

The Process of Knowledge Transfer: Applying Situational and Network Data

Helena Kovačič¹

Abstract

Learning theory proposes that learning outcomes depend on the characteristics of actors involved in the process. Network theory adds additional dimension to studying learning process. According to several network scholars, relations between learning actors also affect their behaviour and performance. We present a framework for knowledge transfer process that allows a study of how results of a transfer are affected by the characteristics of source and recipient and connections between them. We apply this model to the survey of learning process within two European projects leading to different outcomes of the process. Results of the survey reveal close connection between the two sets of indicators and point to the holistic approach to examining knowledge transfer process.

1 Introduction

Human society has been always involved in information and knowledge-processing activities. In the 21st century, a new society, named "knowledge society", is emerging where knowledge has become an increasingly important driving force for prosperity besides capital and labour. Countries lagging behind in achieving higher productivity, better economic results and social cohesion, are trying to align their economic and political systems with those in the developed countries. Transfer of knowledge is one of the mechanisms these countries apply in order to benefit from a wide range of expertise from the developed countries.

For the countries of Central and Eastern Europe, EU member states represent sources of inspiration and support for domestic institutional changes. Furthermore, the requirement for the candidate countries to adopt the EU legislation, before becoming a member state, launched a large number of transpositions of institutions from one country to another in forms of knowledge transfers.

¹ Faculty of Social Sciences, University of Ljubljana; Helena.Kovacic@fdv.uni-lj.si

This paper examines the process of knowledge transfer carried out in two inter-institutional cooperation projects. These projects were carried out under the EU pre-accession instrument, Phare. Although the projects under this program took direct and structured transposition of institutions from member states to the candidate country, they resulted in mixed levels of success. My research seeks to understand the transfer process and the mechanisms behind it leading to different results by using two kinds of data: situational and relational. Knowledge transfer is a process encompassing both the knowledge source and the knowledge recipient and it depends on the characteristics of the two actors involved in the process. Additionally, the process examined takes place in different network settings, which also have impacts on the outcomes of the process. Therefore, the survey design described in this paper combines both situational and relational data about knowledge transfer and tries to indicate their influence on the success of the process. The results show that the ability to transfer knowledge effectively through the network does not rely solely on the willingness and motivation of the individuals to transfer knowledge. Above the effect for the characteristics of each side of the knowledge transfer, the structure of networks plays the major role in establishing the ground for effective knowledge transfer.

2 The process of knowledge transfer

When knowledge acquired in one organization affects another organization, a transfer of knowledge occurs (Argote, 1999). The success of the process of knowledge transfer is never guaranteed. A firm that is better at learning from other organizations will generally have a faster rate of productivity growth (Jarmin, 1994) than the one less adept at learning from others. The difficulties organizations face, include the time for transfer of knowledge, costs of the transfer process and the uncertainty of final results. Previous research indicates that the recipients of knowledge may not always acknowledge when they have acquired new knowledge or accurately identify the source of knowledge (Argote and Ingram, 2000). Considering the specific nature of the process and its results, how can we examine all the factors affecting such transfers and how can we designate their influence on the results of the transfer?

2.1 Situational characteristics of the knowledge transfer process

Research on knowledge transfer within and between organizations focuses in general on two parts of the process. According to some researchers, characteristics of the knowledge source, the recipient and the knowledge transferred, have implications on the ease of knowledge transfer (O'Dell in Grayson, 1998; Argote, 1999; Szulanski, 2003). Alongside those factors, disposition and the ability of the

each side of the transfer, source and recipient, reflect the impediments to knowledge transfer that result from cognitive and emotional characteristics of human beings.

Learning theory suggests that organizations' capability to learn varies by their investment of resources to knowledge absorption (Cohen and Levinthal, 1990). In addition, motivation to learn is governed by the economic performance, where failure to reach goals increases the search for new behaviour (Cyert and March, 1963) and low performance is a precursor of changes (Greve, 2005). Looking at the organizational learning from this point of view, the pressure on organizations to learn from their environment comes from the inside, characterized by their current level of economic performance. The capacity to learn is affected by the ability of an organization to invest its resources in receiving new knowledge.

Besides the organizational context in which learning occurs, learning new ideas largely depends on the person's ability to exploit outside sources of knowledge. Absorptive capacity is one of the characteristics of the recipients indicating their ability to recognize the value of new knowledge. This capacity is largely a function of prior level of related knowledge (Cohen and Levinthal, 1990). This means, it is easier for knowledge to transfer from the source to a recipient in an area where those involved in the process share the same expertise and prior knowledge.

One of preconditions for the absorptive capacity to occur is overcoming ignorance over the existence and the need for acquiring new knowledge of both ends of the process. This barrier performs as a lack of motivation to participate in the process and is an important situational characteristics of the transfer described above. It can be manifested in two ways. Firstly, the "not invented here" syndrome can lead the recipient to reject an idea or product because it originates from another source. Secondly, the lack of motivation can occur on the other side of the transfer. The knowledge source may refrain from sharing knowledge out of the fear of losing ownership over the knowledge that could be potentially transferred. This can be characterised as an "invented here" syndrome. Both factors influence the rate of learning from knowledge source to knowledge recipient and, in large part, determine an organization's susceptibility (Greve, 2005) to learn from others.

While learning theory puts emphasis on internal factors, a large body of organizational theory suggests that organizational behaviour is strongly affected by organizational environments. Institutional theory literature suggests that organizational changes derive from beliefs of rational and efficient organizational design that are prevalent in the organizational environment (Meyer and Rowan, 1977). By changing organizations, following one of the three isomorphic processes (DiMaggio and Powell, 1983), legitimacy is gained that enhances an organization's prospects of survival. Through the process of institutionalization (Tolbert and Zucker, 1983), components of formal structure become widely accepted and serve to legitimate organizations. Organizational change, based on conforming behaviour, does not provide any space for cognitive action. Lacking a

precise theory of action, institutional theory does not provide us with an elaboration of the adoption of environmental structures by taking into account factors influencing the learning process from the sources' and recipients' points of view.

One theory of innovation combines both approaches to organizational change and learning. The decision of early adopters of innovation, to a large extent, depends on the degree to which a change might improve their internal processes. For the learning to occur, the new knowledge must have potential impact on organizational performance. In contrast, at the time when organizational elements become institutionalised, organizations conform to what is societally defined as appropriate and efficient and do not consider their economic implications. Internal and external perspectives, different on the conditions under which organizational learning occurs, both recognize that organizational learning is a social change. However learning theory provides us with the detailed explanation of the individual factors influencing learning processes as compared with the institutional theory. Based on the propositions of learning theory, we can assume that the characteristics of the actors involved in a learning process have an effect on this process and its results. Contrary to these propositions, studies of diffusion of innovations (Rogers, 1995) show that not all social systems perform at the same pace and in the same direction as it is proposed under the imitation model. It is the structure of social systems, in which learning takes place, which can promote or impede the learning process. Structural dimensions are becoming ever more important aspect of learning process and can sometimes even exceed the influence of the characteristics of the actors involved in the process (Rogers, 1995).

2.2 Relational characteristics of the knowledge transfer process

Under conditions of uncertainty, organizations forge connections to other parties to access relevant expertise. Inter-organizational cooperation is based on the intensified international competition and organizations trying to survive by seeking competitive advantage through cooperation and collaboration. By entering into cooperation linkages, organizations establish relations between each other. These build-up relations serve as channels for transfer of knowledge and information (Podolny and Page, 1998) and act as conduits for knowledge transfer (Almeida, 1996). Lacking these relationships, an absence of personal ties between the source and recipient of knowledge, is one of the three major barriers to knowledge transfer (Szulanski, 2003). As we can see from the relational point of view, the ties established between the organizations form an important aspect of the transfer process. In the study of organizations, the structural approach suggests that by, understanding the structure of relations among organizations, we can learn a great deal about the behaviour of those organizations and their internal workings (Mizruchi in Schwartz, 1987). Informal communication networks hold important

implications for the diffusion of innovations (Coleman et al, 1966; Burt, 1982; Rogers, 1995). In learning processes, interpersonal ties connect the source and the recipient and, through those ties, new ideas spread more rapidly than through most other kinds of communication channels. Differences in the rate of adoption can also be explained by the nature of communication networks. Interpersonal connections in networks form a structure as a complex set of ties between actors in a network. One important feature of this social structure is thought to be *network density*, which is operationalised as the number of observed ties over all possible ties and is often viewed as cohesiveness of the network. Its positive implications on the performance of the network have been presented by several authors, specifically in connection with the building of trust in networks (Granovetter, 1985; Coleman, 1990). Those strongly knit ties are important instruments for avoiding potential strategic advantages to any actor in the network and have, therefore, a positive relation with collective action. Still, when groups become too tightly knit and information passes only among a select few, networks can become competency traps (Smith-Doerr and Powell, 2003).

Strength of ties and the number of existing ties in a network are important network characteristics at an aggregate level. The importance of a location in a network comes from the notion that absent relations are as important as the existing relations of an actor in a network. Models describing the relations that define a network position have been used as measures of social integration (Burt, 1982). Centrality has been used extensively to describe an actor's involvement in a network. Consequences of being central reflect importance of actors in a network (Lin, 1976) and their degree of alternative means of meeting the needs (Rogers, 1995).

Nature of the pre-existing relationship is an important indicator of the level of knowledge absorption (O'Dell and Grayson, 1998). Prior relational experience can affect an actor's impression of others in the form of perceived likeness and respect, which may also affect the communication with those individuals in the future. People who have strong emotional attachment are more likely to share knowledge (Reagans and McEvily, 2003). Further, the higher their emotional connection, the stronger the willingness to put more time and effort in their relationship.

A structure of relations, represented by communication flows, reveals the possibilities of actors to communicate with certain numbers of actors in a network. Within the structural dimension of the observed learning networks, we will focus on the measure of centrality because we are interested in the existence of the opportunities actors have for learning. We presume that the more people who were involved in a network the better the chances for the transfer of knowledge and consequently the results of the learning process.

2.3 Research model

Infectiousness (Greve, 2005) is used in some diffusion studies to identify the degree to which innovations are spread from one organization to other organizations. Here the focus is on a source of information from which dissemination passes on a generic receiving unit. Transfer of knowledge studies, instead of examining gradual process of dissemination, emphasize connections between the source and the recipient, hence focusing on a dyad connection. In our model we distinguish these two elements of the learning process. We included both situational and relational characteristics. Our model is also based on several studies observing the association between the ability to transfer knowledge and the effectiveness of knowledge transfer (Ingram and Roberts, 2000; Tsai, 2001). One approach is to study these effects and builds on the notion that characteristics of organizations influence the results of the transfer (Cohen and Levinthal, 1990; Argote, 1999). Other researchers have observed this effect through interpersonal networks and their characteristics. As a complement to previous research that has emphasised either part of the process, we include both elements of knowledge transfer process to obtain and illuminate the factors influencing the process, and by connecting those factors to the results of the process we also examine their impact.

Our research model of a knowledge transfer process is depicted in Figure 1. This conceptualisation consists of two elements:

1. Knowledge transfer process includes two parts of the process: knowledge source and knowledge recipient each with specific personal *characteristics*, which have implications on the ease of knowledge transfer;
2. Knowledge transfer process also includes interpersonal *connections* between knowledge source and knowledge recipient that serve as channels for transfer of knowledge and information.



Figure 1: Research model of knowledge transfer process.

3 Research design

Knowledge transfer was an integral part of the Phare projects examined in this paper. The two projects were carried out in Slovenia during the years 2002 and 2005 as part of the inter-institutional cooperation carried out under the EU Phare programme. Project participants had two main roles. Foreign experts were knowledge sources, transferring knowledge to project beneficiaries, who were knowledge recipients. Our survey included all participants on both projects. The questionnaire used in this research was built on a foundation provided by the semi-structured interviews with 5 principal actors on each project. The main issues raised in those interviews were incorporated into the questionnaire. Project participants were asked a series of questions measuring situational characteristics of the knowledge source and the knowledge recipient. Those questions were designed to provide information on participants' prior experiences with EU project, prior knowledge of the knowledge source on the Slovene situation, the source's evaluation of the willingness of project beneficiaries to participate and the recipients' evaluation of the usefulness of the cooperation with foreign experts.

There are several means of obtaining data on social relations: direct observation, archive data or survey method where respondents report on their relations with others or others' relations. In this research, we used a full network method to collect information about each actor's ties with all other actors. Before making the final list of all participants in the project, project leaders were asked to complete the list, making it appropriate for the final network. The final number of project participants was 48 on project 1 and 46 on project 2. Project participants were asked of their ties with others on contact relations. For measuring the frequency of contact, respondents were asked to answer the question "How frequently were you in contact with the following persons during the project?" using a Likert scale from 0 meaning "never" to 5 meaning "very frequently". The question was followed by the list of key actors that took part in the project.

Data collection started in 2006. First, we had to solve the problem of submission of the questionnaire to project participants due to the dispersion of experts across the EU countries. Based on several discussions with Slovene and foreign potential respondents we prepared the questionnaire in a text file, which was recognised as most suitable and useful way of collecting data. Questionnaires were sent by e-mail. Data collection was completed in three months. On project 1 we managed to contact 46 project participants, and 43 on project 2. Response rates varied between the projects, 76% on project 1 and 63% on project 2. The response rate shows both the difficulty of obtaining all the data within the full network method and the importance of follow-ups (Table 1).

	<i>Response rate</i>		<i>Response (N)</i>	
	<i>Project 1</i>	<i>Project 2</i>	<i>Project 1</i>	<i>Project 2</i>
<i>E-mail</i>	28.3%	18.6%	13	8
<i>Reminder 1</i>	19.6%	27.9%	9	12
<i>Reminder 2</i>	13.0%	9.3%	6	4
<i>Post, personal interview</i>	15.2%	6.9%	7	3
<i>Total</i>	76%	63%	35	27

Table 1: Data collection on project 1 and project 2.

Even though we put in a lot of effort to collect information from all project participants by sending reminders and making additional phone calls, we did not manage to obtain the full network. In a standard sampling situation special techniques are available to correct parameter estimates for imperfect response rates. For social network analysis, no such definitive treatment is available, although there have been some approaches developed in the last few years for handling missing data (Robins et al, 2004; DeLange et al, 2003). Non-response in networks, especially with multiple interaction contexts, may have a number of specific implications. If any one actor fails to respond, all his/her connections (N-1) are lost, which has serious effects on the structure of the network. Missing data can be replaced with the insertion of values (see DeLange et al, 2003), which can be a random value, an average value or a proxy value. Another way of handling missing data problem is to leave out the missing data from the analysis.

In our research we used the latter solution. Not all persons named by project managers and listed as important actors on the project responded to the questionnaire. Besides the unexpected non-response, they did provide us with justifications of their decision. The main reason for them not to participate in a research was their impression of not being involved enough in the project. By filling out the questionnaire they would influence the results by chance. Therefore we decided not to include them in further analysis. In favour of this decision is also the structure of persons responding and non-response, which reflects the actual structure of the networks included in the analysis².

4 Analyses of the two projects

The main objective of this section is to analyse the situational and relational characteristics discussed in the previous section for their impact on the success of the knowledge transfer.

² Representativeness of the observed data was accomplished by almost the same structural percentage by sex (male/female) and side of the knowledge transfer process (source/recipient) of those that responded.

Our study examines on the difference in results of two Phare projects. The official evaluation³ of the projects reveals the major distinction among those projects. Project 1 was evaluated as »successful« due to the high competences of the knowledge source. On the other hand, project 2 was evaluated as highly unsatisfactory. The major reason for its lack of success was seen in the insufficient cooperation among members of the project team. These assessments were combined to both the dependent variable in the research model. As we can see from those evaluations, both elements of the knowledge transfer were recognized as contributing to different levels of success of the transfer. Observations of the factors contributing to the results come from the interviews with the leading actors of both sides. Their subjective interpretation of the obstacles to the knowledge transfer was taken as an official one. This is one of the major weaknesses of this official evaluation, speaking in favour of the need for detailed analyses of factors contributing to different results of the transfer process.

We analysed the situational characteristics of both, the knowledge source and knowledge recipient. The following variables for the knowledge source were included in this study: former EU project experiences, extent of prior knowledge on the Slovene situation and the relation of project work to everyday work. On the side of knowledge recipient, we included related variables: former EU project experiences, the extent to which the project required additional effort and the relation between project work and everyday work. Motivation of each side of the knowledge transfer was measured using an assessment made by the other sides. Work, carried out within those projects, was structured and planned under the Phare program, which means the projects that were conducted simultaneously in 10 candidate countries were built on identical project frameworks, in line with the EC financial rules and guidelines.

Network analysis was performed on the observed network data of the two projects. Cohesiveness of a network was compared among the projects as the main network structural characteristic. We used density of relations as a measure of network cohesiveness. By examining the frequency of relations, we tried to reveal the opportunity actors had to communicate and transfer knowledge. Structure of those relations, represented by patterned communication flows, reveals the possibilities for actors to communicate with certain number of actors in a network and with actors holding specific positions in a network. Centrality was used to detect different positions actors held in the network and their implications on the transfer process.

³ Source: European Commission Directorate, 2004.

5 Results

5.1 Situational analysis

Comparing both projects, the analysis reveals that the projects were quite similar with respect to the characteristics of project participants⁴. Foreign experts, participating in both projects, have been quite skilled in terms of project work and EU relations. On both projects, more than 70% of all foreign experts have been working in the same field as the project and more than 50% of the experts were informed about the Slovene situation in each specific field prior to the beginning of the project. More than 40% of all experts had prior experience with other EU projects.

From the start, involvement of the beneficiaries was a problem for both projects. At first, only minor involvement has been present due to the syndrome "not invented here". The tendency of both project teams to raise their rate of involvement resulted in a gradual increase in their overall involvement during the project. This reflects an evaluation by the experts of the willingness of project beneficiaries to participate, where more than 85% saw project beneficiaries highly motivated to participate. On the other hand, more than 60% of all project beneficiaries saw cooperation with foreign experts as very useful.

Based on the theoretical assumptions, we included in our research also the variable consisting of eight different barriers to knowledge transfer. We identified them under three groups: institutional environment (lack of political will, dispute of interests), organizational factors (lack of willingness of beneficiaries to participate, lack of national experts, and lack of local capacity) and technical framework (too short time frame, budgetary constraints, language barrier). Foreign experts evaluated the extent to which those obstacles were present in the project. On project 1, experts saw conflicting interests as the major obstacle present in the project. Project participants came from three sides in the social dialogue where they face many difficulties during the negotiation procedures, which influenced the working climate of the project. Although several obstacles were present in the project, project activities have been performed on time and resulted in the satisfactory level of success.

On project 2 three major barriers to knowledge transfer were present. Lack of local capacity, in terms of the staff on the side of project beneficiary, has been present ever since the start of the project. Statutory changes reduced the number of persons involved in the project. By making room for additional organizations, previously not foreseen as project beneficiaries, larger numbers of public entities took part in different project activities. Those organizations expressed high

⁴ Variable »Former EU project experiences" % is equal to the percentage of those involved in EU projects. With all other variables, % is equal to the percentage of those answering between 3 and 5 on the Likert scale from 0 equal to »not at all« and 5 equal to »a lot«.

interest in the project, which resulted in additional activities despite the reduced budget. The environment of project 2 was also characterized by the lack of political will, which forced project participants to put more effort to achieve project results. The results at the end were only minor, despite the higher motivation of project members to participate in project activities of knowledge transfer and their favourable opinion about the usefulness of cooperation with knowledge source (foreign experts).

Test of differences⁵ between the two projects was performed for each set of characteristics, assuming their similarity between groups. Results of all tests show Z values below 1.96, so we can assume that the null hypothesis cannot be rejected and there is no difference between the groups. Based on the results of comparative analysis we can point to the following findings. First, results of the comparison of the projects show high similarities in characteristics of the knowledge actors involved. Partner organizations and their experts were selected upon the public tender and were informed in advance about EU projects and conditions in the partner country at several meetings in Brussels. This contributes to the fulfilment of the criterion of knowledge source expertise, represented by different EU organizations. Second, projects were organized and planned under the uniform formal and technical framework. It provided for a working environment where knowledge was highly recognised by both sides of the transfer. This is reflected by their motivation and the usefulness they saw in their cooperation. Third, on both projects, conditions for the establishment of relations between knowledge source and knowledge recipient have been fulfilled. Nevertheless, the projects resulted in different level of success, not just on the level of countries, where national features and historical background could have impact, but also within individual public sector systems. Fourth, both projects were confronted with certain obstacles on their way. Internal disputes were present among different groups in project 1, still the project managed to perform. On project 2 the major barrier it had to confront was a lack of political will, maintaining its influence throughout the project path. In summary, the results show no support for the influence of individual characteristics of knowledge transfer actors on the success of the transfer. Results reveal some differences in environmental conditions in which projects were carried out. We thus turn to the relational data in order to see what was the structure of those relations like and how it contributed to the success of knowledge transfer.

⁵ We used non-parametric Mann-Whitney test with null hypothesis on no differences between the observed groups.

5.2 Network analysis

Comparing two networks, density of relations was measured on the observed data. Overall value of density was higher in network 2 (0.5627) than in network 1 (0.4882), which means, network 2 had a higher degree of dyadic connections than network 1. We can say that actors in network 2 had more opportunity to communicate and transfer knowledge between each other. Even though participants in network 2 were exposed to higher number of connections, which could contribute to the transfer of knowledge, still the project resulted in a low satisfactory level.

Secondly, we computed a graph level measure of centrality, degree centralization, of both contact networks. Centrality is a measure of an actor's position and is central to the extent that all relations in the network involve specific actor. We used a standardized measure, Freeman (1979) centralization index, to determine how centralised the degree of a set of actors is. Comparing values between the networks differences in the dispersion of actors' outdegree centralities between the networks were highly present (Network 1: 0,52682 and Network 2: 0,37426). Differences in outdegree centralization index between the networks showed, that, network 2 was dominated by fewer central nodes, than network 1. Still, this measure provides us only with the dispersion of actors' outdegree centralities not the absolute centrality outdegrees. On project 1, average outdegree was 16.6 and it was 14.6 on project 2. This result shows that actors in network 1 had higher number of outgoing network ties on average than the actors in network 2.

Table 2: Density of relations within and between groups in network 1 and network 2.

		Contact			
		Density / average values within the groups			
Network 1	Project team	Ministry	Other Beneficiaries	Foreign experts	
Project team	0.8500	0.6800	0.4941	0.5250	
Ministry	0.6400	0.8500	0.6588	0.4500	
Other Benef.	0.5059	0.5882	0.4853	0.2868	
Foreign experts	0.4750	0.4250	0.3824	0.4464	
Network 2	Project team	Ministry	Other Beneficiaries	Foreign experts	
Project team	1.0000	0.6786	0.6111	0.5714	
Ministry	0.7500	0.7619	0.6349	0.3673	
Other Benef.	0.5833	0.6190	0.8056	0.3968	
Foreign experts	0.4643	0.4694	0.3492	0.3333	

To explain discrepancy between density results and centrality outdegrees we took another step in the analysis. We were also interested in how the connections, with more or less the same density, were located in the network. By locating those dense connections we could get a clearer picture of a direction of ties in the transfer process. We divided both networks into groups of actors or clusters by their institutional affiliation: 1-project team; 2-ministry; 3-other beneficiaries; 4-foreign experts. A close look at the connections within and between the groups (Table 2) gives us the explanation of the unexpected higher level of cohesiveness of network 2. Both networks have highly connected project teams and project organization. The main difference is found in the group of beneficiaries. Dense connections in network 2 are result of the dense connections within the specific groups, especially within the group of beneficiaries.

From the perspective of knowledge transfer, we can look at the outdegree centrality of the actors in the network differently from the conventional measure of influence. Outdegree centrality reflects the "openness" of one actor towards the other in the network. This way the measure of openness encompasses both ends of the knowledge transfer, the source and the recipient and the connection between them. High outdegree centrality of the knowledge source shows its willingness to share the knowledge with the recipients. On the other hand, high outdegree centrality of the knowledge recipient indicates its willingness to cooperate in the transfer process. Outdegree became a facilitating factor of the knowledge transfer between the actors in the network.

In contrast to the factors contributing to the lack of success revealed by the official evaluation, project 2 was characterised by high density of relations overall and within the network groups, also including its project team. Despite the fulfilment of a high connection density condition in network 2, this was not the mechanism of knowledge transfer. High intra-group cohesiveness instead of contributing to the success of the project inhibited its cohesiveness toward the knowledge source. This resulted in low level of success of the transfer of knowledge. Comparative analysis of the structure of relations provided information on the impact of the structure on the outcomes of the knowledge transfer process.

6 Conclusions

Results of the compare and contrast analysis confirm structural implications on the transfer of knowledge. Incorporating situational characteristics into these findings, we can draw the following conclusions. Since the differences in the structure of relations between the projects were not result of lack of motivation and incapacity on either side of the transfer, we can interpret the formation of different structures as a result of the pressures, operating outside the network. Despite the preparedness of the actors to participate in the transfer process in both networks,

projects achieved different results. External pressures that were highly present in network 2 were influencing level of openness of actors in the network. On project 2, where there was an evident lack of political will for the project to meet the goals, the reaction of project beneficiaries on those pressures resulted in high internal cohesiveness. At the same time, their internal cohesiveness had negative implications for their openness towards knowledge source. The main explanation for this situation could be found liability theory (Rus, 1999). Even though the process of knowledge transfer has been structured in order to achieve direct transfer between knowledge source and recipient, which implies little level of uncertainty, network 2 has been exposed to additional external pressures in the form of the lack of political will. The group of knowledge recipients reacted to this pressure by building up strong intra-group ties in order to provide support for the group actors. Because the major threat came from the outside, the group enforced the ties within the group members. This enforced cohesiveness had a significant effect on the role of the group of knowledge recipients in the process of knowledge transfer. On one hand, the group had been exposed to the foreign influence, represented by the knowledge source. Groups of recipients were aware of the opportunities for gaining additional knowledge and experience. On the other hand, domestic political pressures restrained the group from exposing itself to the new knowledge. Negative manifestation of social capital negates the possibilities of group advancement in pursuing outside opportunities (Portes and Sensenbrenner, 1993). The group was connected with strong ties not allowing any actor to stand out from the group in order to preserve its "domestic" legitimacy, unfortunately, at the expense of the "outside" legitimacy. This resulted in slow and restrained group progress in the knowledge transfer process, with only limited knowledge transfer results.

References

- [1] Almeida, P. (1996): Knowledge sourcing by foreign multinationals: Patent citation analysis in the US semiconductor industry. *Strategic Management Journal*, **17**, 155-165.
- [2] Argote, L. (1999): *Organizational Learning: Creating, Retaining and Transferring Knowledge*. Norwell, MA: Kluwer.
- [3] Argote, L. and Ingram, P. (2000): Knowledge transfer: A basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processing*, **82**, 150-169.
- [4] Burt, R.S. (1982): *Toward a Structural Theory of Action*. New York: Academic Press.
- [5] Cohen, W. and Levinthal, D. (1990): Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, **35**, 128-152.

- [6] Coleman, J.S. (1990): *Foundations of Social Theory*. Cambridge, MA: Harvard University Press.
- [7] Coleman, J.S., Katz, E., and Menzel, H. (1966): *Medical Innovation: A Diffusion Study*. New York: Bobbs-Merrill Company.
- [8] Cyert, R.M. and March, J.G. (1963): *A Behavioural Theory of the Firm*. Englewood Cliffs, NJ: Prentice Hall.
- [9] De Lange, D., Agneessens, F., and Waeye, H. (2003): Estimating informant accuracy for missing value imputation in complete social networks. Conference paper: International conference on Methodology and Statistics, September, 14-17, 2003. Ljubljana, Slovenia.
- [10] DiMaggio, P.J. and Powell, W.W. (1983): The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, **48**, 147-160.
- [11] Freeman, L.C. (1979): Centrality in social networks: Conceptual clarification. *Social Networks*, **1**, 215-239.
- [12] Granovetter, M.S. (1973): The strength of weak ties. *American Journal of Sociology*, **78**, 1360-1380.
- [13] Greve, H.R. (2005): Interorganizational learning and heterogeneous social structure. *Organization Studies*, **26**, 1025-1047.
- [14] Ingram, P. and Roberts, P.W. (2000): Friendship among competitors in the Sydney hotel industry. *American Journal of Sociology*, **106**, 387-423.
- [15] Jarmin, R.S. (1994): Learning by doing and competition in the early rayon industry. *RAND Journal of Economics*. The RAND Corporation, **25**, 441-454.
- [16] Lin, N. (1976): *Foundations of Social Research*. New York: McGraw-Hill.
- [17] Meyer, J.W. and Rowan, B. (1977): Institutional organizations: Formal structure as myth and ceremony. *The American Journal of Sociology*, **83**, 340-363.
- [18] Mizruchi, M.S. and Schwartz, M. (1987): *Intercorporate Relations*. New York: Cambridge University Press.
- [19] O'Dell, C. and Grayson, J.C. (1998): *If Only We Knew What We Know. The Transfer of Internal Knowledge and Best Practice*. New York: The Free Press.
- [20] Podolny, J.M. and Page, K.L. (1998): Network forms of organization. *Annual Review of Sociology*, **24**, 57-76.
- [21] Portes, A. and Sensenbrenner, J. (1993): Embeddedness and immigration: Notes on the social determinants of economic action. *American journal of Sociology*, **98**, 1320-1350.
- [22] Reagans, R. in McEvily, B. (2003): Network structure and knowledge transfer: The effects of cohesion and range. *Administrative Science Quarterly*, **48**, 240-267.

- [23] Robins, G.L., Pattison, P., and Woolcock, J. (2004): Models for social networks with missing data. *Social Networks*, **26**, 257-283.
- [24] Rogers, E.M. (1962/1995): *Diffusion of Innovations*. New York: The Free Press.
- [25] Rus, A. (1999): *Social Capital, Corporate Governance and Managerial Discretion*. Ljubljana: Faculty of Social Sciences.
- [26] Smith-Doerr, L. and Powell, W.W. (2003): Networks and economic life. In Smelser, N. and Swedberg, R. (Ed): *The handbook of Economic Sociology*, 379-402. Princeton University Press.
- [27] Szulanski, G. (2003): *Sticky Knowledge: Barriers to Knowing in the Firm*. London: Sage Publications.
- [28] Tolbert, P.S. and Zucker, L.G. (1983): Institutional sources of change in the formal structure of organizations: the diffusion of civil service reform, 1880-1935. *Administrative Science Quarterly*, **28**, 22-39.
- [29] Tsai, W. (2001): Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *The Academy of Management Journal*, **44** , 996-1004.
- [30] European Commission Directorate (2004): From Pre-Accession to Accession: Consolidated Summary Report. Brussels: EMS Consortium for DG Enlargement.