as Frohlic and Westbrook (2001), Narasimhan and Kim (2002), Zhao et al. (2011), Basnet (2013).

Questions 1 - 13 were designed to identify how II is implemented within the company. The study by Basnet (2013) proposed that II construct have three dimensions: coordination, communication, and affective relationship. Thus, research identified three dimensions of II. Questions 1- 6 are related to the communication dimension of II, questions 7 - 11 are focused on the coordination aspect of II, and questions 12 - 13 are related to the affective relationship of II. Answers to these questions would provide an insight on the integration processes within the company. Thus, responses from these questions would help to understand how II within the company utilizes its organisational capabilities, information sharing, use of cross-functional teams, joint planning, which in turn, can enhance the level of EI with suppliers and customers.

Furthermore, interview questions 14 - 24 were designed to explore information sharing and cooperation dimension of EI with suppliers. Responses from these questions would help to understand how the focal firm manages its relationship with major supplier, and to test if the II facilitates the process of supplier integration. These questions were answered by procurement manager and CEO.

Interview questions 25 – 35 were designed to define information sharing and cooperation dimensions of EI with customers. Answer from these questions would also help to understand how the company manages its relationship with major customer, and to see if the II enhances the level of EI with customers. In order to gain answers for these questions sales and marketing managers and CEO were interviewed.
Interviews with the employees of “Zerde” were conducted to identify the integration of the functional departments within the company and EI across the SC. In total, CEO and managers from purchasing, sales, marketing departments were interviewed. The length of the interviews ranged from 30 to 75 minutes, which were recorded for further analysis. Interviews with CEO, purchasing and sales managers were conducted via Internet (Skype calls). During the interview participants were asked questions related to their particular area of job responsibilities. For example, purchasing manager answered the questions related to the II of the company, EI with key supplier, while sales manager answered the questions regarding the II of the company, EI with the major customer. CEO of the company has answered the questions regarding the SCI, including II and EI with suppliers and customers. The information from interviews conducted via Skype calls were recorded by making hand-written notes. Next, the interview with marketing manager was conducted via telephone call, and the information from the conversation was also recorded by making hand-written notes.

Furthermore, a follow-up interview was conducted with CEO of the company, which took approximately 40 minutes. Questions that were asked were related to the reverse logistics of the company, how “Zerde” deals with product returns, what policies the company has, and how the pharmaceuticals are delivered to the customers. The interview was recorded by making hand-written notes. The table 3.2 provides the details of interview.

Table 3.2 The details of interviews

<table>
<thead>
<tr>
<th>Interviews</th>
<th>Departments</th>
<th>Position of the respondent</th>
<th>Duration (min)</th>
<th>Format of the interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Management</td>
<td>CEO</td>
<td>75+40</td>
<td>Skype call</td>
</tr>
<tr>
<td>2</td>
<td>Procurement</td>
<td>Purchasing</td>
<td>40</td>
<td>Skype call</td>
</tr>
</tbody>
</table>
3.6. Conclusion

This chapter clarified the methods to conduct the research on “Zerde”. The use of case study was the most appropriate approach to explore the II in the company, and its impact on EI with major suppliers and customers. The data was collected through the interviewing of employees of the company, in the face of CEO of the company and procurement, marketing, and sales managers. The questions for interviewing were prepared according to the particular area of job responsibilities for each respondent. Prepared questions measured the level of information and organisational integration within the company and with SC partners. The interviews were conducted via the Internet and telephone calls, and the results have been recorded by taking hand-written notes. The specific results of the research will be discussed in the next chapter.
Chapter 4 Data Analysis

4.1. Introduction

This chapter analyses and interprets the primary data collected from interviews with employees of "Zerde". Section 4.2 provides background information of the company and its position in the SC. Then section 4.3 explores the II of the company. Furthermore, section 4.4 identifies the EI of "Zerde" with its customers and suppliers.

4.2. Background of the company

The company was founded in 1993 for the purpose of development of medical and pharmaceutical industries of Kazakhstan. Today "Zerde" is one of the largest pharmaceutical distributors in the country, and enters the top-ten leaders in Kazakhstan. According to PharmNews in 2011 the company was ranked No. 7 among 225 distributors in Kazakhstan on the volume of import of medicines. The range and assortment of medicines and products consists of more than 6000 names, including the new preparations which have appeared in the world market, as well as medicaments that have a stable demand from consumers. In 2009 the company was certified on compliance to requirements of the international standard of quality management of ISO 9001:2008. From 2005 to 2012 the total number of staff of "Zerde" increased from 116 to 183 people. The company can be categorised into full-line wholesaler, which supplies a broad range of pharmaceuticals, including both frequently prescribed and the less profitable, infrequently prescribed drugs.

4.3. Supply Chain Management

Interviews with representatives from purchasing, sales and marketing departments and CEO provided vital information regarding the SC of the company. The company holds the position of a wholesaler/distributor and is positioned in the middle of the supply chain with suppliers on one end and retailers/institutions which are the company’s customers on the
other. These retailers/distributors then resell or provide the final consumer with the pharmaceutical products, thus making “Zerde” an intermediary in the supply chain. This research aims to investigate the relationships of the company with key supplier and customer.

“Zerde” operates upon a business-to-business trading model as the company supplies large quantities of products to regional departments of health care, medical divisions of public institutions, pharmacies, drugstores, and smaller wholesalers where the products are then resold to the final consumer. Being an intermediary in the SC “Zerde” has a vast amount of room to integrate its functions internally and externally to increase efficiency and profitability. The company’s SC is illustrated in the Figure 3.1:

![Figure 3.1 Supply chain of “Zerde”]

The SC of “Zerde” is also likely to be more complicated because of the company’s intermediate position in the SC with various players on both sides. The company uses services of other 3rd party intermediaries which accounts for 10% of all the volume of products the company purchases. While this may prove to be problematic for the company, as it operates in an extended SC and requires immense coordination from its other
counterparts, it also gives the company more opportunities and access to internally and externally integrate its functions with its SC partners. Moreover, being served by international suppliers involves a cultural aspect which may cause variance in the manner that companies operate and in the manner that they manage and conduct EI.

The supplier base of “Zerde” contains 98 contractual suppliers, more than 60 direct agreements between manufacturer and the company, and 18 suppliers out of 60 account for the “VIP” segment of the supply list and account for more than 60% of the company’s purchases. Direct agreement is a contractual agreement between pharmaceutical manufacturers and “Zerde” without any intermediaries, whereas indirect agreement is an agreement among 3rd party intermediary (who, in turn, bought these goods from the pharmaceuticals manufacturers) and “Zerde”. Since the company mostly holds direct agreements with its supplier, this allows them to offer products for a relatively lower prices compared to its competitors, because they can achieve considerable savings bypassing other wholesalers in its SC. While most of the company’s suppliers are contractual, the company only has 10% purchases from other wholesalers and is used for sudden or unexpected surges in demand.

All pharmaceuticals imported to Kazakhstan must have a special labelling and packaging, as the Ministry of Public Health requires (Medportal, 2013). This means that any product, which was not properly marked and packaged according to the established requirements, will not reach its customer. As the company is operating in a market with extreme emphasis upon quality, the company must choose its suppliers carefully, and thus chooses its suppliers based upon ISO standards. This means that all of the suppliers chosen by “Zerde” are ISO certified, and are selected according to certain criteria. All suppliers go through quality checks and the shipments made to the company go through the National Centre of Examination and are then certified for quality and effectiveness.
This procedure significantly reduces risk of the intervention of counterfeit drugs into the pharmaceutical SC. After the Centre certifies the quality of the pharmaceuticals, the company can start to sell its products.

The company’s various contractual suppliers are located all over the globe. As the company has a large number of direct agreements from various countries across the globe which includes Europe and other CIS countries, Asia, and other domestic manufacturers, the company has a very wide and dispersed SC to manage effectively. Foreign manufacturers that supply to “Zerde” include NycoMed, RatioPharm, Glaxosmithkline, Inotec, Solvay Pharma, and others. This research will focus on the activities of the main supplier and customer of “Zerde”. The company’s main supplier is located in Europe, and purchases from this supplier are made every month or every one and a half month. Transportation and delivery of goods are enabled by different modes of transport such as air, rail and truck according to the rules set by Incoterms. Although the company relies on a variety of suppliers and does not have a restricted supplier base, it is important for the company to amalgamate and integrate its internal and external functions to manage its SC more effectively.

Another important concept that needs to be taken into account when considering the aspects of II and EI is the concept of reverse logistics which is the process of reusing or recycling finished products and placing them back into the beginning of the SC. This is often practiced in various other industries and helps suppliers and other players in the SC reuse material to avoid wastage. However, when interviewing the CEO regarding the process of reverse logistics in “Zerde”, the CEO made it clear that usually these processes are not practiced in the company.

There are two reasons of product returns, namely drug expiration and drug recall. Drug recall may be due to a temporary problem with the product or a permanent removal of the product from the market because
of the drug safety issues. In this case, supplier of “Zerde” reimburses the company by giving them other medication in exchange and this is a clause in the contract. In case of drug expiration, when a small percentage of drugs remains unsold and eventually expires, and in case of drug recall, pharmaceuticals are removed from the customers’ locations and completely destroyed by a certified 3rd party. The company does not usually accept returns of medication from customers as there are numerous problems related to sensitive nature of drugs, which may render the medication non-usable. Problems in the manner customers have stored medication, humidity, light, and other such factors may cause problems in the upholding of quality in the medication and thus usually returns are not encouraged or entertained. However, “Zerde” occasionally permits returns from some of its key customers in order to improve customer loyalty. Nevertheless, this is not a regular practice within the company. Accordingly, reverse logistics is not a vital part of the SC of the company and the process of re-using medication or ingredients is not prevalent.

4.4. Internal Integration in the company

In order to explore the degree of II within the company, interviews were carried out with the CEO and representatives from the purchasing, sales and marketing departments. The CEO of the company explicitly stated that:

“All of the departments within the company are required to cooperate with each other to be able to respond to customer needs”

Tasks were divided and allocated to different departments who then consulted with each other in order to ensure the smooth functioning of the business processes. II reduces costs and ensures mutual cooperation. Usually when a company is properly internally integrated, it helps it to form stronger relationships with external partners and improve efficiency and cooperation in the SC. According to the information given by its
personnel, “Zerde” appears to be highly internally integrated and promotes a culture of mutual cooperation between all departments within the organization. This integration is evident from the cooperation between departments in the processes of forecasting, marketing, promoting, and developing new sales plans and it is also evident from the information sharing platform used by the company, “Pikerfon”, in order to enable easy communication within the organization. The company often operates within cross-functional team rather than on an individual department basis.

4.4.1. Information and Data exchange

While the company is not explicitly involved in new product development, all of the departments of the company cooperate with one another in the sales forecasting procedure in order to determine how much stock is adequate to hold. In order to forecast demand and ensure that supply is adequate in terms of demand, the company holds senior managers responsible for the task of forecasting as senior managers develop forecasts based upon previous sales and purchasing figures along with collaborative efforts of the marketing and purchasing department. This is a bottom-up process which involves the participation of lower managers and goes all the way up to the participation of senior managers as well. This process requires the company’s personnel to forecast according to last year’s data regarding sales. The company uses last year’s figures of sales and adds a figure for production gain in order to adequately assess this year’s sales forecast. Accordingly, the company forms its annual sales forecast. Senior managers play an active role in demand forecasting based upon previous demand trends and other essential information. The head of the marketing department is also responsible to predict demand for certain pharmaceutical products and also holds the responsibility of organising the assortment of medication to be stocked. Also purchasing manager mentioned that there is some seasonality for particular
pharmaceuticals, for example some products are required at summer periods, whereas for some of the medicines demand is stable over time.

Each sales manager has its own dedicated region for sales he is responsible for, where he/she deals with orders, inquiries, complaints, customer service. Similarly, each manager from purchasing department has responsibility for particular positions of pharmaceuticals he has to trace, check inventory levels and contact suppliers and place orders. All the orders placed by customers are entered by sales personnel into the database. Furthermore, logistics department processes these orders, sends the receipt of a delivery order into warehouse for collection of the products, forms routes and prepares waybills for delivery.

The marketing representative and the sales representative have explicitly stated:

“Both the marketing department and the sales department require a high level of cooperation with one another and often communicate via meetings to plan activities, promotional material, and other marketing campaigns. Both departments collaboratively work in order to position a product adequately and to agree on promotional material for these products and their relevant position in the market.”

Through mutual cooperation between the marketing and sales departments new directions are decided for the products, methods for increasing efficiency are discussed, and sales and promotional actions are adequately analysed. Other decisions that are collaboratively made by these departments include increasing the efficiency of promotional actions, deciding upon the prices of the products, and sharing information regarding new customers.

The sales department usually provides a figure regarding expected sales and the marketing department accordingly plans activities in order to increase sales or allow the proper execution and meeting of sales targets.
Vital information such as sales targets, current sales rates, customer response to current initiatives, activities of competitors, and other marketing communication material which includes brochures, proposals, and presentations is shared amongst the two departments. The marketing department is often highly active in the participation of sales with key clients and does not only rely upon the sales department to make such deals alone.

Since purchasing, sales and marketing departments are engaged into the business transactions with SC partners of the company and aim to facilitate and exchange information, these departments must be in the close cooperation with each other. Marketing department constantly informs purchasing department about demand for particular medicaments in the customer market in order for the purchasing department to immediately react to any changes in the demand and ensure timely delivery of the pharmaceuticals. Sales department informs purchasing departments regarding orders, sales volume, inventory levels in the warehouse, and customer preferences for the pharmaceuticals. In turn, purchasing department informs both departments regarding the prices for products, discounts for the medicaments, availability of the pharmaceuticals, new suppliers.

4.4.2. IT integration

In order to facilitate the communication process among business functions, the company is integrated with the enterprise network, “1C: Enterprise 8” which is a business application which allows establishing a common information system for management of various aspects of enterprise activities such as management accounting, business accounting, human resource management, customer relationship management, supplier relationship management, material resource planning, etc. The use of 1C business application allows the company to apply modern technologies of establishing relationships with systems used
by other companies, significantly improve the reliability and accuracy of data exchange with external information systems.

Furthermore, since “Zerde” provides warehousing and distribution services for both manufacturers and customers, the company has to make use of real-time inventory control which allows the company trace pharmaceuticals, the quantity of the medication in stock, the names of medication. “Zerde” operates a specialised solution of LEAD Warehouse Management System (WMS) for pharmaceuticals storage with various temperature levels. The automated warehouse of class “A” with a total area of 5500 sqm provides an instant access to real time traceability in terms of warehouse management, order management and fulfilment for B2B models. Moreover, WMS provides effective management of manpower, equipment, minimisation of overhead costs, increases the service level and general productivity of the warehouse. A WMS of “Zerde” is integrated with the enterprise network of the company in a configuration “1C: WMS Logistics. Warehouse Management”. The average stock in the warehouse consists of inventory required for approximately one to one and a half months.

4.4.3. Transportation

“Zerde” provides both a distribution and stockholding function enabling its customers to be supplied with pharmaceuticals in the quantities they require to meet their daily needs, whilst avoiding their customers to hold large stocks of a wide range of medicaments. Orders placed by computer terminal, e-mail, telephone. For its clients situated in the same city as the company is, “Zerde” provides a Monday-to-Friday, twice-daily delivery, with one delivery on a Saturday. For customers located in neighbouring regions the company supplies products according to the certain delivery days and established routes. Thus, clients located within neighbouring regions place orders according to these delivery days. The company consolidates several individual shipments of different customers, which
are situated in close proximity to each other. For example, the route “Shymkent - Kentau” operates thrice a week on Monday, Wednesday and Friday; the route “Shymkent - Zhetysai” functions twice a week on Tuesday and Thursday; the route “Shymkent - Zhanatas” runs on Monday and Friday. However, if there is a case of emergency delivery to be made, the company provides service to meet urgent demand that falls outside the normal demand pattern. All the products are delivered by trucks which indicate temperature records during the delivery of the goods. The figure 3.2 illustrates the three routes served by the company in Southern region of the country.
Furthermore, the company supplies with medicaments other clients situated in other cities in Kazakhstan. Usually, the company serves these regions twice a month. Due to the poor infrastructure in these regions, the company is not able to serve these regions frequently, as it does with regard to neighbouring regions. In these cases deliveries are done by railway transport, since this mode of transport is the most viable mode of transport to serve these regions. All deliveries are performed by their own vehicles, which provide adequate protection from all external influences without impairment of products integrity. The company uses special devices that monitor temperature conditions during the transportation.

4.4.4. Communication process

The company constantly holds gatherings and meetings on a weekly basis in order to increase communication between various departments and keep human resources fully informed, motivated, and coordinated. The three representatives of the marketing, sales, and purchasing departments explicitly mentioned that all three of these departments are in constant communication with one another and must mutually cooperate in order to increase efficiency and effectiveness in the SC. Other communication devices used by the company include the use of emails, phone, face-to-face meetings, and the use of "Pikerfon" which is an internal chat system used within the organisation.

4.4.5. Cross-functional teams

Various processes of the firm are also completed with the mutual cooperation of various departments. The process of continuous process improvement is carried out through the cooperation of cross-functional teams to accomplish a common goal. “Zerde’s” top management including the finance director, sales director, purchasing director, logistics director and marketing manager participate in continuous process improvement. Members of cross-functional team bring together their expertise to solve
issues, or to explore potential solutions. The team is used to improve customer and supplier relationships, to develop new projects, which enable an increase in the sales volume, to run a campaign in order to provide additional incentives for clients, to improve organisational processes. Meetings are conducted regularly and usually on a weekly basis to discuss problems, news, and to develop and organize new strategies or set short-term goals.

4.5. **External Integration in the company**

The CEO of the company mentioned that “Zerde” has numerous suppliers and numerous customers in the company’s SC and who serve as a possible source of EI if the relationship between these members and the company is strengthened. The main mission of the company is to achieve the supply of safe, effective, and high quality medication to the final consumer and the company does this with the cooperation of its suppliers and retailers in order to ensure that the final customer is properly satisfied. EI can help the company increase efficiency and decrease the lost profit margins because of numerous intermediaries in the SC.

4.5.1. **Supplier Integration in “Zerde”**

The CEO of the company stated that:

"*With its key suppliers, the company maintains a relationship for 15 years which is a long standing contract fulfilled through mutual cooperation and understanding.*"

However, as informed by the CEO, the company does not have an enterprise network set up with its key supplier meaning that the company has to relay information to its supplier periodically. The company itself provides the supplier with information regarding sales and inventory on a weekly basis. The supplier of the company does not have direct access to information as they lack an enterprise network and is not integrated with a communication system. “Zerde” places orders to its major supplier,
where they state the names and quantities of the drugs to be ordered on an Excel file and communication is made via e-mail and telephone calls. There are some cases when some company’s customers win tenders and order in big quantities, or there is a decline in customer demand for some products. In these situations sales personnel communicate to its customers in order to know the reason of this purchasing behaviour. Afterwards, they bring up to date this information to its suppliers, in order to avoid inaccurate forecasts for the next months.

In circumstances when a certain drug is going to be re-registered and will be unavailable for some time, the supplier informs the company beforehand and ask them to order safe stock if necessary. Taking such measures increases the commitment of the supplier with the company as they both seek a mutually beneficial relationship. Once sales forecasting is done, the company informs the supplier of predicted sales volumes in the coming year and the supplier make arrangements to fulfil these orders beforehand. In cases of sudden surges in demand or the arousal of unexpected demand, the company contacts its supplier immediately and because of the long standing relationship between the company and its suppliers, the suppliers strive to fulfil the company’s demand. Moreover, the company has additional suppliers in its list which are scheduled to fulfil demand when the company’s key suppliers may be unable to.

The supplier's information regarding the company is limited and supplier only receives information regarding their own personal inventory levels and the purchases required from them. Hence, the relationship between the supplier and the company is limited as communication is usually carried out through limited means rather than via an established network. Communication is usually carried out through electronic means, via email, Skype calls, or through a face-to-face meeting with the representatives of the supplier.
While the relationship between the supplier and the company is limited, the supplier and the company share the risks prevalent in fulfilling the contract. These risks include the risk of freight and who is responsible for the products while they are on the road and on their way to the company or elsewhere. Moreover, in such cases where companies supplier has developed new products and “Zerde” is not certain regarding the demand for these products and whether the company will be able to sell them properly, the company’s supplier takes responsibility for these products. If such products are not sold, the supplier accepts responsibility and these products are sent back to the supplier immediately. Due to their longstanding and trustworthy relationship, supplier is constantly recommending new drugs to the company and forecasting their demand in order to meet the company’s needs. Thus, supplier and company often work together in order to serve other SC members more effectively and efficiently. Such processes are monitored through analysing the results of sales and increased productivity in order to see how committed and efficient the relationship between “Zerde” and its suppliers is.

There may be some occasions on which emergency orders must be made in order to fulfil demand. In order to facilitate such occasions, the company operates on a quick order system with its major supplier. This system works by allowing the company to place the order on the same day that the order is dispatched and the quickness of delivery depends upon the geographical remoteness of the products ordered. Usually, the duration of goods transportation delivered by railway transport takes two weeks, whereas airway mode allows receiving goods in two-three days.

The relationship between the supplier and the company is highly integrated as the supplier and the company is in constant contact with one another and is often exchanging information regarding personnel training, medical training, consultation, and the preparation of new projects. The supplier’s representative frequently visits the company and the company’s representatives also often visit the representative office in
Almaty of the supplier. Daily communication via Skype, phone, email, and other means is carried out. Representatives of the supplier also help the company by conducting marketing campaigns, to help the company to sell its products.

Usually the company and the company’s suppliers operate on a tight schedule and function according to the contractual agreement. However, with sudden changes in demand, the company is compelled to work towards meeting that sudden demand and works with the supplier accordingly. Transportation is usually the responsibility of the supplier and the company often receives heavy incentives from suppliers in the form of discounts when sales plans are followed effectively.

While there is a certain level of integration between the supplier and “Zerde”, there is a certain limitation to the level of integration because of the lack of sharing of an enterprise network and information. There are various rewards that the company can attain while integrating with its suppliers which include more efficiency in the SC, increased profit margins by reducing intermediaries, reducing lead time between orders, and having more control over the products produced and supplied including products that may be in short supply. However, there are a few risks involved in integration with suppliers which include increased retaliation from other adversaries, a more complex SC to manage, and higher competition from the company’s current suppliers (Fawcett & Magnan, 2002).

4.5.2. Customer Integration in “Zerde”

While the company shows a high level of commitment to its suppliers, the company’s customers are also highly important players for EI and increasing the efficiency of the firm’s functions. The company has divided its customers into categories based upon their purchasing and sales volume. Top clients usually have the highest sales volumes and are regarded as VIP clients. “Zerde” seeks to maintain its relationship with its
clients by providing goods according to schedule. However, in rare instances, when the company is unable to meet demand or fulfil orders of its customers, the company offers to purchase the products from other pharmaceuticals and then offer its customers a discount upon these products. This process ensures that their customers remain loyal to them and are highly satisfied with the efforts that the company puts in to serve them effectively.

The communication platform between “Zerde’s” major customer and the company itself is fully developed and synchronized. Hence, the company’s customer has full access to the company’s stock and inventory levels. This is enabled through the mutual use of a platform 8C. The company also maintains a quick order system with its major customer, which is a chain of drugstores that consists of 34 pharmacies, and this enables the client to place an order, the order to be processed, and dispatched on the same day. Maximum information is shared between the company and customer regarding market trends, point of sales, and other vital information, which will assist in increasing sales of products.

Considering the fact that databases of “Zerde” and its major customer are integrated, it seemed to be that the company is more customer oriented rather than supplier, CEO answered:

While the company may be developing a strong integration with its suppliers and customers, the integrated databases of “Zerde” and its major customer suggested that the company is more customer oriented rather than supplier. CEO commented:

“The fact that our databases are integrated does not mean that we are more interested in maintaining collaborative relationship with our customer, rather than supplier. This is a two-edged sword. We realise that in order to be able to offer our customers high quality products for low prices, it requires us to maintain strong and stable relationships with our suppliers”
The company also makes an effort to remain in constant contact with its major customer and often pays visits to the customer in order to inquire regarding how sales are going, be informed of any problems that may have risen, or to address any questions that they may have. Communication is often made via telephone, email, and other electronic means. While the company does not share the production plan with the major customer, the company does share inventory with its major customer. The company also provides the major customer with adequate incentives in the form of sales discounts when appropriate.

Furthermore, “Zerde” marketing personnel quarterly conducts customer surveys in order to collect information regarding the opportunities, preferences and needs of clients, about the service level, the assortment of the production, sales promotion, etc. After results are received the company analyses responses of the clients and seeks solutions for any problems or enquiries emerged in order to increase its service levels. The marketing personnel mentioned that usually customers ask for changing delivery days (make them more frequent), ask them to add new products into the assortment of their portfolio, promotions.

Moreover, when the CEO has been asked about the issues they feel are inhibiting the process of EI with customers he answered:

“The pharmaceutical distributor market is highly competitive, considering the number of present wholesalers; this creates obstacles for integration with customers. If the market of Kazakhstan had few wholesalers as, for example in Poland, it would be more viable for us to seek for extensive integration with customers.”

While the company is integrated with its customers to a large extent, there are certain risks and rewards associated with integration with customers. The rewards include better access to customers and easier application of market research and sales forecasting. Moreover, it also includes greater profit margins as it reduces intermediaries between the
wholesaler and the final customer. However, the risks involved also include more competition from other customers (as the business operates in a B2B environment) and less scope to expand the company’s customer base.

Although the company is not highly integrated with its customers and suppliers, it strives to maintain a strong threshold of cooperation and is aiming to adopt mutually beneficial policies. The CEO explicitly stated that II is not likely to have a deep impact upon EI in Kazakhstan because of the many distributors in the market and because the pharmaceutical industry is highly penetrated. Nevertheless, the CEO did say that

“The managers of the company have the desire to integrate with their SC suppliers and customers and to increase mutual cooperation between other players in the SC and Zerde.”

4.6. Conclusion

This chapter interpreted and analysed the primary data collected from interviews. Firstly, the extent of II analysed from different perspectives, such as information sharing, IT integration among functional departments, communication patterns of the company, use of cross-functional teams. Patterns of communication among functional departments, data integration within the company, inventory integration, and constant communication among business functions illustrated the high level of II in the company. Moreover, the chapter investigated the degree of EI with company’s suppliers and customers. Results show that company’s major customer is integrated with IT systems with "Zerde", whereas the level of IT linkage with supplier is not established.
Chapter 5 Findings and discussion

5.1. Introduction

This chapter aims to compare and contrast the results and findings from the data analysis with the relevant theory obtained from the literature review in order to examine research questions. Section 5.2 provides key findings derived from the research. Section 5.3 compares the findings with the information from the literature review from two aspects with respect to the research questions mentioned in chapter 2.

5.2. Results of Internal Integration on External Integration:

The results of interviews with the staff of “Zerde” indicate that the company is an intermediary in its SC between pharmaceuticals manufacturers and retailers, and operates on a business-to-business model.

5.2.1. Results of Internal Integration in “Zerde”

The results obtained from previous chapter suggest that “Zerde” is highly integrated information, material and financial flows between its functional departments through the enterprise network 1C, which aligns cross-departmental processes of the organisation and enables to access accurate and real-time data.

Also, it can be seen that effective communication takes place between the functions of the organisation, since different departments are involved into joint-decision making processes; they share knowledge and information regarding the service levels, preferences of the customers, inventory levels, order fulfilment, sales levels, promotion plans, and shipments to the customers. Moreover, since II has been studied as the interaction of logistics function with other departments such as
purchasing, marketing, IT and sales, it can be noted that the company integrated and coordinated its logistics function with these departments.

Furthermore, the company requires involvement of managers from different departments into demand forecasting procedure, which in turn, increases the accuracy of demand forecast. The company utilises periodic intra-departmental meetings among its internal functions to improve problem solving, foster a spirit of cooperation among workers to achieve customer satisfaction and corporate goals. Also the company practices the use of cross-functional team, which is responsible for the process of continuous improvement, optimisation of organisational processes, improvement of the customer and supplier relationships, and development of new projects in the company.

5.2.2. Impact of Internal Integration on External Integration

It has been argued that, if the company possesses high integrative abilities to manage collaborative processes and practices within the company, it will be more capable to integrate its strategies, practices, and procedures into collaborative, synchronised and manageable processes with SC partners (Flynn et al., 2010). However, the results of the research suggest that II did not have an impact on EI with its major supplier and customer, since the factors of II such as organisational capabilities, information integration, cross-functional team and joint decision making did not facilitate the EI with supplier and customer.

First, although the company shares upstream supply information on a weekly basis with its supplier regarding demand forecasts, sales volume, inventory levels, “Zerde” does not have information sharing platform with its supplier. This in turn, affected the information integration with supplier. Albeit, the company is integrated with customer through the IT platform, the information flow between them is restrained to some extent, since customer has access only to the inventory levels in the warehouse and can place orders through the system. Since information sharing is
considered to be the main antecedent to integration (Ding et al., 2011), the lack of information transparency between SC partners hinders SCI.

Second, regarding the joint decision making with SC partners, the results of the study indicate that the company simply transfers data among partners, rather than involving supplier and customer into joint decision making of the processes. Indeed, “Zerde” did not involve its supplier and customer into forecasting procedure, which would allow them to make an accurate forecast to reduce uncertainties in the SC. Therefore, it can be concluded that the company could not accomplish EI from the perspective of joint decision making with its supplier and customer.

Third, despite the fact that company has practised the use of cross-functional team in the company to increase the effectiveness of organisational processes, any of the representatives of supplier either customer were not involved into cross-functional team, where they could have jointly solved problems, optimised processes and worked on joint projects. This also suggests that the company failed to integrate with SC partners from the perspective of cross-organisational team.

Furthermore, from the perspective of organisational capabilities, it is argued that high level of communication and coordination capabilities of the organisation enable the recognition of the value of external information, its assimilation and application it to commercial ends (Zhao et al., 2011). However, the company was not able to fully exploit its organisational capabilities to integrate with SC partners as it did not integrate its IT enterprise with its supplier, since the IT infrastructure could enable them to unbundle the information, material and financial flows and integrate each of them with SC partners.

Thus, the results of the research suggest that the company integrated and coordinated the work of all functional departments and their associated flows for common goal attainment. However, the II in “Zerde” did not have an impact on EI with SC partners, since the company failed
to accomplish the process of EI from such factors as information integration, joint-decision making, involvement of SC partners into cross-functional team, and organisational capabilities.

5.3. Discussion

The results of study on “Zerde”, a pharmaceutical wholesaler in Kazakhstan, revealed interesting trends regarding the impact of II on EI with its major supplier and customer. The study was designed as a partial replication of the research by Zhao et al. (2011) on a Kazakh sample, as the previous research was based on a Chinese sample. The results of the study are discussed based on the findings in this chapter and compared to Zhao et al. (2011) to see whether the results were the same or whether they were different. The discussion will revolve around the II within “Zerde”, impact of II on SI and the impact of II on CI.

5.3.1. Discussion of II in “Zerde”

The results of the research on “Zerde” revealed that the company integrated information, material and financial flows within the company through the enterprise network 1C. This enterprise solution provides the company a single platform, and all the business departments are able to access real-time data. Also, “Zerde” operates the automated WMS that is integrated with the enterprise network, thus enabling, the company to access online searching of inventory and operating data.

Departments such as purchasing, logistics, marketing, sales are required to cooperate and coordinate with each other to effectively and efficiently run business processes and provide high customer service levels. Thus, Ellinger (2000)’s claim that II is a cause of task interdependence among business units and the customer satisfaction is reliant on the contribution of more than worker or department holds true for “Zerde”, as the cooperation and effort of all of its functional departments are required to achieve common corporate objectives. Also the results indicated that the company involves senior managers from different departments to forecast
demand, these collaborative efforts in forecasting of demand allow the company to consider the knowledge and competence of each department. “Zerde’s” weekly gatherings and meetings increase organisational communication, enable to maintain an efficient flow of information and keep its human resources fully informed and coordinated. Moreover, the results of the research suggest that the company commissioned the cross-functional team, which deals with optimisation of business processes, development of new projects, resolving issues, continuous improvement processes, improvement of supplier and customer relationships. This is in accordance with Otchere et al. (2013) that information sharing, joint planning and working together and cross-functional teams are the major elements of II.

As the logistics function integrates such aspects as information, material handling, warehousing, transportation, packaging and inventory (Daugherty et al., 2006), it can be noted that “Zerde” coordinated the logistics function with other departments. If the department worked in its own interests, it would try to minimize total annual transportation costs, inadvertently causing safety stocks to be higher, shortages to occur, and deteriorate customer service levels (Katunzi, 2011). However, logistics department cannot do that, since the coordination with sales and marketing function has established certain frameworks for customer levels.

Also, it can be noted that the company was able to absorb the information and knowledge coming from supplier regarding the medical training, personal training, marketing campaigns, consultation and preparation of new projects, process it in the organisation, and then apply it to the customers. “Zerde” was also conducting trainings, assisting to its customers in the marketing campaigns, preparing incentives programs to its customers by processing the information obtained from its suppliers. Moreover, the company’s marketing personnel conducted quarterly customer surveys in order to gather information about customer needs
and preferences, to explore the opportunities for improving customer service. Afterwards, the results of the survey were discussed by the cross-functional team, where they processed and analysed the obtained information, and then took actions to respond to the specific customer needs and requirements, seek solutions for issues and enquiries emerged in order to increase its customer service levels. Thus, it implies that II generated information processing capabilities, which in turn, enabled the absorption of knowledge obtained from suppliers and customers (Schoenherr and Swink, 2012).

5.3.2. The Impact of Internal Integration on External Integration

Interdependence is considered to be an important precursor for the EI with suppliers and customers (Das et al., 2006). It is argued that there is no market data and it is little known about customer demand in Kazakhstan (Price, 2006). As supplier of the company is located in Europe, and in order to enter the Kazakh market, supplier should seek for a help of the wholesalers (Kargin, 2002). The lack of retail sector in Kazakhstan has made the distributors of Kazakhstan the local marketing organisation, thus, the most powerful members of Western SCs (Price, 2006). “Zerde”, in turn is interested in this relationship because the company has a direct agreement with supplier, which provides the company with opportunity to source products for the relatively lower prices. Moreover, the exclusiveness of pharmaceuticals provided by the supplier is another reason to maintain this relationship. Regarding the interdependence between customer and “Zerde” (the company is mostly specialised on direct agreements) the opportunity to buy the products for lower prices, is the reason why the customer is willing to develop collaborative relationships with the company. And the company is interested in the customer, since the customer is one of the largest chains of pharmacy drugstores in Kazakhstan. Although, the interdependence between SC partners can be vividly seen, it did not leverage the development of inter-organisational integration among them.
According to Das et al. (2006), there are various initiatives which may help an organisation to externally integrate with its suppliers and customers, such as web-based integration systems, EDI, ERP systems, and relational capital development initiatives such as supplier development, customer involvement, joint problem solving, and cross-functional involvement. In order to properly assess the impact of II upon SI and CI, it is important to explore whether the elements of II such as information integration, cross-functional teams, joint decision making and organisational capabilities had an impact on SI and CI.

5.3.3. The impact of Information Integration on Supplier Integration and Customer Integration

The most important aspect of II which is likely to have an impact upon EI is information integration as this is the basis for communication within the firm and with other external SC partners (Liu et al., 2011). EI cannot be achieved without a proper communication structure and will not be cost-effective without the development of such a structure (Acemoglu et al, 2010). While there information sharing between the departments of “Zerde” through the enterprise network 1C, and internal communication is facilitated by internal chat “Pikerfon”, the company was unable to achieve EI in the aspect of information sharing with its major supplier and customer.

The company lacks an enterprise network which can facilitate the information flow between the supplier and “Zerde”, and supplier has to be intimated regarding inventory levels and orders on a timely basis. In the case of the major customer, although the company implemented an enterprise network 1C as a source of communication between the company and its customer, the company only shared inventory levels with its customer. The customer shared point of sales data and market trends with “Zerde”. The restrained flow of information among SC partners could not facilitate the process of EI with its major customer.
Kulp et al. (2004) classified among two types of information sharing: *information integration*, which involves the simple data exchange among SC partners, and *collaborative planning*, which synchronises activities of SC members. Thus, it can be seen that in the case of “Zerde” the simple data exchange takes place among partners, since they did not integrate information flow, which would allow them to synchronise their activities. It is argued, that the visibility generated by information integration, acts as a prerequisite for collaborative planning and forecasting (Jayaram et al., 2010). If the companies integrated information flow between each other, they would be able to make accurate decisions on production and material planning, ordering, capacity allocations through increased visibility of supply, demand and inventory (Yu et al., 2010).

The possible reason that supplier and customer may have minimal access to information may be because of a lack of trust among partners, which proves to be a hindrance in achieving EI (Fawcett et al., 2008). Price (2006) argued that the remaining Soviet era fear of collaborative work created an atmosphere of mistrust in which it is very challenging to develop cooperative SC relationships. Moreover, another possible reason to this can be technology incompatibility, which challenges the information exchange, since it can have different levels of automation, scalability, customisation and standardisation (Smart, 2008).

### 5.3.4. The Impact of joint decision making on Supplier Integration and Customer Integration

Joint decision making with SC partners is considered to be an important aspect of SCI (Jayaram et al., 2010). The company lacks in the next most important aspect of II which is joint decision making and allowing SC partners such as suppliers to make decisions regarding various aspects in the firm. Supplier was not included in the decision making processes of forecasting, demand planning, marketing, or positioning products. Similarly, the company lacked in the area of joint decision making with its major customer. The company could have included customers as well as
suppliers in the process of forecasting and/or marketing to enable a more efficient promotional system and to avoid wastage in holding higher inventory levels than needed, or avoid supply shortages.

Biehl et al. (2006) stated that joint decision making among SC partners facilitates the maintenance of an information flow, assignment of resources and problem solving skills of the partners. It is argued that when manufacturers, wholesalers and retailers collaborate to work on a single forecast incorporating the knowledge of customer profiles and preferences, sales, product introductions, customer complains, the possibility to match customer needs and requirements with manufacturer production plans increases, this in turn, results in well-organised replenishment (Rawwas et al., 2008). Including suppliers and customers in the decision-making process of the firm can increase cooperation between the partners and increase chances of EI. Moreover, it will also build a bond of trust (Kerzner, 2010).

The possible reason for not involving the supplier and customer into joint decision making processes of “Zerde” may be conflicting goals and priorities of SC partners, this difference can be due to financial circumstances, environments, competitive situations (Brewer and Speh, 2001). Indeed, the CEO of “Zerde” explicitly said that the high level of competition amongst pharmaceuticals wholesalers in the Kazakh industry creates challenges for the company to achieve EI with its SC partners.

5.3.5. The impact of cross-functional teams on supplier integration and customer integration

Cross-functional teams are considered to be the most common approach to II (Swink et al., 2007). The company commissions the cross-functional team, which is responsible for continuous improvement processes, improving relationships with suppliers and customers, developing new projects, resolving the issues. However, “Zerde” did not involve its supplier and customer into its cross-functional team.
Vickery et al. (2003) argued that the cross-functional teams of the company could include representatives of the supplier and/or customer to enable the vertical integration throughout the SC. Thus, Jayaram et al. (2010) argue that EI with suppliers and customers can be accomplished by establishing cross-organisational teams, which involves representatives of supplier and customer for data and information collection, analysis, interpretation and joint decision making between partners.

The possible reasons for not involving the supplier and customer into the cross-functional team of “Zerde” may be the lack of parallel communication among “Zerde” and its partners, which facilitates and coordinates of quality information rather than the process it by themselves (Forslund and Johnsson, 2008).

5.3.6. The impact of organisational capabilities on supplier integration and customer integration

Huo (2012) claims that when a company has a high level of communication and coordination capabilities it will be more capable of achieving a high level of EI with SC partners. As II within “Zerde” indicated the high level of cooperation and coordination among different departments in the company, the company was able to manage coordination and planning capabilities to recognise the information and knowledge coming from the outside of the organisation, process it and then transform it to the customers. Flynn et al. (2010) argue that II serves as a bridge between SI and CI, the absence of which would make it difficult for partners to reap full benefits.

As the study by Kusunoki (1998) proposed a dichotomy of organisational capabilities, and classified them into local capabilities, architectural capabilities and process capabilities, it can be seen that the company was able to develop organisational capabilities required for the II within the company. Since local capabilities include information technology, financial and human resources, the company has enterprise platform 1C, which
coordinates and manages the business processes within the company. Next, the company was successful in developing architectural capabilities, which includes cross-functional teams required to link people and departments to reach win-win outcomes. Huo (2012) argued that II capabilities will impact EI capabilities with suppliers and customers. However, the company could not accomplish the EI with its major supplier and customer, since it failed to develop EI integrative capabilities, as it did not involve supplier and customer into cross-functional team and did not have an integrated enterprise platform, which would allow them to integrate the information flow between each other.

The lack of adequate knowledge and skills in core SCM is considered to be the largest barrier to SCI throughout the SC (Katunzi, 2011). Indeed, it is argued that emerging SCs in Kazakhstan are lack of logistics management education and training (Bateman, 1996; Price, 2006).

Thus, it is evident that “Zerde” needs to focus on developing an IT infrastructure between itself and the supplier to fulfil the requirement of information-sharing and also needs to focus on forming collaborative strategies by including supplier and customer in decision-making processes and cross-functional team.

5.4. Conclusion of research questions

Research objective 1. In the first research question regarding the II in “Zerde”, the company was able to coordinate and utilise information, material, and financial flows through the enterprise network 1C, which linked together different functional departments. Also, the automated WMS of the company was integrated to the enterprise network of the company, which could provide the real-time searching of the level of the inventory. All the functional departments were able to access to real-time data from other functional departments, and there were effective means of communication with them. Also, the company used cross-functional teams in process improvements, utilised periodic interdepartmental
meetings between functional units of the company to increase coordination and cooperation of all departments in the company.

Research objective 2. In the second research question on the impact of elements of II upon SI indicated that the company was unable to achieve EI with its major supplier. The research explored the impact of II on EI from its major elements, such as organisational capabilities, information integration, cross-functional team and joint-decision making. The reason for the absence of impact of II on SI was due to inability of “Zerde” to develop a proper communication platform or IT structure with supplier, and the lack of joint decision making and non-participation of supplier in the cross-functional team of the company. Thus, II did not have an impact on SI from the perspective of its major elements.

Research objective 3. In the third research question regarding the impact of elements of II and their influence on CI show that, any of the elements did not have an impact. “Zerde” failed to integrate with its major customer. Although the company was integrated with its major customer through the enterprise network 1C, the level of shared information was limited to some extent, since the company was only providing the customer with inventory levels. Furthermore, the company was lack of initiative of involving the customer into the cross-functional team and joint-decision making. Due to these reasons the II did not have an impact on CI.

Since the main aim of the study was to partially replicate the research by Zhao et al. (2011), which explored the interrelationship of II and EI with major supplier and customer in Chinese-controlled and Foreign-controlled companies. The results of the study by Zhao et al. (2011) found that:

- In Chinese-controlled companies, with the “Guanxi” culture, due to the collectivist nature of the society, the II of the company had considerable impact on EI with suppliers and customers
In Foreign-controlled companies, although the companies possessed high levels of the II, the II did not have any impact on EI with suppliers and customers.

Zhao et al. (2011) recognised the need for further research in order to investigate the cultural effects on the interrelationship between II and EI with suppliers and customers.

The results of this research on the example of the wholesaler company “Zerde” indicate that II did not have any impact on EI with its major supplier and customer. According to Ardichvili and Kuchinke (2002), Kazakhstan is characterised by high levels of the individualism dimension, where members prefer to operate on an individual basis rather than consulting with all other. It suggests that cultural aspect can also be a reason which influences the interrelationship of II and EI.

Thus, while the company was highly integrated and was using the best practices of technology integration, cross-functional team, and joint problem solving initiatives, the company was unable to integrate with its SC partners. Smart (2008) argued that it is extremely challenging to achieve genuine integration among organisations due to the factors which may inhibit this process. Barriers influencing this process may be different. However, the results of the study suggest that it is challenging for the company to achieve EI with suppliers and customers due to the lack of trust, high level of competition rate among pharmaceuticals wholesalers, cultural aspects, technology incompatibility, conflicting goals and priorities, lack of knowledge in SCM and lack of parallel communication.

5.5. Conclusion

This study found that being an intermediary, “Zerde” has a highly complex position in the SC yet one which it can exploit to maximum advantage if proper planning is conducted. While the company is highly
internally integrated through technology, mutual cooperation between departments, and interdependence of tasks, the II in the company did not impact the EI with suppliers and customers.

The results of this study help SC members in the pharmaceutical industry, such as “Zerde”, examine the various factors that can help the company improve its efficiency and determine which factors can help it improve its service quality in collaboration with other firms. There is a lot of scope for further study in this area as many factors influencing integration have not been explored in details.

Accordingly, the next chapter will summarize the contents of this study and provide detailed recommendations for “Zerde” and how the company can achieve EI. The next chapter will commence suggesting other areas of study within the realms of this topic and summarize the limitations of this study including commenting upon aspects such as reliability and validity and how such aspects can be improved in future studies.
Chapter 6. Conclusion

The objective of this case study was the investigation of the impact of II on EI on the example of the pharmaceuticals wholesaler in Kazakhstan, given its major elements such as organisational capabilities, information integration, cross-functional teams and joint decision making. It is argued that II serves as the facilitator towards EI with suppliers and customers. However, while the company is highly internally integrated through technology, mutual cooperation between departments, and interdependence of tasks, the company lacks certain factors of II in the light of supplier integration and customer integration.

6.1. Outcomes and contributions

Regarding the research question 1, the results of the study on “Zerde” indicated that the company coordinated information, material and financial flows within the company through the information network 1C. Warehouse of the company was integrated with the enterprise network 1C, this enabled them to access to inventory levels, and logistics-related operating data in the real time. Since the company was not involved into the manufacturing of the products and was only responsible for distribution of the pharmaceuticals, “Zerde” recognised the need for provision of the superior customer service, this required the purchasing, logistics, marketing and sales departments to synchronise their activities towards achievement of common goals.

Regarding the research question 2, the results of the study indicate that, although “Zerde” was able to integrate the data among the functional departments with an enterprise network 1C, access real-time searching of the level of inventory and logistics-related operating data, utilise cross-functional teams and joint-decision making, any of the elements of II such as organisational capabilities, information integration, cross-functional teams and
joint decision making did not have an impact on SI. This suggests that in the case of “Zerde”, II did not impact integration with suppliers.

Regarding the research question 3, the results of the study show that any of the elements of II such as organisational capabilities, information integration, cross-functional teams and joint decision making did not have any impact on CI.

6.2. Suggestions

It is argued that it is extremely difficult to achieve genuine integration among organisations due to the factors that inhibit this process. According to Smart (2008) such factors as rival cultures, information technology deficiencies, lack of process alignment inhibit the process of SCI. Other barriers to integration involve technology incompatibility, organisational focus, trust, people and internal structure. However, the silo mentality of organisations can be solved by communication, partnerships, alliances and cooperation, information sharing, shared technology, employee training (Richey, 2009).

In order to achieve SI and CI it is essential that the firm first and most importantly focus on developing an IT infrastructure to facilitate communication between SC partners and the company. The next important step that the firm can take is to improve the practices of joint-decision making and cross-functional teams, this implies that the suppliers and customers could participate in joint-decision making processes and cross-organisational teams. Also, SC partners should strive to maintain strategic partnerships among the members. Another, suggestion for “Zerde” is to train its employees in SCM knowledge and skills, especially those who constantly communicate and coordinate with suppliers and customers.
6.3. Limitations

The research on the impact of II upon EI was conducted on the example of pharmaceuticals wholesaler in Kazakhstan, and applied a single case study approach. Therefore, the conclusions obtained from the research cannot be generalised for the different sectors of the economy. Since the research was conducted by the single researcher, it could lead to potential bias in interpretation of the results. Also due to time and resources constraints of the researcher the number of interviewees was limited to four, more interviewees would provide with more valuable data and evidence.

Furthermore, the study investigated a dyadic relationship of the focal firm with its major supplier and customer, this implies, that the company may be integrating with its major supplier and customer, however ignoring other members of the SC. Then, the research measured EI from the perspective of the wholesaler overlooking the supplier's and customer's perspectives. Also the research considered only 1-st tier supplier and customer.

Annual reports of “Zerde” could not be accessed due to the policy of the company to keep it confidential, therefore the information about the company as well as its mission, business partners and customers was limited. Also, the organisation’s turnover, purchases and sales figures could not be accessed and analysed, which limited the scope of the research.

6.4. Further suggestions

The idea of the research was taken from the study by Zhao (2011), where the impact of II upon EI was influenced by other factor such as relationship commitment. In particular, cultural aspects such as individualism and collectivism influenced on relationship commitment, which in turn, either facilitated the integration with suppliers and
customers or did not have impact. Thus, other influential factors can be suggested for further research such as trust, dependence, use of power (Zhao et al., 2011). As Kazakhstan’s society is characterised as individualists (Ardichvili and Kuchinke, 2002), where individuals are less concerned with establishing relationship ties and more focused on personal interests (Hofstede, 1994), it would be appropriate to explore if cultural aspects change the impact of II on EI in Kazakhstan. Since Price (2006) characterised Kazakh SC relationships as lacking of trust, it would be valuable to explore the impact of trust on the relationship of II and EI.

The further research may examine the broader range of SC partners of the company, rather than limiting it on major supplier and customer. Furthermore, the further research can focus on exploration of II and EI from the perspectives of suppliers and customers, rather than limiting it to the perspective of the focal firm. The study revealed that there is a large number of pharmaceuticals wholesalers in Kazakhstan, therefore it would be valuable to research if competition changes the impact of II on EI.

Also, this study could investigate the impact of EI on II, since some of the researchers argued that there is an interaction effect among II and EI. Germain and Iyer (2006) argued that EI also can have an impact on II. Thus, it would be valuable to investigate the interrelationship among EI and II, or both interrelationships.
Appendix 1

Internal Integration

Communication dimension

1. Do you share ideas, information, and resources between functional departments?
2. How is the data integrated among internal functions?
3. Do you have enterprise application integration among internal functions?
4. Is the inventory software integrated with your enterprise application? How do you accomplish the real-time searching of the level of inventory?
5. Has your company utilized the real-time searching of logistics-related operating data?

6. How does the interaction among internal functions take place (phone, e-mails, meetings, and intranet)?

**Cooperation dimension**

7. Do you consult with each other before making decisions affecting other departments?

8. Does your company conduct joint planning to anticipate and resolve SC problems? Do you establish joint objectives?

9. How frequently do you work in informal cross-departmental teams?

10. How often does the company utilize periodic interdepartmental meetings among internal functions?

11. Does your company utilize the use of cross-functional teams in process improvement? How?

**Affective relationship dimension**

12. Do you get along well with each other? How accessible are you to each other?

13. Do you share the same vision for the company?

**External integration with suppliers**

14. Do you share information with your key supplier through information network? How?

15. How often do you share the information with key supplier?

16. Does your company establish quick ordering system with your key supplier?

17. How would you assess the level of your strategic partnership with your key supplier?

18. Does your company utilize the stable procurement through network with your key supplier?
19. Does your key supplier participate in the procurement process?
20. Does your key supplier share production schedule with your company?
21. Do they share the production capacity with the company?
22. Does your supplier share inventory levels with your company?
23. Do you share your demand forecast with your key supplier?
24. Do you share inventory levels with your supplier?
25. Do you assist your key supplier to improve their process to better meet the needs of your company?

External integration with customers

26. Are you linked with key customer through information network?
27. Is customer ordering process computerized?
28. Does your key customer share market information with your company? How?
29. How often do you communicate with your key customer?
30. Does your company establish quick ordering system with your major customer?
31. How often do you follow-up with your major customer for feedback?
32. How frequently you contact your key customer?
33. Do you share inventory levels with your key customer?
34. Do you share demand forecast with your key customer?
35. Does your key customer share point of sales information with your company?
36. Does your customer share demand forecast with your company?
References


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