

Structure and Functions of Virtual Organization as a Framework for Strategy Design

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Abstract—This paper presents structure and functions of virtual organization as a most important factor for strategy design in turbulent environment. Due to severe political, economic, security and other problems classic framework for strategy design fails in territory of Kosovo and Metohija. Existing solutions, such as acquisitions, merging, formal contracts, create non-flexible tool which has to develop functionalities sometimes almost from the beginning. Proposed solution enabled synergetic use of existing functionalities, which solved the problem. Designed strategy was created on basis of framework made by functions of the virtual organization, which were much more than just sum of functionalities of its parts. Literature analysis, descriptive statistics, comparison and field observation were basic methods used in this research.

Index Terms—Broker, ICT, Network Models, Organization, Strategy, Virtual organization

1. INTRODUCTION

This paper analyses implementation of virtual organization as a framework for strategy design. Due to extreme conditions, strategy of economic development of Serbia cannot be implemented in the territory of Kosovo and Metohija. This requires a new strategy, and most important factor of that strategy is the functionality of a network consisted of institutions, non-governmental organizations and enterprises.

2. PROBLEM DEFINITION

Design and implementation of long-term strategy of economic development of Serbian community in Kosovo and Metohija was extremely specific task, both in methodology and realization. Due to political factors, after the NATO intervention in 1999. Serbian government had practically no formal control or instruments in it's former province. Administration was transferred on UNMIK (United Nations Interim Administration Mission in Kosovo), on 10. June 1999, when the Security Council in resolution 1244 authorized the Secretary-General to establish an interim civilian administration led by the United Nations.

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UNMIK has jurisdictions to:

- perform basic civilian administrative functions;
- promote the establishment of substantial autonomy and self-government in Kosovo;
- facilitate a political process to determine Kosovo and Metohija's future status;
- coordinate humanitarian and disaster relief of all international agencies;
- support the reconstruction of key infrastructure;
- maintain civil law and order;
- promote human rights; and
- assure the safe and unimpeded return of all refugees and displaced persons to their homes in Kosovo and Metohija.

Kosovo and Metohija were one of the least developed areas in Serbia, even in the period before the conflict. After military conflict in the year of 1999. Serbia formally lost jurisdiction over this province, but has not lost responsibility for its future economic, political and safety aspects.

National strategy of economic development of Serbia planned achieving of the principles agreed in Lisbon Declaration about regional development and increased investments into least developed areas. But practice has shown that the implementation of most priorities is not possible due to inefficiency of lack of action mechanisms of state institutions in that area. Ministry of industry, Ministry of finance, Tax Office, State Surveyor Office, Courts, State Business Register Agency, Development Fund etc. since year 2000. do not apply its mandate on Kosovo and Metohija, limited by mentioned UN resolution. Although described conditions are evident, state has responsibility for economic aspects, especially population economic standards.

Summarized problems could be described as problems of:

- Unavailability of data, field resources and institutional mechanisms
- Safety of staff and capital
- Non-cooperative or competitive behavior of other present institutions
- Local incompetence – limited abilities of local communities to create it's own strategy and resources needed for entrepreneurship development and employment

- Legal vacuum in jurisdictions over province

State of industry of Serbian communities in Kosovo and Metohija is specific by poverty, slow and late development. The macroeconomic indicators on area with Serbian population is unsatisfactory: population of 130.000 (most living in enclaves), 250.000 exiled and refugees, only 359 of registered enterprises, export share in foreign exchange balance is just 5,9%, basic economy sectors are agriculture and mining, and capacity usage in those sectors is around 10%. Since 1999. GDP is constantly falling and now is less than 400€ per capita, as a result of less and less production activities and international aid.

3. PROBLEM SOLVING

Inefficiency of existing state institutions in Kosovo and Metohija created the need for new institutions, not parallel but those that can use or aid the existing ones.

Economic Team for Kosovo and Metohija was formed, consisted mostly of experts in thirteen economic and industry areas. Experts coordinate workgroups consisted of staff from Ministries, public enterprises and science institutions. That fully defines Economic team as a broker of wide institutional network, participating in strategy design and implementation.

Economic team started to develop alternative, specific development strategy, regarding primarily possibilities for appliance of proposed actions and instruments in existing formal and security conditions. By working on this task virtual organizations have functioned in two areas: as a model of organization for strategy design team, and as a model for connection and coordination of loose institutional partnerships which will participate in strategy implementation, creating the framework for strategy of economic development.

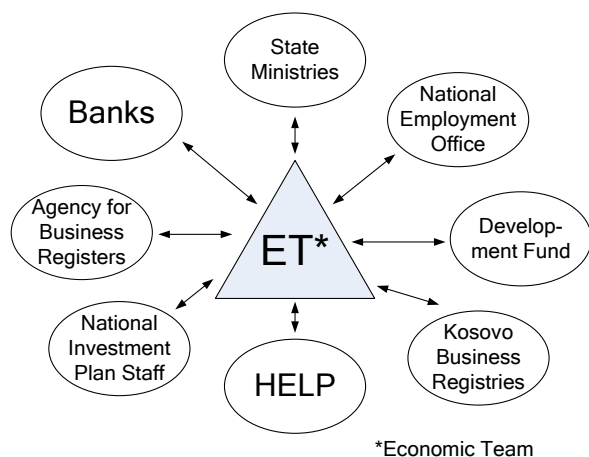


Figure 1 Virtual network of Economic Team

Second dimension has special importance in context of this paper, because by accepting it strategy is aimed only on such priorities, measures and activities that could be implemented in conditions of limited functionality of State (territorial, legal and institutional), or the strategy would be just a declarative document, a list of wishes outside of the practical problems of ways for implementation.

Economic team has took over various roles of network broker, corresponding to classification we can find in works of Avila, Putnik and Cunha [1]. Besides initiating of new collaboration methods, acting as configuration manager, Economic team provides legitimate approach and resources for the network (information, technical, financial), but also provide transfer of goods on institutions and people in Kosovo and Metohija.

This paper presents strategy design approach in field of entrepreneurship – one of the major priorities in development strategies for countries with insufficient economy development.

Although problem sounds specific and politically burdened it has parallels in business environment. Often an enterprise is forced to implement strategy in business environment (often hostile or highly competitive) in which that enterprise has no control of action mechanisms. Such problem can be solved by using the framework provided by virtual organization. Such solution can be more efficient and effective, create more knowledge, create atmosphere of mutual collaboration and ease existing conflicts, and are always faster than usual solutions, such as acquisition, merging, too formal contracts or "brute force" approach.

Some of the basic preconditions for virtual corporation development were:

- There was high degree of trust and understanding among core institutions that formed nodes
- Every partner had some value to add to the organization
- Organization was project-oriented
- Rules of collaboration were clearly defined
- Major nodes recognized need for coordination and one node that will take the role of coordinator
- Clear interface towards "non-virtual" clients was defined[2]

4. PROCESS OF STRATEGY DESIGN BASED ON STRUCTURE AND FUNCTIONALITY OF NETWORK

As an illustration of approach to strategy design based on structure and functionality of network we will describe process and solution we came to during development of strategy segment for support of entrepreneurship and small and medium enterprises. The design was done in five major steps:

1. Identification of institutions for support of entrepreneurship development in the Republic of Serbia
2. Inspection of collaboration model for supporting institutions
3. Inspection of support process
4. Identification of functionality barriers for existing support model
5. Sustainable strategy design

1) With no doubt major role of supporting economic development, especially small and medium enterprises in Serbia belongs to Development Fund, which has role connected with all means of financial aid, under given conditions, to those enterprises which have size, location or belong to sector that is defined as a priority in National Strategy of Economic Development[3]. Ministry of finance is providing financial means by National Investment Plan. State Business Register Agency is registering the enterprises and keeping records about given mortgages. Business banks, besides credit guaranties, provide operative treatment of applications. Tax Office controls and charges tax obligations. Ministry of Agriculture is giving financial and other means of support to agricultural and rural development. National Employment Office implements programs of employment improvement. Non-governmental organizations give support to development by utilizing humanitarian aid and donations etc.

Such structure resembles information system with poor user interface. The functionality of other layers is diminished by lack of usability in the processes of data input and retrieval. Final users and strategy implementators – existing or future small and medium enterprises sometimes cannot access only one functionality, and then whole complex need or project is imperiled.

2) Number of institutions that have at least part of its authorization in field of small and medium enterprise support indicates relatively high specialization of its functions. This is one more reason to create effective model of collaboration. But, the connections can be found primarily on basis of common client, i.e. existing or future enterprise that needs support. There is no formal institution or standardized procedure of communication. Client is the only mutual connection. In that context efficiency of its collaboration depends on skills of the client to

use competences of various institutions and define its application in coherence with principles and rules of those institutions.

3) In aim to support small and medium enterprises and entrepreneurship development Development Fund launches open competitions for loans and grants, defined by priorities of Strategy. Financial means are used for start-up projects and development of existing enterprises. As main selection criteria economic indices, possible export orientation and technological level of the plan are used. Procedure for credit acquirement is complex and involves collaboration of almost all of the institutions mentioned in point 1). It is initiated by the client, who executes most of its steps.

4) Barriers existing in functionality of previous model for support of small and medium enterprises and entrepreneurs in Kosovo and Metohija are mostly connected to conditions candidates have to meet in the process of open competition, to be accepted as valid competitors for financial means. Minimal requirements of the open competition are:

1. Certificate of registration for enterprise, individual business or farm, issued by Serbian institution
2. Financial report about previous business period (for existing enterprises and individual business)
3. Guaranty of business bank or mortgage on immovable estate
4. Open accaount in a business bank registered by Serbian laws

Due to specific situation, most of the Kosovo and Metohija inhabitants are not capable to gather those documents. Some institutions (State Business Register Agency, Cadastre Office, National Employment Office, Tax Office etc.) do not function at all in some parts of Kosovo and Metohija, making it virtually impossible to gather documents for most enclave inhabitants. Cadastre office is displaced outside Kosovo an Metohija, and therefore is not in position to issue mortgage, and all registered enterprises are free from tax payments to Serbia, so there is no obligation for yearly financial reports and no way to control it. State Business Register Agency has no offices in Kosovo and Metohija. Business Banks do not guarantee for credits without mortgage. Ergo, due to limited functionality of state institutions, entrepreneurs or existing enterprises in Kosovo and Metohija cannot enter open competition for state credits or grants.

	ET	CC	MF	DF	NEO	H	B
Program institutionalization	x	x					
Competition criteria definition	x					x	
Competition publishing		x	x				
Application gathering							x
Documentation verification.					x		
Business plan verification				x			
Grading and classification	x	x		x			
Results publishing	x						
Monitoring						x	

ET – Economic Team; CC – Coordination Center; MF – Ministry of Finance; DF - Development Fund; NEO – National Employment Office; H – Help; B – Business banks in Kosovo and Metohija

Table 1. Authority division among key network members

5) In context of described limitations, design for sustainable support strategy has begun. Basic principles were defined: application procedure must be transparent, simple and continuously open; instead of credits, financial stimulus grants will be used; investments must be into fixed assets, except buildings; start-up projects have priorities over projects of existing enterprise development; number of new employees is more important than profitability; production and services are key sectors, especially if using local resources; financial stimulus will be uniformly dispersed over entire territory, proportional to number of inhabitants etc.

When the implementation phase was considered, starting point was that no institution should change rules and procedures of its work, regarding the fact that most are regulated by laws and procedures approved from ministry and that responsibilities of public administration is equal no matter if procedures are realized on territory of Kosovo and Metohija or any other part of Serbia. Second, refugees with no personal assets can apply only with business plan, because basic intention is to help to most threatened population. Third, as a certificate for competition appliance documents directly or indirectly issued by local population, or documents issued by international institutions in Kosovo and Metohija will be accepted. Fourth, granted financial stimulus will not be as large as usual, to decrease motivation for abuse. Fifth, sanctions for breaking or abusing the rules of the open competition will be aimed at losing the right to participate in future grants or financial stimulus organized by the state, not towards financial tolls that will be paid from participants funds. Sixth, appliance for the open competition could be done in institution not belonging to public administration, such as business banks, because of the wider network

and operative outposts in Kosovo and Metohija, capable of handling lots of applications. Seventh, monitoring of business plan implementation will be done by non-governmental organizations, which have free access and experience working in the post-war Kosovo and Metohija.

This strategy was presented to the National Council for economic development, because government permission was needed. After strategy was accepted and 4,8 million euros for financial stimulus fund were approved, on 04.11.2006. public call for applications was opened, with help of the governmental office for media relations. During one month 1420 applications have arrived. One of the criteria for successfulness of the program was number of applications. As a comparison, during entire year of 2006. for start-up programs of the Development Fund in the territory of entire Serbia there were 1750 applications. Processing of the applications was done in the following three months by the Development Fund, aided by experts from State Employment Office. Governmental office for media relation will continue to publish results of the future competitions, which are also published on internet site of Economic Team and in the local offices. Contracting and payment will be done via banks in the territory of Kosovo and Metohija. Monitoring, especially control of the correlation of business plan used for application and real situation will be done by HELP – Hilfe zur Selbsthilfe e.V. nad IOM – International Organization for Migration. Monitoring of the entire project will be done by the National Council for economic development, using the resources of the project centre in Ministry of Finance.

During entire process, as can be seen in procedure description Economic Team has role of broker, same as in the process of strategy creation. Using the cited classification of broker functions, its functions are both in domain of explicit and implicit effects. Explicit functions are mostly:

- Initiation of the virtual enterprise,
- Identification of resources,
- System integration of resources,
- System reconfiguration of resources,
- Monitoring and reliability of resources
- Control of the resources,
- Information dissemination,
- Virtual environment provision between the client/server levels

Implicit mentioned functions include:

- Interactions with other brokers
- Resources market / virtual net creation
- Resources market maintenance
- Intermediacy and negotiation

- Guarantee confidentiality between client / supplier
- Creation of mechanisms that support transactions risks

5. INFORMATION AND COMMUNICATION SUBSTRATUM OF THE VIRTUAL ORGANIZATION

The collaboration in multidisciplinary projects has been approached as an leadership and team selection issue[4] but the role of information and communication technologies, especially in virtual organization is indispensable. Every author in the field of virtual organization design acknowledges role of information and communication technologies as a factor of virtualization of organizations, but most of them propose different lists. Communication and coordination have been seen as dimensions of organizational structure since Mintzberg[5]. Information technologies offer variables that, when combined with considerations of structure, people, and tasks, can help design more responsive organizations[6], and communication technologies provide the "glue" that keep entire structure altogether. Technological support for the virtual organization can be seen through communication and collaboration among the dispersed business partners, e.g. groupware technologies, e-mail, videoconferencing, screen sharing and similar uses, support for standard transactions such as EDI and EFT, shared database access[7] and knowledge sharing. Wider list of communication technologies would include cellular services, videoconferencing, voice mail, facsimile, information kiosks, automated payment systems, web based electronic commerce, P2P sharing[8]. The list of information and communication technologies and tools that have no implication in virtual organizations is virtually empty. Cooperation behavior significantly and systematically depends not only on the contents of the linguistic coded messages but also on the used communication medium[9].

Important pragmatic remark is to restrain such technologies to be tool, not the goal of virtual organizations. If all the tasks have been done by using latest technologies, major part of partners would have been eliminated, because large portion of enterprises in Kosovo and Metohija has just a basic internet usage. For example, videoconferencing has various benefits, it gives some human touch to the transaction process and adds significant value to the customer[10], whatever type the transaction is, is as useful to employ the favourable features of face-to-face communication as a 'real' conference (obviously, it is important that people can see one another

and talk with each other simultaneously, but it is not that important to be near each other in a physical sense)[11]. Nevertheless, customers in Kosovo and Metohija have no basic value that could be enriched – they cannot access basic information in any form or participate in the processes by any means. Therefore, videoconferencing has been done just as a pilot project, coordinating top experts and stakeholders during close deadlines.

Intranet data sharing provided useful channel for real-time collaborative work on documents. Since work division was basically done by major fields of the strategy, there was not much requirement for synchronous collaborative work on one part of strategy, but experts often had to check in the real time what were advancements in other fields. Internet file sharing, again not a high technology proved extremely effective, and was done literally with no additional costs, by usage of free services, which eased the suppression on budget. Full usage of this concept was enabled in inter-institutional collaboration, where data, information and knowledge could have defined levels of access, basically defined in the following fashion:

- End users could access synthetic data and formal announcements, advice and information,
- Institutional members could access analyzed data, all announcements, recommendations, documents, literature etc.
- Experts from the institutions and those working on strategy formulation could access all data, information and knowledge, even those basically confidential
- Experts from the Economic team which acted as network broker and selected institutional experts had access to all data, information and knowledge, and mandate to change and update documents of their expertise.

Instant messaging services provided synchronous coordination mechanism for core of the team. During the working hours experts working on strategy could inform each other on urgent issues. Group was relatively large, and had more than 10 participants on most tasks. It is over usual span of control, especially in high-knowledge demanding tasks. However, participants had no complaint and were even satisfied on size of the group, which confirms findings of Abdul-Hamid and Howard that students participating in online-delivered courses have increased satisfaction with increased size of group[12] and suggests repetition of experiment in different conditions.

Usage of e-mail for communication was standard, and took major portion of communication. Although asynchronous it provided functional and effective connection for all nodes in network, even those with poor information and communication infrastructure, powerful enough to send core information to outposts in Kosovo and Metohija and retrieve data when needed. More than 500 unique mails were composed at common central nodes monthly, enabling quick response from people and institutions outside intranet.

Serbian Government provided other standard equipment for the Economic team. Various institutions are also included in the research network. All usual social science equipment and economic resources were injected into network by Serbian Government over economic team. Team physically used computer network and library of Serbian Government during strategy design. That provided all necessary circumstances for applying techniques such as brainstorming, workshops and group decision making and problem solving.

6. CONCLUSION

Most of the organization and technical solutions result as a development of knowledge and skills, but its appliance is at most result of the increasing and new requirements or problems that could be solved. This paper analyses virtual organization through list of the conditions that aided to its emerging, and also a list of benefits that are possible in elimination of non-functional aspects of classic organization models, at first in public administration sector.

Example of Kosovo and Metohija, as a region of great political, security, but also economic importance is one more proof for the conclusion that virtual organization is efficient solution in complex and difficult conditions. Economic Team as a network broker aided the design of new strategy for entrepreneurship support, based on existing resources and functions done by the state institutions, which were disabled by field conditions and formal procedures. Designed strategy was based on trust toward clients and support for the most jeopardized. It is aimed at production revival, and local resources usage, implicit cooperation of institutions that support economic development, transparency of the support procedure as a guarantee for corruption elimination.

Unfavorable conditions have disabled credit support on Kosovo and Metohija since 1998. Realization of this strategy is a validation that improvement is possible when projections are negative, not only because lack of efforts of will, but regarding factual limitations.

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