The Complex Model of Relationship Success in the Context of Innovation-oriented Relationships

– Work in Progress –

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Abstract:

A crucial question of business-to-business networks is the presence of relationships in which the actors share information, resources and knowledge in order to support their learning and changing processes or for other market advantages (cost minimization, specialization etc.). From the point of view of management, the network approach is brought up in the form of the question how relationships affect the output of an organization.
The term used to quantify this question is relationship success describing the perceived economic performance of the relationships maintained by the participants in cooperation, comparing it with the expectations about them.
The aim of this paper is to show the possible modell and dimensions of relationship success and to analyze the effect of network relationships on organizational performance and to investigate the problems to measure these effects. To test this modell an empirical research among the R&D sphere is planned.

Keywords: relationship management, relationship success, regional development

1) Introduction

Our analysis aiming at inter-organisational relationship success represents one of today's challenges. Developing and maintaining relationships means an expensive and time-consuming task both for individuals and organisations, therefore, the development of relationship strategy may also be regarded as a type of investment decision at every level (Helm – Günter 2001).
Adequately designed and operated inter-organisational relationships mainly ensure opportunities for the players where the adequacy of relationship strategies can also be measured by reaching a higher level of performance (Diller – Ivens 2004). All this assumes particular importance in the course of designing innovative organisations and conducting innovation-oriented activities, which, instead of dealing with separate products, usually realizes the sale and exchange of product packages or cooperation interpretable alongside these activities (Sydow – van Well 2003). Ensuring long-term relationship success among innovative organisations (universities, companies, bridging institutions) seems essential in the process of implementing regional development, which primarily targets the focused dynamisation of knowledge centres accompanied by improving their competitiveness (Inzelt 2004). One basic pillar of such developments lies in establishing long-term cooperations among innovative organisations and ensuring loyalty (Goldstein – Renault 2004). On the other hand, throughout their operation, organisations strive to maximize performance generated by already existing relationships due to natural reasons, but at the same time, the questions of how output deriving from various relationships can be described and how the effects of these relationships on company production can be measured are bound to emerge. A further question lies in how maximizing the effects of relationships on organisational performance can be influenced and controlled.

2. Background of the analysis

Knowledge-based networks can become the driving force of a region's or an area's economic development, especially as a result of the underdeveloped regions' concentrated development activities. The central development dimension of these networks lies in the creation of knowledge production and transfer processes, throughout the generation of which the direct and indirect advantages available for each participant must be clear. Basic players include the so-called knowledge bases (universities, research centres), knowledge utilizing industrial partners and the bridging institutions generating the relationship of the two groups. The realization of knowledge transfer implies different advantages for different players, out of which the following can be highlighted on the side of knowledge bases (Sanchez and Tejedor 1995; Lee and Win 2004):
- direct perception of economic development needs (or its possibility), gaining additional income by satisfying these needs;
- opportunities for students to visit industrial partners, through what theoretical and practical training can be harmonized;
- establishing close relationships with industrial partners and performing basic or applied research with their help;
- creating the conditions of access to formerly unavailable markets;
- opportunity to develop business skills;
- improving the implementation of new technologies;
- establishing goodwill;
- setting up new product development and spin off companies;
- cost saving;
- creating patents and new intellectual property.

For the utilizers of knowledge the following possible advantages may be underlined:
- the availability of better qualified workforce supply because education and training institutes are aware of industrial needs;
- access to training and postgraduate capacities that support sustainable workforce development;
- access to the physical resources of knowledge bases and the experience of their workforce;
- access to research results, special consulting capacities and data bases cumulated in the organisations of knowledge bases;
- increased social image;
- additional technical and technological knowledge;
- access to previously unavailable technical and technological services;
- quality improvement;
- cost reduction;
- winning new markets;

- reduction in production- and run-time.
In the course of establishing and developing relationships among the players it is indispensable to understand the output emerging from relationships, which means input information for the players managing the individual relationships as well as the network-management developing the entire network.

Literature is far from showing a unified picture in terms of judging output deriving from relationships and emerging in this context. The approach of transaction cost economics assumes that factors influencing relationship success can be traced back mainly to the effectiveness of transactions, while it measures organisation performance in this area with factors like the cost of special instruments and processes characteristic of the relationship, storing and production costs emerging as a result of maintaining the relationship and the organisation's expectations concerning the possible continuation of the relationship (Williamson 1985, Heide – Stump 1995). Similarly to transaction cost economics, the approaches of agency theory handle the output of inter-organisational relationships mainly from the side of economic costs, specifically in terms of client-agent relations. The basic dimensions of evaluation are primarily related to the opportunistic behaviour present in relationships and monitoring the maintenance of relations mainly in the risk assessment perspective (Bergen et al. 1992). Channel literature tries to assess relationship output specifically alongside economically interpretable benefits by reviewing related cost and profit elements (Heide and John 1988). The approach of social exchange interprets the above discussed in a significantly extended mode including elements like flexibility and satisfaction in the dimensions of assessment (Macneil 1980).
Examining interrelated development in the literature of the area, O'Toole and Donaldson (2002) identified three basic problems in how literature handles the performance dimensions of relationships:

1. Models dealing with relationships mostly focus on the modes of their realization and not their output and tend to neglect or do not define the performance dimensions of relationships.
2. In case there is an attempt to define performance dimensions, then literature usually tailors the definition narrow so that other assumptions representing the analyses' different focus can still be handled within the frames already defined.
3. Since relationship output is not in the focus of analysis, no special methodology designed to measure and evaluate this area exists; relationship output is mostly evaluated with adapted methods constructed to measure different elements.

The heterogeneity introduced so far is understandable, since the complexity of relationships and networks and their effects on participants makes possible various approaches to performance analysis (Tijssen 1998). Based on their view-point, these analyses may produce different results.
Håkansson and Snehota (1995) handle the three main analytic levels of market interactions, through which they solve the confusion often noticed in the course of analyzing inter-organisational relationships: organisations, relationships and network. The operation of organizations is influenced by its actors, resources and activities. Relationships are determined by actor bonds, resource ties and activity links. Networks are characterised by their actor web, resource constellation and activity pattern (Håkansson and Snehota, 1995).

3) Analysis approach

Departing form the thoughts above described, we must take into consideration three fundamental correlations in order to complexly interpret and model the sustainable success of inter-organisational relationships. On one hand, the levels of inter-organisational relationships as the potential area of grasping performance. On the other hand, the effect that the different levels exercise on one another that must be considered in the complex evaluation of the casual variables of success. Furthermore, the source of success assessibility, what means the nature of the different organisations' motivations for building and maintaining relationships, based on which the effect of the relationship on the organisation's performance can be evaluated.
Taking into account these three links, it is recommended to use a three-level approach for the analysis of relationship success (figure 1.):

- The direct effect of inter-organisational relationships on organisational performance.
- The dyadic level performance of relationships that represents the second level of relationship success. This level may be defined as the shared values created by the partners of the dyad.
- The network effect of inter-organisational relationships that may be defined as the network's effect on the dyads and its participant organisations.

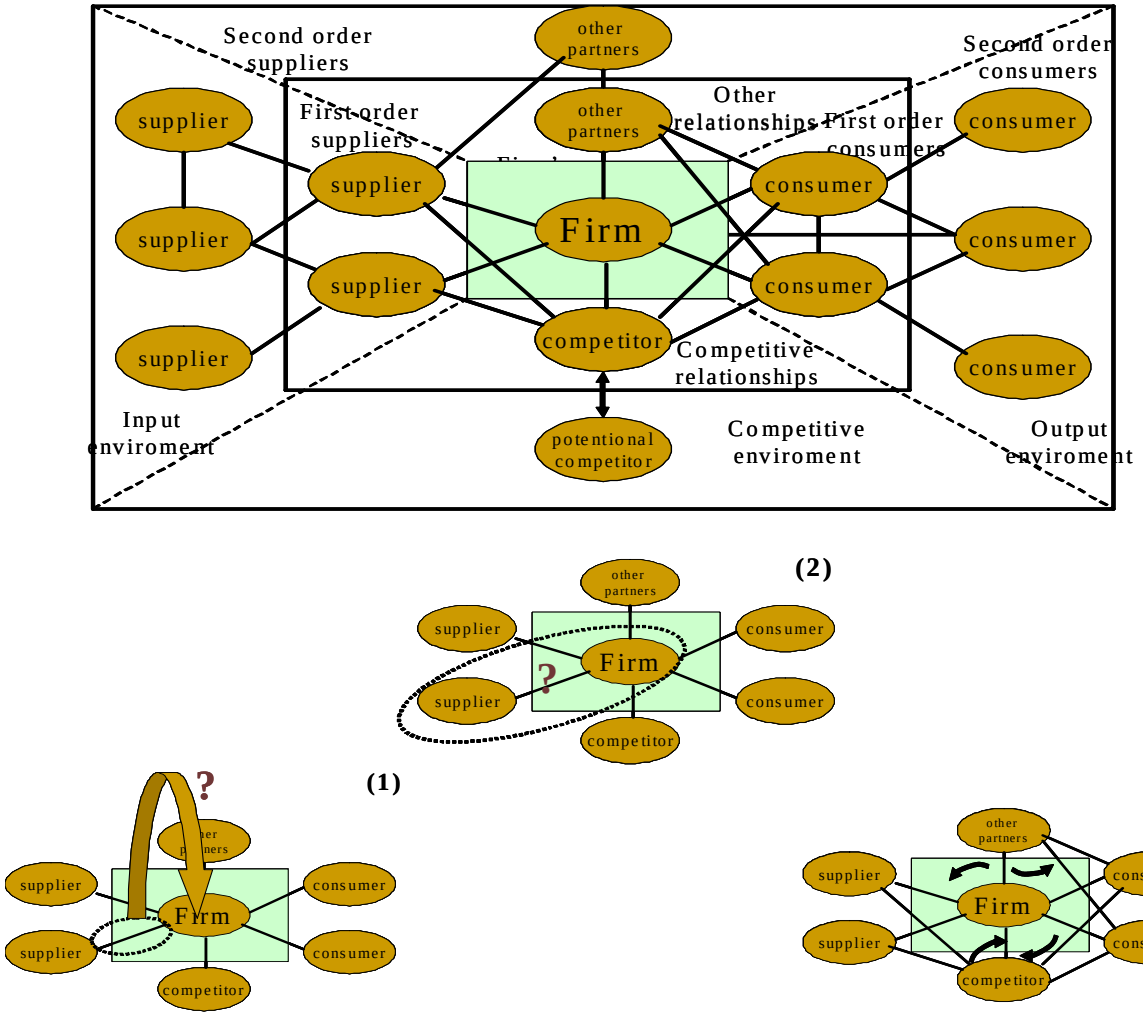

Figure 1: the analytical approach applied during the research

The analysis approach targets answering three questions: what values are created in inter-organisational relationships (1); how the creation of values is influenced by the network (3); what the organisation receives from the output of value creation (2).
Consequently, output deriving from participation in relationships is influenced by the intentions of participant organisations and the resources mobilised for these intentions. An organisation may have various reasons for participating in relationships. A relationship is established between two organisations if some skills are joined together (Medlin 2003). As a result, relationship success can partly be interpreted as the achievement of the participant organisations' original objectives. While examining this problem, Mc Intyre and colleagues (2004) concluded that relationship success is a highly subjective factor, since in the course of evaluation the given organisation's individual intentions and relationship strategy as well as its link to the organisational strategy and the constant transformation of intentions must be taken into account. In this case success can be described using the perceived satisfaction of the participant organisation in relation to its preliminary expectations towards the relationship. It must be noted that such evaluation of the relationship basically focuses on the past and always measures the value „won" by the organisation in light of past intentions.

4) Analysis model

Cross-functional collaborations emerging in knowledge based cooperations can represent the road to success. The real value of these cooperations is that they potentially increase the market performance of organisations. Research conducted in this field points out that functional integration occurring in

knowledge based cooperations is the critical determinant of performance, where performance can be measured in various quantitative and qualitative dimensions (Song and Montoya-Weis and Schmidt 1997).

4.1. Direct effect of inter-organisational relationships

According to Boyle and Dwyer (1995) the effect of relationships on organisational performance may be defined as a result of inter-organisational relationships that can be traced in relationship effectiveness and success. Accordingly, they divide the measurement of relationship performance in three parts. On one hand, they examine the judgement of relationship effectiveness, which they phrase as general effectiveness and as the effectiveness of coordination; on the other hand, they evaluate relationship success that is analysed through successfulness. Furthermore, they study performance as the general satisfaction level of the organisation taking into consideration the goals of the company. At the same time, McIntyre and colleagues (2004) emphasize that if we talk about effectiveness and successfulness there is no objective standard in inter-organisational relationships, since the judgement of each participant will produce different results. Therefore, in inter-organisational relationships „perceived" effectiveness and successfulness can be measured, bringing different results depending on the original and transforming intentions of the different organisations. Relationship performance basically derives form satisfaction along the following factors: general satisfaction with the relationship; satisfaction with the productivity of the relationship; satisfaction with the performance of the partner's responsibilities and obligations; satisfaction with the performance of the organisation's responsibilities and obligations; the extent to which the organisation is willing to make sacrifices in order to develop and maintain the relationship.

In the course of evaluating relationship performance Medlin (2003) makes the picture more complex. He suggests that the concept of relationship performance should be separated from the concept of satisfaction often used for measuring relationship effectiveness and success. In his opinion satisfaction is influenced both by social and economic effects. Medlin assumes that relationship performance – since it is nothing else but the effect of relationships influencing company performance – must be interpreted as a clear economic concept. Departing from this logic the assessment of relationship performance with the help of satisfaction makes measurement unreliable. The relationship performance approach applied by him attempts to separate this latter one and evaluate economic output separately. In the course of evaluating relationship performance he takes into account the costs of different relationships and the advantages deriving from them, adding these up with the expectations of the company by considering the following factors:

- The effect on the company's general, subjectively defined performance
- The effect on profit realisation
- The effect on sales volume
- The effect on the growth pace of sales
- The effect on the rate of market share
- The effect on the growth pace of market share.

Form a different aspect, in an analysis using only quantitative factors, the organisation's long term goals are not recorded. Taking into consideration also these latter ones O'Tool and Donaldson (2002) attempt to assess the effects of relationships, who, as a result of their quantitative and qualitative research concentrating on networks of subcontractors, summarised the performance dimensions of relationships in the following financial and non-financial factors: (table 1).

Non-financial dimensions of relationship performance		Financial dimensions of relationship performance	
1. factor	Reaction time; product quality; comparability; run-time	1. factor	Cost sharing
2. factor	Value of developments achieved by joint planning	2. factor	Minimizing the risk of breach of trust; information sharing
3. factor	Stability; value of joint projects	3. factor	Long-term profitability; price; return; purchase volume; reduction of variable costs

Table 1: Dimensions of relationship performance based on O'Toole and Donaldson (2002)

However, knowledge based cooperations only partly correspond to classical contractor-client relationships, where – referring to the possible advantages mentioned in relation to the background of the research – targets include advantages potentially emerging from product development as well as

benefits deriving from developing technological or management processes, cost reduction or building company culture. Exactly because of these reasons we review the success of cooperation in two determining and comprehensive dimensions (Song and Montoya Weiss and Schmidt 1997):
- as a result of cooperation, the organisation achieved its goals;
- taking into account relationship costs and the advantages deriving from it, cooperation proves successful;
In the first dimension our aim lies in the subjective judgement of successfulness, where qualitatively graspable and less graspable organisational goals may equally occur, while the second dimension targets a subjective judgement of effectiveness in light of organisational benefits (Friese 1998).

4.2. Dyadic level performance of relationships

In knowledge based cooperation it is less possible to simplify the output of inter-organisational relationships to the most important organisational level, since the most visible and apparent level of cooperations aims at creating the output defined in the previously signed agreement. This aspect of performance is the result of a joint cooperation in the strict sense, which can be interpreted partly on the organisational level (e.g. profit deriving from joint development) and partly not (e.g. operational stability resulting from merging processes). Naturally, joint achievements always occur in the performance of organisations in some form; however, in the present dimension this does not mean the object of research.
In our paper, based on Omta Leeuw's (1997) research in this field, we divide the output of knowledge based cooperations in three main groups:

(1) the direct output of knowledge-base organisations that the scientific community (research performance), industrial and other clients (user performance) can utilize;
(2) the intellectual value produced in the cooperation (intellectual property – e.g. patent, licence) that cannot be regarded as shared property in terms of utilization; this is regulated by the partners, however, its creation can without doubt be considered the result of the relationship (innovative performance);
(3) the process performance as effectiveness in the course of cooperation that includes meeting the previously defined cost and time frames (industrial performance);

Research performance means the publications and reports published by the partners as a result of the cooperation, compared to the participants' previously defined expectations. User performance involves the industrial and governmental papers delivered by partners as a result of cooperation compared to the participants' previously defined expectations. Innovative performance consists of the intellectual property generated in the cooperation compared to previously defined expectations. The evaluation of this question is problematic since company strategies aiming at the management of intellectual property are diverse. Some try to ensure the legal protection of the emerging property in the early stage of development, while others only seek legal protection at a later stage (or not at all) in order to hide the source of competitive advantage. In other cases the created value cannot be patented although it represents value (e.g. various process innovations). The third group of emerging outputs focuses on the value that the given development output was realized faster and with lower cost ratio than by other competitors. Obviously, it is not effective to carry out measurement with objective indicators here either, in this case it is possible to judge successfulness in relation to the expectations previously laid down.

4.3. The network effect of inter-organisational relationships

At the same time it would be an exaggerated simplification to handle relationships separately since relationships present in networks (and through these the participating organisations) are in dynamic interaction with one another. Certain relationships synergically support while others sometimes hinder one another and this way also the increase of company performance.

Modelling the relationship portfolio helps clarify this problem, striving to explore the supporting or hindering effects of relationships.
While analysing the relationship portfolio of an organisation, Ritter (2000) distinguished six basic situations after discovering the parallel existence of more dyads (bilateral relationships):

- "neutrality effect", in which case the different relationships of the organisation do not influence one another;

- “assistance effect”, when the relationship developed with one organisation positively supports the activities of the relationship formed with another organisation;
- “hindrance effect”, when the relationship developed with one organisation definitely hinders the activities of the relationship formed with another organisation, and through this the realization of advantages potentially deriving from it;
- “synergiy effect”, when the relationships developed with one organisation synergically help and support the exploitation of the activities deriving from the different relationships;
- “lack effect”, when the relationships developed with certain organisations support the exploitation of the relationships formed with other organisations, but in the opposite relation a reversed effect is realised;
- “competition effect”, when relationships expressly hinder the exploitation of the positive advantages deriving from them.

If the examined situation is extended to include the reactions realizing independently from the company but having a natural effect on the relationships of the organisation by modelling the network, then four further cases add to the number of interpretable situations:

- “unitary neutrality effect”, when none of the existing relationships influences the realization of further relationships;
- “initiation effect”, in which case the different, relevant dyads exercise a positive effect on other cooperations;
- “by-pass effect”, when some of the partnerships formed by certain organisations strengthen, while other relationships destroy the realization of the cooperation between third parties
- “hierarchy effect”, when the participants of the relationships existing in the network are not interested in the development of new direct relationships among their members as partners (e.g. among players had no previous contact).

Consequently, the network influences the realization of individual relationships. At the same time, the value created by the network can not be interpreted as an objective concept following the analogy of the relationship (Medlin 2003). The network rather influences the performance of dyads and through this the performance of organisations. Consequently, in judging the effects of networks influencing performance a dyadic level construction is applied.

In detecting network effect we adapted the analysis instruments applied by Walter and colleagues (2001) who describe this effect as the indirect function of the network, as an effect exercised by the wider network on bilateral relationships. According to their research this effect occurs in four important dimensions:

- on one hand, in the innovation effect exercised on relationships that materializes in the value of product innovation and the value of process innovation as well;
- on the other hand, in the market effect that can be measured by the value of information gained from the network and available to partners on potential new buyers, suppliers and their abilities and references;
- furthermore, in the so-called monitoring line that can be grasped in the value of further market information and information about competitors and third parties available from the network;
- finally, in other supporting effects that can be evaluated in the course of supporting relations with governmental organisations, meeting influential individuals or organisations and the cooperation with them.

5. Analysis method

In our research relationship success is defined as follows: a relationship is successful if it meets preliminary expectations. In the empirical analysis of relationship success the following four questions were phrased:

A) From the aspect of the organisation what independently definable expectations emerge at the initiation of the partnership?

B) What shared expectations were defined at the initiation of the partnership?

C) How did concrete and not concrete parameters characterising the relationship change throughout the cooperation?

D) How do network or other relationships achieved with the help of the given partnership influence organisational and dyadic level performance?

Our research hypotheses are the following:

(Hyp. 1.) A company is able to define its expectations concerning a given relationship depending on what output it hopes to reach within the relationship.

At the same time, the realisation of network operation is not solely influenced by organisation factors but shared expectations concentrating on shared activities (Medlin 2003). The cooperation of two organisations produces certain goals that can be interpreted as shared ones. The more imbedded network operation is, the more shared goals emerge. These goals partly result from the original independently defined goals and partly from jointly defined interests. The shared output of shared goals can be projected to the organisational level only to a limited extent; therefore, this aspect of performance is the result of joint operation in the narrow sense.

(Hyp. 2.) In dyadic relationships separately measurable value-increasing factors are created independently of the expectations defined by the partners.

Naturally, some form of jointly achieved output always appears in the performance of organisations; therefore, success at the dyadic level does or at least may influence the direct effect of relationships on organisational performance.

(Hyp. 3.) Independently measurable output created in dyadic relationships influences the performance of each participant.

There can be no doubt about the performance-influencing role of inter-organisational relationships, since, owing to their development, they ensure participants' access to resources, make representation of interests possible, facilitate organisational learning or offer strategic competitive advantages to organisations. At the same time, certain relationships synergically support the increase of company performance, while others hinder them. Modelling the relationship portfolio helps clarify this problem by trying to discover the supporting or hindering effects of relationships (Ritter 2000). However, value produced by a network can not be interpreted as an objective concept analogous with relationship (Medlin 2003); networks rather influence the success of dyads and organisations. Walter and colleagues (2001) describe this effect as the indirect function of networks, as an effect that wider networks have on bilateral relationships or on the company itself.

(Hyp. 4.) The relationship system of networks, in which the organisations of the dyad participate, influences both the separately measurable success of the dyad and the direct effect of the relationship on company performance.

It is apparent from the questions above that in the analysis of the first two levels of relationship success (organisational and dyadic) the experienced values are reviewed in relation to preliminary expectations. At the same time, it is also visible that in analysing the effects that networks in a broader sense have on organisations, no expectation – realization logic was applied. In preliminary tests it became clear that organisations can not really separate expectations towards partners from expectations towards the partners' network, however, on the side of output they are able to distinguish the influencing effects of the network in the broader sense.

For the analysis of knowledge-intensive relationship systems we chose a group of organisations participating in a regional knowledge-based pole-development as research field.

The analysis was performed on two company samples:

1. Among the company partners of institutes dealing with research (approximately 150 companies), where the primary question lied in how realized R&D relationships supported company performance.
2. Among companies using consulting services in the areas of business and informatics (approximately 60 companies), where the research question tried to find out how the realized development relationships supported the partners' company performance.

In order to design and develop the research dimensions, 30 company interviews were conducted equally divided between the two company groups, while in the case of assessing a wider range of data the method of questionnaires is applied to avoid subjectivity.

In the quantitative analysis we examine the correlation among the modification of success factors defined in different levels with the help of the Lisrel method. We draw conclusions concerning the hierarchy of the different success levels from the systematic correlation among the modification of the different factors.

Analyses made in one area do not in themselves make possible drawing extensive and general conclusions about the correlations among the various levels of relationship success but, on one hand, the results may complete research conducted in the area of relationship quality, on the other hand, they may serve the correlations among the indicators of success in relationship management.

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