

CONTEMPORARY NETWORK ORGANIZATIONS IN SLOVENIA

Jure Kovač

University of Maribor, Faculty of Organizational Sciences
Kidričeva 55a, 4000 Kranj, Slovenia
Jure.Kovac@fov.uni-mb.si

Brigita Gajšek

University of Maribor, Faculty of Logistic
Mariborska cesta 7, 3000 Celje, Slovenia
Brigita.Gajsek@fl.uni-mb.si

Abstract

Modern organisations are confronted with enormous challenges. The need to continuously adapt to changing environments represents a main challenge for modern organisations. In order to adapt to the requirements of modern environments more easily and more rapidly, organisations become connected into networks. A network organisation is fast becoming a favourite form of the modern organisation. On the basis of an analysis of members in the field of network organisations, this contribution presents the dimensions and definitions of network organisations. In the follow-up, the starting point for a theoretical explanation of network organisations and their different existing forms is presented. The emphasis of the empirical part of the contribution focuses on presenting an analysis of forms of network organisations that are present in Slovenia from the perspective of their shape, development and actual state. Based on an analysis of relevant documentation, it may be concluded that it was the institutional environment which initiated and directed the start-up processes that led to the establishment of contemporary network organisations within Slovenia.

Keywords: organisation, network organisation, types of network organisations, Slovenia

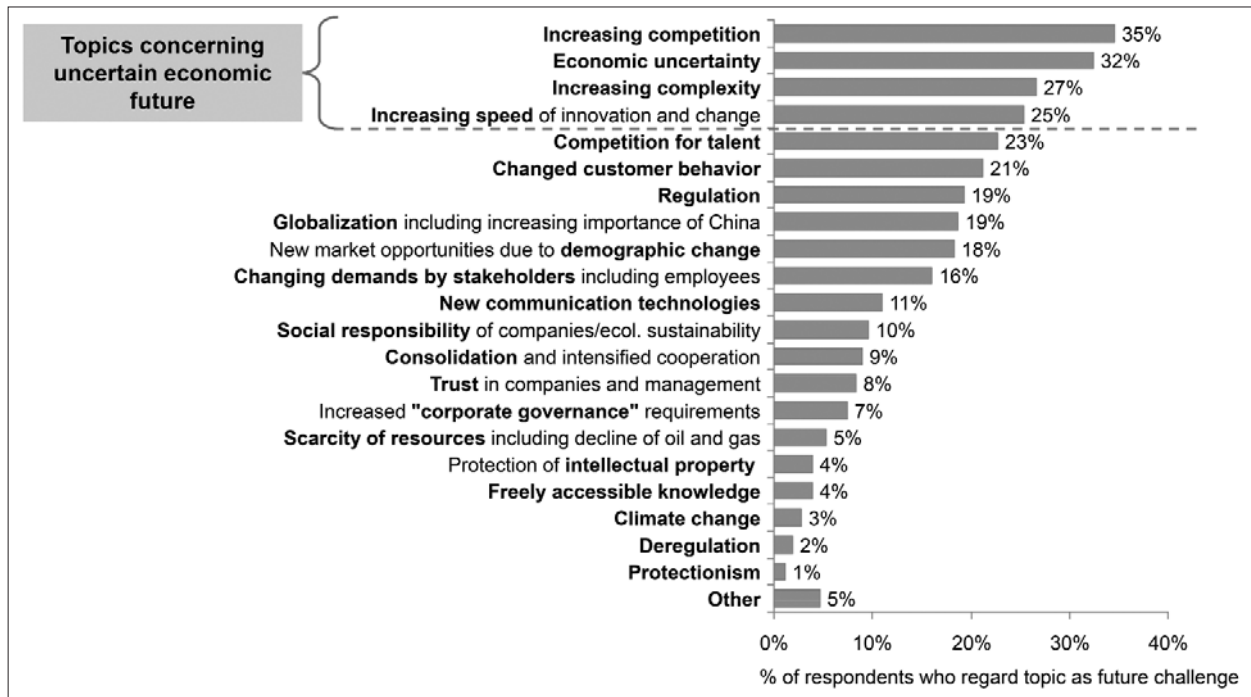
1. INTRODUCTION

Our modern environment is becoming more and more complex while its dynamics are becoming more intensified. Both profit and non-profit organisations must continuously analyse conditions in their working environments and adapt to changing circumstances. In 2011, the Boston Consulting Group carried out an extensive international research project through which it sought to identify the most important problems that managers are confronted with on a daily basis, while also identifying the greatest challenges faced by managers in

future. 1,600 managers from 35 countries participated in this research entitled *Organization of the Future – Designed to Win* (2011). Managers' responses on the survey question – "In your opinion, which are the most important problems today that will also be your biggest challenges tomorrow?" - are presented below in Figure 1.

One of the main reasons for increased competitiveness in the business environment is globalization. Above all, certain processes inherent to globalization require managers to analyse and reassess the strategic orientations of their companies as well as to develop appropriate and effective methods of action (Daft, 2010: 202; Kovač, 2011: 211).

Figure 1. In your managers' opinions, what are the most important problems that managers face today which also represent their greatest challenges for tomorrow?



Source: *Organization of the Future – Designed to Win*, 2011: 6

As indicated in the table above, the next two largest issues of concern in the modern business environment have been identified as unpredictability and complexity. As a result of increasing complexity, the stable organisational structure of a company can also become a major obstacle when adjusting to changing demands in its operational environment. This is the reason companies seek more flexible forms of organisation that are better suited to rapidly adjust to changing demands in their respective environments (Williams, 2009: 80; Bleicher, 2011: 41).

It is often the case that in the process of building a company's competitive ability, its existent knowledge, capacities and other elements are found to be insufficient. In the modern business environment, companies and other organisations will establish and preserve their competitive advantage not only by optimising their own capacities, but also by being able to use the elements of other companies and introduce these into an integral business system. The need to interlink companies and bring together their abilities arises from the requirement of the global market to achieve price, time and quality competitiveness. It is more difficult for an indi-

vidual company to cope with the above mentioned requirements alone. This is why companies are becoming increasingly specialized and develop only those key areas with which they can (effectively) compete on the global market (Milberg & Schuh, 2002: 21; Josserand, 2004: 3; Kieser & Walgenbach, 2010: 2; Bleicher, 2011: 56).

The reason for interconnectedness among individual companies lies not only in the purpose of achieving competitive advantage on the basis of optimising the process of creating added value. At the forefront, there are also requirements to integrate the client and the user in the process of creating new value itself. This is why the linear sequence of the single stages of the process directed to create added value increasingly change into vertically and horizontally branched networks of interconnected links among different companies, as well as among other organisations and individuals that take part in the entire added value chain. (Prahalad & Ramaswamy, 2004: 96; Everett, 2011: 1). As a result, competitors come together in fields of common interest and along a narrow segment of the process that is directed towards creating added value and

bringing about network connections (Gibbert & Durand, 2007: 3).

It has been known for some time that different forms of links set up among companies and other organisations have features that are inherent to networking. Yet, over the last decade, network forms have gained new momentum (Gulati et al., 2000: 204; Kovač, 2011: 214). The above mentioned environmental factors as well as development of information and communications technology have contributed to a vast expansion of different forms of network links among companies. In addition, there also exist mutual connections with environmental requirements and particularly with those requirements of the market (*market pull*) that, under the pressure of global tendencies and structural changes, as well as due to new possibilities that are offered by new information and communication technology (*technology push*) require and allow companies and other organisations to develop a new and more adjustable network form of the organisation (Rohde et al., 2001: 1; Steinmann, H. & Schreyögg, 2005: 145; Schermerhorn, 2010: 246; Rozman & Kovač, 2012: 264).

Gomez, a renowned author from the field of business sciences, had in 1992 already stated that network organisations represent a new stage in the evolution of company organisation and bring about a renaissance in the field of organisational theory (Gomez, 1992). Kelly (1998) also defined network organisations as the prevailing organisational forms of today and tomorrow. Since then until today, his prophetic predictions have been confirmed. In the environment – meaning also our environment – we are increasingly confronted with different forms of network organisations and network links that are prevalent among companies and organisations and which have the tendency to continuously expand. On the other hand, we come across authors who argue that network companies belong to an organisational form that has already been in existence for a long period of time and does not consequently represent a novelty. Regardless of different opinions, it is reasonable to acknowledge that network organisations - which distinguish themselves by having very diverse forms of existence – are an organisational concept of both the present and future.

2. THEORETICAL FRAMEWORK

2.1 Defining Network Organisations

In academic literature, the network organisation has been a central point of interest since the beginning of the nineties of the previous century. Already at the end of the eighties, Jarillo had defined the network organisation as a long term target-oriented linkage among individual companies for the purpose of achieving competitive advantage over competitors that do not take part in the network (Jarillo, 1988: 32).

A similar statement was made by Sydow (1992: 23), who defined networking among companies as “target-oriented organisational forms that pursue the realisation of certain competitive advantages. They mutually link independent companies that are economically integrated and have relatively stable mutual links.” Other authors such as Daft have also emphasized the achievement of greater competitive advantage as feasible by means of individual companies specializing in a part of the network. Companies and other organisations that are interlinked in the network can increase their competitive advantage by orienting themselves in the specialization of a particular field which they have already perfectly mastered in the past (Daft, 2000: 252).

In his definitions, DiMaggio above all stresses the novelty of network organisations in the sense of moving away from the classical comprehension and perception of the organisation. In his opinion, trust, reciprocity, communication, a common way etc., are more in the forefront of network forms, while the principles of the bureaucratic approach central in their formation is less important (DiMaggio, 2001: 237).

We find similar definitions of network organisations in even more recent works from the field of management. For example, Bleicher describes network organisations (with an emphasis on virtual dimensions) as extremely dynamic and fluid forms of organisational links which have great potential for the exchange of ideas, information and resources (Bleicher, 2011: 321).

Conversely, Hatch (2013: 281) defines network organisations as “non-hierarchical relationships comprised of human points of contact, called

nodes... Organisationally, network links headquarters with subsidiaries, and units with each other, their stakeholders and their employees”.

From the above cited definitions, it may be concluded that network organisations are special forms of co-operation and/or connectedness among individual companies and other organisations (Kovač, 2011: 21; Rozman & Kovač, 2012: 267). The fundamental features of the network organisations are as follows (Winkler, 1998: 2; Vahs, 2005: 507; Gibbert & Durand, 2007: 172; Kieser & Walgenbach, 2010: 289; Bleicher, 2011: 322; Hatch, 2013: 283):

- they represent a special form of co-operation among organisations;
- operators of linking and co-operation may be very diverse: groups in the organisations, organisations and/or group of organisations;
- mutual adjustment among individual operators is performed through hierarchical as well as through market relationships;
- there is mutual linking and common interest among operators;
- trust is an important element of co-ordination among linking operators;
- organisations link among each other both vertically and horizontally;
- participating organisations are (or may be) economically independent;
- for adjustment and functioning of the network, an independent and institutionalized form of the organisation or merely an informal organisation can be established;
- information and communication technology represents an important element in connecting and adjustment;
- complex mutual links are established in different fields (information, personnel, technology, finances, etc.);
- there are both dynamic and stable links;
- basic features are: decentralisation, diffusion of power and competency of decision making.

Organisations may establish links from very different interests and targets. This is why we come across networking among for-profit organisations as well as among non-profit ones.

2.2 Theoretical Starting Points for Comprehending Network Organisations

In order to understand network organisations, we must look for a theoretical starting point and examine different explanations that attempt to explain the functioning of the organisational phenomenon. As a social phenomenon, the organisation is an object of study in various scientific disciplines and professions. This is why the theory of network organisations should be considered as the result of single partial theories that offer an explanation pertaining to laws that govern the functioning of networking. There exist efforts to establish a unified theory of networking, but this approach is not generally accepted and so remains at the level of one single explanation (Sydow, 1992; Alstynne, 1997; Fleisch, 2001; Gibbert & Durand, 2007; Berghoff & Sydow, 2007; Kieser & Walgenbach, 2010; Moliterno & Mahoney, 2011: 443; Hatch, 2013). Transaction cost theory remains the single most important theory from which we may draw a theoretical explanation for the functioning of network organisations.

Transaction cost theory provides a basic explanation on the existence and development of the company. In the framework of transaction cost theory, the most prominent representatives - Coase (1937) and Williamson (1985, 1991, and 1993) among others - discover a link between transaction costs and a company's organisational form. Transaction cost theory provides a model explanation for allocating task or element co-ordination, by means of attempting to clarify the reasons as to why certain transactions are co-ordinated and carried out by a company, while others are performed by the market.

The starting point of research conducted under the conduit of transaction cost theory presents the processes of exchange and mutual adjustment that are prevalent among different types of specialized operators in the economic process. Emphasis is placed not only on the process of the exchange of goods, but rather, on the so-called transaction that is linked to this process. Among other costs, participants in the transaction framework must bear the so-called costs of the transaction itself (Picot et al., 1999: 67; Berghoff & Sydow, 2007: 19).

Basically, transaction costs are all those costs that are incurred by individual operators while performing the transaction process, during:

- the preparatory phase (for example, travel, communication and consulting expenses, common purchasing costs incurred by sales, development and production);
- communication (for example, negotiation costs, the costs of mutual adjustment during sales, development, production and purchase);
- execution (controlling the process of exchange, managerial costs);
- control (costs of quality control and costs of time-limit control);
- adjustment (additional costs incurred over time-limit changes, quality and other unforeseen requirements) (Picot et al., 1999: 67; Fleisch, 2001: 62; Jones & Bouncken, 2008: 37; Kieser & Walgendach, 2010: 48).

Within the organisation, an entire range of factors has an impact on the decision of whether to leave certain transactions to the market or to the hierarchy. In considering major factors on which to base the decision of what is the most suitable form of organisational arrangement, transaction cost theory also includes a degree of vertical specificity of the single task. In highly specific transactions, the most optimal form of co-ordination is the hierarchy. At the medium level of co-ordination, this could be a hybrid form (co-operation), whereas at a low level of specificity, it is the market form.

By way of comparison, we can make an analogy of transaction costs, with losses incurred as a result of friction in the field of physics. Within economic systems, information technology decreases losses that are incurred by "friction". According to Malone (2004), the introduction of information technology decreases both fixed and variable costs. While research related to transaction cost theory is above all oriented to analysing processes governing exchange and adjustment in the economy, we can also use this theoretical framework to explain "correct" work distribution and specialization (Picot et al., 1999: 73; Kieser & Walgendach, 2010: 50).

Work distribution may be classified among elements that contribute to increased efficiency of the

economic process. Specialization and work distribution enable an essential increase in productivity. At the same time, work distribution imposes a requirement for co-ordination and mutual interconnectedness. Co-ordination does not run by itself but is instead connected to various elements. Costs that are incurred as a consequence of performing a coordinated effort are designated as transaction costs (or co-ordination costs).

A common task that a company (or a group of individuals) wish to carry out in the process of work distribution may be classified according to different criteria. To a great extent, the productivity of an organisation will depend on the process of decomposition (work distribution). While transaction cost theory does not assist in directly explaining the singular process of forming the technical work distribution, it does remain useful for the purpose of investigating transaction costs that have consequentially been incurred and that are inappropriately increasing as a result of technical work distribution. From this, it arises that transaction cost theory recommends carrying out a process of decomposition of a common task in such a way that it would, to the largest possible extent, form transactions (links) among performers of partial tasks (these could also be clients or suppliers) with lowest effort (cost) required for its completion (Picot et al., 1999: 73; Jones & Bouncken, 2008: 189).

The higher is the level of interdependence among singular levels in carrying out a common task, the greater is the requirement to integrate into a common organisational unit. The lower is the level of interdependence, the greater is the degree of autonomy of the organisational decentralisation (Picot et al., 1999: 74; Jones & Bouncken, 2008: 193; Kieser & Walgendach, 2010: 51). An important element of an efficient execution of the work distribution process is the need to optimally design knowledge transfer - from the knowledge operator to the performer of the single partial task. In an era when knowledge plays an increasingly significant role within society and within organisations, designing knowledge transfer to operators of a single partial task is of growing importance. Providing the necessary knowledge to carry out partial tasks can significantly reduce costs that are otherwise incurred by the lack of knowledge that is required to

effectively carry out a single partial task. Using an optimally organized process of knowledge transfer can assure a suitable transfer of necessary knowledge between the knowledge operator and the performer of the single partial task.

The positive aspect of introducing IT is predominantly reflected in the processes of creating, transmitting and applying information. In this way, information processes rationalise and speed up by means of modern information and communications technology. Sped-up and rationalised information and communication processes significantly decrease transaction costs while they also reduce the level of technical work distribution. The tendency of modern society to reduce the level of technical work distribution is based not so much on the humanist principle as it is on the introduction of modern information and communications technology.

The contribution of transaction cost theory to the understanding of principles that govern the functioning of the network organisation lies in its ability to comprehensively explain the extension of interconnectedness among individual organisations (or individuals) from the perspective of transactions that take place among them and with particular emphasis on explaining and understanding transaction costs that are linked to the form of co-ordination. Transaction cost theory therefore provides a theoretical explanation of the network organisation genesis. By means of transaction theory, an explanation establishing the impact of introducing modern information and communications technology may also be developed. From the given conclusion, there also arises an explanation that is related to the topicality of organisation network links over the last decade. A great development of information and communications technology and the expansion of its application has enabled (also from the perspective of decreasing transaction costs) the propagation of networking in modern society.

2.3 Existing Forms of Inter-Organisational Network Links

The term “network link” arises in diverse areas of academic literature. At the organisational level, reference is often made to network links across different levels and areas (Miles & Snow, 1992; Sydow,

1992; Nohria & Eccles, 1992; Ebers, 1997; Staehle, 1999; Bullinger et al., 2003, Sydow & Manning, 2006; Jones & Bouncken, 2008; Kieser & Walgenbach, 2010; Bleicher, 2011; Hatch, 2013).

The basic division of existing forms of network links arises from the level of linking. There exist two levels of network linking (networking). The first represents co-operation and linking among individual organisations (inter-organisational networks). The second represents the form of organisation within the company itself and the respective configuration of the organisational structure (the configuration of the intra-organisational network).

In the follow-up, we will focus on the presentation of links among organisations (at the inter-organisational level).

Network links among organisations are in greater part related to the legal and statutory arrangement governing the functioning of individual companies and other organisations within a given environment. Given the Republic of Slovenia’s legal and statutory arrangements, network links on the basis of capital and contractual links are prevalent in Slovenia. (Kovač, 2011: 220; Rozman & Kovač, 2012: 267).

In Slovenia, the best known forms of companies and/or organisations that are linked on the basis of capital or contract are (Bohinc & Ivanjko, 1999: 405):

- commercial association of interest: an independent legal entity whose activity is promoting the economic benefit of its members, however, without relationship of superiority or dependence;
- holding company: an interlinked company that has in its possession a majority of shares of one or more independent companies and which predominantly performs the financing and corporate governance activities of those companies.
- trust, composed of (Bohinc & Ivanjko, 1999: 406):
 - one governing and one or more dependent companies that are linked among themselves and under a unified administration of the governing company (real trust);
 - companies that are interlinked by a contract on governance (contractual trust);
 - legally independent companies that are linked by a single management system where compa-

nies are not mutually interdependent (trust of equally entitled).

The second aspect is represented by contractually linked networking that is composed of the capital of non-interlinked companies or other organisations that form (or do not form) for the purpose of linking and co-ordinating a network or a common independent organisation.

The above mentioned very decentralised form of networking is represented by the so-called enterprise network which represents "intermediate" organisational forms of economic activities between the market and the hierarchy that are characterised by a stable co-operative (rather than a competitive) collaboration of capital independent companies. An analysis of the business environment indicates that the following forms of contemporary networking among companies and other organisations are prevalent in Slovenia on the basis of capital or contractual relations (Kovač, 2011: 220; Rozman & Kovač, 2012: 267): clusters, technology platforms, competence centres and centres of excellence as well as living labs. These forms best correspond to the criteria inherent to contemporary network organisation, including: equality of partners, decentralization, non-hierarchy, etc. The empirical part focuses on the above mentioned forms of contemporary network organisations, analysing the development process from their establishment to their current state.

3. FORMS OF NETWORK ORGANISATIONS IN SLOVENIA

3.1 Introduction

The empirical part is based on principles of institutional theories of organisation-environment relations which, among other principles, assume that institutions within a particular environment have a decisive impact on organisational change and adaptation (Mihelčič, 2011: 138; Hatch, 2013: 74). We hypothesize that it was the institutional environment which initiated start-up processes that led to the establishment of contemporary network organisations within Slovenia and test this hypothesis utilizing the method of documentation analysis. In Slovenia, there dominate network connections

among companies and other organisations that have been established by the policies and financial initiatives of state institutions.

Strong links are critical for the performance of innovation systems. The Slovenian government has recognised the need for promoting links in innovation, notably between industrial sectors and academic institutions. Over the past 15 years, the government has introduced a significant number of policy initiatives designed to better align innovation actors. In so doing, it has introduced various schemes for scientific-industrial collaboration, technology transfer and related initiatives focused on entrepreneurship and inter-firm co-operation. Slovenia has also experimented with cluster-oriented policies and later also with Technology Platforms. Between 2008 and 2013, Competence Centres and Centres of Excellence were added to this list. The latter are not only instruments that may be used to strengthen links between innovation actors but also important catalysts for changing the governance of the innovation system. Below is a brief description of all of the above listed instruments.

3.2 Clusters

The most typical example of regional network formation is a *cluster*, which is fully geographically oriented, less loose and more stable than strategic network formations that are often transnationally organized. A cluster is understood as a production/service system that includes: small and medium sized manufacturers of finished products and services; specialized suppliers of components; manufacturers of complementary products/services; providers of tools and supplementary service companies with complementary skills, know-how and technologies; government institutions; research and consultancy institutions and customers/clients in a specific area of operation (Dermastia, 2002).

From a global perspective, clusters obtained their knowledge and bases from supply chains that had been established much earlier and may also be classified as non-capital contractual forms of networking among companies. The theoretical bases of supply chains and clusters can be traced to the work of Michael Porter, who in his piece *The Competitive Advantage of Nations* (1990) highlights the level,

development and promotion of inter-company connections as important elements for achieving competitive advantage in the economies of individual countries.

In Slovenia, clusters are recognized as network connections between companies in a particular sector. Due to its small size and prevailing market trends, regional clusters have not developed in Slovenia.

Integration among companies can result in increased business efficiency, the modernization of production rationalization of operations, an increase in growth and development and increasing innovation (Dermastia, 2002).

The development of clusters in Slovenia is described below in greater detail.

3.2.1 Initializing the Development of Clusters

According to a survey (Jaklič, Svetina & Zagoršek, 2004) that included 1,700 companies, no clusters were present in Slovenia in 1999 (Dermastia, 2002). Given that companies were spread across Slovenia, segments identified as potential clusters did not have a strong geographical concentration and consequentially, there existed weak links

among actors. Identified manufacturing/service systems did not reach a critical mass of companies while the necessary infrastructure for the development of clusters remained at initial stages.

Clusters later emerged due to government policy that effectively resulted in the establishment of network organisations, as opposed to the removal of obstacles for the development of small business (due to the implementation of high interest rates; high taxes; extremely expensive business premises; difficulties in obtaining building permits; impossibility of financing commercial properties...).

Conversely, in 2001, the Ministry of the Economy (ME) prepared a program that was designed to encourage the development of clusters in Slovenia and, during that same year, the ME financially supported the development of three pilot clusters by providing a contribution of 150 million SIT to this end. In practice, some difficulties in promoting cluster development and establishing simultaneous cooperation and competition between actors arose. For example, a low level of trust among members of the cluster, a low level of top management involvement in the clustering project and lack of state-level integrated implementation of measures required for stimulating the development of clusters.

Table 1. Distribution of Funds for Clustering in 2002

Tender ----- Region	Small Enterprise		Medium Enterprise		Total	
	Number of Projects	Co-financing	Number of Projects	Co-financing	Number of Projects	Fund
Development of Clusters by Region	5	231,926,000	6	168,074,000	11	400,000,000
<i>Podravje</i>	<i>1</i>	<i>85,000,000</i>	<i>FS UM</i>			
<i>Koroška</i>	<i>1</i>	<i>16,600,000</i>	<i>Lesna d.d.</i>			
<i>Savinjska</i>	<i>3</i>	<i>36,337,000</i>	<i>Geodetski zavod d.o.o., Smreka d.o.o., Veplas d.d.</i>			
<i>Obalno-kraško</i>	<i>1</i>	<i>100,000,000</i>	<i>Transportno logistični grozd</i>			
<i>Osrednja Slovenija</i>	<i>3</i>	<i>123,863,000</i>	<i>Slovenski avtomobilski grozd, Infotehna d.o.o., Kovinastroj Gastronom d.d.</i>			
<i>Notranjsko kraško</i>	<i>1</i>	<i>16,600,000</i>	<i>IMP Klima d.o.o.</i>			
<i>Goriško</i>	<i>1</i>	<i>21,600,000</i>	<i>Razvojni center za lesarstvo</i>			
<i>Zasavje, Pomurje, Spodnje Posavje, Gorenjska, JV Slovenija – 0 projects</i>						

Source: Summarized from Andrič, 2003

3.2.2 A Period of Co-financing and Growth

Between 2002 and 2004, the ME continued to encourage clustering and presented a comprehensive program that promoted the development of entrepreneurship and competitiveness (Andrič, 2003). The program of measures to promote entrepreneurship and competitiveness included incentives that were aimed at the entire corporate sector, irrespective of size, sector of activity or ownership. Based on this program, 23 tenders were published in 2002, including a tender for the development of clusters (Table 1).

Interest in subsidization was higher than was the level of available funds. As a result, 38.88% (or 7) project proposals were rejected for receipt of subsidizing in support of the development of clusters.

Jaklič et al. (2004) reported: "After four years of co-financing of cluster development, which aimed at about 2.141 billion SIT (Table 2) in the sense of development incentives, 29 clusters were developed and together included about 390 organisations and employed more than 60,000 people. Companies in clusters in terms of profitability and added value did not significantly differ from other companies in the industry."

Table 2. Amount of Co-financing and Number of Projects in the years 2001 - 2004

Year	Million SIT	Number of Clusters
2001	150	3
2002	331	11
2003	650	17
2004	1,010	29

Source: Andrič, 2003

At the conclusion of 2003, State Secretary of the ME, Mateja Dermastia, stated: "The Slovenian model of cluster development is unique and internationally recognized - the accession has a leading position in the EU. In particular, clusters were supported by the state with co-financing of viable projects rather than with subsidies entirely, as is generally in the majority practice in Europe. Slovenian clusters involving more than 350 companies and institutions with 55,000 employees." (Redakcija Fi-

nanc, 2003). In the period 2000-2003, Slovenian clusters outgrew basic frameworks and pointed at a rapid growth trend. It had already then been observed that the growth trend may have negatively affected the abolition of subsidies and incentives for clustering and development of projects of national importance. In 2004, 1 billion SIT was made available for this purpose.

In addition to financial support from the ME, the Chamber of Commerce created non-financial structures designed to support of this strategy. In so doing, the Chamber responded to members' needs for horizontal integration by stimulating promotional activities. At first, clusters focused on those companies and/or organisations that wished to integrate and link because of synergistic effects, irrespective of government subsidies. Members of clusters later argued that government measures encouraged a process that would otherwise not have taken place and that meetings would continue even in the event that government support were to cease. 75% of clusters would not have been formed without the support of the ME (Avberšek, 2006). Nearly all clusters were associated with foreign networks and clusters. As many as two-thirds of participating companies emphasized that the benefits of clustering would be visible in the long-term and that the level of confidence in clusters was increasing (Avberšek, 2006).

Slovene clusters provided incentive for connecting clusters and technology networks for the purposes of stimulating greater efficiency and to more easily penetrate markets external to the initial state. In October 2005, eleven clusters established the *Interest Group of Clusters and Technology Networks* at the Chamber of Commerce (IZ GTM). This interest group was established with the aim of promoting mutual cooperation among clusters and networks for the design and implementation of development strategies. At the same time, IZ GTM was to contribute to the international promotion of development potential and strengthen the ability of engaging in international development partnerships. As a member of IZ GTM, the Slovenian Chamber of Commerce provides the basic infrastructure for the continued operation of this group. In addition, clusters and networks combine data and information on their operations and share activities and

plans for the creation of a common information base. Financing is provided to all members that are a part of this association and in accordance with the agreed program of work and the extent of planned joint activities under the project principle.

3.2.3 Maturity Stage

By 2008 and with the support of the Chamber of Commerce, the Slovenian government managed to establish an operational group of clusters, with no impact on the type of industry within which the individual cluster was developed. Precisely at that time, the European Union ascertained that clusters could play a huge role in future economic growth, given that key factors for competitiveness in the long-run were identified as: economic performance, R&D and innovation (Bettendorfer, 2012). It has been observed that regions with strong clusters recovered much more rapidly from the recent economic crisis than have regions without clusters (TechAmerica Foundation, 2010). One clear objective of the Europe 2020 strategy is the move towards world-class clusters (European Commission, 2008). The next step is to support cluster collaboration, which is essential to overcoming regional boundaries and for moving towards world-class clusters via European inter-clusters.

As well as keeping records on the number of existing clusters across the country, the Slovenian government has also set up measures to gauge the effects of their operation. In 2010, the Chamber of Commerce and Industry of Slovenia published a brochure with a list and descriptions of 11 Slovenian innovative clusters and four technology networks (Slovenian Chamber of Commerce, 2010). According to these figures, 38% of the clusters are in operation when compared to the quantitative peak that occurred in 2004.

The emergence and development of clusters in Slovenia can be summed up in the following phases: (1) triggering development of clusters by ME and the Chamber of Commerce; (2) peak in the number of clusters and inflated expectations; (3) search for funding sources, external integration, positioning in business premises; (4) existence of operational, fully independent clusters that are embedded within the wider business environment.

3.3 Technology Platforms

Following 2004, there began in Slovenia a process of rapid deployment of *Technology Platforms*. Unlike clusters, technology networks are used for the development of certain technologies and the application of these technologies by various industries, companies and products.

Technology Platforms are mechanisms of development policy. Their purpose is to enable the confrontation of challenges inherent to individual fields and to determine strategic advantages and opportunities for technologically advanced areas. In the area of R&D, they promote targeted investments and a more effective approach to innovation. They also promote the coordinated action of European and national research programs. Technology Platforms support the continuous development of appropriate skills in relation to a particular field of technology and support the use of new technologies. Crucial to the functioning of Technology Platforms is that companies take over a leading role in shaping the functioning of each Technology Platform. Technology Platforms have an open structure. To be effective, they must necessarily include numerous key stakeholders, from companies to institutes, universities and public institutions (Štumberger, 2007).

The following chapter describes the development of Technology Platforms in Slovenia in greater detail.

3.3.1 Initializing the Development of Technology Platform

In preparation for the 7th Framework Program in 2004, the European Commission began to actively promote the creation of European Technology Platforms designed to integrate all key players in a particular technological field and to provide suggestions for improved research policy and more effective implementation of transnational research projects. One purpose of the national Technology Platforms has been to facilitate improved cooperation within the European research area.

The Republic of Slovenia's Ministry of Higher Education, Science and Technology (MHEST) supported the European Commission's plans and sought to ensure the participation of a greater num-

ber of Slovenian researchers within European Technology Platforms. In 2005, it therefore carried out a call for the support and creation of national Technology Platforms. These groups have had to be created in related areas to those already existing in Europe and have had to connect themselves with cognate European Technology Platforms.

In 2005, 12 selected Technology Platforms designed their websites, organized a national workshop and began preparing a strategic development plan (Table 3).

In 2005, the development of national Technology Platforms in Slovenia was also encouraged by the Slovenian Chamber of Commerce and MHEST with a strategic business conference on *Technology Platforms* that represented the first in a series of planned milestones for the implementation of the project on Technology Platform Strategies Development.

In 2006, the Directorate for Technology of MHEST continued with the tender it had initiated in

2005. With this tender, MHEST pursued the creation of new national platforms in areas where just a few European initiatives were already in existence. All of the former initiatives were further subsidized to connect with European platforms and to develop even greater and more precise strategic research plans for the future (7th Framework Programme EU, 2006).

3.3.2 A Period of Co-financing and Growth

In 2005, the adopted National Research and Development Programme (NRDP) for the period 2006-2010 highlighted the identification of technological development priorities in which Slovenia had the greatest potential knowledge (as well as in the general economy) as central tasks in the field of science and technology policies. Following adoption of the NRDP, this programme actually represented the first systematic and methodical approach to anticipating technological innovations and determining priority technology areas in Slovenia. The govern-

Table 3. Nationally Supported Technology Platforms in 2005

Technology Platform	Institution	Web Page
Slovenian Hydrogen and Fuel Cell Technology Platform	TECES, Technological Centre for Electrical Machines	www.sihfc.si
Slovenian Textile Technology Platform	IRSPIN	www.irspin.si
Technology Platform Tool-making and Mechatronics, T-PLATAMM	TECOS, Slovenian Tool and Die Development Centre	www.manufuture.si
Slovenian Construction Technology Platform	University of Ljubljana, Faculty of Civil and Geodetic Engineering	www.sgtp.si
Photovoltaic Technology Platform	Energy Restructuring Agency	www.pv-platforma.si
Advanced Materials Technology Platform - NaMat	ISOKON d.o.o.	www.namat.si
Slovenian Wood Technology Platform	Technological Institute of Wood Science and Technology Ljubljana	www.sltp.si
Technology Platform for Water	Jožef Stefan Institute	www.tpvide.si
TN Information and Communication Technology	University of Ljubljana, Faculty of Electrical Engineering	www.ict-slovenia.net
Slovenian Technology Platform for Road and Vehicle Traffic	Institute of Construction Slovenia	www.ertrac.si
TN Process Control Technology	INEA	
Embedded Systems ARTEMIS	Iskra Systems	www.tp-artemis.uni-mb.si

Source: 7th Framework Programme EU, 2006

ment of the RS used the policies of existing national Technology Platforms and studies of technological foresight as the basis for a wider debate on development priorities in Slovenia within the framework of the Competitiveness Council at the Government of the RS Office for Development in 2008.

At the end of 2009, the market economy confirmed the growing importance of investing in Research and Development (R&D), which was in turn also reflected by the continuous increase of private-sector expenditure on R&D. Strategic research plans were established for 22 platforms while an analysis of priority technology areas with major impact on the competitiveness of the economy was also made on this basis. 31 developmental issues were thereafter grouped into 14 key areas.

3.3.3 Maturity Stage

Although there has been no significant co-financing of operations since 2006, Technology Platforms have not disintegrated - largely as a result of members' interests. National Technology platforms have successfully competed for national and European tenders and have represented the central component of the consortium for the development of Centres of Excellence. In 2009, Technology Platforms included 711 companies, 100 R&D organisations and 82 universities. This refers to development platforms with interests in topical issues that holders of knowledge from R&D institutions and the economy actually face. These are in turn able to argue for defining development policy priorities and measures that are necessary for effective Technology Platform implementation.

At the 5th Conference on Technology Platforms in 2009 it was concluded that, due to the small number of Slovenian researchers and developers in the economy, a concentration of researchers in a small number of integrated (inter-disciplinary) development projects was needed to achieve technological breakthroughs. The Conference stressed the need for clearly defined and topical (actual) priority areas (GZS, 2009).

In the summer of 2010, there followed a TRINET conference of three technology platforms, from the construction, wood and polymer sectors.

Participants realized that tasks from prepared strategic development documents had been realized too slowly. On the entrepreneurial side, activities and investment were too rare and too small due to the economic crisis that had spread across all three sectors, and particularly the construction sector. Other elements found to be missing were human resources and innovation competencies. Even in the event that these resources and competencies were located within a commercial sector, there was found to be a lack of opportunity to absorb public resources. A major obstacle lies in the fact that instruments change each year, thereby preventing development planning that is of a longer duration. In terms of lack of economic absorption capacity, this harnesses the research sector to gain new knowledge and increase involvement in research projects. In this way, the research sector diverges from the needs of the economy. Technology Platforms greatly assist with integration into EU Research and Development (GZS, 2010).

Probably due to the economic crisis and the prevalence of poor conditions in certain industries, several Slovene Technological Platforms have greatly reduced the number of activities of their local members. One such example is the Slovene Textile Technology Platform, where activities are largely limited to training, workshops and knowledge transfer. Membership in Technology Platforms can be reduced at the expense of multiple company closures. However, this does not preclude that certain companies would not participate in the area of knowledge transfer and innovation, as they have an open path to European Technology Platforms that provide greater opportunities - easier participation in tenders and better access to projects.

Companies and researchers also seek out new opportunities in Competence Centres and Centres of Excellence that have also recently been supported by the Government of RS.

3.4 Competence Centres and Centres of Excellence

In accordance with the *Rules on record keeping about innovative environment* (2008) Centres of Excellence are classified as other key entities of innovative supportive environments within Slovenia.

A *Centre of Excellence* comprises a high quality multi-disciplinary team of researchers from academia and industry that together provide a critical mass of knowledge and a suitable research infrastructure for allowing Centres of Excellence to break through into the world's top sciences and/or become included in an international network of excellence (Glas, 2007). These centres cover narrower, more specialized areas that are capable of market penetration on the European and global scale and that alongside the breakthrough of Slovenian companies, can ensure a leading position for Slovenia within the world's technological development niches.

The Instrument of the Competence Centre is a complementary instrument to Centres of Excellence. Together, these form a complete whole in the field of national Research and Development activities.

3.4.1 Initializing the Development of Competence Centres and Centres of Excellence

MHEST has designated Centres of Excellence as a first priority task within the *Unified Programming Document 2004-2006 and their Operational Programmes* for the period 2007-2013. In the MHEST tender for the development of Centres of Excellence in the 2009-2013 period, 8 Centres of Excellence were selected in Slovenia. These are: the Centre of Excellence in Nanoscience and Nanotechnology; the Centre of Excellence for Biosensors, Instrumentation and Process Control; the Centre of Excellence for Integrated Approaches in Chemistry and Biology of Proteins; the Centre of Excellence for Low Carbon Technologies; the Centre of Excellence Advance Materials for the Future; the Centre of Excellence for Polymer Materials and Technologies; the Slovenian Centre of Excellence for Space Sciences and Technologies; the Centre of Excellence for Research in Biotechnology, Pharmacy and Physics of Materials.

National Structural Funds were intended to assist Centres of Excellence on their way to becoming leaders among their fields in the long-term. Structural Funds supported applied research of a company through direct co-financing, thus demonstrating government level interest in developing research achievements in the most innovative products and

services for successful marketing on the European and global levels. With the financial assistance of these funds, Centres of Excellence were able to purchase some of the most advanced research equipment available to their respective fields.

In connection with the tender for the development of Centres of Excellence in the 2009-2013 period, 7 Competence Centres were also selected. These were: the Competence Centre for Advanced Control Technologies; the Competence Centre for Advanced Systems of Efficient Use of Electricity; the Competence Centre for Biomedical Engineering; the Competence Centre for Sustainable and Innovative Construction; the Competence Centre for Biotechnology Development and Innovation; the Competence Centre for Services Supported by Cloud Computing and the Competence Centre Open Communication Platform for Service Integration.

3.4.2 A Period of Co-financing and Growth

In 2008, Mešl and Bučar (2008) conducted a mid-term evaluation of the results of 10 Centres of Excellence that was consistent with physical targets that had initially been set as well as with the measure itself in the *Unified Programming Document*. Furthermore, they evaluated the results of Centres of Excellence and presented programs for the next programming period from the perspective of integrating economic partners and on the basis of the economic relevance of research programs. They also provided recommendations for the further implementation of the measure in the context of the Operational Programme for the period 2007-2013.

Mešl and Bučar (2008) concluded that Centres of Excellence are one of the few instruments to promote an inter- (trans-) disciplinary approach to research and are therefore better suited to the needs of the economy, where issues are typically not enclosed within separate disciplines. Centres of Excellence are instruments that in some way determine priorities and place urgent and major focus on joint R&D ventures in priority technology areas that are of key importance for economic competitiveness. In Slovenia, Centres of Excellence also reflect upon economic fields that have the potential knowledge to achieve a breakthrough in the international envi-

ronment. Irrespective of the significant differences among them, these Centres involve a number of partners from both the academic and business environments and therefore contribute to the elimination of one of the most important deficiencies in the area of Research and Development in Slovenia - the lack of an effective and integrated flow of knowledge and application of this knowledge to products and services.

A common finding of the study was that the instruments for the implementation of set measures do not fully conform to pursued objectives and to concepts that are defined by Centres of Excellence.

Mešl and Bučar (2008) particularly exposed that Centres of Excellence are expected to contribute to integration in order to achieve a critical mass of knowledge within a particular field, thus enabling inclusion into relevant international networks. The criterion of the call for Centres of Excellence was that participant groupings must include at least three partners. This was reflected in a very unequal structure of partners, where one individual area (such as new materials) was supported by several centres - some of which had only a few partners that were also very sector limited and thus did not follow the rationale of building inter-disciplinary teams.

Mešl and Bučar (2008) also observed that Centres of Excellence have primarily been set-up as instruments for the promotion of strategic cooperation between and among different partners from academia and industry, for the purpose of encouraging joint planning and directing investments into a development of knowledge with regard to long-term development trends. Promotion instruments have thus far been limited solely to the purchase of common equipment and carried out on the basis of joint R&D projects. They have not, however, established cooperation, joint planning and development of environmental systems for long-term cooperation and exploitation.

The study (Mešl & Bučar, 2008) reported that Centres of Excellence are expected to significantly contribute to the flow of knowledge, the identification and pooling of partner competences in the fields of science and development and commercialization of new knowledge. Support instruments ig-

nore this and unequally treat partners in such a way that enables co-financing predominantly to those involved in the public research sphere. They also do not provide support throughout the process of development and application of knowledge.

Mešl and Bučar (2008) further noted that there is no common strategy at the state level in terms of establishing more defined goals and policies. Upon achieving this ambitious goal, Slovenia could not only act as a source of finance and controller of spending, but should also become a partner in guiding the development of Centres of Excellence. This would further assist the Republic of Slovenia to be well-positioned within the entire international innovation system.

3.4.3 Maturity Stage

As reported by the Institute for Entrepreneurship Research (IER, 2011:8-9), Centres of Excellence had by 2011 successfully upgraded from previous collaboration between companies and knowledge institutions and established new partnerships (for example in the fields of environmental technologies and nanotechnology). In 2011, 50 companies participated as active partners, while a further 100 were involved in other forms of cooperation. At that time, hundreds of researchers operated at Centres of Excellence... They created a series of excellent scientific results, reinforced the international dimension and contributed to the development of higher education. They further contributed to the attainment of more than 200 patents and innovations, developed new technologies, products and services and provided new jobs.

Operations of instruments of Competence Centres and Centres of Excellence that were financed by the Slovene Ministry of Education, Science and Sport (MESS) were completed by the end of 2013. The work done by the Competence Centres and the Centres of Excellence is currently being analysed to create a starting base for their continuation. Dr. Jernej Pikalo, Minister at MESS, provided an interview where he assured that the instruments would continue, but only with respect to those Competence Centres and Centres of Excellence that managed to establish a high degree of cooperation with industry - which was also identified as the main rea-

son for their establishment (“Smart Specialization” [Technological Network ICT], 2013). Re-tendering for Competence Centres and Centres of Excellence is to follow in up-coming years.

Currently, work that is being carried out as well as the corresponding effects of these activities are being analysed.

4. CONCLUSIONS

Due to increased globalization and intensified competition, companies and other organisations must be capable of meeting requirements mandated by the changing socio-economic environment. This is not only a question of cost and time, but also a question of being capable of meeting the diverse requirements of clients in different global markets. The need for quick reaction in a rapidly changing economic environment has stimulated the development of a series of new organisational concepts, which include the following components: dynamics and openness. While companies perceive the need to develop new products and penetrate new markets, they are less aware of the benefits to be gained from participating in joint activities within their own sector and among interdisciplinary sectors. Elements of the institutional environment can bridge this gap by initiating activities and processes that enable faster developmental shift in a strategic direction. Clusters, technology platforms, competence centres and centres of excellence are emerged forms of contemporary networking among companies and other organisations prevalent in Slovenia.

This paper confirms the proposed hypothesis. The institutional environment of Slovenia initiated start-up processes that led to the establishment of contemporary network organisations, namely Slovenian state institutions encouraged network connections between companies and other organisations through stimulating policies and the provision of financial initiatives.

There is no doubt that so-called “organisational networking” represented one of the best known organisational concepts as early as the end of the 1990’s. We can maintain that the diffusion and significance of networked organisation forms will continue to increase in future. In Slovenia there are prevalent examples of initiated contemporary network organisations that are currently at a mature stage and which have successfully established themselves within EU structures. While inter-organisational linking will likely have a different form and extensiveness from what it does today, it is likely to take position at in the forefront.

Living Labs represent the next step to the contemporary promotion of economic development. The Living Lab System enables real and user-oriented research and innovation as a normative technique to co-design new products, services and social infrastructure. Living Labs offer services that allow users to actively participate in research and innovation. This network environment connects researchers, developers and users that work together to achieve a common goal in the shortest possible timeframe. As such, Living Labs require the continuation and further development of current research for a comprehensive impression of the functioning and effect of network organisations in Slovenia.

EXTENDED SUMMARY / IZVLEČEK

Sodobne organizacije se soočajo z velikimi izzivi. Glavni izziv jim predstavlja potreba po nenehnem prilagajanju spreminjajočim se razmeram v okolju. Da bi se lažje in hitreje prilagodile zahtevam sodobnih okolij, se povezujejo v mreže. Mrežna organizacija posledično hitro postaja priljubljena oblika sodobne organizacije. Na podlagi analize članov na področju mrežnih organizacij prispevek predstavlja dimenzije in opredelitve mrežnih organizacij. Predstavljena so teoretična izhodišča razlage mrežnih organizacij in njihove različne pojavne oblike. Poudarek je na empiričnem delu prispevka, v katerem je predstavljena analiza oblik mrežnih organizacij, ki so prisotne v Sloveniji, z vidika njihove oblike, razvoja in ocenjenega dejanskega razvojnega stanja. V Slovenskem okolju smo

zasledili grozde, tehnološke platforme, kompetenčne centre in centre odličnosti. Vse našete pojavne oblike smo spremljali skozi tri faze njihovih življenjskih ciklov, in sicer fazo iniciacije ter zgodnjega razvoja, fazo rasti in fazo zrelosti. Ob tem smo spremljali spreminjanje njihovega števila, ki se je pričakovano zmanjševalo od faze iniciacije ter zgodnjega razvoja do faze zrelosti. Opazili smo, da so imeli večji potencial za obstoj tisti opazovani primeri mrežnih organizacij, ki so se uspeli nadalje integrirati v njim sorodne strukture Evropske unije.

Na osnovi analize dokumentacijskega materiala sklepamo, da je institucionalno okolje sprožilo in usmerilo procese ustvarjanja sodobnih oblik mrežnih organizacij v Sloveniji. Žal pa se zaradi pomanjkanja strategije razvoja dejavnosti na področju Slovenije niso uspele po prenehanju subvencioniranja ohraniti nekatere pomembne vzpodbujene tvorbe. Takšen je primer Slovenskega transportno logističnega grozda. Prispevek vzpodbuja k razmisleku po potrebi vgraditve mehanizma za kontinuirano preverjanje potrebe po vključevanju institucionalnega okolja v proženje in usmerjanje procesov ustvarjanja sodobnih organizacijskih oblik v okolju, ki ga zastopa.

REFERENCES

- 7th Framework Programme (2006). <http://www.rtd.si/slo/7op/obvestila/06/tehn-platforme-260106.asp> (accessed April 17, 2014).
- Alstyn, M. V. (1997). The state of network organization: A survey in three frameworks. *Journal of Organizational Computing and Electronic Commerce*, 7, 83–151.
- Andrič, V. (2003). *Analysis of Ministry of Economy's tenders on areas for the development of entrepreneurship and competitiveness*. Ljubljana: Ministry of Economic Development and Technology.
- Avberšek, A. (2006). Clustering and networking strengthen our members. *Voice of the economies*, April 2006.
- Berghoff, H., & Sydow, J. (2007). Unternehmerische Netzwerke - Theoretische Konzepte und historische Erfahrungen. In H. Berghoff, & J. Sydow (Eds.), *Unternehmerische Netzwerke*. Stuttgart: W. Kohlhammer.
- Bettendorfer, C. (2012). *Competitiveness in the European Union: Is cluster cooperation the right way towards the future?* Final Management Project. London: MIB 7.
- Bleicher, K. (2011). *Das Konzept Integriertes Management*. Frankfurt am Main: Campus Verlag.
- Bohinc, R., & Ivanjko, Š. (1999). *Director of the Company*. Ljubljana: GV Založba.
- Bullinger, H. J., Warnecke, H. J., & Westkamper, E. (2003). *Neue Organisationsformen im Unternehmen, Ein Handbuch für das moderne Management*, 2 Aufl. Berlin: VDI-Buch Springer.
- Coase, R. H. (1937). The Nature of the Firm. *Economica, New Series*, 4 (16), 386-405.
- Daft, R. L. (2000). *Management*. Fort Worth: Harcourt College Publishers.
- Daft, R. L. (2010). *New Era of Management*. Mason: South-Western Cengage Learning.
- Dermastia, M. (2002). *Country Case Study on Local Clusters in Slovenia*. Ljubljana: Ministry for Economy.
- DiMaggio, P. J. (2001). *The Twenty-First Century Firm*. New York: Princeton.
- Ebers, M. (1997). Explaining inter-organizational network formation. In M. Ebers (Ed.), *The Formation of Inter-Organizational Networks*. Oxford: Oxford University Press.
- European Commission (2008). *The concept of clusters and cluster policies and their role for competitiveness and innovation: main statistical results and lessons learned*. Luxembourg: Office for Official Publications of the European Communities.
- Everett, K. (2011). *Designing the Network Organization*. New York: Business Expert Press.
- Fleisch, E. (2001). *Das Netzwerkunternehmen*. Berlin: Springer.
- Gibbert, M., & Durand, T. (2007). *Strategic Networks*. Oxford: Blackwell.
- Glas, M. (2007). *Handbook on entities of an innovative environment and business environment*. Centre for Enterprise Development.
- Gomez, P. (1992). Neue Trends in der Konzern Organization. *Zeitschrift für Organization*, 61 (3), 166–172.
- Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic Networks. *Strategic Management Journal*, 21, 203-215.
- GZS (2009). *5th Conference of Technology Platforms - Press Release*. <http://www.gzs.si/slo/47453> (accessed April 17, 2014).
- GZS (2010). *TRINET Conference of the three technology platforms: construction, wood and polymer technology*, July 6, 2010. <https://www.gzs.si/slo/panoge/>

- zbornica_gradbenistva_in_industrije_gradbenega_materiala/50429 (accessed April 17, 2014).
- Hatch, M. J. (2013). *Organization Theory*. Oxford: Oxford University Press.
- IER (2011). *What and who is Slovenian supportive environment and how it can help you in the realization of your innovative product or service*. http://www.Innovation2020.eu/Dokumenti/Koristninasveti/Kaj%20in%20kdo%20je%20slovensko%20podporno%20okolje_final.pdf (accessed May 03, 2014).
- Jaklič, M., Svetina, C., & Zagoršek, H. (2004). *Final Report: Evaluation of measures to encourage the development of clusters in Slovenia in the period 2001 – 2003*. http://www.mgrt.gov.si/fileadmin/mgrt.gov.si/pageuploads/razpisi/analize/razpisov/evalvacija_ukrepov_spodbujanja_grozdenja_261104.pdf (accessed April 17, 2014).
- Jarillo, J. C. (1988). On Strategic Networks. *Strategic Management Journal*, 9, 31–41.
- Jones, G. R., & Bouncken, R.B. (2008). *Organization*. München: Pearson Studium.
- Josserand, E. (2004). *The Network Organization*. London: Elgar.
- Kelly, K. (1998). *New Rules for the New Economy*. New York: Viking Penguin.
- Kieser, A., & Walgenbach, P. (2010). *Organization*. Stuttgart: Schäffer-Poeschel Verlag.
- Kovač, J. (2011). Teorija mrež (Network Theory). In R. Rozman, M. Mihelčič, & J. Kovač (Eds.), *Sodobne teorije organizacije (Modern Theories of Organization)*. University of Ljubljana: Faculty of Economics.
- Malone, W. T. (2004). *The Future of Work*. Boston: Harvard Business School Press.
- Mešl, M., & Bučar, M. (2008). *Evaluation of the economic relevance of the results of programs on Centers of Excellence*. Ljubljana: Concept, Institute for Innovation and integration.
- Mihelčič, M. (2011). Institucionalna teorija (Institutional theorie). In R. Rozman, M. Mihelčič, & J. Kovač (Eds.), *Sodobne teorije organizacije (Modern Theories of Organization)*. University of Ljubljana: Faculty of Economics.
- Milberg, J., & Schuh, G. (2002). *Erfolg in Netzwerk*. Berlin: Springer.
- Miles, R. E., & Snow, C. C. (1992). Causes of Failure in Network Organizations. *California Management Review*, 34 (4), 53–72.
- Moliterno, T. P., & Mahoney, D. M. (2011). Network Theory of Organizations: A Multilevel Approach. *Journal of Management*, 37, 443-467.
- Nohria, N., & Eccles, R. G. (1992). *Networks and organizations: Structure, form, and action*. Boston: Harvard Business School Press.
- Organization of the Future – Designed to Win (2011). http://www.oevo.at/pdf/BCG_Designed_to_Win_Dez_2011.pdf (accessed May 03, 2014)
- Picot, A., Dietl, H., & Franck, E. (1999). *Organization*. Stuttgart: Schaffer-Poeschl.
- Porter, M. E. (1990). *The Competitive Advantage of Nations*. New York: The Free Press.
- Prahalad, C.K., & Ramaswamy, V. (2004). *The Future of Competition*. Boston: Harvard Business School Press.
- Redakcija Financ (2003). *Slovenian Clusters met in Velenje*. <http://www.finance.si/61263/V-Velenju-so-se-sre%C4%8Dali-slovenski-grozdi> (accessed April 17, 2014).
- Rohde, M., Rittenbuch, M., & Wulf, V. (2001). *Auf dem Weg zur virtuellen Organization*. Hiedelberg: Physica-Verlag.
- Rozman, R., & Kovač, J. (2012). *Management*. Ljubljana: GV Založba.
- Rules on record keeping about innovative environment*. Official Gazette of RS, no. 25/2008.
- Schermerhorn, J. R. Jr. (2010). *Introduction to management*. New York: J. Wiley & Sons.
- Slovenian Chamber of Commerce (2010). *Introduction to Inovative Groups of Slovenia Innovative Clusters and Technology networks*. Ljubljana: GZS.
- Smart Specialization [Technological Network ICT] (2013). <http://www.ict-slovenia.net/medijsko-sredie/89-pametna-specializacija-in-izzivi-slovenije-2014-2020> (accessed July 20, 2014).
- Staehele, W. H. (1999). *Management*. München: Verlag Vahlen.
- Steinmann, H., & Schreyögg, G. (2005). *Management*. Wiesbaden: Gabler.
- Štumberger, B. (2007). *Strategic Technology Platform as a business challenge*. Maribor: University of Maribor, Faculty of Economics and Business.
- Sydow, J. (1992). *Strategische Netzwerke. Evolution und Organization, Neuebetriebswirtschaftliche Forschung*. Wiesbaden: Gabler.
- Sydow, J., & Manning, S. (2006). *Netzwerke beraten*. Wiesbaden: GablerVerlag.
- TechAmerica Foundation (2010). *Cybercities 2010: The definitive analysis of the high technology industry in the nation's top 60 cities*. <http://www.techamericafoundation.org/cybercities> (accessed July 20, 2012).
- Untermehmen*. Berlin: Springer-Verlag.
- Vahs, D. (2005). *Organization*. Stuttgart: Schaffer-Poeschel Verlag.
- Williams, C. (2009). *Principles of Management*. Mason: South-Western Cengage Learning.
- Williamson, O. E. (1985). *The economic institutions of capitalism: Firms, markets, relational contracting*. New York: The Free Press.

- Williamson, O. E. (1991). Economic Institutions: Spontaneous and Intentional Governance. *Journal of Law, Economics and Organization*, 34, 159–187.
- Williamson, O. E. (1993). Calculativeness, trust and economic organization. *Journal of Law and Economics and Organization*, 36, 453–486.
- Winkler, I. (1998). *Kultur, Führung und Vertrauen in Unternehmensnetzwerken, eine kritische bestandsaufnahme der, vorhandenen Netzwerkliteratur*. Chemnitz: Fakultete für Wirtschaftswissenschaften.