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Review paper

NEW ORGANIZATIONAL FORMS SUPPORTED BY THE INFORMATION AND COMMUNICATION TECHNOLOGY: THE CASE OF SERBIAN ICT INDUSTRY

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Abstract. *In today's business environment which is constantly changing, organizations are faced with the imperative to build their competitive advantage through reshaping existing resources and capabilities and through creating new ones. Therefore, organizational design has been imposed as an important factor in the business success of the modern company. There are many examples that traditional organizational forms have experienced transformation: they have moved from organizational forms toward new organizational forms. It has also turned out that the basic support for this transition was the introduction of the information and communication technology (ICT) in companies' operations. Consequently, ICT companies, as the most advanced companies, have become the leaders in introducing the new organizational forms in their functioning and facilitate introduction of new organizational forms in other organizations. In this sense, the aim of this paper is to present new organizational forms based on ICT and, on the example of the ICT industry in Serbia, to show how ICT supports their implementation. Special attention will be put on the advantages which new organization forms generate in terms of flexibility and integration of creative potentials, but some disadvantages will be analyzed as well.*

Key Words: *Organizational forms, new organizational forms, information and communication technologies.*

INTRODUCTION

Organizational design, which is expected to be the support to the organizational efficiency and effectiveness, has become a strategic organizational resource and managerial tool which enables organizations to do the right things in the right way in given circumstances

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concerning their current financial and human resources. Until the eighties of the 20th century, organizations were building their success on the organizational design which was based on the principles of bureaucracy (specialization, standardization, formalization, centralization). These principles, however, were appropriate only for the conditions of mass production, mass markets and homogeneous environments. Today, business environment has changed significantly compared to the previous one. Managers are faced with the challenge to design the organization which will be flexible enough, innovative and integrated. All these features are at the same time features that will ensure long-term competitiveness of the organizations.

Managers today are mostly aware that organizations cannot be successful if they run the business using old routines. They realize that in order to make their companies competitive they often have to adapt or change previous competitive strategies and then to change or adapt the organizational form. It turned out the last one has become one of the most important topics in the management literature since many authors saw changing the organizational forms as a tool for the improvement of organizational efficiency and effectiveness (Romanelli, 1991; Schreyögg and Sydow, 2010). The major catalyst for creation and implementation of novel organizational forms (Nault, 1998), which are named „new organizational forms" in literature (Daft and Lewin, 1993), was the information and communication technology (ICT). Although the ICT has many influences on organizational operations, in terms of organizational design it also enables substantial changes, both in internal and external organizational forms. There is large evidence that new internal forms of organization and work processes can lead to higher performances and raised organizational competitiveness because of the reduction of hierarchical levels, enhanced employees' creativity etc. In terms of new interorganizational forms ICT enhanced the existing and establish new cooperation forms between enterprises (networking) which facilitate access to global markets. Knowing these facts it could be said that ICT at the same time is the factor and the component of organizational design.

New organizational forms (NOF), generally speaking, were created on the basis of the previous ones and redesigned with hard and soft elements in the way that adds value and eliminates their disadvantages and limitations for use in new conditions. With the NOF, organizational design has become not only the factor for high performance and competitive advantage, but also a strategic resource that companies cannot purchase on the market or copy from others (Miles and Scaringella, 2012).

Having in mind the importance of ICT for creating new organizational forms, this paper will deal with the analysis of these forms. Special attention will be placed on their advantages which could be used for enhancing organizational performances, but we will point out some of their potential disadvantages, too. Starting from such defined task, we will deal with two related issues: new organizational forms and information and communication technology. This paper will also deal with the analysis of the Serbian information and communication technology industry (ICT) which represents the highly competitive export-oriented industry in Serbia and very attractive industry for young talents. Employees in this sector have understood best that competition is no longer based on traditional resources, combining raw materials, labor and capital, but that the competitive advantage is based on knowledge. By using this example we will try to answer two questions: (1) Is it possible to improve competitiveness of companies in Serbia by using information and communication technology, (2) What new forms of organizational design should be used in order to improve competitiveness of the company?

1. Environmental Challenges that Organizational Design Must Respond to

Business environment has changed significantly compared to the environment from a few decades ago, challenging management of organizations to design the organization to be flexible, innovative and integrated. The view on the influence of the environment on organizational designing can be divided into three periods (Anand and Daft, 2007).

The *first period*, until the 1970s, was based on the premise that an ideal organization must be independent with clearly established boundaries between its own skills and capabilities and suppliers, customers and competitors. This approach led to organizations in which employees were arranged by functions, or divisions and specialized for certain jobs, with vertical hierarchy and a chain of command. When the increasingly complex environment began to point to shortcomings of traditional organizational structures: coordination between functional parts was difficult, vertically established authority did not provide effective value creation for customers, *the second period* of organizational design started in the 1980s. This period is characterized by redrawing the boundaries of the organization with the aim to improve coordination and communication. Along with these changes, the capacity of information processing increased because of the availability of personal computers and further development of information and communication technology which brought us to *the third period* of organization designing in the mid-1990s. Managers have become aware that organizations can no longer effectively perform all the tasks necessary to make products and services on their own, which caused a shift in the approach to design and a change of organizational models. The concept „boundaryless organization“ was promoted; it is based on breaking down the barriers imposed by traditional models: vertical barriers between different organizational levels, horizontal barriers between functions that can cause the effect of functional silos, external barriers between companies and external stakeholders and geographical barriers between nations, markets and cultures. All these barriers lead to extensive separation of people and business processes, which is reflected in increased costs, slow business processes and reduced innovation (Ashkenas et al. 1995). Organizations have recognized the superiority of tearing these barriers down while achieving all the benefits of traditional organizational structures such as specialization and efficiency, that characterize the functional organization, while adapting to the customers and markets, which is a characteristic of divisional organization (Miles and Snow, 1992). In contrast to organizations that were oriented to the size, defined roles, specialization and control, boundaryless organizations are characterized by speed, flexibility, integration and innovation (Ashkenas et al., 1995), and the ability to form a model based on the context that corresponds to the solution of given problems (Baker, 1992). All this makes them a more adaptable organizational structure.

The important lesson for all contemporary organizations can be summarized in the statement that it is important to cooperate, not only with suppliers and buyers, but also with competition.

Generally speaking, the trend of interorganizational linkage was created by the need of constant innovation, improvement and adaptation of outputs to market demands and expectations of consumers. Although specialization and focusing of organizations on certain activities of the value chain have results such as higher productivity, high quality and lower costs which are basic leverage for organizational competitiveness (Porter, 1985) in the globalized market there is a low possibility that a single organization could achieve these results independently. Consequently, in recent times managers have found

the solution in partnerships, or in interorganisational collaboration. Those new forms of cooperation also have concrete goals on the input side as well as on the side of outputs. The inputs which are brought by partner-members are specific resources that members have in possession such as: space, technology, people, knowledge, skills, markets, etc. Basically outputs are the reason why collaborations are made, and they can be: innovations, productivity, quality, learning, new technology, new markets, new higher standards of employees and citizens. In other words, we can say that interorganizational relations are the efficient strategy for concentration of resources in order to improve competitiveness of members and life standards of citizens (Delgado, 2010).

In that way, contemporary organizations recognized that the new strategy for successful business operations in the globalized market could be interorganisational relations. This strategy became a challenge as well as a trigger for the development of internal capacity of organizations for continued growth and development. Many organizations went through the process of internal redesigning in order to get rid of some activities and operations in the value chain, which they were not competent and had no competitive resources for. The canceling of such activities caused the reduction of the number of employees and changes in organizational forms. On one hand, a new source of growth and development of the organization has been found in interorganisational relations and, on the other, they caused size-reduction to the optimal level to make organizations more efficient.

2. NEW ORGANIZATIONAL FORMS DEVELOPED IN THE INFORMATION ERA: LITERATURE REVIEW

If the environment and the challenges it imposed caused changes in organizational design, then the progress of ICT is the key factor to support those changes and facilitate the introduction of new organizational forms (Child and McGrath, 2001). But in order to understand how ICT can do this, adequate understanding of what ICT represents is necessary.

From a technological point of view, one group of scientists argues that information and communication technology is any form of information systems based on computers (Orlikowski and Gash, 1994), while others think that information and communication technology is represented by computers, e-mail, voice mail, video conferencing, databases and other electronic devices for storing, analyzing, and transmission of information in an organization (Ott et al. 2011). From a business perspective we accepted the definition that information and communication technology includes three key resources that, when used together, can be a source of competitive advantage of organizations (Ross et al. 1996, p. 33): 1) human resources, 2) technology, and 3) the relationship between ICT and management. Consequently, according to this view, possession of ICT is not a source of competitive advantage *per se*. The key of organizational functioning and success is its ability to attract and retain human resources (Pfeffer and Salancik, 1978), and to establish the appropriate relationship between ICT and management in order to implement technology in the right way. In other words, the *differentia specifica* of the organization stems from a combination of organizational assets and skills which, when applied to well-designed business processes, leads to high value for consumers (McCormack and Johnson 2001). This uniqueness is established within organization, within internal organizational structures, systems and processes and it is strongly influenced by internal factors,

particularly leadership that drives employees and it has a big impact on productivity, innovation and efficiency of work processes.

It is without doubt that ICT has led to new forms of organizational design which removed the barriers imposed by traditional models and form new structures for specific situations (Baker, 1992). Those new forms could emerge since ICT is not simply a tool for automating existing processes, but more importantly ICT influenced all structural elements of organizational design and changed their appearance (Dedrick, Gurbaxani, and Kraemer, 2003, p.1) allowing organizations to experiment to discover new and better practices (Baldwin, 2012). Consequently, new design models emerged which brings new abilities for the 21st century organizations.

In the following text we are going to show nine organizational forms which are most frequently mentioned in contemporary literature and represented in practice: meta-organization, network, virtual, cellular, innovative form organization, platform-ecosystem organizational form, ambidextrous, hypertext, and inverted organization.

Meta-organizations. New organizational forms, enabled by the development of the Internet and related ICT technologies, include more organizations and more individuals (Gulati, Phanish and Tushman, 2012), thus, they turned from independent to meta-organizations and represent new foundations on which business strategy is implemented (Marciniak, 2013). Meta-organizations are those organizations whose members, whether they are organizations or individuals, function independently and legitimately in order to achieve system goals. Although meta-organization has not established a formal authority in a contractual relationship, it can have the significant informal authority based on experience, reputation, expertise or control over key resources or technology (Gulati, Phanish and Tushman, 2012). Meta-organizations are largely represented in the ICT industry, in which the leading companies like Microsoft, Apple, Google, SAP and Cisco include groups of developers and globally dispersed small and big companies that are characterized by intense flow and exchange of information.

Network organizations can be defined as a strategic response to environmental pressures that provide incentives to disaggregate business functions to specialist partners (Cravens, Piercy and Shipp, 1996). Compared with traditional organizations, network organizations have few essential differences which make them superior organizational forms (Miles and Snow, 1992, p. 55): 1) Unlike traditional organizations that were basically structured with a tendency to internally and independently produce all the goods and services (everything under one roof), network organizations use the assets of several organizations located along the value chain, 2) Network organizations rely on market mechanisms through exchange of information, cooperation; they customize products and services according to demands and needs of customers and for that they have significant help from information and communication technology, 3) It is expected that members of network organizations not only meet their contractual obligations, but also to voluntarily work together to improve final products and services, and, because of that, organizations acquire characteristics similar to Japanese keiretsu - joint cooperation of manufacturers, suppliers, retailers and financial companies.

One manifestation of network organizational form is **virtual organization** which represents a temporary network of independent companies (suppliers, customers, even rivals) linked by information and communication technology to share knowledge, skills, costs and access to one another's markets (Byrne, 1993). The basis of the virtual organization functioning is free and fast gathering, processing, flow of information and mass collaboration,

so without the current capabilities of information and communication technology the virtual organizational form would be very difficult, if not impossible to use. Virtual working addresses the need to break with old, bureaucratic ways of working, and to allow rapid innovation, product development (Jackson, 1999), fluid state that promotes learning, reflexiveness and growth (Allcorn, 1997). As distributed, fluid organization form mediated by various forms of ICT, virtual organization has several implications for management because it represents the opposite of the principals of hierarchy: it has no stability, no clear boundaries of authority and accountability, bureaucracy, and no vertical chain of command (Petković and Aleksić Mirić, 2011).

Cellular organization is made up of cells that possess fundamental functions and can operate alone, but also interact with other cells in order to combine the knowledge to spread innovation and strive for new product and service opportunities (Miles et. al., 1997). Each cell is responsible to the larger organization, while the customers of a particular cell can be outside clients or other cells in the organization. Collaboration among cells increases the potential for bringing employees from different disciplines together for short periods of time who would not otherwise have the opportunity to become engaged in the activity (Zammuto et al. 2007).

Innovative form organization (I form organization). Organization's innovation success comes from opening up its innovation processes to external sources of knowledge and creativity (Chesbrough, 2006). The I form organization enables companies to compete effectively by focusing them on their core business activities, outsourcing non-core activities to external providers (Miles et al. 2009) and pursuing rapid and continuous innovation through sharing knowledge, experiences and innovative concepts at relatively low cost with advances in ICT (Snow et al. 2008). It becomes apparent that along the entire value chain, suppliers and distributors might have valuable ideas for product improvements or new market opportunities, so knowledge sharing across these actors is recognized as a mutually beneficial process. The main challenge for organizations is to create trust among organizations as the expectation that other party will fulfill obligations, behave predictably and negotiate fairly (Perrone, Zaheer and McEvily, 2003).

Platform-ecosystem organizational form. Numerous companies that focus on providing online services and rely on affiliated third parties to provide complementary products and technologies form platform-ecosystem organizational form (Yonatany, 2013). Platforms, as the common components used across a product family (Boudreau, 2010) can be improved by the third parties (Evans, Hagiu and Schmalensee, 2006) when they are used for construction of complementary products and services. This organizational form is very useful in ICT enabled industries where the actions and outcomes of a technology entrepreneur are deeply interconnected with the actions and outcomes by others.

Ambidextrous organization. Organizational ambidexterity is the ability to pursue exploitative (efficiency, selection, control, extending existing skills and capabilities) and explorative (search, experimentation, research and development) activities simultaneously (Jensen, van den Boshc, and Volberda, 2006). At first, Tushman and O'Reilly (1996) analyzed structural ambidexterity by recognizing the presence of separate structures in organizations to achieve the desired balance between exploration and exploitation, while latest research introduced the notion of contextual organizational ambidexterity and analyzed the role of the behavioral context in achieving the balance (Gibson and Birkinshaw, 2004). Information and communication technology has proven itself as a factor that can promote the balance of exploration and exploitation activities (Rothaermel

and Alexandre, 2009) and ambidexterity in the development of new products and services according to its primary role: transaction, organizing and processing of knowledge, facilitation of coordination, people networks and collaboration (Revilla, Prieto and Rodriguez, 2011).

Hypertext organization. The need for combining the efficiency and stability of a hierarchical bureaucratic organization with the flexibility of the flat, cross-functional task-force organization has led to new organizational form which, according to Nonaka and Takeuchi (1995), needs to be designed and managed as a multilayer, hypertext organization. Organization knowledge is created and supported by information flowing through three layers: 1) the business-system layer, organized as a hierarchy, for routine operations; 2) the project-team layer where multiple project teams are engaged in knowledge creating activities and 3) the knowledge-base layer which does not exist as an organizational entity, but it is incorporated in corporate vision, organizational culture and technology (Nonaka and Takeuchi, 1995).

Inverted organization was proposed to facilitate employees contacts with the customers according to the fact that the vast majority of jobs are now service oriented and that the success of organization lies in intellectual capabilities. Former line managers evolve into staff people by removing barriers, expediting resources, conducting studies and acting as consultants, instead of giving orders. What matters is expertise of the professionals, because they work alone to customize products and services for individual customer according to their knowledge and experience (Quinn, Anderson, and Finkelstein, 1996). ICT has reduced the need for hierarchy to manage information flows and coordinate activities because information is becoming available to all employees allowing them to organize around the work itself (Zammuto et al. 2007).

If we examine these new organizational forms, we can notice some of the similar characteristics: 1) development of networks, cooperative relations with all actors in the value chain, association with other organizations; 2) trend towards flatter hierarchical structures within organizations and more cooperative management style; 3) development of a creative, responsive, adaptive, flexible organization; 4) focus on knowledge diversity within partners and facilitation of knowledge sharing and creation, 5) reducing organization to an optimum (rightsizing), focusing on core competencies and outsourcing other responsibilities to other parties.

Reviewing the literature we have found a multitude of new terms of NOF arising from the different perspectives of observations on new organizational forms. A key problem is a lack of clear criteria by which we can distinguish one form from another, as well as the answer to the question whether NOF refers to time or to context. Empirical work has been fragmented, the literature relies on single case studies (Dunford et al. 2007), and there is no unifying theory to interpret empirical findings (Pettigrew et al. 2003). What is undoubtedly so is the fact that NOF can be characterized as a hybrid forms of hierarchy in which decision rights are delegated to lower levels with support of ICT. These are their basic characteristics that distinguish them from the basic organizational forms. In that sense, the degree of delegation of authority and independence of employees are the main criteria by which we can observe variations of NOF.

3. CHARACTERISTICS OF NEW ORGANIZATIONAL FORMS: ADVANTAGES AND DISADVANTAGES

Given the analysis of literature review, it is important to be able to consider several important characteristics of new organizational forms:

First, all forms, without exception are non-original hybrid structures derived from the basic bureaucratic models.

Second, the development of these forms was inevitable because bureaucratic models are rigid, with strong internal and external boundaries and as such have no potential to quickly respond to changes in environment and interorganizational linkages.

Thirdly, NOF are flat structures with open internal and external boundaries, with intensive communication, movement of people, information and knowledge sharing.

Fourth, NOF are fully supported by information and communication technology, it can be argued that many of them are possible only in the information age (networks, hypertext, platform-ecosystem).

Fifth, NOF are very fluid structures.

From the presented characteristics of new organizational forms, we can evaluate their advantages over bureaucratic forms of organization, but at the same time we can observe their disadvantages, as shown in Table 1.

Table 1 Advantages and disadvantages of NOF

Advantages	Disadvantages
Flexible structure	Structure fluidity may produce conflicts
Small number of hierarchical levels	Lack of formalization can reduce individual performance
Internally and externally open systems	Lack of bureaucratic rules and procedures may reduce the reliability of output
Highly informationized organization	Informal authority in some cultures do not give the expected results
Learning organization	Potential distrust among individuals
Employees have a high degree of freedom for creativity and change	
Strive for innovation	

Source: Authors

It is clear that new organizational forms cannot function alone and independently from basic forms, and they are actually enhanced bureaucracy, with the aim to achieve the required flexibility, collaboration and transfer of resources (information, knowledge, experts). But, new organizational forms are not simply bureaucracy dressed in a new and refined disguise, they are carefully designed and controlled by a decentralized principle of power (Maravelias, 2003, p. 562). In practice, it is very hard to find the organization with a clear model of some of the new organizational forms. Usually, organizations are dual structures with bureaucracy in basis which ensures stability, and some enhanced structure of new organizational form in order to achieve the flexibility of the system. Our research also indicates these findings, which will be shown in the continuation of this paper.

4. RESEARCH DESIGN

The goal and the object of the research. The field research was conducted with an ambition to get answers to the starting research questions: (1) Is it possible to improve competitiveness of companies in Serbia by using information and communication technology, (2) What new forms of organizational design should be used in order to improve competitiveness of the company? The object of research, the companies in the ICT industry, was not selected randomly; on the contrary, the ICT industry is a promoter of informatization of society and organizations, it implements and maintains ICT infrastructure in other organizations, and according to literature, it forefronts in the implementation of new forms of organizational design (Powell, 1996), which provides great connectivity and cooperation opportunities in this industry (Miles et al., 2010).

The importance of research. The global crisis is reflected in Serbian economy through high unemployment, rising foreign debt, inflation, poor living standard. On the other hand, there are some bright points, such as export of software and ICT services: in 2007, the software export amounted to 62 million euros; in 2011, it was up to 166 million, while in 2012 it exceeded 200 million euros (www.pks.rs) and in daily jargon it can be heard that Serbia is *the country of farmers and ICT specialists (*www.rtv.rs). ICT industry has been recognized by the state as a significant segment for further development of the Serbian economy and the government has adopted several policies and strategies. The Strategy for development and support of the information technology industry is the most important institutional support that should encourage and support the industry in four segments: start-up, outsourcing, development and export of original software products, development centers of large multinational companies (Službeni glasnik RS 72/12).

The design of the research. The research was conducted by using the questionnaire technique for data collection: the questionnaire was sent to 40 domestic ICT companies, members of ICT clusters, which both develop and use information and communication technologies. The questionnaire consists of 20 questions designed in order to indicate: 1) the key characteristics of local ICT companies: size, age of the company, number of employees, the opportunities for flexible working hours and working from home; 2) the demographic characteristics of employees in ICT companies: age, gender and educational structure; 3) the manner in which employees perform their tasks and activities, share knowledge and information, communicate; 4) the degree of formalization and centralization, 5) cooperation with other organizations and clients, 6) established organizational form. The collected data from the questionnaire was analyzed and interpreted by the description method. Also, we used the method of analysis and interpretation of data from secondary sources: official statistics, the Ministry of Foreign and Internal Trade and Telecommunications, the Directorate for Digital Agenda, ICT associations, media and, also, an observation method as the authors had the opportunity to spend some time in one of the ICT companies.

5. DISCUSSION OF RESEARCH FINDINGS

Age, size and human resources. The surveyed companies have been working 5 to 25 years and measured by the number of permanent staff, they belong to the groups of small (58%) and micro companies (42%). The surveyed ICT companies are young if we consider the age structure, since most of the employees (over 80%) are young and younger middle aged workforce that is highly educated - most employees (over 90%)

have a university degree. Because of the lack of functional knowledge, ICT companies pay much attention to training and development: 75% of the surveyed companies responded that they organize internal and external staff training. It can be concluded that Serbian ICT industry is aware that the 21st century is a century of knowledge and that the human capital is at the top of the list of factors necessary for implementation of business strategies. The described situation goes hand in hand with flexible organizational design and modern organizational forms that with ICT support could improve the competitiveness of these companies.

Communication. Serbian ICT companies, as supposed, predominantly use electronic means of communication which is very important because most of the surveyed companies allow their employees to work from home (58%), while all companies offer flexible working hours. Compared with traditional communication that was placed in the relation superior-subordinate, ICT strengthens the intensity and flow of information within the organization in all directions, vertically, horizontally and laterally (Hiltz et al., 1986). By rapid increase in the quantity of information and the speed of their transfer from one location to another, ICT significantly reduced communication costs (Henderson and Venkatraman, 1993). Well-developed internal and external electronic communication networks in organizations support new organizational forms (Child and McGrath, 2010). It would not be able to imagine interorganizational relationships, networks, multi-networks, virtual teams, and other NOF without electronic communication.

Formalization and specialization. Tasks and operations of surveyed companies are heterogeneous, and include sales, working with information technology, management, administration. Results showed that domestic ICT companies do not have a large number of written rules and procedures, there is no detailed specified job description, so the employees have freedom to perform their tasks in the best possible way at the given moment. However, the companies have an orientation and directing program for new members, as well as written documentation of employees' performance. In performing daily tasks, the surveyed companies use ICT in VAT payment, payment of contributions for employees, for sending documentation to public administration, for collecting the necessary forms and information, which results in achieving significant savings in time. Informatization of the organization enables the general specialization and low level of division of labor among employees, which brings great benefits for both employees and employers: first ones do not perform monotonous work, and the others have the opportunity to have the job done with a smaller number of employees with broader specialization. However, it would be no good to go to the extreme, since the benefits could turn into disadvantages.

Responsiveness and agility. The employees of Serbian ICT companies customize their products and services to meet the needs of customers, so they have a sufficiently broad specialization, which allows them to act flexibly. Three quarters of the surveyed ICT companies strive to keep customers, involving them fully in the process of creating products and services, and establishing long-term relationships with them through technical maintenance of implemented products and through expert support. When work process is organized by projects, employees with expertise get a certain level of autonomy, expertise-based power that may affect the development of new products.

Organizational form. The project organization through semi-autonomous project teams is typical for the companies in the ICT industry, so in domestic companies we could recognize the hybrid model with features of inverted bureaucracy. In the inverted

organization, experts can independently design and implement the whole project solution for a client, and managers become only support (Quinn, Anderson and Finkelstein, 1996).

Employees in Serbian ICT companies are dealing with complex tasks that require teamwork and interdisciplinary knowledge, as their clients are companies from different backgrounds, and as each customer has specific requirements for the solutions they need. At the same time, the parallel existence of few project groups and the engagement of an employee in several projects may cause problems with planning priorities, coordination and control. In order to take advantage of the small semi-autonomous units and project teams, a good combination and cooperation of formal and informal leadership, interweaving of formal and informal authority and coexistence of bureaucracy and adhocracy must exist in those companies.

The ICT industry in Serbia is a leader in establishing interorganizational relations. In this way, these companies have contributed to the affirmation of a cluster, which is seen in Serbia as a way of connecting big and small employers, entrepreneurs, universities, institutes, government agencies and associations, with the aim to improve the competitiveness of the national economy (Porter, 1998). The literature on NOF recognizes a cluster as a meta-organization that it essentially is, because the structure of the cluster is extremely fluid, it has no professionalized leadership and formal authority (West and Lakhani, 2008). Business and development strategies of ICT companies rely not only on efficient internal organization, but also on establishing interorganizational relations with other organizations and companies. ICT companies, as modern organizations, have realized that both vendors and distributors are good sources of technical and market knowledge that could be used for further growth and development of production and services.

Organizational form of Serbian companies in the ICT industry helps us to be more objective towards linear logic that prevails today in the literature on NOF, in which fluidity and flexibility of the organization are over-emphasized and exaggerated. After spending some time within those companies, it can be seen that the reality is very different from the concept offered by some researchers of NOF. The actual situation inside the companies indicates that the nonlinear logic in new conditions is more applicable than the linear concept (Schreyögg and Sydow, 2010).

Serbian ICT industry currently has the following clusters: Vojvodina ICT Cluster - VOICT, Nis Cluster of Advanced Technologies - NiCat, ICTNetwork Serbia Cluster - ICT Net, which integrate companies in this industry, scientific-research institutes and supporting institutions (www.klasteri.mfp.gov.rs and www.ni-cat.org). Those clusters began their strategic partnership in 2012, in order to jointly improve the business environment and achieve growth faster than the average, innovation and productivity, to encourage the development of new businesses. Financial data for 2010 show that one of the highest turnover is made by the member of two ICT clusters (ICT NET with around 87 million euros and Vojvodina ICT with 44 million euros). Also, cluster members help domestic companies to exit in new markets and increase their visibility using ICT. The biggest exporters among clusters are the members of Vojvodina ICT Cluster (20 million euros) and the third place is occupied by ICT NET (around 10 million euros) (Mijačić, 2011, p. 32). Programming and computer services dominate in the structure of export of computer and information services, followed by embedded systems and system integration.

Newly established networks allow benefits to all members of the chain, through the construction of a multi-network (clustering of clusters) (Miles et al. 2010). Because clusters are geographic concentrations of linked companies, institutions and other entities

important for competition in a particular area, the clusters in Serbia are important for balanced regional development. For this reason, the clusters are also established outside of Belgrade, such as the newest one in Kragujevac, in the Business Innovation Centre (BIC), that brought together companies dealing with information and communication technologies from Šumadija and Pomoravlje, should get the full support from the Government and become the business model for connecting young talents in the ICT industry (Politika, 22 May 2013, p. 14). Balanced regional development is also supported by the fact that Comtrade' software development center was opened in Kragujevac, which employes 200 IT engineers, with promise that there will be 200 employees more until June of 2014 with government support (Politika, 19 February 2014). Comtrade, as a specialized company for ICT solutions, has 16 companies in 11 countries and it largely cooperates with universities, schools and other successful companies.

Clusters in Serbian ICT industry will continue to expand because, besides the experts there is supportive macroeconomic and organizational environment and the increased awareness of all those who have interest in improving the competitiveness of Serbian economy: companies, small entrepreneurs, researchers and government.

CONCLUSION

In this paper we presented the new organizational forms that have emerged in response to the challenge of changes in the environment characterized by the appearance of multi-competition. These new organizational forms marked the end of the twentieth and beginning of the XXI century. A literature review showed that their implementation was possible only thanks to advances in information and communication technology. In other words, the complexity of the new intra- and interorganizational forms, that have been given new manifestations and characteristics, would not be possible if the ICT industry has not progressed in the meantime. Thanks to that fact the organizations and management who make decisions on the choice of organizational design were offered new tools to manage multi-business, employees and interorganizational relations.

This paper also pointed out that new forms of organizational design are very complex and often complicated to understand, but enable decisions to be made in places where knowledge and specialized expertise are located (operational level). At the same time, the new forms of organizational design enable top management to have control over the processes which take place in the operations and to successfully coordinate them.

The research conducted in Serbian ICT industry confirmed to a large degree our initial view that NOF and ICT are in close interdependence. We believe this is an appropriate strategic choice especially in today's business environment where interorganizational relations are highly globalized or where they are established in the form of clusters, which is the case of Serbian ICT sector. We also believe that interdependence of NOF and ICT is the strategic choice which provide modern organizations with successful business and competitiveness in the long term.

The main message that we tried to convey by this paper is that sustainable competitiveness in terms of multi-competition cannot be achieved in the old way and that ICT today allows organizations to use competent employees positioned in a new way in organizing scheme to achieve efficiency and effectiveness simultaneously.

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NOVE ORGANIZACIONE FORME PODRŽANE INFORMACIONO-KOMUNIKACIONOM TEHNOLOGIJOM: PRIMER IKT INDUSTRIJE U SRBIJI

U današnjem poslovnom ambijentu koji se konstantno menja, organizacije su često suočene sa imperativom da svoju konkurentsku prednost grade preoblikovanjem postojećih resursa i sposobnosti ili izgradnjom novih. U tom smislu organizacioni dizajn se nametnuo kao važan faktor poslovnog uspeha savremene kompanije. Postoje brojni primeri koji govore da su tradicionalne organizacione forme doživele transformaciju: od organizacionih formi – do novih organizacionih formi. Ispostavilo se da je bazična podrška ovoj tranziciji bila uvođenje informaciono-komunikacione tehnologije (IKT) u poslovne operacije kompanija. Posledično, IKT kompanije kao najnaprednije kompanije, postale su lideri u uvođenju novih organizacionih formi i ubrzale njihovo uvođenje i u druge kompanije. U tom smislu, cilj ovog rada je da predstavi nove organizacione forme bazirane na IKT, a zatim da na primeru IKT industrije Srbije pokaže kako je IKT podržala njihovu implementaciju. Posebna pažnja biće posvećena prednostima koje nove organizacione forme generišu u pogledu fleksibilnosti organizacija i integracije kreativnih potencijala, ali će, takođe, određena pažnja biti posvećena i nekim od njihovih nedostataka.

Ključne reči: *organizacione forme, nove organizacione forme, informaciono-komunikaciona tehnologija.*