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Designing a Learning Network Organization

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This paper aims to contribute to filling the knowledge gap on practical, non-vague recommendations how to design a learning organization, using the analysis of organizational network structure in the context of organizational learning. We draw on the importance of organizational design as an enabler of organizational learning. We usea research case study approach as an empirical background. We apply organizational network analysis in order to describe how network density, reciprocity, reachability, blocks and cut-points as well as design efficiency – effectiveness balance can promote support and enable learning. We define practical implications for managers on how to manage work and knowledge flows in their organizations.

Keywords: Organizational network, organizational learning, organizational knowledge, organizational design, inter-organizational design

1. Introduction

Organizational learning and organizational networks are in the research focus of the contemporary organizational theory, as well as common buzzwords of practice in the field. This article will try to relate two concepts based on empirical evidence. Organizational learning has been studied by two branches, one mainly theoretical and the other more practical in nature. The first branch focuses on different ways to explain the learning process, holding a common premise that organizational learning leads to organizational changes: Argyris and Schon (1978) insist on including both behavioral and cognitive dimension, Crosanne et al (1999) connect learning to the exploration-exploitation paradigm; Huber (1991) takes the information processing approach, etc. Within the second branch, Senge defined the learning organization as an "...organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to learn together" (Senge, 1994), and March (1991) explores organizational learning through exploration and exploitation concepts. After Senge's book The Fifth Discipline, the concept of a learning organization experienced tremendous growth and popularity. Literature review summarizes in following: the learning organization is a lean, organic structure. It glorifies creativity, innovation and experimentation. It also cultivates information exchange through a dialogue, interaction between individual ideas and a collective evaluation, and interplay of utilization and experimentation. It is proactive towards changes within external environment, and builds internal environment which supports various learning processes.

Consequently, the analyses that recognize the existing theories of organizational learning and the recommendations of how to built the learning organization as "far too abstract, and too many questions remained unanswered" (Garvin, 2000: 79) have also appeared. Garvin (2000) argues that the existing theory did not succeed in addressing the "three (crucial) Ms" of building the learning organization: meaning, management and measurement. James (2003) goes deeper into the question of organizational design of learning organizations, trying to find more a concrete answer to the question on the architecture of the L-form and its contextual design.

Nevertheless, questions still opened for empirical research and an academic discussion are:

- How to design learning organization?
- Which mechanisms of organizational design should be used in order to create learning organizations?
- Is there a unique organizational design of a learning organization?

We recognize this gap in the literature, and the need to offer more applicable instruments for managers to use in order to design a learning organization. However, this issue becomes even more complicated when it comes to inter-organizational cooperation. Organizational learning and knowledge transfer represent one of the key reasons for inter-organizational linking in the modern environment. Thus, as Inkpen and Ramaswamy note (2006: 108) "...even though many studies have argued that the ability to transfer knowledge is a primary source of a firm's competitive advantage and growth, we know relatively little about how to transfer knowledge within and across organizational boundaries".

The aim of this paper is to draw on the importance of organizational design as an enabler of organizational learning, and to point to some learning obstacles which are built-in organizations in the process of their design, which, unfortunately, organizational leaders are often not even aware of. We use data from an alliance created between the two renowned media companies as to evidence our argumentation. For the sake of companies' privacy, we changed the names and use X and Y marks. We apply organizational network analysis in order to identify work-flows and knowledge-flows (Borgatti et al, 2002; Krackhardt, 1992, 1994; Burt, 1982) and to explain that traditional understanding of organizational design does not have adequate analytical potentials to answer the questions of how to create intra and inter-organizational design that promotes support and enables learning. We define practical implications for managers on how to manage work and knowledge flows in their organizations.

2. Theoretical background

The contemporary theory makes a clear distinction between the concepts of organizational learning and organizational knowledge. Organizational knowledge is the result of the process of learning, as well as the basis for further learning. Burton et al. define knowledge as "information that corresponds to a particular context" (Burton et al., 2006: 92). Together with information which is a constitutive part of knowledge, transferability of knowledge is often cited as one of its most important characteristics (Cummings, 2001). Argote an Ingram (2000) argue that the ability of an organization to transfer knowledge becomes increasingly important as organizations which are able to undertake this process effectively have higher productivity and higher chances to survive in comparison with those less capable of effective knowledge transfer. Knowledge transfer can be defined from different approaches, such as "sharing ideas across boundaries both within and outside of an organization" (Yeung et al., 1999). On the other hand, knowledge diffusion is the movement of knowledge within organization, between its parts and units. Therefore, as Cummings notes (2001: 15) "knowledge transfer is not simply a diffusion of knowledge, but the planned sharing of it across organizational boundaries". In that sense, knowledge transfer is unconnectedly related to knowledge exchange, which assumes sharing of information that requires interpretation, or intelligence to fully understand and apply.

The view on organizational learning as a process is mutual to all the authors that have ever dealt with this issue. Also, one of the integrative elements of all perspectives of learning is that learning is seen to be unconnectedly attached to changes: when organizations learn this eventually leads to changes in the behavior of their members, or in the changes in their cognitive repertoire. In order to explain the learning process, authors have taken different perspectives: Argyris and Schon (1978) insist on including both behavioral and cognitive dimension, Crosanne et al (1999) connect learning to exploration-exploitation paradigm, Huber (1991) takes an information processing approach. Child and Faulkner (1998) recognize three types of learning - the first and the lowest level of learning is purely technical in nature and is based on optimization of performances within existing boundaries of an organization. The second level assumes questioning of the existing organizational potentials, changes in existing organizational systems with an intention to integrate organizational activities. The third, and at the same time the highest level of learning is achieved if the organization learns how to learn, and in that way increases its learning abilities. Burton and Obel (2004: 11) relate the change learning process produces to organizational knowledge. According to them, organizational learning is the improvement in the knowledge base of the organization: the continuing update of what we know and how to apply it in the organization. Further, they suggest that organizational learning involves four constructs: knowledge acquisition, information distribution, information interpretation and organizational memory. A model of connecting individual, group and organizational learning can be found in Crossane et al. (1999:523). They state that the three levels of analysis are mutually connected by means of social and psychological processes within an organization: perception, interpretation, integration and institutionalization.

Nonaka and Takeuchi (1995) also consider learning as a process through which individual knowledge becomes available to the organization. They recognize four ways in which knowledge converts within an organization: (1) socialization, (2) externalization, (3) combination, and (4) internalization. Nonaka (1991) explains that explicit and tacit knowledge are not necessarily mutually exclusive categories, but that conversion of one into the other is possible. The importance of the analysis of Nonaka (1994) and later Nonaka and Takeuchi (1995) is in that it shows how different learning theories do explain how knowledge is accumulated within an organization, but do not explain how new knowledge is created. Nonaka describes this process through the development of the spiral of knowledge creation. Furthermore, relying on the the Japanese philosophy, Nonaka, Toyoma and Byosiere (2001: 498) introduce the concept of Ba, and define it as a "place where knowledge is shared, created and utilized", "a framework in which knowledge is activated as a resource". They explain that Ba does not necessarily mean space in physical terms, but covers a virtual space (e-mail, teleconferences) and mental space (shared experience, ideas, etc.) as well, and the combination of those.

Organizational learning and knowledge transfer represent one of the key reasons for forming strategic alliances in the modern environment. Even in such cases when companies have not initially entered a strategic partnership with the clear aim of organizational learning and transfer of knowledge, the very environment of cooperation among companies possessing different knowledge and skills, different competencies and ways of applying them in practice, opens new possibilities for learning, gaining knowledge and acquiring new skills (Inkpen, 1998). On the other hand, strategic alliances sometimes do not result in the flow of knowledge and learning to the expected extent, even when they are formed with the aim to be incubators of new knowledge and a device for the dissemination of the existing knowledge (Muthusamy, White, 2005; Grant, Baden-Fuller, 2004; Inkpen, 1998). Different authors have offered different explanations why an absence of learning occurs in strategic alliances and what the factors limiting alliances to become learning networks are: opportunist behavior of the partners (Zolo et al, 2002, Svejenova et al, 2006), absence of social exchange and social integration of the partners (Inkpen, Tsung, 2005), or the lack of commitment, trust and consultation when it comes to reaching decisions relevant to both partners (Muthusamy, White, 2005; Inkpen, Ramaswamy, 2006), inadequate absorptive capacity (Inkpen, 2006; Child, 2003; Lyles, 2003). However, the role of organizational design in an inter-organizational context is not directly investigated.

3. Methods and results

Our data was gathered in the leading media company, *Y World Service* (*YWS*). The company broadcasts on a global scale, having regional sections, which cooperate with local, national radio stations by broadcasting the *YWS* shows. The company faced a decline in radio listening rates worldwide, and the *YWS*'s Serbian section was facing the danger of being closed due to lesser global focus on our region after the year 2000 and the decline of the station's popularity in Serbia. After a detailed strategic analysis, an idea was proposed for a joint project with X, a growing Serbian media company which has already cooperated with YWS for a long period, and six former X employees who had to leave Serbia were now working on YWS, securing both informal and formal contacts and positive stance. The Joint Project was to create a broadcast covering both domestic and world news; it brought complete change in the working processes and proved to be very successful. The market research showed that the show hit the target and completely met the need of the audience because publicity of *the YWS* in Serbia increased by 10-15 times. On the wings of its success, similar broadcasts were started in Ukraine, Russia and Turkey.

Our quantitative analysis was not only based on a network perspective of the organization design properties, an important part in inter-organizational design (Popović et al, 2012). The network analysis gave us an opportunity to view organizations from the perspective of connections among the organization's members. The analysis has two basic functions: (1) it represents relationships between actors by quantifying and presenting with scheme information flow channels, that are in fact carriers of learning, and (2) it gives us the possibility to construct a flow-chart, which is an advanced form of the traditional organizational chart, applied on an inter-organizational level. This analysis also enabled for us to represent and observe what Nonaka et al. marked as *Ba* and define as "a place where knowledge is shared, created and utilized"

Every network can basically be defined by its nodes (subjects) and the relationships existing between these nodes. The very first thing we should pay attention to when analyzing one network is the number of nodes, number of potential connections between these nodes and the number of existing connections. Connections are represented with a binary variable taking value 1 if the connection exists and 0 if the connection does

not exist. What should particularly be handled with care is the interpretation, because the interpretation depends on the question we asked and in accordance with which network was coded. If, for example, we want to investigate the information-flow structure, each position is analyzed from the aspect of its role as information giver and receiver. In our research we observed the following network measures: descriptive statistics, network density, connectedness, reachability, reciprocity, ego-network analysis, structural holes and blocks and cut-points. The application of the network analysis has huge analytical potentials when we analyze an organization as a "learning system", structured from communication channels (formal and informal communications), procedures and routines, organizational environment which influences communication patterns and information systems.

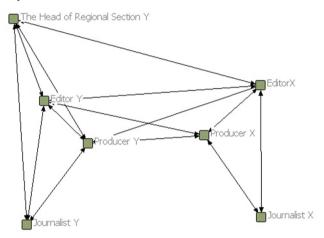


Figure 1 Organizational network graph

Actors - positions of the Editor in both partners' organizations are, as expected at the information hubs. The egonet analysis reports considerably strong values of the total number of participants in this partnership. Up to three positions gain networks larger than 5 (the Editor of Informative Program the X, the Editor of the Serbian section in The YWS and the Producer The Y world service), while other positions report somewhat lower values.

Flows - the analysis of information flows on the basis of network connections shows 42 potential observations of connections. From that number, 27 observations are present. Having in mind that the relationship between positions is represented with dummy variable taking value 1 if the relationship exists, and 0 if it does not, the mean value (=0.643) represents at the same time the percentage of the present to the possible relationships within the network, implying that only 65% of all possible connections are present. These parameters describe a dense organizational network, a feature important for organizational learning.

Structure - The graph representing a joint project organization shows that the network does not contain cut points, so we can speculate on its high connectedness and positions being deeply embedded into its structure. The structure is connected, but relatively uniform distribution of network densities among different nodes implies a democratic structure without much hierarchy.

Table 11 organizational notificial moderno							
	1*	2*	3*	4*	5*	6*	7*
Mean	0.667	0.667	0.833	0.833	0.667	0.500	0.333
Std Dev	0.471	0.471	0.373	0.373	0.471	0.500	0.471
EGO Network density	4	5	5	5	4	3	2
Variance	0.222	0.222	0.139	0.139	0.222	0.250	0.222
MCSSQ	1,333	1,333	0.833	0.833	1,333	1,500	1,333
Euc Norm	2,000	2,000	2,236	2,236	2,000	1,732	1,414
N of Obs	6	6	6	6	6	6	6

Table 1: Organizational network measures

^{*1-}Chief YWS; 2-Editor X; 3-Editor YWS; 4-Producer YWS; 5-Producer X; 6-Journalist Y; 7-Journalist X.

4. Discussion: design and learning analysis

The analysis of this organizational network, which delivered good results in the Serbian context, and was replicated in a similar form in several different countries provides a basis for multiple-case analysis of organizational network design and organizational learning. This structure was aimed to solve a strategic problem of market share decrease through innovativeness. Both strategic and operative goals of two organizations were fit, expressed through the mission of the company *X* and the partnership code of *Y world service*. On the other hand, there were differences in perceptions and symbols. Interviewed during a brainstorming session, employees both the on managerial and non-managerial positions personified *the YWS as* a middle-aged man in a suit, with a hat, holding a stick in his hand. Contrary to this, *the X* was seen as a young man in casual clothes with a rucksack in his back. However, it was accepted that such bureaucratic image was unfit for changing environment and IT dominated world of media.

As a new "product", a joint broadcast show was created; it has delivered a high level of innovation needed to improve such stern image. In the context of organizational learning innovation is based on a high level of explorative orientation and interaction between partners. The broadcast show itself demanded intensive contacts during its realization, kindling the interaction between individual and organizational learning. The relations of employees from two different organizations in this joint program, as well as the flow of information and knowledge in an interactive organizational network environment directly influenced the level of knowledge and learning on the individual level. According to Hamel (1991), individual learning becomes collective when there are mechanisms for summing up individual knowledge and when the sum up of the knowledge affects all those who can benefit from that knowledge transfer. The practice of giving regular feedback after the show enabled continuous instrumental learning by summing up important observations. It also bolstered organizational change, where structures, relations and practices related to activities proven inadequate were suppressed. Changes included the introduction of a new position – *producer*, and further, the existing job descriptions were modified. The overall structure was made leaner, virtually without a middle level.

The partnership between the two organizations brought a number of benefits to both sides. The *X* company pursued its basic principles: explorative orientation and innovative program, expanding its offer of popular shows and increasing its popularity further. Secondly, in case of *the X* this cooperation created an opportunity to learn from *the Y world service*, which is known for the affirmation of an analytical way of reporting and a higher level of the reporters' independence. The *X* company benefited from other inputs from the *Y world service*: the code of behavior, standardization and formalization, unbiased reporting and training on legal matters. On the other hand, *the YWS* gained in the speed and dynamics totally untypical of their working conditions. All this was enabled by a vivid learning activity in accordance with Nonaka's view. Everyday virtual contacts, telephone communication and interactive adjustments of partners during the show enabled continuous exchange of implicit knowledge. This knowledge was further coded through instructions, guidelines and operating procedures. Communication technology played a very important role in the functioning of this alliance, virtual meetings were held before, during and after the show, but the dominant technology for communication between network members was still by telephone.

We will use one practice to illustrate organizational learning and knowledge transfer within the organization, as well as de facto internalization of knowledge. A specific way of introducing the journalists, one of the YWS trademark features became also a common practice of the company X journalists on radio and TV shows that were not covered by the joint program. Other, more technical organizational departments also accepted practices related to the joint program. According to the interview with on of the producers: "The execution of this show initiated changes in the existing operating procedures, and caused introductions of some new standards in the radio shows of the X, so now technicians ask for a show-outline plan in other informative shows as well."

Conclusion: how to design organization to learn

In our article we attempted to describe a learning organization's design, going beyond a traditional understanding of intraorganizational design, its dimensions and features. Both theoretic and empirical analysis showed us that the traditional understanding of organizational design does not have sufficient analytical potentials to answer the questions of how to design organizations to learn. If we extend it with the application of an organizational network analysis - exploration of organizational inter-relations, communication channels and information exchange processes, our analysis potential increases. Based on the analysis, we propose several rules for designing organizations that learn, describing:

- · network density.
- · reciprocity,
- · reachability,
- · blocks and cut-points,
- design efficiency effectiveness balance.

A high network density is a preferred network characteristic when designing a learning organization. The higher the percentage of the existing relationships between network members, in comparison to the total number of possible connections, the higher the chances for intensive knowledge exchange and the creation of a learning environment. When the aim is to design a learning organization, reciprocal network connections are a preferred design characteristic. The higher the percentage of reciprocal connections among positions within the intra and inter organizational network, the higher the chances for intensive knowledge exchange and the creation of a learning environment. Mutual reachability among knowledge carriers and knowledge absorbers in the intra and inter organziational network is of vital importance for designing organizations that learn, otherwise knowledge exchange, creation and modification could be significantly inhibited. The smaller the number of blocks in an organization is the higher is the level of internal integration and consequently, the higher is the probability the flow of information and the learning processes will be undisturbed. Cut-points also disaggregate the network, causing "knowledge bottlenecks". Neither significant blocks nor cut-points exist in the described structure. While economic efficiency is always a business imperative, design efficiency in terms of organizational network design can show to be fatal for designing organizations who learn, since one approach to organizational networks may be positive for some types of outcomes and negative for others (Jaško et al, 2010). Network (graph) is efficient when it has the exact number of lines as to connect all the actors, on one hand, without multiple paths and cycles between, on the other (Krakhardt, 1994). Yet, inefficient network designs can be a desired characteristic when it is necessary to develop an explorative orientation and interactive learning. Inefficient network designs promote distribution of information and knowledge. In case of totally inefficient networks, their Ba (Nonaka te al., 2001) is unique, covering the whole organization. However, as the design lowers the managers' control over the information exchange processes and information flow, it is not suitable and recommended for all organizations. Therefore, managers need to balance the efficiency of the information flow design with the effectiveness of the information exchange and carefully designing their networks is to enable appropriate balance between information flow network efficiency and effectiveness.

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