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Impact of Management Upon Organizational Network Effectiveness

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This paper explores the process of managing organizational networks and explains the impact that management has on the effectiveness of organizational networks. Three basic models or forms of network management are shown in this paper, which have been developed thanks to their basic structural characteristics. Regulations have been formulated on the basis of testing the performance of each of these models. The authors advocate combining analytical and network management perspective which is the major contribution of this work. The management perspective explains the network as the unit of analysis, looking at networks as forms of social organization, and network analytical perspective contributes to the central idea which is explained in this work and it is shown that the network are presented as a set of actors or nodes, with relations between them, whether network members are present or absent.

1. Introduction

Network organizations are widely recognized by both academics and practitioners as an important form of multiorganizational management. The advantages of the network coordination in both sectors, the private and the public, are significant, including improvement in learning, a more efficient employment of resources, a greater opportunity to plan and solve complex problems, higher competitiveness and a better service for clients and customers. Although the researchers and their studies of organizational networks provided for a big step to be made in the last 15 years, there is still a significant discrepancy between the knowledge we have about the overall operation of networks and a practical application of that knowledge. It is hence of great importance to understand the process of organizational network operation since it is only then that we can understand why the network provides for some outputs, regardless of whether the network is the result of the bottom-up processes or is a product of the strategic decisions of the network participants.

In this work we analyse a critical role of the network management process and its impact upon the network effectiveness. As a concept, effectiveness has long been critical for the researchers as well as for the practitioners, where the network effectiveness in operations was defined as an achievement of the positive outputs of the network - the levels that normally cannot be achieved in the conditions when individual organizational participants act autonomously. As a form of the management approach, the network management views networks as units of analysis. The network is viewed as a coordination mechanism, or, as it is often called, the network management. Starting from Williamson (Markets and

Hierarchies, 1975), the literature in this field has developed various forms of management in the last two decades. From an aspect of economics, there is a conventional attitude that the market is the only efficient system of non-hierarchical coordination. From the standpoint of organizational and administrative science, the literature in this field offered some explanations that organizations cannot be viewed as something that is not subject to change (see Perrow, 1986) and that other forms of coordination such as networks are capable of achieving objectives. Hence the discussion on whether networks are simply a combination of elements of market and hierarchy could be placed somewhere between market and hierarchy, or networks could be understood better as unique forms of management (see Powell, 1990).

Although networks were studied from different angles, surprisingly little attention was paid to the management of the entire organizational network. This broad focus is what Powell (2005, 1133) almost defines as "enlightenment of the structure of collective action". On one hand, the reason to adopt a narrower perspective may be hidden among the objectives for which organizations enter network relationships, primarily because of their own efficiency, rather than the efficiency of multiorganizational arrangements (Salancik, 1995). The development of a deep understanding of network management requires a collection of data on complex networks, which may be time consuming and expensive. Despite an ever increasing literature on networks as units of measure, a majority of these reports was purely academic (Agranoff and McGuire, 2003; 2003). Finally, there seems to be a sort of opposition against many who are engaged in studying networks in a discussion on a formal control mechanism.

A common assumption is that since networks became the arrangers of cooperation – management that imply hierarchy and control, this is no more appropriate (Kenis and Provan, 2006).

2. Forms of network management

On the basis of the literature review, the network management forms may be classed into two different dimensions. Firstly, network management may be a mediation. Every organization is in some interaction with any other organization in network management, the result of which is the management of a decentralised form. This is what we call shared management. In case of the other extreme, the network can be a high-level mediation, with a number of organizations that interact, except in cases of operational issues such as business transfers, of clients, information on services, etc., or network management is conducted through an individual organization that has a role of a highly centralized network broker. In certain cases, an individual organization may take on the key management activities, leaving the rest to network members. An alternative is that the network members may allocate the responsibilities in network management among various subsets or narrow circles of network members, where an individual organization does not take on significant management tasks.

Another difference in view of management could be made in mediation networks on the basis of whether the network is a member that is managed or the network is externally managed. As noted above, the member-networks that are managed, on one hand, are managed collectively by the members themselves (shared management), or, on the other hand, an individual network participant may assume the role of the leader organization. The externally managed networks are managed by one administrative organization, which can be agreed upon by all the network members, or can be mandated as part of the process of network creation. Either form has its specific strengths and weaknesses and leads to outputs that are predominantly dependent on the form selected.

2.1 Participants – networks that are managed

The most frequent form in practice, and the simplest one, is the participant management. This form is managed by a network of members without an isolated and single management entity. This type of management may be formal: e.g., through regular meetings of certain organizational representatives, or, less formal, through the current but typically non-coordinated efforts of those that have their stake in the success of the network. On one hand, the participants of the managed networks may be highly decentralised, including a ma-

jority or all the network members in interaction on relatively equal bases in the management process. This is called the shared management of participants.

The network participants are responsible for managing the relations and operations of internal networks, as well as for external relations with such groups as the financiers, the government and the customers. In health-care and humanitarian organizations, the shared management networks are commonly owned, partly due to the fact that networks are seen as an important method of building the “community capacity” (Chaskin et al., 2001). Only by participation of all the network participants, on equal bases, will the participants be committed to the network objectives. In business, shared management can be implemented in smaller strategic alliances and partnerships (where the joint ownership by several firms is not allowed) created for the purpose of developing new products (Venkatraman and Lee, 2004).

The power in the network, at least as regards the network on the decision level, is more or less symmetrical, even if there are differences in organizational size, resource capacities and performances. There is no specific, formal administrative unit, although some administrative and coordination activities may be delegated to one member or to a specific network entity. Theoretically, network operates collectively and no individual entity represents the network as a whole.

2.2 Leading organization in network management

The shared participant management may include some or all the network members, however, there are a large number of cases that do not lead to such a decentralized management. In such cases the inefficiency of shared management may suggest that a more centralized approach can be more appropriate. A centralized management of the networks can be conducted through a “leader organization”. In business, the leader organization management is usually performed in the vertical relations of buyer/supplier, especially when there are an individual, powerful, often a large buyer/supplier/financier and a number of weaker and smaller suppliers/buyers/receivers of the resources of firms. The most evident examples of this can be found in Keiretsu models of Japanese manufacture (Gerlach, 1922) and in similar models of cooperative buyer/supplier models in the U.S.A. (Uzzi, 1999) and in Europe (Inzerilli, 1990; Lazerson, 1995). For example, in film production, a leader organization can be the largest film studio (Jones and DeFilippi, 1996) and business can be done in horizontal multilateral networks, most commonly when one organization has enough resources and a legitimacy to participate and takes on the leading role. This model is frequently encountered in health-care and humanitarian

organizations where there can be a node – the supplying agency that takes on the role of a network leader due to its central position. The node in the health-care organization can be a hospital or a clinical centre (Weiner and Alexander, 1998). Teisman and Klijn (200) also describe a government agency in the role of a leader organization in the development of economy, for example.

In the leader organization management type, all larger activities of the network and the key decisions are coordinated through and by individual members-participants who play the role of the leader organization. Hence the network management is becoming highly centralized and mediating, with asymmetrically positioned power. The leader organization supplies the network to the administration and/or facilitates the activities of the organization members in their efforts to achieve the network objectives, which can coincide with the objectives of the leader organization. The leader organization itself can ensure the administration costs, receive contributions within its competences from network members, or seek and control the access to external financiers through donations or government funding. The role of the leader organization may be assigned on the basis of the consent of its members, on the basis of what they see to be most efficient and most effective for their participation, or it may be established as mandatory, often by one external source of financing.

2.3. Network administration organization (NAO model)

The third form of network management is the network administration organization or a NAO model. The basic idea for this model is that separate administrative units are set especially for the purpose of managing the network and its activities. Although the network members are still interactive with one another, as in the leader organization model, the NAO model is centralized. The network mediator (in this case, NAO) has a key role in the network coordination and maintenance. Contrary to the leader organization model, the NAO is not the second member of the organization. The network is managed externally, with an established NAO, or through the mandates, or by the members themselves. The NAO can be a government entity, or a non-profit entity, which frequently is a case, even when the network members are profit firms. For example, Human and Provan (2000) describe two networks in timber industry, both managed by NAOs. The firms were profit firms, however, the NAO were non-profit organizations. The NAO can also be a single profit corporation, such as Nexia International, a global accounting network described by Koza and Lewin (1999).

The NAO model may be rated modestly on a scale if it consists of only one individual who is often considered to be a facilitator or a mediator of the network, or it can be a formal organization including the executive director, the board of experts and the board that operates outside the physical boundaries of the office (McEvily and Zaheer, 2004; Provan, Isett and Milward, 2004). This newer form can be implemented as a mechanism to improve the network legitimacy, being engaged in particular and complex issues and problems on the network level, and in reducing the complexity of shared management. These more formal NAO models have the board structures that include all or a subset of network members (Evan and OLK, 1990). The board specifies the issues on a strategic level and leaves operations decisions to the NAO leader. The government starts the NAOs that are generally set as a primary form of the network, to stimulate its growth through targeted financing and/or incentives for the purpose of ensuring that the network objectives are achieved. Such NAOs are established locally for the purpose of achieving the board's objectives, as well as those related to regional economic development.

3. Network management and effectiveness

The basic issue in managing any network is that the needs and operations of the member-organizations must be adjusted and coordinated. Although the arrangements of pairs may, of course, be difficult to manage, with the growth in the number of organizations-participants in the network, the number of potential relations grows exponentially. In such circumstances management becomes extremely complex. Shared management is often seen as desirable by the network participants, when the participants can retain full control over the network orientation. This form proved to be favourable for small organizational networks. When problems emerge in such networks, a face-to-face discussions among participants are possible. As the number of participants in the organization grows, the shared management becomes increasingly ineffective, and the participants themselves ignore critical issues or waste a lot of time trying to coordinate over 10, 20, or more organizations (see Faerman, McCaffrey and Van Slyke, 2001). The network complexity problem is especially acute when the participants are geographically dispersed, hence the organization of frequent meetings of all the participants is difficult or even impossible to accomplish.

The structural solution to this problem is the centralization of the network management activities via a mediating organization, or a leader organization, or a NAO. All the above mentioned forms can easily include a larger number of network participants since a direct

participation of all the organizations in making many decisions within the network is not necessary any longer. With the centralized management, the participants need not be in interaction with each other, but can interact directly with the leader organization or a NAO for the coordinating purposes within the network and on the level of its needs.

Despite there being special reasons that a leader organization be favoured over the NAO and vice versa, when the management of relations becomes complex with a tendency of growth in the number of participants, any form is certainly more effective in the network objectives achievement compared to self-management. There are only a few organizations that would be “adequate” for each of the management forms, although the literature in this field (Burn, 2004) says that the forms of shared management would be more effective for the organizations of six to eight network members. Generally, the NAO form is most effective in the networks with the largest number of participants, due to its unique administrative structure.

3.1. Consensus on network objectives

Scientists have for years discussed the goals and the goal consensus on both levels, organizational and integrational (Van de Ven, 1976). The main issue has been that the consensus in the objectives in the “similarity domain” allows for the organizational participants to cooperate in a better way than when there is a conflict among them, although the conflict can also be a stimulus for innovation. This topic has rather important implications for the understanding of the network members’ behaviour.

The literature on networks places the accent on similarity and homophily, rather than on the consensus of objectives by itself. Homophily was often offered as an explanation why certain actors are attractive for each other and why the form of relationships is a network (Monge and Contractor, 2003; Powel et al., 2005).

In any case, in objective-oriented networks, not only the organizational, but also the objectives on the network level, lead the organizational activity. Such objectives may include the development of a new client, attracting finances, solving the community needs or provision of services to the clients. The network objectives can also be process-oriented. In accordance with an early work of Van de Ven (1976) on this topic, when there is a general consensus on broad objectives on the network level related to the contents and the process of the objective and in the absence of hierarchy, the network participants that are more involved and committed to the network will work together more often. This does not imply that the objectives of the network mem-

bers have to be similar. In fact, the similarity of objectives may prove to be a difficulty in working together, especially when the pressure of the competition leads the organizational networks to rejecting cooperation and information sharing.

Although a high-level consensus of objectives is obviously an advantage in building the relations of dedication on the network level, the networks can still be effective, only with moderate levels of objectives’ consensus. A critical question is how the network relations are managed. The self-management forms are most likely effective when the participants can generally agree about the network on the level of objectives. In such a situation the organizations can work together without any significant clashes, where each one gives its contribution to the broad network objectives, while each of them simultaneously achieves its own objectives. It is important to remember that trust is not necessary for the consensus of objectives. Trust is based on the reputation and experience from the previous interaction, whereas the consensus is based on the similarity of objectives.

On the other hand, when the consensus of objectives is extremely low, there is almost no place for the network participation at all. On the medium scale of measuring the consensus of objectives, regardless of whether the leader is an agency or a NAO, the forms of management are more appropriate than self-management. More precisely, the forms of management via the leader agencies will be appropriate in those situations when the network participants show a moderately low consensus of objectives.

The leader organizations take on a majority of strategic and operative decisions (Graddy and Chen, 2006) and are most competent for decision making about the network on the level of objectives, when the network members are not capable of resolving the conflict by themselves and are only partially committed to the network objectives. This situation may not result into the long-term network sustainability, but in a short term, the leader organization can retain a broad focus on the network level, which would prove to be difficult if the participants tried to reach the agreement by themselves. On the contrary, the NAO form requires that more people participate, at least a subset of the network members. These participants (often the members of the NAO managing board) are typically committed to the objectives on the network level and have a strategic participation with a network as a whole. Other network members are probably less committed and involved, with a modest consensus on objectives. It is the task of the NAO and the board of experts to work with the participants on a daily basis, resolving a possible conflict and fostering the commit-

ment to the network and its objectives. The consensus on objectives will be rather strong in the NAO form. Although contracts may be made on the desirability of a network and on the value of the NAO, it is recommended that there should always be an agreement on what the network is supposed to do and in which way the participants should be included.

3.2. Need for competence on the network level

Organizations join or form networks for various reasons, including the need to achieve legitimacy, serving the clients in a more effective manner, attracting more resources, and resolving complex problems. Regardless of these specific reasons, however, all network organizations generally require to achieve a certain aim they would otherwise not be in a position to achieve on their own. It is for this reason that the issue of how the network level objectives are achieved on the network level is a very important issue.

All the above said triggers two questions. The first is, what is the nature of the tasks assigned to the network members? And the other, which external requirements does the network face? Both questions refer to the competence on the network level. Internally, if the task of the network is such that it requires a considerable interdependence among the members, then the need for the network coordination skills and the competencies for specific tasks will be great, which means that the management is expected to facilitate an interdependent action. As to the specific issues concerned with our theorising, this means that shared management is likely to be a less effective form of management in the conditions when the demand for interdependent task is high, since the tasks will be positioned on the individual network of members for the skills that they perhaps do not have, such as an approval in writing, quality monitoring, or even conflict resolving.

On the external side, requirements may also vary from high to low, requiring different competence degrees on the network level. The external tasks may include the roles of updating or protection of the network, starting from the propositions for environmental protection, changes in financing or new regulations for overcoming it, which may in turn include the role of lobbying, recruiting new members, raising capital, building external legitimacy, etc. For example, the pressures from the external financiers to coordinate activities may be high, trying to meet their demand and the regulations that would require a centralized action of such kind that it would be rather difficult to act via shared management, since the response can be diffuse. The NAO, in any case, is supposed to ensure an individual focal point for interacting with a financier, so that the legitimacy of the network as a whole should be increased.

The leader organizations are better equipped for meeting the requirements and needs on the network level in comparison with the shared management arrangements. In any case, the leader organization may have its own set of skills and competencies that do not precisely match the collective needs of the network members. The leader organization may also be against taking on a financial obligation for building such skills. With the NAO, although the quantity of scarce resources may be significant, the job of the board of experts on the network level is to develop the necessary skills for acting on the network level.

On the basis of these major arguments we propose the following solutions that summarize the basic proposed relations through all four factors of unpredictability:

1. Higher inconsistency among the critical factors of unpredictability and a specific form of management (both within the limits of the number of inconsistent factors and scope in which all these factors are inconsistent with the characteristics of forms of management). A less favourable solution will be that a specific form of management should be effective, leading either to a total inefficiency of the network, annulment, or a change into a form of management.
2. Shared management of the network will prove to be most effective in achieving the outputs on the network level when the trust is widely spread among the network members (high intensity, decentralised trust), when the number of network participants is relatively small, when the consensus on the objective on the network level is high and the demand for competences on the network level is low.
3. The management of the leader organization will be most effective in achieving outcomes on the network level when the trust is narrowly spread among the network members (low intensity, highly centralised trust), when the number of network members is relatively moderate, and when the need for competencies on the network level is moderate.
4. The NAO management of the network will be most effective for achieving outputs on the network level when the trust is moderately to very widely spread among the network members (moderate intensity of trust), when there is a moderate to high number of network participants, when the consensus on the objective on the network level is moderately high, and when the need for competences on the network level is high.

4. Recommendations for the network management process development

The final issue in this work is the network development. We have described the forms of network management, the conditions under which a certain form, if adopted, can be successful, and the tensions inherent to each form. However, what happens when the need emerges that the forms should be changed? Although there is research about how the network develops over time (Issett and Provan, 2005), these studies focused mainly upon the development of the relationships among networks, not on the development of the forms of management. If there is a discrepancy between the forms of management and one or more critical unpredictabilities we discussed (trust intensity, size, etc.) one option, naturally, for the network to avoid change will be that it will in that case be either “contagious” or fail. The change in network management is certainly not unavoidable. An alternative option for the network and its management is to change the structure components and adopt a different form of management. For example, as shared management attracts more and more members (perhaps due to its efficiency), the demands for its structure of management will change. In that sense, the managers on the network level may struggle with one form of management, which will probably be rather contagious, or they may choose to pass into another form that is consistent with having more participants, and less intensity of the trust relations.

The question is, how can we come to change the network? Are the changes from one form into another equal or is the development inhibited by the structure of the form itself? It is worth mentioning that here we are talking about the change from one form of management into another, as regards the form the network is in now. The logics underlying this argument is based upon an inherent flexibility and adaptability of the form itself.

Shared management is a most flexible and adaptable form. Networks are perfectly capable of retaining their form. In any case, the success of the network should lead towards changes in the unpredictability components we pointed out before (more participants, greater need for competencies on the network level, etc.), demanding change in network management.

Once the mediation form has been adopted, in any case, the range of choices is reduced. It is especially when management is established either as a leader organization or as a NAO form that the development into a shared management is uncertain. Both the leader organization and the NAO forms are steadier, less flexible forms, with institutionalized leading roles that make the change into the shared management more difficult.

Similarly, once the form of the leader organization has been adopted, if the unpredictability factors change, they do it most often in such a way as to create the NAO form as optimal. The development generally leads from the leader organization to the NAO form, rather than from the leader organization to shared management. In any case, the movement, whether from shared management or from leader organization towards the NAO is a strategic choice, and this is important to know. This means that development is not a simple and natural process that goes on as the change of the unpredictability components. On the contrary, a specific choice must be made by the participants or the manager of the network to move from managing the network of one or more participants to the third type of organization. Finally, when the NAO has been adopted as the most formal of management models, this form includes at least three basic forms for change. Our logic rests, shortly, in the following propositions:

1. Ensure the sustenance of the network over time, while the management of the network is being changed, which will in turn probably develop into a predictable form, from shared management into a more mediating form, and from the participant management into external management (NAO). The development from shared management into a mediating form is more important than that from the mediating form into the shared management. Once this has been established, the development from the NAO into another form is uncertain (inertia is strongest when the form of management is more formalized).

5. Conclusion

This paper presents the research and discussion on managing organizational networks and proposes three basic forms of network management. Our intention was to improve the network theory, firstly, by discussing the basic characteristics of each of the management forms; secondly, stating the number of critical components of unpredictability that explain the effectiveness of the management form; thirdly, analysing the inherent tensions in each of the forms and the ways these tensions can be resolved in the context of the network; fourthly, by a research into the development of the network management from one form into another. Naturally, we do not deny that the network effectiveness may partly be the function of the activity of individual network participants, not that individual participants may gain advantage from the participation network, regardless of the form of management. Our major argument is that, when we focus upon collectively generated outputs on the network level, the adopted form of network management

and the respective management tensions are critical for explaining the network effectiveness.

An issue that merits further attention is the importance of development. The importance of development was discussed in general, however, empirical research and future contemplations are something yet to be done. For example, in the absence of mandate, how do the forms of network management start, in the first place? And when they do start, which are the factors that contribute to the tendency of some forms to change faster than others? In other words, are some forms more resistant to change in given components of unpredictability, and in which way is the process of change resolved? Systemic research into the network development is necessary, with special focus upon the manner in which the public network management occurs (mandate or choice) as well as upon the manner it changes over time.

Finally, although we primarily focused on explaining the impact of management forms upon the network efficiency, the efficiency itself has so far been solved only in a general sense. Research and further theorising on network management should continue to resolve the efficiency as a multidimensional variable. For example, one form of management may produce positive outcomes for some types of outcomes, such as community planning; however, not for others, such as better services. Hence, it could be possible to work backwards, predicting a form of network based on the type of outcomes achieved. The capacity would be of specific interest to those who try to investigate into and understand the functioning of illegal networks (Raab and Milward, 2003). If the form of the network could be concluded from the outcome achieved, a more effective strategy of intervention could be designed.

The work also has some practical implications. From the policy aspect, it should be clear that the selection of management forms, either through the mandate or through financial incentives, may carry critical implications for the efficiency of the entire network. From the aspect of management, on the other hand, our work proves that an effective network management requires that both demands of the network, internal and external, be identified and responded to in selecting the management form and in resolving the tensions emerging as part of this form.

The paper is also an attempt to stimulate fresh thinking about how networks can be studied in the future. A challenge for the researchers will be to broaden the focus, depart from describing the activity and behaviour of the network or focusing upon how organizations function within networks. The researchers will

need to study all networks in more detail, including the manner in which they are managed. A large comparative scale on networks is to be created in the future, on the basis of the studies of numerous types of networks over the range of various management forms. As regards the cost and the complexity of such a research, it will in any case be reasonable to encourage a cumulative accrual of knowledge on the basis of manifold studies on networks, that examine different forms of management in more detail. Some research has already been carried out, however, the accumulation of facts is not yet evident. It is our hope that this paper will stimulate that process.

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