INTER-ORGANIZATIONAL KNOWLEDGE TRANSFER MECHANISMS IN THE FOCAL COMPANY: A CASE STUDY

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1. ABSTRACT

The focus of this study is to examine the inter-organizational aspect of communication. Communication in this context is defined as knowledge exchange between members of different organizations. The Supply Chain is involved in a network of relationships with customers, suppliers and service providers. One of the most important purposes of the external communications in the Supply Chain is coordination.

The literature study shows that several attempts have been made to describe and to structure the principal elements of knowledge development, knowledge transfer and knowledge integration. Though there is quite a lot of information collected and described in the related studies, this information mostly refers to the factors influencing and facilitating knowledge exchange. The purpose of the present case study is to determine the mechanisms of knowledge exchange, i.e. how knowledge is transferred from one organization to another.

The objective of this research is to collect information about the knowledge-sharing mechanisms used in the Supply’s Chain external contacts, and to obtain feedback from interviewees about their opinion on the effectiveness of these mechanisms. Based on the theoretical materials, three assumptions have been made and tested in the present research:

Proposition 1: Multi-functional dimension will prevail in the communication with customers, and standardization will prevail in the communication with service providers.

Proposition 2: Managers play an important and active role in directing knowledge transfer flows.

Proposition 3: Informal knowledge transfer mechanisms are particularly important in the communication between middle/senior management and key customers.

A case study in an international chemical organization was conducted. For the data collection and empirical analysis, the research paper of Boh (2007) was used as a model. He distinguished two dimensions for the classification of the knowledge transfer mechanisms: codification versus personalization, and individualization versus institutionalization. Boh suggested his framework to be a suitable instrument to systematically characterize and compare knowledge-sharing mechanisms used in project-based organizations. In the present study this framework is applied to the Supply Chain organization, as a useful instrument to evaluate the use of knowledge-sharing mechanisms and to analyze the fit of the mechanisms with organizational characteristics.

The interviews provided evidence for the Proposition 1 in relation to the standardized communication between the Supply Chain personnel and Service providers; as well as evidence was collected in defence of the multi-functionality in the communications with customers. With regard to Proposition 2, the interviews show a lot of evidence of the requirement of management involvement in the inter-organizational communication, but not much evidence of practical implementation of this involvement. Proposition 3 was confirmed by the survey results, but the interviews did not provide solid direct confirmation of the
importance of informal communications, though some indirect evidence of informal knowledge transfer mechanisms was present.

This study presented the evidence of prevalence of the institutionalized mechanisms in a middle-sized, geographically dispersed organization. Following Boh (2007), it suggests that there is a correlation between knowledge-transfer mechanisms and organizational structure.

Moreover, the present study suggests that there is a possible correlation between knowledge transfer mechanisms and the level in the Supply Chain (status). It is probable that certain tasks can be fulfilled better by using appropriate communication mechanisms, and as a result the right choice of these mechanisms can have direct influence on performance.

Management involvement in the inter-organizational information flows deserves attention both from academic and practical points of view. Future research can determine the connection between organizational structure and inter-organizational information flows. Also the linkage between inter-organizational communication and organizational performance can be interesting topic to examine.
2. INTRODUCTION

There are many factors that make modern business environment very dynamic, highly demanding and sometimes unpredictable. One can name technology development, globalisation, governmental restrictions, etc. In this environment, organizations search for the most suitable way to success, using their core capacities and best practice experience. This way can be very different for various organizations; but there is one key factor which is critical for success for every organization: communication. Communication has been and remains a subject of studies in numerous sciences: psychology, social sciences, and economic sciences are among them. The focus of this study is to examine the inter-organizational aspect of communication. Communication in this context is defined as knowledge exchange between members of different organizations. Inter-organizational knowledge exchange can bring to a firm several advantages: it gives access to complementary assets, it facilitates tacit knowledge transfer, and it allows spreading of R&D costs. This exchange is of a very wide spectrum, and current study focuses on the knowledge transfer aspects in the Supply Chain.

The Supply Chain is involved in a (often complex) network of relationships with customers, suppliers and service providers. Internal information flows stay outside of the present study. One of the most important purposes of the external communications in the Supply Chain is coordination. Fugate, Sahin and Mentzer (2006) classified coordination mechanisms in three groups: price coordination, non-price coordination, and flow coordination. The last one is present at all levels of the Supply Chain. Flow coordination has three dimensions: multi-functional involvement, standardization, and complexity. Following the classification of Fugate, Sahin and Mentzer, this study attempt to answer the question:

Which dimension prevails in the Supply Chain flow coordination: multi-functional involvement or standardization?

Management influence on the knowledge transfer became a subject of several studies, among them Dunne (2008), Bowersox, Closs and Stank (2000). Organizational communication capacities are directly linked to the capacity to collaborate. According to Dunne (2008), this is one of the four capacities which characterize the learning organization (the other three are capacity to learn, capacity to absorb, and capacity to execute). Dunne also suggested that development of this capacity can be stimulated by inspirational leadership. Bowersox, Closs and Stank (2000) named Relationship management, Collaborative management and Process Integration among the ten trends in the Supply Chain evolution. Though several authors agree on the important role managers can play in the knowledge transfer development, practical implications stayed aside. So in this study we will try to examine the tools managers have in hand to improve the information flows. In other words:

How do managers facilitate information sharing?

Knowledge transfer mechanisms can be formal or informal. Ernst and Kim (2002) dedicated one of their works to the knowledge diffusion mechanisms, and came to the conclusion that the research on informal knowledge transfer is scarce. Indeed, the informality of these mechanisms makes it difficult to define: when does the inter-organizational knowledge
transfer starts and ends in an informal communication? There is no doubt though that informal knowledge transfer mechanisms between organizations exist; and in the present study we try to find out how important it is in the Supply Chain. The third question we try to answer sounds:

What is the importance of informal knowledge transfer mechanisms in the Supply Chain?

The instrument chosen for the investigation of knowledge transfer mechanisms is the case study. It allows collecting the data in the real-time context, at the same time giving the opportunity to link the data to the theoretical propositions. The data was collected by conducting interviews and surveys inside the Supply Chain department of an international chemical company. For the data collection and empirical analysis, the research paper of Boh (2007) is used as a model. Boh performed a similar analysis on the mechanisms for sharing knowledge in project-based organizations. He distinguished two dimensions for these mechanisms: codification versus personalization, and individualization versus institutionalization. The questions we pose in this research paper fit perfectly in this paradigm. The research was conducted in the Supply Chain and Sales departments of an international chemical company. The results of in-depth interviews and a survey on knowledge transfer mechanisms were linked to the theoretical propositions based on above-cited questions.
3. LITERATURE REVIEW

The importance of knowledge as a precious intangible asset of an organization cannot be overestimated. Since last decennia organizational knowledge remains one of the most interesting research subjects for economic and social science. The main topics of these researches can be sketched as follows:

- Knowledge Development
- Knowledge Influence on Performance
- Knowledge in Supply Chain Management
- Knowledge Transfer

The literature review below is organized in accordance with these topics; but at the same time there are a lot of interrelations which show the complexity and the integrity of the subject. The review is structured to move from general to more specific subjects.

3.1. Knowledge Development

Organizational learning occurs when companies increase their behavioral capacities as a consequene of information processing. It involves three stages: acquisition, sharing, and storage. Dunne (2008) described four capacities which a learning organization possesses: capacity to collaborate, capacity to learn, capacity to absorb, and capacity to execute. The development of these capacities can be stimulated by the flexibility of organizational culture, by the empowerment of collaborative individuals, and by the presence of inspirational leadership.

Senge (1990) defined two types of organizational learning: adaptive learning occurs within organizational constraints, either recognized or not recognized, while generative learning is characterized by creativity, breaking the constraints, and unleaming old rules and procedures. This definition was followed in research papers under another terminology; explorative and exploitative learning concepts were introduced (Schildt, Maula and Keil, 2005). Exploitative learning is the acquisition of new behavioral capacities framed within existing insights. Exploitation activities include refinement, choice, production, efficiency, selection, implementation, and execution. Explorative learning occurs when organizations acquire behavioral capacities that differ fundamentally from existing insights. Exploration activities include search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. (Schildt, Maula and Keil, 2005)

Roome and Wijen (2006) examined the relation between type of learning and power of stakeholders. They focused on the issue of power in an organization, and its relation to learning processes and learning roles. They determined a complex connection between the ambition of company goals and the structure of learning. The results of the research showed that exploitative learning routines were effective when stakeholder influences converged, whereas explorative learning took place without convergence. At the same time the implementation of this learning was hampered. Power appeared to be an important factor in knowledge development.
Several organizational forms were examined by Schildt, Maula and Keil (2005) to study explorative versus exploitative inter-organizational learning outcomes in corporate venturing activities. The authors determined four alternative avenues for inter-organizational learning: corporate venture capital investments; alliances; joint ventures; acquisitions. The results showed that different governance modes in external corporate venturing influence explorative or exploitative learning in corporate venturing initiatives. Non-equity venturing alliances are likely to be more suitable for explorative learning than joint ventures or acquisitions. This can be explained by the conclusions of Roome and Wijen regarding stakeholder power influence. Alliances and joint venture with unrelated companies can maximize explorative learning, and the choice of governance mode might be an important parameter for achieving a balance between exploration and exploitation.

Another factor which has direct influence on the knowledge development in an organization is the firm strategy. Wang (2008) dedicated his research paper to the connection between entrepreneurial firm, learning orientation, and firm performance. An entrepreneurial firm is the one that engages in product-market innovation, take risk, and is proactive. Wang showed that entrepreneurial orientation has a positive impact in learning orientation, which, in turn, has a positive impact on firm performance. Prospectors demonstrated stronger linkages in knowledge-performance relationships than analyzer, followed by defenders. To get better performance, an entrepreneurial vision must be shared effectively among all the organization.

Connection between coordination flow mechanisms and learning orientation was examined by Fugate, Sahin and Mentzer (2006). Coordination aligns all information to support global objectives. Coordination mechanisms are classified in three groups: price coordination, non-price coordination, and flow coordination. Flow coordination has three dimensions, whereas each has relationship with learning orientation: multi-functional involvement, standardization, and complexity. Fugate, Sahin and Mentzer concluded that managers should explore alternative intra/inter-organization structures to provide the necessary multi-functional involvement to properly carry out flow mechanisms. Since flow coordination is a key factor for a successful Supply Chain, it would be interesting to examine whether one of above-mentioned dimensions prevail in it. This will be one of the questions posed during the case study:

Q1: Which dimension prevails in the Supply Chain flow coordination: multi-functional involvement or standardization?

**Proposition 1**: Multi-functional dimension will prevail in the communication with customers, and standardization will prevail in the communication with service providers.

Behavioral factors play an important role in information exchange and learning capacity. Heikkila (2002) defined two aspects of communication behavior influence effectiveness of information exchange: information sharing and level of information quality and participation. Management has of course the biggest influence on the communication behavior within the company. Dunne (2008) described three factors that enable organizational learning: inclusive, supportive and proactive management; organizational culture that promotes individual responsibility, personal development and team accountability; organizational structure that promotes open communication and collaboration.
To summarize the outcomes of the research papers mentioned above, here are the factors that directly influence knowledge development within organization:
- organizational form
- organizational structure
- firm strategy
- organizational culture

3.2. **Knowledge Influence on Performance**

It seems clear that knowledge has definitely a positive influence on performance. However, the term ‘performance’ is wide enough to require specification: how can we measure performance and its improvement? In the Supply Chain studies, Fynes, Voss and de Burca (2005) considered whether or not it is possible to measure the multi-dimensional nature of SC relationships, and if so, what is the effect of SC relationships on quality performance. They used such theoretical frameworks, as transaction cost theory, political economy theory, social exchange theory, and resource dependence theory. The outcome of their study was that the Supply Chain relationship quality has a positive impact on design quality, but not on conformance quality. One of the reasons for that is that design requires innovation, while conformity is a rigid and strictly regulated concept.

Gunasekaran, Patel and McGaughey (2004) determined the following performance measurements and metrics:
- metrics for order planning
- evaluation of supply link
- measures and metrics at production level
- evaluation of delivery link
- measuring customer service and satisfaction
- supply chain and logistics cost

How can knowledge influence on SC performance improvement in terms of above measurements and metrics? Hult, Ketchen and Slater (2004) created a model linking knowledge development to performance in strategic supply chains:
- achieved memory
- knowledge acquisition activities
- information distribution activities
- shared meaning

They studied 500 transportation firms. Data were drawn from internal users, corporate buyers and external suppliers. The results showed that knowledge acquisition, information distribution and shared meaning are negatively related to cycle time and therefore positively related to performance. Besides, there is a strong link between shared meaning and reduced cycle time; which means that information sharing and face-to-face discussions may improve chain performance.

Modi and Mabert (2007) focused their research on the procuring firm’s effort to improve supplier performance. They tested a structural model of buying firm’s perception of their supplier development efforts, and examined how these efforts lead to value creation for both firms, through improved supplier performance. The authors suggest that evaluation and
certification efforts are the most important supplier development prerequisites, before undertaking operational knowledge transfer activities such as site visits and supplier training.

A well-known negative communication effect in the supply chain is the Bullwhip effect. The bullwhip effect refers to the observation that the variability of orders in supply chain increases as one moves closer to the source of production. Yan Wu and Katok (2006) investigated the effect of learning and communication on the bullwhip effect in the supply chain. Their results showed that while training improves individuals’ knowledge, it does not improve supply chain performance, unless there is a communication and knowledge sharing between supply chain partners. The authors showed the following hypotheses: visible supply line information will remove order amplifications, and will decrease order variations; if the situation is repeated, order amplifications and order fluctuations will decrease; system-wide training will remove order amplifications and will decrease order variations, finally, communication will improve performance, but communication without training will have no effect on performance. When training is combined with the opportunity to share knowledge and coordinate through communication, performance improves with reduced order oscillations.

Hult, Ketchen and Arrfelt (2007) performed a study on 201 firms to examine the influence of a culture of competitiveness and knowledge development on supply chain performance in turbulent environment. They determined that interaction of competitiveness and knowledge development has positive association with performance. Based on behavioral and contingency theories, they showed that market turbulence has positive influence on knowledge development - performance link, and negative influence on culture of competitiveness - performance link. At the same time, culture of competitiveness has a direct link with cycle time performance, but knowledge development does not, which practically means, that firms might benefit by building a culture of competitiveness first and then emphasizing knowledge development.

Another study of Hult, Ketchen, Cavusgil and Calantone (2006) was conducted to show how different knowledge elements are linked to different strategy types. Using data from 913 entities in the supply chain, the authors conducted a profile deviation analysis by using ideal “knowledge profiles” for five strategy types as a benchmark. The knowledge elements are memory, tacitness, accessibility, quality, use, intensity, responsiveness and learning capacity. The five strategic types are:
- Prospectors
- Analyzers
- Low-cost defenders
- Differentiated defenders
- Reactors

The results showed that the relative fit among strategy and eight knowledge elements is a key to achieving superior supply chain performance. The ideal profiles of knowledge elements will differ across supply chain strategies, and the closer supply chain matches an ideal profile of knowledge elements and strategy, the better the supply chain’s performance. Learning capacity fits best with Prospectors, Analyzers and Reactors.
3.3. Knowledge in the Supply Chain Management

In the contemporary business environment, with its horizontal organizational orientation rather than a vertical one, the responsibilities of a Supply Chain manager do not limit by managing supply and production flow. Relationship management and knowledge management became key elements of the strategy. One of the characteristics of a modern manager is the T-shape profile: in-depth expertise in one discipline combined with enough breadth to see the connections with others.

The concept of strategic Supply Chain management elevated Supply Chain management from a function that supports strategy to the key element of strategy. Ketchen and Hult (2007) studied this concept from two perspectives: social capital theory and knowledge-based view. Best value supply chain is characterized by shared goals, values and experiences, which create improved performance, while mix of shared and firm-level goals limit performance in the traditional supply chain. Best value supply chain puts knowledge resources at the supply chain level, in contrary to the traditional supply chain which assumes that unique resources reside within firms. While the participants of traditional supply chain are forced to choose between own and chain’s interests, the interests of the partners in the best value supply chain coincide.

Bowersox, Closs and Stank (2000) determined ten trends in the supply chain evolution:
- Customer Service to Relationship Management
- Adversarial to Collaborative
- Forecast to Endcast
- Experience to Transition Strategy
- Absolute to Relative Value
- Functional to Process Integration
- Vertical to Virtual Integration
- Information Hoarding to Sharing
- Training to Knowledge-based Learning
- Managerial Accounting to Value-Based Accounting

Information sharing and knowledge-based learning are seen as strategic assets in the contemporary supply chain, and one of the management tasks is to develop those within an organization and through the supply chain. The manager’s involvement in facilitating information sharing will be another point of attention in the case study:

Q2: How do managers facilitate information sharing?

Proposition 2: Managers play an important and active role in directing knowledge transfer flows.

Information sharing in inter-organizational supply networks results in a more efficient flow of goods and services, reduced inventory level, and lower costs. Samaddar, Nargundakar and Daley (2006) posed the following research question: How do supply network configuration and partner characteristics influence inter-organizational information sharing? They described four types of the information sharing: Type 1, representing low volume operational information; Type 2, representing high volume operational information; Type 3, representing low volume strategic information; and Type 4, representing high volume strategic information. The authors suggested that that dyadic configurations are associated with
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strategic types of information sharing, while multi-channel supply network configurations are associated with high volume operational (Type 2) information sharing.

Organizational evolution, and corporate expansion as one of its forms, is studied by Martin, Swaminathan and Mitchell (1998). According to their study, there are two substantial constraints on corporate expansion market attractiveness constraint and information constraint. Suppliers appear to respond to the information released from each element of the inter-organizational environment as firms start expanding into a foreign location. Corporate expansion is seen a powerful instrument of knowledge transfer.

3.4. Knowledge Transfer

3.4.1. Theoretic Background

L. Argote and P. Ingram (2000) defined knowledge transfer as “the process through which one unit is affected by the experience of another”. There is a direct linkage with performance: knowledge transfer manifests itself through changes in the performance of the recipient unit. This gives to researchers a measurement instrument for knowledge transfer. There are two aspects of knowledge transfer: transfer within an organization, and transfer between organizations. The basis for knowledge transfer between the firms is inter-organizational collaboration. Inter-organizational collaboration supports the effectiveness of innovation strategies, and improves the performance.

Faems, Van Looy and Debackere (2003) determined three benefits a firm can achieve through inter-organizational collaboration:
- it gives access to complementary assets needed
- it brings along the transfer of codified and tacit knowledge
- it allows spreading the costs of R&D over different parties

The authors also introduced the difference between exploitative and explorative collaboration (in a parallel with exploitative and explorative learning). It appeared that different kind of collaboration relates to different types of innovation outcomes: exploitative collaboration improves further developing of existing technologies, while explorative collaboration benefits the innovation.

Bessant, Kaplinsky and Lamming (2003) looked on the knowledge transfer as a global process in the Supply Chain. The reasons of knowledge transfer are: commonality of interests, competitive global environment, and benefits from sharing learning experience. The two major learning components are accumulation of core knowledge base and development and improvement along the whole organization.

Grossmann (2007) introduced another important instrument allowing knowledge transfer: succession. External succession is recast as a mechanism for the transfer of knowledge between organizations. Intra-industry succession allows firms to obtain tacit knowledge in order to remain competitive. This means that organizations that hire a greater number of a rival’s executives will tend to respond more quickly and more imitatively to a competitive action. Senior executives from rival firms may be especially attractive succession candidates for firms seeking access to a new product market or technology. It has been established that personnel flows between organizations have an effect on the adoption and diffusion of
innovation. However, less is known about how this process affects rivalry and the long-term firm performance of specific firms.

Lyles and Salk (1996) studied international joint ventures from the knowledge acquisition perspective. They determined three categories of mechanisms that affect both knowledge acquisition and performance outcomes:
- capacity to learn
- articulated goals and strategies
- active involvement of the foreign parent in IJV
Capacity to learn (absorptive capacity) was shown to have direct impact on the amount of knowledge acquisition.

Absorptive capacity was one of the subjects of W. Tsai (2001) research. He examined knowledge transfer from the recipient prospective, and showed that a unit’s network position has impact on gaining access to new knowledge, and that absorptive capacity reveals its ability to apply such new knowledge.

Reagans and McEvily (2002) identified several factors which are positively related to the ease of knowledge transfer: common knowledge, tie strength, social cohesion and network range are among them. Especially the role of common knowledge was underlined in this work. Another conclusion of the authors was that it is more difficult to transfer tacit knowledge than codified knowledge. Transferring tacit knowledge requires more motivation, effort, and ability.

Transferring tacit knowledge is the subject of Dhanaraj, Lyles, Steensma and Tihanyi (2004) research paper. Their results showed that tie strength, trust, and shared values and systems play an important role in the transfer of tacit knowledge. Explicit knowledge can be transferred relatively easily, and it is explicit knowledge which has direct impact on the performance. The result of this research surprisingly showed a negative linkage between tacit knowledge transfer and performance. The authors proposed several reasons for that, including errors in reporting tacit knowledge acquisition, but one of the reasons is also the need to adaptation of the tacit knowledge to the current environment.

Squire, Cousins and Brown (2009) tested the effect of four relational properties: cooperation, trust, relationship duration and supplier performance on buyer-supplier relationship. They gathered quantitative data from 104 UK manufacturing firms, which provided support for the importance of relational factors in the inter-organizational knowledge transfer. Their results indicated that knowledge transfer is positively influenced by the extent of cooperation, but that this relationship is moderated by the level of trust and the performance of the supplier firm.

Based on transaction cost economics and organizational theory, Dekker (2004) defined two control problems related to inter-organizational collaboration: management of appropriation concerns and coordination of tasks. Integration as the most complete form of tasks coordination was studied by Frohlich and Westbrook (2001). They focused their attention on the integration in the Supply Chain, and determined that the following activities can be integrated in the Supply Chains of partner firms: access to planning systems, sharing production plan, joint EDI access, knowledge of inventory levels, packaging customization, delivery frequencies, common logistical equipment, and common use of third-party logistics.
There are actually two interrelated forms of integration: forward physical flow and backward information and data flow. Results for the supplier- and customer-facing strategies suggested that focusing on only the inbound or the outbound sides are less favorable for performance, than outward-facing Supply Chain strategy, which is associated with the largest rates of significant performance improvement. Frohlich and Westbrook leave open the question: what are the necessary steps towards a broad arc of integration?

3.4.2 Knowledge Transfer Mechanisms

Knowledge transfer appeared to be one of the critical factors to firm’s success, as it has linkage with the competitive advantage. Competitive success depends on a capacity to source needed capabilities outside the firm. Having described several conceptual variables influencing inter-organizational knowledge transfer, the scientific literature did not yet describe in detail the procedural aspects of it. Little is known about the situations where one particular mechanism would be more appropriate than another one. The attempts to classify knowledge transfer mechanisms are not numerous.

The research of Li, Poppo and Zhou (2010) focuses on relational and contractual mechanisms and their impact on the acquisition of tacit and explicit knowledge from local suppliers. They examined the relative effect of relational mechanisms, such as network ties, shared values, and trust on the acquisition of tacit versus explicit knowledge. The research results showed that formal contracts enhance the positive effects of relational mechanisms on the acquisition of explicit and tacit knowledge. Because contracts provide formal specification and assurance, they complement the mechanisms of shared goals and trust.

Gorovaia and Windsperger (2010) suggested that information richness theory offers a criterion to differentiate knowledge transfer mechanisms according to their information processing capacity. Knowledge transfer mechanisms with a relatively high degree of IR (information richness) refer to face-to-face interactions and team-based mechanisms (meetings, trainings, seminars, telephone…); and knowledge transfer mechanisms with a lower degree of IR refer to written report, databases and instructions. If the knowledge is tacit and difficult to codify, higher-IR transfer mechanisms are needed to process and transfer this knowledge. In addition to tacitness of knowledge, Jasimuddin (2007) named three other variables which play an important role in knowledge transfer mechanism choice: status, personal ties, and proximity. The main research question of this work refers to the appropriation of one or another knowledge transfer mechanism in particular circumstances.

Ernst and Kim (2002) studied global production networks as collective forms of organization which facilitate knowledge diffusion. They showed that knowledge transfer is not automatic, and that it requires a significant level of absorptive capacity. Further, knowledge diffusion is completed only when transferred knowledge is internalized and translated into capability of the recipients. Individual and organizational learning are necessary conditions of knowledge internalization. They created a framework for the classification of the knowledge transfer mechanisms. On one axis, knowledge transfer mechanisms can be formal or informal; on another one, the role of knowledge supplier can be active or passive. A conclusion of Ernst and Kim was that formal mechanisms of international knowledge transfer have been studied, but that research on informal knowledge transfer is scarce. An attempt will be made to show how informal knowledge transfer mechanisms work in the Supply Chain:
Q3: What is the importance of informal knowledge transfer mechanisms in the Supply Chain?

**Proposition 3:** Informal knowledge transfer mechanisms are particularly important in the communication between middle/senior management and key customers

Boh (2007) proposed a similar classification of knowledge transfer mechanisms. He identified two dimensions: codification versus personalization, and individualization versus institutionalization. The interaction between these two dimensions results in a framework that generates four classes of knowledge-sharing mechanisms. This framework will be used during the interviewing and data classification in the case study.

The findings of the researchers on the influence of different factors on the transfer knowledge are summarized in the Table 1.

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Table 1.

The variables that are most often suggested to be positively related to the efficiency of the knowledge transfer are: shared values, trust and tie strength. Several studies provided materials in favor of this hypothesis. There is however a gap in the research literature regarding the connection between knowledge transfer effectiveness and the choice of a knowledge transfer mechanism. There is no unanimity neither in the classification of the knowledge transfer mechanisms: they are classified based on volume of transferred information (Samaddar et al., 2006); on information richness (Gorovaia et al., 2010); on the level of personalization (Ernst et al., 2002; Boh, 2007); and on the level of standardization (Boh, 2007). The purpose of this research is to get a better insight in the reasons why the members of an organization tend to use certain knowledge transfer mechanisms, and to try to explain this choice.
4. METHODOLOGY

The literature study shows that several attempts have been made to describe and to structure the principal elements of knowledge development, knowledge transfer and knowledge integration. Though there is quite a lot of information collected and described in the related studies, this information mostly refers to the factors influencing and facilitating knowledge exchange. The purpose of the present case study is to determine the mechanisms of knowledge exchange, i.e. how knowledge is transferred from one organization to another.

Case study is an instrument which is appropriate to use when an in-depth investigation is needed. It is designed to bring out the details from the participants’ point of view, by using multiple sources of data. It allows seeing the phenomenon in the real-time context, at the same time giving the opportunity to link the data to the theoretical propositions.

Yin (1994) defined the following procedural characteristics of case study:
- many variables of interest
- multiple sources of evidence
- theoretical propositions to guide the collection and analysis of data

Inter-organizational knowledge transfer mechanisms in the Supply Chain are obviously related to hundreds interactions between the market players all over the product flow from supplier to customer. It is necessary to put limitations to the current study, meaning that the subject will be determined by mechanisms of knowledge sharing between an organization and her tier 1 customers and logistics providers. Relationships with suppliers are not the subject of this research.

In this study we use not random or stratified, but theoretical sampling (Yin, 1994). The choice is based less on the uniqueness of a case, but on the contribution to the theory development within the set of cases (Eisenhardt and Graebner, 2007). The FMC case is chosen because it is particularly suitable for examining external connections and contacts of the Supply Chain members. FMC Supply Chain department is involved in the long-term relationships with customers and service providers, and achieves a high grade of tie strength and trust with its external contacts. According to several researchers (Reagans et al., 2003, Dhanaraj et al. 2004, Li et al., 2010), these characteristics are positively related to the inter-organizational knowledge transfer. Besides, FMC case gives an opportunity of high research access for the researcher, through direct observations and access to company’s databases.

Sales and Customer Service departments are those who are constantly exposed to the inter-organizational contact and therefore can procure valuable information on how the knowledge sharing occurs. They are the units of analysis in the case study, which means that the study will have an embedded design, where an attempt will be made to identify consistent patterns of evidence across units, but within a case (Yin, 1994). The sources of evidence which will be used in this case study are: open-ended interviews; surveys; direct observation.

The following questions have been formulated in the chapter 3 of the present work, based on the published studies related to the subject:
Q1: Which dimension prevails in the Supply Chain flow coordination: multi-functional involvement or standardization?
Q2: How do managers facilitate information sharing?
Q3: What is the importance of informal knowledge transfer mechanisms in the Supply Chain?

These questions are of qualitative nature. Eisenhardt (1989) classifies the evidences in case study as qualitative, quantitative, or both. In the present study the evidence will be only of qualitative nature. As described by Eisenhardt and Graebner (2007), the qualitative data will be presented as a narrative with quotations from the key informants. This text will be then intertwined with the theory to demonstrate the connection between empirical evidence and emergent theory.

Though the research questions are specified, they are tentative as mostly applicable to this type of research (Eisenhardt, 1989). The questions may shift during the research. It is important to avoid putting specific relationships between variables and theories, so that all the information, supporting as well as not supporting the theoretical propositions, is duly recorded and analyze. This is the reason for choosing the open-ended interviews as an instrument. Following the tactic proposed by Eisenhardt (1989), the selected dimensions will be analyzed by within-group similarities coupled with intergroup differences. Using two units of analysis (sales personnel versus logistics personnel) will allow data source triangulation; which will improve the validity of the research.

External validity refers to the extent to which the findings of the study can be generalized. Modell (2005) suggests that analytical generalization in a case study can be based on the empirical findings which are in accordance with some replication or extension logic. The application of extension logic is manifested by theorizing based on searching for cross-case patterns or regularities in the research findings. The present study is not a replication, but an attempt to define some patterns in the knowledge transfer mechanisms use in a middle-size international organization. A replication of this research is needed to show if there are any cross-case patterns.

In relation to internal validity, which refers to the credibility of the casual relationships between independent and dependent variables, case study is considered to be inferior to the statistical methods. However, triangulation between case study and survey methods may allow to achieve plausible casual explanation. In this study, survey is conducted along with in-depth interviews, to improve the internal validity.

Existing literature did not offer a theoretical proposition for a pattern-matching analysis. Based on the cross-functional nature of connections in the sales and logistics departments, and the multiple contacts with customers and logistics providers, as well as high demand for compliance in sales registration, the predictable pattern for the analysis is:

- Multi-functional dimension will prevail in the communication with customers, and standardization will prevail in the communication with service providers
- Managers play an important and active role in directing knowledge transfer flows.
Informal knowledge transfer mechanisms are particularly important in the communication between middle/senior management and key customers.

For the data collection and empirical analysis, the research paper of Boh (2007) will be used as a model. Boh performed the similar analysis on the mechanisms for sharing knowledge in project-based organizations. He distinguished two dimensions for these mechanisms: codification versus personalization, and individualization versus institutionalization, and proposed the following framework:

<table>
<thead>
<tr>
<th></th>
<th>Individualized</th>
<th>Institutionalized</th>
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<tbody>
<tr>
<td>Personalization</td>
<td>individualized-personalization mechanisms</td>
<td>institutionalized-personalization mechanisms</td>
</tr>
<tr>
<td>Codification</td>
<td>individualized-codification mechanisms</td>
<td>institutionalized-codification mechanisms</td>
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</tbody>
</table>

Table 2. Adopted from Boh (2007)

Individualized-personalization mechanisms include mechanisms which create opportunities for individuals to share the information at individual level and informal manner. Social networks are powerful means of information sharing between organizations. They have the inherent flexibility of transmitting tacit knowledge as well, and allow for discussions that may lead to development of new knowledge.

Individualized-codification mechanisms describe mechanisms where documents are shared in individual and informal manner. Much of intellectual capital is stored in the hard disks of individuals, and they can share it through their personal contacts and social network.

Institutionalized-personalization mechanisms are personalization knowledge-sharing mechanisms that are institutionalized in the routines of the organization. Instead of institutionalize knowledge sharing only by means of codification, organizations can institutionalize mechanisms to facilitate person-to-person knowledge sharing.

Institutionalized-codification mechanisms are codification mechanisms which are institutionalized in the structure of the organization. They have significant emphasis on the use of information technology, and make individual or group-held knowledge the wider property between the organizations.

This framework allows analytical generalization within the studied case, where previously developed theory is used as a template for comparing empirical results of the case study. The objective of this research is to collect information about the knowledge-sharing mechanisms used in the Supply's Chain external contacts, and to obtain a feedback from interviewees about their opinion on the effectiveness of these mechanisms. The interviewees were asked to describe the mechanisms they use to share information with external contacts, and to give specific examples of knowledge sharing or lack of knowledge sharing.
Boh developed an interview protocol (appendix A) which was slightly modified for the present study. The questions related to the project based organization were changed to be applicable for the Supply Chain organization. Further, a table with knowledge transfer mechanisms was developed by Boh based on the results of two case studies; this table will be offered to the interviewees in the present study to be scored on Likert scale (appendix B). It is as well slightly modified by removing knowledge transfer mechanisms which are specifically related to the project-based organization. The use of multiple sources of evidence will improve the construct validity. At the same time, based on the in-depth interview, we will use descriptive elements to eventually add other items to the mechanisms template.

Boh suggested his framework to be a suitable instrument to systematically characterize and compare knowledge-sharing mechanisms used in project-based organizations. In the present study this framework is applied to the Supply Chain organization, as a useful instrument to evaluate the use of knowledge-sharing mechanisms and to analyze the fit of the mechanisms with organizational characteristics.
5. RESULTS.

FMC Chemical, Agricultural Products Group, is a division of a multinational chemical company with headquarters in USA. It has about 5,000 employees located in several geographical locations. The office in Brussels is responsible for sales, marketing and development in EMEA region, with about 45 employees. FMC production facilities are located in USA, Indonesia, and China. Moreover, few productions take place on a contractual basis at European plants.

FMC’s policy is to establish long-term relationships with customers, suppliers and service providers. Creating strategic alliances is seen as a key priority. External contacts of FMC are therefore of a very stable nature, historically and culturally shaped through the years. This gives added value to the case in terms of inter-organizational knowledge transfer research, because openness and trust towards most external contacts at FMC is very high. Long-term partnership allows as well having a long record of issues and solutions which can illustrate the dynamics of knowledge transfer development between the organizations. Last but not least, FMC case give to the author an opportunity to use personal observations, and to have access to databases and ERP of the organization, which facilitate a lot the understanding and the analysis of the case.

FMC’s customers in EMEA are large distributors responsible for wide geographical areas. As a result, sales personnel of EMEA consist of five account managers, dealing with several key accounts. The sales are supported by the Supply Chain department. Responsibilities of the Customer Service Representatives include order-to-cash processing, logistic follow-up, and forecast and demand coordination.

The main purpose of the research was to determine which mechanisms are used by the organization members in their communication with customers and service providers. The two groups which are mostly exposed to external contacts are Zone Managers and Supply Chain Officers. The interview and survey adopted from Boh (2007) have been proposed to five Zone Managers and six Supply Chain Officers (100 % of related FMC personnel). The age of respondents varies from 32 to 62 years.

The reason and the purpose of this research were discussed with the HR manager, who gave his permission to conduct the interview, and to approach the Zone Managers and the Supply Chain personnel for any necessary clarifications. The interview protocols have been distributed by e-mail, with a brief explanation of the research purposes. The interview was proposed on totally volunteer basis, without any obligation of response.

The response in Zone Managers group reached 80 %, i.e. four of five members gave their reply. In the Supply Chain group, the response was 67 %, i.e. four of six members have responded. The reason of non-response was lack of time and outside travelling of the respondents. The fact that four members of each group responded to the survey simplified the statistics calculation, and gave symmetry to the research results in both research units.
5.1 Interview results

In the interview protocols, the respondents gave narrative answers to the proposed questions. They were asked to describe their behavior in the certain situations where knowledge sharing was essential for success. The advantage of this formulation of questions is that it helps to determine knowledge sharing mechanisms which are really critical. Each respondent have chosen one mechanism that helped a lot, and another one which he wishes he could use, but it was impossible at the moment. Further, a question related to storing and retrieving information was proposed. The results of the interviews are presented in the following sub-chapters.

Proposition 1: Multi-functional dimension will prevail in the communication with customers, and standardization will prevail in the communication with service providers

All the respondents have unanimously put e-mail communication as the most important instrument in their relationships with both customers and service providers. E-mail as such can be standardized, as for example order confirmations, booking requests, or shipping details communications. This kind of communications is used by the Supply Chain personnel in their correspondence with both customers and service providers. It is often accompanied by the electronic documents exchange; FMC however does not have in place any EDI system, and does not intend to acquire one. There is therefore always some space for personalization in these communications, and possibilities to build up more personalized relationships with the peers from the partner companies.

Phone calls instead resulted to be surprisingly unimportant in the daily communications of the administrative personnel, when they replied to the question regarding the most helpful communication means. It is though always mentioned as a possible solution instrument in the particularly complex issues. A CSR describes such an issue:

“After an acquisition of a new molecule in Italy, we were supposed to organize shipments from a new location using new logistic providers. We experienced several delays and had to overcome some obstacles before the process was fine-tuned. Only by organizing several conference calls with all the involved parties we were able to create a Standard Operation Process which was accepted by everybody as the most efficient”

The Sales Managers do put phone calls and conferences at important place in their communication instruments. “A lot of phone communications”, “daily telephone conversations”, “and oral communications” are mentioned by all of the Sales Managers. The reason for this is obviously the importance of personal approach in communications with customers, and need to build up a band of trust and openness which is only possible in personal communications. Sequentially, face-to-face meetings are also frequently used by the Sales Managers; while no one of the Supply Chain respondents named it as an important communication instrument.
Curiously, the Sales Managers experience sometimes a lack of written communication. In critical situations they feel they need to rely on written manuals and shared databases, which are either unavailable or non-existing. Here is a description of such an issue made by a Sales Manager in relation to the same acquisition which was mentioned in the above quotation:

“I led an acquisition of a molecule, and I needed to coordinate various Supply Chain activities and knowledge transfer. Daily meetings and conference calls were of essential need. I found out that there was a lack of written communication which could be distributed easily (manuals, databases)”

To summarize, the interviews provided the evidence for Proposition 1 in relation to the standardized communication between the Supply Chain personnel and Service providers; as well as the evidence was collected in defence of the multi-functionality of the communications with customers (written and oral messages, meetings, and documentation exchange). There is a clear preference for written communication from the side of the administrative personnel, and for oral communications from the side of the Sales Managers. At the same time both groups admitted that communication methods which are unusual for them, can be very helpful in critical situations.

**Proposition 2: Managers play an important and active role in directing knowledge transfer flows.**

Going along with describing critical situations and the solution found, it was remarkable that managers and supervisors have never been named as problem solvers, or coordinators of the communication flows. It is obvious that managers have huge possibilities in influencing information flows, but what are the instruments they are using? In FMC case, the absence of active involvement was quite clear in several replies.

For example, Customer Service / Forecasting specialist comment:

“Most of the times, customers place their order at the very last minute even without forecast and ask for shipment tomorrow, which I cannot guarantee. It will be very helpful if customers understand the required lead time and what’s reason behind it, and then plan in advance”

This sort of communication, which determine forecasting and order fulfillment processes, is a Supply Chain manager prerogative; and if this flow is not clear enough, it can lead to miscommunication between both companies’ personnel and lost sales as a result. This example shows how important management involvement could be, but it is not supported by the reality in the described situation.

Another issue which the respondents are facing is the identification of the “right” contact in the certain situation. Here is an example of such an issue:
“Receiving the information related to the registration is sometimes difficult; because I do not have direct contacts in the respective departments of the partner organization. I do not know whom I shall contact, and it is hard to find”

This is an example of a situation where the involvement of management is desirable; where information on partner’s organization can be given so that communication flows go smoothly. As shown above, this is not always the case in FMC; but the respondents do stress the potential importance of this involvement.

Managers can also play an important role in the inter-organizational processes related to the external communication. A gap of such coordination role was described by a Sales Manager who joined FMC recently, and did not have much experience neither with FMC products, nor with FMC customers. Here is he description of an issue he faced:

“I am new in the company, so I needed to establish relationships with key customers which I didn’t know before. FMC works with multinational distributors, among them Belchim, a huge company presented in all European countries. The pricing and the sales conditions vary from country to country, as well as product range, and it was very difficult for me to get this information clear. I had several meetings with the Supply Chain manager who is also responsible for forecasts, to understand better the situation. I found it pity that no database exists where all related info is collected and structured.”

The question raised in this abstract is interesting, because it refers not so much in manager’s involvement in the direct communication flows, but on the storing and retrieving of information. Since there is a big amount of information going out and into organization, it may be necessary to find a way of storing this information. ERP is a very useful instrument in this case, but there is also verbal unstructured and “on the spot” information, which can be recorded and retrieved if needed. Organizing this process is a management task, and it is a challenge. Above abstract from an interview show the importance of this task.

To summarize, the interviews show a lot of evidence of the requirement of management involvement in inter-organizational communication, but not much evidence of practical implementation of this involvement. This does not mean that in FMC managers do not play any role in inter-organizational communication. It rather shows situations where this involvement could be more intense, and this is valuable information for future research in this domain.

**Proposition 3: Informal knowledge transfer mechanisms are particularly important in the communication between middle/senior management and key customers.**

Interviewees stressed more than once the importance of personal communication. Above-cited abstracts give already some evidence of it. Interesting fact is that all the respondents independently of their position in the organization say that personal communication is important and helps to resolve complex issues.
Of course there is a difference between personal communication and informal communication: not all personal meetings are informal. The “informality” grade of personal communication is though always higher than in written communication; and personal meetings give an opportunity to communicate also informally, for example during coffee breaks or business lunches. Here is a description of a situation where personal and informal communication was very productive (from an interview of a Customer Service representative):

“FMC acquired a new molecule, and our department started to handle customer’s orders for these new products. We realized that the information we had about these products was very scarce. We arrange a travel to the producing facility, and had a meeting with the persons responsible for the production. We could obtain the needed information this way. And it was very helpful to meet local people, because our communications became much easier since then.”

In respect to the Sales Managers, they unanimously stated the importance of personal networking and informal meetings: “in my opinion the most effective approaches and mechanisms are personal meetings…”, “outside meetings can bring good results because of its informal atmosphere…” They use these instruments in their daily work. The main purpose is to establish such a contact with the customer, where the communication is open and trustful, and eventual problems are put on table immediately. This was not the case in the issue described below:

“Our distributor in Kenya faced problems when one of his customers used FMC product not properly, which created an environment issue. FMC was not advised timely, and the issue escalated up to TV reportage and registrations withdraw. It could be avoided if the communication with the distributor would be closer.”

Informal communication is seen not only as a source of information, but also as a way of getting closer to the customer, as a way of mutual influence.

5.2. Survey Results

The Survey proposed to the interviewees was adopted from Boh (2007); the only modification was that the questions related to project teams have been excluded from the present survey as irrelevant to inter-organizational communication. The survey was structured based on Likert scale, where points have been assigned as follows:

0 points for “not important”
1 point for “important”
2 points for “very important”

In his research Boh has split the mechanisms in four groups, based on individualization / institutionalization, and personalization / codification factors. This paradigm was not presented to interviewees, to avoid any influence on their opinion. The sum of points per knowledge sharing mechanism is presented in the below table:
Mechanisms description | Supply chain | Sales Managers
--- | --- | ---
Word sharing through senior staff | 5 | 7
Personal networks | 2 | 8
**Individualized-personalization** | 7 | 15
Sharing prior project documents informally | 5 | 2
Manuals written voluntary | 4 | 0
**Individualized-codification** | 9 | 2
Meetings among high level staff | 2 | 6
Project reviews | 3 | 6
One senior person coordinating all staffing needs | 3 | 4
Cross-staffing | 1 | 2
Setting up a community | 1 | 0
Support centers | 3 | 3
Staff deployment policies | 4 | 3
**Institutionalized-personalization** | 17 | 24
Database | 5 | 5
Use of templates | 6 | 5
Emails and forums | 5 | 6
Expertise directory | 5 | 4
Standardized methodology (standard processes) | 6 | 4
**Institutionalized-codification** | 27 | 24

Table 3

In order to define the share of each knowledge-sharing mechanisms group in the daily activities of the research units, the scores per unit where summarized, and the percentage value for each group of mechanisms was calculated. The first result worth mentioning is that the Sales Managers group makes use of knowledge sharing mechanisms slightly more intensive than the Supply Chain personnel (65 points total for the Sales Managers, versus 60 points for the Supply Chain). The reason for this is that the Sales Managers are more exposed to the direct contact with customers; hence their inter-organizational communication is more intensive by definition. The percentage values of the different mechanisms use is shown in the below table:
“Inter-organizational knowledge transfer mechanisms in the focal company: a case study”
A.A.Bolazeva

<table>
<thead>
<tr>
<th>Mechanisms description</th>
<th>Supply chain</th>
<th>Sales Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualized-personalization</td>
<td>12 %</td>
<td>23 %</td>
</tr>
<tr>
<td>Individualized-codification</td>
<td>15 %</td>
<td>3 %</td>
</tr>
<tr>
<td>Institutionalized-personalization</td>
<td>28 %</td>
<td>37 %</td>
</tr>
<tr>
<td>Institutionalized-codification</td>
<td>45 %</td>
<td>37 %</td>
</tr>
</tbody>
</table>

Table 4

It is surprising that individualized knowledge-sharing mechanisms are used by the Sales Managers significantly less than institutionalized mechanisms (27% versus 73%). **Proposition 1** of the current research supposed that multi-functional dimension will prevail in the communication with customers, and standardization will prevail in the communication with service providers. Based on two assumptions: that multi-functional dimension results in individualized mechanisms and ad hoc decisions; and that the Sales Managers are mostly in contact with customers while the Supply Chain personnel is mostly in contact with Suppliers and Service providers; the logical outcome would be to see the prevalence of institutionalized mechanisms in the Supply Chain, and prevalence of individualized mechanisms in the Sales.

However the research numbers show clearly that both research units are highly oriented on the institutionalized mechanisms (standardization); in fact, the split between individualized / institutionalized mechanisms is quasi symmetrical. The failure of the initial assumption shows the importance of a factor which was not taken in consideration, and which is actually very difficult to measure in numbers: organizational culture.

FMC, as a multinational company with more than 100 years history, developed behavioral patterns shared by all members. The joint understanding of “how the things are done here” has direct influence on the way knowledge-sharing mechanisms are used. The common frame is applied for communication with external contacts, no matter if they are located upstream or downstream in the value chain. It is remarkable that the study results show that the organizational culture shapes the tasks design and the instruments used in the job fulfillment.

**Proposition 2** stated that managers play an important and active role in directing knowledge transfer flows. Remarkably, however, interviewees never mentioned management involvement as a success factor in critical situations. High management involvements score high though in the survey, where the Sales Managers assigned 7 points of maximum 8 to “Word sharing through senior staff”. In the Supply Chain research unit, there were no outstanding results showing high management involvement in the knowledge-sharing process.

However, these results are not disappointing, when related to the high standardization of knowledge-sharing mechanisms, demonstrated earlier. The fact is that standardization requires active management involvement, which may not be evident to the personnel, but which definitely forms processes and procedures within and between organizations. In FMC, there was no clear example found of management move from information hoarding to information sharing, but it does not exclude management involvement. Being a company with a very flat organization, FMC assigns enough power to the employees to handle daily issues.
by themselves; further research with higher management as a research unit could show to which extend the management is involved into the guiding of information-sharing procedures. The results of this study suggest that the organizational structure has direct influence on the use of communication mechanisms.

**Proposition 3** supposed that informal knowledge transfer mechanisms are particularly important in the communication between middle/senior management and key customers. This relates first of all to the results in Sales Managers research group. The proposition can be considered completely demonstrated in FMC case, by the fact that “Personal networks” received the highest possible score from Sales Managers, in comparison to 2 of 8 possible points from Supply Chain employees. Just because of the fact, that those two groups were quite close in the other outcomes, this difference is very significant. Move from Customer Service to Relationship Management has been integrated in FMC strategy, and high importance of personal networks in knowledge sharing has shown this.
6. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

6.1. Discussion

With regard to existing scientific literature related to the research subject, there are several points, where this research matches or continues the theoretical propositions presented in published literature.

Fugate, Sahin and Mentzer (2006) concluded that managers should explore alternative intra/inter-organization structures to provide the necessary multi-functional involvement to properly carry out flow mechanisms. As this research demonstrated, managers can influence inter-organizational information flows not only directly, but also through organizational structure. Dunne (2008) suggested that organizational structure can promote open communication and collaboration; this study showed that organizational structure can also give certain form to the collaboration, i.e. can promote certain knowledge transfer mechanisms.

The concepts of explorative and exploitative learning, introduced by Schildt, Maula and Keil (2005) are supported by the results of the present study. Exploitation activities include refinement, production, efficiency, selection, implementation and execution, in contrast with explorative learning, which is characterized by variation, risk taking, flexibility, and innovation. The example of the chosen case study shows that an organization would have a clear preference for one or for another learning concept; in FMC case, it is exploitative learning.

Informal knowledge transfer mechanisms were studies by Dhanaraj, Lyles, Steensma and Tihanyi (2004). They demonstrated that explicit knowledge can be transferred relatively easily, and it is explicit knowledge which has direct impact on the performance. Their results showed also that tie strength, trust, and shared values and systems play an important role in the transfer of tacit knowledge, but that there is a negative linkage between tacit knowledge and performance. This study did not examine link between knowledge transfer mechanisms and performance, but with regard to informal communication, the remarkable outcome was that informal knowledge transfer mechanisms play relatively unimportant role in the Supply Chain administrative flows; they are though important in commercial communication.

6.2. Conclusions

The main purpose of the research was to determine which mechanisms are used by the organization members in their communication with customers and service providers. Based on the theoretical materials, three assumptions have been made and tested in the present research:

Proposition 1: Multi-functional dimension will prevail in the communication with customers, and standardization will prevail in the communication with service providers.

Proposition 2: Managers play an important and active role in directing knowledge transfer flows.
Proposition 3: Informal knowledge transfer mechanisms are particularly important in the communication between middle/senior management and key customers.

The interviews provided evidence for the Proposition 1 in relation to the standardized communication between the Supply Chain personnel and Service providers; as well as evidence was collected in defence of the multi-functionality in the communications with customers. There is a clear preference for written communication from the side of administrative personnel, and for oral communications from the side of the Sales Managers. However, the survey results show clearly that both research units are highly oriented on the institutionalized mechanisms (standardization). Organizational culture has direct influence on the way knowledge-sharing mechanisms are used. The common frame is applied for communication with external contacts, no matter if they are located upstream or downstream in the value chain.

With regard to Proposition 2, interviews show a lot of evidence of the requirement of management involvement in inter-organizational communication, but not much evidence of practical implementation of this involvement. However, these results are not disappointing, when related to the high standardization of knowledge-sharing mechanisms, demonstrated earlier. The standardization requires active management involvement, which may not be evident to the personnel, but which definitely form processes and procedures within and between organizations.

Proposition 3 was confirmed by the survey results, where “Personal networks” received the highest possible score from the Sales Managers, in comparison much lower points from the Supply Chain employees. The interviews however did not provide solid direct confirmation of the importance of informal communications, though some indirect evidence of informal knowledge transfer mechanisms was present.

A remarkable result of this research is the high level of standardization of knowledge transfer mechanisms, which was demonstrated repeatedly. FMC adopted exploitative way of collaboration, which is more efficient in development of existing technologies, rather than innovation. This choice has a logical connection with strategic choice of the organization: expand through strategic alliances. The conclusion is therefore that in FMC case, the communication instruments fit with the company strategy.

6.3. Theoretical and Practical Implications

Theoretical implications of the underlying study lie in the area of knowledge transfer mechanisms description and classification. As stated by Easterby-Smith and Lyles (2008), there is a gap in literature concerning knowledge transfer process. Understanding how formal and informal knowledge is transferred between firms, and which mechanisms are most appropriate for certain operational processes / projects / issues, is important because this understanding can immediately be implemented for performance improvement.

Boh (2007) proposed a classification of knowledge-sharing mechanisms, which can provide guidance in determining the relations between communication methods and size, geographical dispersion, and task nature of organizations. Boh suggested that institutionalized knowledge-
sharing mechanisms are more suitable for large, geographically dispersed organizations, while individualized knowledge-sharing mechanisms are more suitable for small, collocated organizations. This study presented the evidence of prevalence of the institutionalized mechanisms in a middle-sized, geographically dispersed organization. It suggests that there is a correlation between knowledge-transfer mechanisms and organizational structure (which is in its turn related to the size and geographical dispersion).

Moreover, the present study suggested that there is a possible correlation between knowledge transfer mechanisms and the level in the Supply Chain (status). Jasimuddin (2007) named status between the key variables which influence the choice of knowledge-transfer mechanisms. To our best knowledge, there is no study on the inter-organizational knowledge transfer mechanisms relation to the job design. It is probable that certain tasks can be fulfilled better by using appropriate communication mechanisms, and as a result the right choice of these mechanisms can have direct influence on performance.

Practically, the recommendations to be given in respect to the inter-organizational knowledge transfer can be the following:

- broaden the spectrum of knowledge transfer mechanisms used in daily communication
- use multiple communication methods in critical or complex situations
- increase quantity and quality of informal communicational methods

A recommendation to managers is to include inter-organizational communication in the scope of high value-adding activities, and to study the possibilities of performance improvement through the inter-organizational communication.

6.4. Limitations

Case study as a qualitative data collection method does not provide strong evidence of reliability and validity of results. To ensure reliability in qualitative research, examination on credibility is very important. In this research, several data sources have been used: interviews, survey, access to databases and personal observation. This data source triangulation increases both reliability and validity of the results. The interviews were conducted orally, with the elements of “member check” technique, which also improves validity. However, due to the qualitative nature of the research, no statistical evidence of reliability and validity can be presented.

With regard to generalization, a single-case study cannot assure that the results can be generalized to other organizations with similar profile or size. A similar analysis of a set of cases is needed to define repetitive patterns in the knowledge transfer mechanisms use, and the connection of the choice of a communication methods with other variables (organizational structure, management involvement, etc.)

Another significant limitation faced during the research is the difficulty for the respondents to have a clear differentiation between inter- and intra-knowledge transfer mechanisms. As this differentiation in information flows is not made in daily activities, it becomes difficult to define issues which are typical only for the inter-organizational communication.
6.5. Suggestions for Future Research

Management involvement in the inter-organizational information flows deserves attention both from academic and practical points of view. Future research can determine the connection between organizational structure and inter-organizational information flows. Also the linkage between inter-organizational communication and organizational performance can be interesting topic to examine.

Having in mind the limitations of the present study, it would be interesting to create a conceptual model allowing quantitative analysis of the inter-organizational knowledge transfer mechanisms, linking it to organizational performance.

Another suggestion is a qualitative study on organizational culture’s influence on the knowledge transfer flows.

Finally, the interviewees supplied a lot of remarkable materials which did not become a part of this research, because of its intra-organizational orientation. It is clear thought that intra-organizational information flows are often even a more important issue than inter-organizational communication. Organizational leaders could make a good use of theoretical and practical guidance on this subject, which is based on an empirical research.
REFERENCES

Inter-organizational knowledge transfer mechanisms in the focal company: a case study

A.A. Bolazeva

Inter-organizational knowledge transfer mechanisms in the focal company: a case study
A.A.Bolazeva

APPENDIX A

INTERVIEW PROTOCOL


1. How many years have you been in the organization, what was your experience prior to join this organization?

2. What is your area of specialization? What is your expertise and training?

3. What is your role in the Supply Chain?

4. What types of approaches and mechanisms do you and your colleagues use to share information with your customers / suppliers / service providers? In your opinion, which approaches and mechanisms are the most useful?

5. Think about recent Supply Chain issue with your customers / suppliers / service providers, where you felt you met with a lot of problems, or one you found particularly challenging. Can you identify an incident in this situation where sharing knowledge with someone in your team or outside the team particularly helped your work?

6. Conversely, can you identify an incident where you think the lack of knowledge sharing negatively affected the situation?

7. Are there times you want to find out about whether similar Supply Chain project has been done or similar problems has been faced before?

   a. In those times, whom do you typically go for such information?
   b. Can you provide examples?
   c. Have you had trouble obtaining such information before?
   d. Do you have an example of something someone (or you) did that was an outstanding way to share information?
APPENDIX B

SURVEY


Please indicate the importance
(1: not important; 2: important; 3: very important):

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<thead>
<tr>
<th>Mechanisms description</th>
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<tbody>
<tr>
<td>Word sharing through senior staff</td>
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<tr>
<td>Personal networks</td>
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<tr>
<td>Sharing prior project documents informally</td>
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<tr>
<td>Manuals written voluntary</td>
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<tr>
<td>Meetings among high level staff</td>
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<td>Project reviews</td>
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<td>One senior person coordinating all staffing needs</td>
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<td>Cross-staffing</td>
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<td>Setting up a community</td>
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<td>Support centers</td>
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<td>Staff deployment policies</td>
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<td>Database</td>
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<td>Use of templates</td>
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<td>Emails and forums</td>
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<td>Expertise directory</td>
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<tr>
<td>Standardized methodology (standard processes)</td>
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