

Modelling of Strategic Networks of Interaction of Enterprise Structures

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Abstract: In paper developed idea of the concept of formation of a network of interaction of enterprise structure as a result of management of processes of strategic management is that the relations with direct contractors of enterprise structure become object of management. Organizational forms of interaction of the companies can be attributed to parameters of interaction of a network.

Key words: Strategic networks • Enterprise structures • Rational interaction

INTRODUCTION

The main idea of the concept of formation of a network of interaction of enterprise structure as a result of management of processes of strategic management is that the relations with direct contractors of enterprise structure become object of management. As a result of management of processes of strategic management from a position of network business scientists analyze the intrinsic maintenance of a phenomenon of "interaction", possibility of relationship of contractors, service with such objects as the companies working out of a network and network business structures and also, whether are relationship result of the interpersonal and impersonal relations or only an intermediate factor at their establishment. Besides, various forms and types of relationship existing in business are investigated (including so-called loyalty of clients), prospects of development of a network of interaction of enterprise structure as a result of management of processes of strategic management in network business are estimated.

In scientific community the question of whether network approach a basis for new methodology of research or an alternative form of the organization of economic activity is was actively discussed. Meanwhile all researchers, irrespective of belonging to the certain scientific direction, noted that network forms of the organization are a basis of development of modern business, supplementing the vertically integrated companies [1, 2].

Now network approach is widely used in the theory of the organization, industrial marketing and marketing of services, managements of channels of deliveries and also at research of relationship of subjects of the market at the level of the companies, branches and spheres.

As transition to modern methods of management is inseparably linked with the network companies, network organizational structures, recently more and more the organizations realize advantages of development of the strong relations on which the interactions of enterprise structure including firm and other organizations (suppliers, bankers, distributors, the main consumers) stand, with which the long-term reliable relations [3] are created.

Organizational forms of interaction of the companies can be attributed to parameters of interaction of a network, first of all. In a wide range of existing organizational forms of interaction of firms it is possible to allocate, at least, three uniform groups: the interaction based on various forms of joint property on assets; the interaction constructed on the contractual relations and informal cooperation agreements.

MATERIALS AND METHODS

Important element of the concept of interaction in business networks is such indicator, as marketing compatibility. Marketing compatibility can be characterized as ability of subjects of a network to function in a certain marketing situation without decrease

in the set (planned) parameters of productivity of systems of marketing of each of the subjects included in a network. Thus the marketing situation is considered as the environment created by set of marketing events, held by business subjects within the marketing potential available for them. From the economic point of view the deviation (decrease) in level of a marketing situation can lead to decrease in level of marketing compatibility and in some cases - to decrease in efficiency of interaction of partners and a network as a whole. In such situations consumers, intermediaries, suppliers and buyers can act as catalysts in the course of maintenance of marketing compatibility of business subjects of a network. Thereby to act as a factor providing a gain of values to each firm, included in a network and respectively growth of value of a network as a whole.

The organization of rational interaction of subjects of a market network is considered as the complex challenge which efficiency of the decision depends on a number of factors. It is possible to refer character and type of organizational structure of a network, complexity of tasks facing it, regulations of interaction of subjects of a network, a technique of management of their actions, which reflects dynamics of interactions of subjects. Existence of a large number of the factors having impact on formation and development of interaction in a network, predetermines need of development of the plan of the organization of interaction of business partners for a network which can include a number of the steps which realization will promote the solution of the set key tasks.

Analyzing the aforesaid, it is possible to say that the wide circulation of network forms of the organization of business led to revision of basic provisions of the traditional theory of strategic management and expansion of practice of use of instruments of strategic management with market networks, in other words strategy of management by relationship in market business networks.

So, within network approach the market is treated as a network of the agents connected among themselves and accurately structured phenomenon. From here the following distinctive features of the concept follow: the enterprise structure isn't considered separately, it is closely connected with agents surrounding it and considers the activity in organic interface to actions of the agents and contractors on a network. When using network approach the enterprise structure at a conclusion to the market of a new product is engaged in search of a perspective network; having integrated into the last,

it is exposed to continuous repositioning proceeding from specifics of system of network interaction as a whole.

One more very important feature of network approach - concentration of efforts of enterprise structure on the process of activity, instead of on place search in difficult system of strategic management. It doesn't mean that the last in the concept is absent: the problem of specification of the perspective directions of development is caused by problems of adaptation to changes of environment and determination of steady competitive advantage.

The following features are connected with resources of enterprise structure. First, in considered approach of the relation in a network are interpreted as a resource and their existence - as competitive advantage. The closer these relations are, the more it is considerable because stable relations between agents in a network create barriers to occurrence on this market of other firms, provide exclusive access to its opportunities.

From these features follows that enterprise structures functioning in a network prefer investments into the relations. Often these investments aren't so expensive as, say, in acquisition of the new equipment, but allow enterprise structure to come to higher production level. However it is impossible to lose sight that the more it is invested in the relations with the partner, the higher the potential expenses of their gap are [4, 5].

- The analysis of conceptual and theoretical bases of the organization of process of interaction in market networks allows to formulate the main components of productivity of interaction:
- Effect of long-term communications, relationship of subjects of a network;
- Growth of efficiency of use of existing resources;
- Improvement of quality of consumer value of products of a network;
- Decrease in level of risks of interaction due to their redistribution between subjects of a network;
- Growth of stability of information communications;
- Increase of level of coherence of actions of participants of a network;
- Effect from introduction of standard decisions in a network;
- Growth of trust, image, importance of brands of participants of a network;
- Growth of flexibility of behavior of large enterprise structures.

The perspective direction of researches of efficiency of interaction between enterprise structures is the analysis of management of processes of strategic management by various types of owners of the corresponding processes of enterprise structure at different levels of management of relationship with contractors and an intercompany network. As a conceptual basis of this research it is possible to offer the approach offered by K.Meller and A.Halinen which allocate four levels of management with relationship of enterprise structures in the industrial market:

- Branch network;
- Central network;
- Portfolio of relationship;
- Individual relationship with suppliers and buyers [6].

To each of these levels there corresponds a certain administrative ability which the enterprise structure has to possess to have opportunity to compete successfully in modern conditions of development of intercompany networks: ability of "network vision", ability to operate the central network, ability to operate a portfolio of relationship and ability to operate individual relationship. This approach gives the chance to study relationship and intercompany networks comprehensively from the point of view of administrative decisions.

At creation of strategy of network interaction it is also important to consider some aspects which can lead to risk of a rupture of the relations.

First, it is the power and domination. Ignoring of existence of dominating enterprise structure in a chain of creation of value and those "structural distortions" which it introduces, is fraught with distortion of the real mechanism of coordination interacting in a network of enterprise structures. Therefore, seeking for more adequate reproduction of the real-life mechanism of coordination in a chain of creation of value, it is necessary to define a place and a role of a dominating link and to find out the directions of this domination.

Secondly, it is a rootedness of the relations. The conclusion which was drawn by the known scientist of B. Uzzi, is that with growth of a share of the strengthened relations among contractors of enterprise structure the probability of its survival increases but when this share reaches a certain threshold, such probability starts falling again. The dependence revealed by it testifies that an emphasis exclusively on casual market or, on the contrary, the implanted communications reduces ability to a survival, but as an optimum choice acts their reasonable

combination.

Summing up the aforesaid, it is proper to draw the following conclusions.

The analysis of the theory and practice of network interaction allows to claim that intercompany networks possess the essential potential of adaptation to external changes. Adaptive efficiency of network structures is based on accumulation of the resources being specific in this competitive environment. It is shown or in possibility of maximizing the current profit of enterprise structure, or in strengthening of its position in the market in the long-term period.

Participants of process of interaction - are various subjects of the market. In case of interaction within a network as participants of this process act producers of business services on the one hand and buyers of business services, on the other hand. In practice each separate enterprise structure in the market in the course of activity contacts to a great number of various subjects (producers, competitors, intermediaries, consumers, the state structures). In this case the concept of interaction is beyond the relations "manufacturer - buyer". Ability to effective interaction with partners of a network becomes the most important characteristic of enterprise structure in this case.

Thus, interaction can be considered as a cumulative kind of activity in a network, characterizing degree, ways and forms of mutual influence of subjects of a network in the course of achievement of goals and mutual satisfaction of available requirements.

Other things being equal businessmen and hired managers in the course of strategic management seek for formation of various types of networks of interaction with contractors of external environment of direct influence. Thus hired managers prefer to form network communications only in a case when value of an eigenvektor at the potential contractor is higher, than on the average on branch that allows providing the maximum availability of agents of the created network of interaction at minimization of quantity of economic relations that is formalized as follows:

$$uesev(g+ij) \geq ues(g) \quad (1)$$

where $uesev$ - future integrated usefulness of the created network of interaction of the enterprise structure, added with new communication, criterion of which usefulness of formation acts an eigenvektor of the economic agent with which possibility of formation of communication is considered;

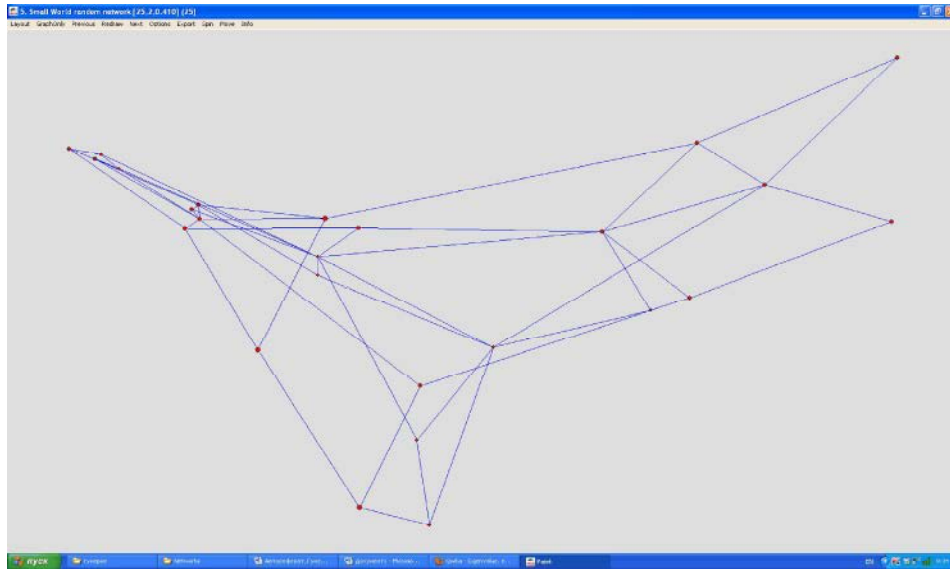


Fig. 1: Network of interaction of enterprise structure with contractors of the environment of direct influence (situation: agent)

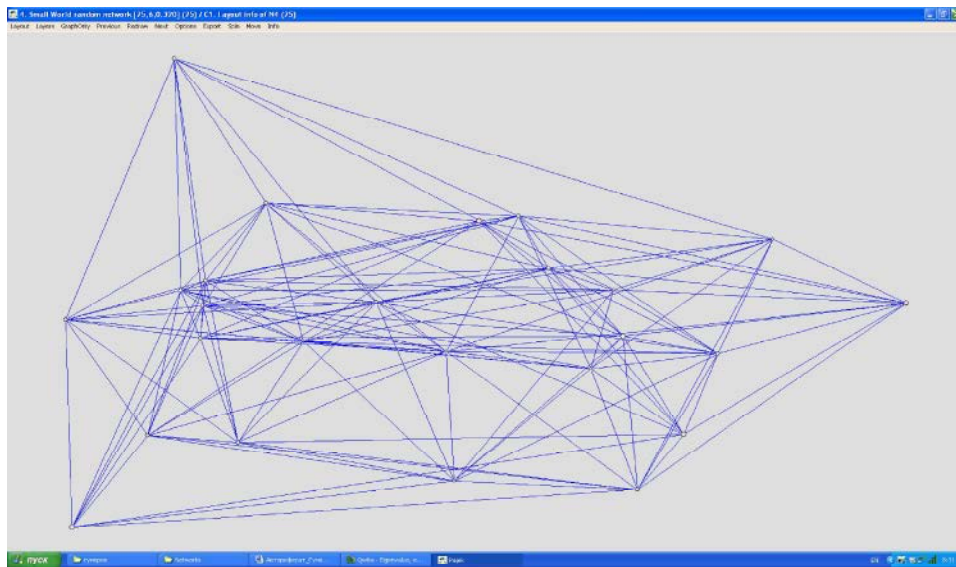


Fig. 2: Network of interaction of enterprise structure with contractors of the external environment of direct influence (situation: principal)

- g = Matrix of the created communications of economic agents of a network of interaction of enterprise structure;
- ij = communication, possibility of formation of which is considered by enterprise structure;
- ues = The current integrated usefulness of the created network of interaction of enterprise structure.

The scheme of formation of a network of interaction created on the basis of this approach was constructed with use of the software of Pajek for 25 agents of a

network interaction of external environment of direct influence and presented in Fig. 1.

When forming a network of interaction within realization of processes of strategic planning by the owner of process - the principal, interrelations with contractors of external environment of direct influence are formed both at high value of an eigenvektor and when the contractor is connected with representatives of adjacent components and also at high value of coherence of the contractor with other agents of a network which can be formalized as follows:

$$u_{esc}(g + ij) \geq u_{es}(g) \quad (2)$$

$U_{esc}(g + ij) \geq u_{es}(g)$ (2) where u_{esc} - future integrated usefulness of the created network of interaction of the enterprise structure, added with new communication, criterion of usefulness of formation of which is an eigenvektor of the economic agent, or coherence of the economic agent with other elements of a network with which possibility of formation of communication is considered.

The resultant network of the interaction simulated in Pajek, which size it is similar to the size of network presented in Fig. 1. is presented in Fig. 2.

Apparently from the given figure 2, coherence of a network in a case when it is formed by the principal, is significantly higher that has dual consequences. On the one hand, the cost of maintenance of interrelations in an extensive network is higher that brings to decrease in efficiency of its use by enterprise structure in the short-term period; on the other hand, in strategic prospect use of an extensive network leads to essential decrease in transaction expenses of development.

CONCLUSIONS

Thus, it is proved that when forming a network of interaction of enterprise structure as a result of management of processes of strategic management of various types of owners of the corresponding processes (the principal and the agent) are formed various types of network interactions with direct contractors of the enterprise structure, the quantities of formed interrelations based on randomization on the basis of various priority of their construction at which hired management seeks for formation of communications with the contractors having a high rate of communications by criterion of an eigenvektor whereas the businessman forms communications also with contractors having a high rate of coherence, first of all with the next components of a network, that is businessmen when forming a network are guided first of all by long-term prospect, hired managers - on short-term.

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