

MAXIMIZING BENEFITS FROM NETWORK COLLABORATION: HOW ORGANIZATIONS EXPLOIT NETWORK RELATIONS IN HIGHLY UNPREDICTABLE ENVIRONMENTS

MAKSYMALIZOWANIE KORZYŚCI ZE WSPÓŁPRACY SIECIOWEJ: JAK ORGANIZACJE WYKORZYSTUJĄ RELACJE SIECIOWE W WYSOCE NIEPRZEWIDYWALNYM OTOCZENIU

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Abstract: The main scientific purpose of this article is to identify how organizations maximize benefits from network relations in highly unpredictable environments, including both operational and strategic perspectives of network collaboration. The study is designed to deepen our knowledge about the nature of inter-organizational networks, and our understanding of the dynamics of relations between actors and the possibilities of exploiting networks in order to maximize benefit (network and relational rent). The research was carried out using the interpretative method of a multiple case study, following methodological rigor. It was divided into two stages: case-study analysis and cross-case analysis. The research shows that in highly unpredictable environments, when organizations have to face sudden and considerable unfavourable changes in operating conditions, they intensify relations' features and at the same time modify expected benefits (including both operational and strategic perspective). The results allow for the identifying a pattern which shows how organizations modify the intensity of network-relation features in order to gain established benefits. The template serves as a tool for practitioners who can use it in planning and developing interactions with other members of networks (knots).

Keywords: network collaboration, network relations' features, network rent, relational rent

Abstract: Głównym celem artykułu jest zidentyfikowanie w jaki sposób organizacje maksymalizują korzyści z relacji sieciowych w wysoce nieprzewidywalnym otoczeniu, uwzględniając zarówno operacyjną jak i strategiczną perspektywę współpracy sieciowej. Przedstawione wyniki badań służą pogłębieniu wiedzy na temat natury sieci międzyorganizacyjnych, zrozumieniu dynamiki relacji zachodzących pomiędzy aktorami oraz możliwości wykorzystania sieci w celu maksymalizowania korzyści (osiągania renty sieciowej i relacyjnej). Badania przeprowadzono wykorzystując interpretatywną metodę wielokrotnego studium przypadku, podporządkowując się jej rygorowi metodologicznemu. Badania podzielono na dwa etapy: indywidualne studium przypadku oraz porównania krzyżowe. Wyniki wskazują, że w wysoce nieprzewidywalnym otoczeniu, gdy pojawiają się nagłe i niekorzystne zmiany w warunkach funkcjonowania, organizacje intensyfikują relacje sieciowe, jednocześnie modyfikując oczekiwane korzyści (zarówno w operacyjnej, jak i strategicznej perspektywie). Możliwe stało się zidentyfikowanie wzorca ukazującego w jaki sposób organizacje modyfikują stopień występowania cech relacji sieciowych aby osiągnąć założone korzyści. Może on posłużyć menedżerom jako narzędzie wspomagające planowanie i rozwój interakcji z pozostałymi uczestnikami sieci.

Słowa kluczowe: współpraca sieciowa, cechy relacji sieciowych, renta sieciowa, renta relacyjna

Introduction

For the last few years general conditions of doing business and managing organizations have been both difficult and demanding. Sudden, unexpected, extremely negative events (such as global lockdowns or the conflict in Ukraine) increased unpredictability and contributed to a worsening of both microeconomic and macroeconomic conditions, e.g. the rapid growth of interest rates and inflation (Al-Thaqeb, Algharabali, 2019; Peterson, 2021).

Thus, organizations operate in a highly unpredictable environment, which is understood as a situation in which such unexpected, negative events force managers to implement changes and constant revisions of long-term strategies (Barbier, Robertson, 2022; Rath, Grosskopf, Barmeyer, 2021). This may suggest that in the environment which is turbulent and highly unpredictable, *strategic* planning become less important – organizations ought to focus on an *operational* perspective (D'Mello, Toscano, 2020), be more flexible, agile,

ready to implement changes in order to adjust to new conditions (Xu, 2020; He, Ma, Zhang, 2020).

At this point the question arises whether such a tendency can be observed also in managing network relations. A network itself is understood as a collection of long-term, formal and informal, direct or indirect relations between two or more units (Kilduff, Tsai, 2003; Edelenbos, Klijn, 2007). In highly unpredictable environments, the possibilities of securing market position by exploiting network relations become a great value (Pedersen, Clausen, Jørgensen, 2022).

All these considerations lead to a general problem if the sudden and considerable unfavourable changes in operating conditions result in the intensification of network relations; and at the same time the changing of a perspective from strategic in favour of an operational one. As a result, I answered the following research questions:

1. What are and how to classify the features of network relations?
2. What is the nature of operational and strategic perspectives of network collaboration?
3. What sorts of benefits can be gained as the participant of a network?
4. What is the dynamics of change in the intensity of network relations' features, including both operational and strategic perspective of collaboration?
5. What kind of network benefit is expected as a result of change in the intensity of network-relation features?

The main objective of the paper is to identify how organizations maximize benefits from network relations in highly unpredictable environments,

including both operational and strategic perspectives of a network collaboration.

My intention is to provide both theoretical and practical contributions. Understanding and deepening our knowledge about the dynamics of network relations allow for the more conscious creation of interactions between partners, which may lead to an increase in efficiency of the process of creating value on the part of each member of a network. I depict a concise theoretical construct which explains the dimensions, dynamics and benefits of network interactions. This allows for the conceptualization of a pattern showing how organizations exploit relations and change the perspective of collaboration. It may serve as a template for practical use by managers; how to plan and develop network relations in order to maximize benefits in a turbulent environment.

Literature review

Dimensions and features of network relations

In order to classify network-relation features and to identify their dimensions, I did a semantic and comparative analysis of the features presented in the literature. As a result, I adopted the classification proposed by W. Czakon (2005; 2007), J.C. Anderson, H. Hakansson and J. Johanson (1994), and G. Easton (1992). Also, I included the typology presented by D. Ford, L. Gadde, H. Hakansson, J. Snehota (2003) and J. Dyer (1997). Finally, I operationalized three dimensions of network relations developed by organizations: exchange, involvement and reciprocation. Each of them includes a list of network relations' features (Table 1).

Table 1. Dimensions and features of network relations

Dimension	Network-relation features	Main characteristics
Exchange	information exchange	<ul style="list-style-type: none"> - repetitiveness - mutuality (multi-directional exchange) - realized between autonomic units
	material exchange	
	energy exchange	
Involvement	expectation of continuing and deepening relations	<ul style="list-style-type: none"> - deepening and widening relations of exchange - multi-level character - supports avoiding opportunistic behaviour
	investing in co-specialized resources	
	developing informal relations	
	developing formal relations	
	embeddedness	
	building mutual trust, building loyalty	
Reciprocation	building shared values	<ul style="list-style-type: none"> - aiming at symmetry (balance) between cooperating units
	avoiding/de-escalation of conflicts	
	expectation of equal efforts	
	identifying common objectives	
	common planning and making decisions	
	common solving problems	
	adapting to partners' needs	

Source: Own study, based on (Easton, 1992; Czakon, 2005; Anderson, Hakansson, Johanson 1994).

Dimension I includes three forms of exchange which are characterized by the absence of hierarchy, organizational autonomy and repetitiveness. Features classified within Dimension II relate to deepening and widening relations of exchange (Anderson, Hakansson, Johanson, 1994; Dyer, 1997). Engagement is supposed to offset opportunistic behaviour by network members. Reciprocation (Dim. III) constitutes a logical development and the completion of Dimension II. It focuses on the expectations of symmetry (balance) between cooperating organizations.

Network collaboration – operational and strategic perspective

The above-presented dimensions of network relations correspond with the idea of bond dynamics (Pedersen, Clausen, Jørgensen, 2022; Srivastava, 2015; Piccolo, Lehmann, Maier, 2022). Relations between organizations begin with a multi-directional, mostly informal, informational exchange. At this stage the bonds are loose and activities taken are low risk. The identification of common objectives and benefits may result in getting to another stage of collaboration by initiating first formal projects. Generally they have an operational, short term perspective. In the process of developing relations, it is especially important to signal good will and strengthen trust, which constitute a foundation for the building of close relations. Network collaboration will develop into strategic partnership on the condition that operational projects have brought expected benefits for all partners. This ultimate stage of network collaboration is characterized by tight bonds, formal agreements and a clear division of responsibilities. At the same time realized tasks generate more risk and they are more complex.

Concluding, the process of achieving network collaboration maturity and changing perspective from operational to strategic can be divided into three stages (presented in Table 2).

Table 2. Process of developing network collaboration

Stage of collaboration	Perspective
Stage I - Informing (consulting)	Operational
Stage II - Operational projects	Operational
Stage III - Strategic partnership	Strategic

Source: Own study.

Benefits from network collaboration

The effectiveness of an organizational strategy can be determined through economic rent (Horn, 2018; Niemczyk, 2013a). However, in the case of

network measuring, its effectiveness is more difficult (Lucidarme *et al.*, 2015; Mu *et al.*, 2018; Vangen, Huxham, 2010; Klaster *et al.*, 2017). It is crucial to identify the benefits which correspond with the very idea of network relations, and which reflect the complexity of expectations and motivations of collaborating organizations.

Relational rent constitutes an advantage from *the whole network's* perspective:

- resource oriented (Ricardian) – it represents some gain from the exploitation of valuable and rare resources (Ricardo, 1817; Niemczyk, 2013b). Concerning the network, it benefits from having and disposing such rare resources, especially the knowledge which is created as a result of group learning (Peteraf, 1993).
- monopolistic – an inter-organizational network gains rent from having a better competitive position on a market (Stańczyk-Hugiet, Sus, 2012) and creating rarities.
- innovative (Schumpeterian) – benefits generated from innovations (Schumpeter, 1995). Regarding inter-organizational networks, innovations mainly concern the possibilities of developing flexibility and fast reactions to change.
- entrepreneurial, managerial – it refers to the features and behaviour of an entrepreneur. It focuses on the ability to re-configure available resources in a creative way. In the case of networks, competences to cooperate and to generate synergy from entrepreneurial actions constitute the main benefit and network advantage.
- organizational – this kind of benefit appears as a consequence of the collaboration of organizations which implement and exploit different management systems.
- E. Penrose's rent – this refers to the possibility of a more effective exploitation of all resources on the part of network members. The benefits result not from the very fact of having joined resources, but from the possibility of generating internal synergies.

Network rent, however, relates to an advantage that can be achieved by the *individual* participant of a network (egocentric perspective):

- rent from lower transactional and hierarchical costs – lower transaction costs result from network contracting which replaces traditional contracts. Hierarchical costs refer to the benefits of flat structures (typical for network coordination),

- rent from participating in network of value – value within a network is generated through the synergy of key resources and the actions of collaborating units,
- rent from appropriating value created by other participants of network –appropriation can be understood in two ways: 1) taking over a part or whole value generated by other members of network; 2) keeping for an organization (not sharing) the value created by the unit itself (Najda-Janoszka, 2016),
- rent from creating and diffusing knowledge – it is supported by specific features of the network itself (Whetsell, Kroll, DeHart, 2020), especially when there are substantial differences between network units in terms of knowledge resources,
- rent from convergence processes – the convergence effect means a situation in which some network participant with a weaker position on the market develops faster than another network member with a better position, ultimately achieving a similar market position.
- rent from creating dynamic abilities – dynamic abilities constitute a skill of integrating, building and reconfiguring competencies in order to adjust to fast changes in the organizational surrounding (Teece et al., 1997; Eisenhardt, Martin, 2000).
- network effect – the benefit for all network members grows as the number of its participants increases, since each new member creates additional value for the whole network (Church et al., 2008).

Research methodology

In my research, I used the qualitative research method of a multiple case study (Yin, 2014), following its methodological rigor (Eisenhardt, 1991). The choice of the method corresponds with the set research objectives and what we currently know about the analysed issues (Graebner, Martin, Roundy, 2012). Inter-organizational networks are still a relatively new phenomenon; they are constantly changing and they are conditioned by numerous variables. There is a need for research which would explain the nature of networks; especially how they react to changes in their surroundings, and what mechanisms of adaptation they choose to implement.

Thus, I adopted the interpretative paradigm, which entailed the epistemological position of the researcher. Such a perspective allowed for an in-depth understanding of the phenomenon in some

particular context (Eisenhardt, Graebner, 2007). This situational context determined the research results in each case study, but at the same time it constituted a basis for presenting characteristics of the whole class of researched objects (Yin, 2014).

The multiple case-study analysis consisted of two elements: within-case analysis and cross-case analysis. According to the replication logic, I carried out a series of independent case research which provided data corresponding with set research questions. The results of each individual case study served as a base for cross-case comparisons. As a result, I was able to make theoretical generalizations concerning the dynamics of change in the intensity of network relations' features and expected benefits.

I used the statistical method of clustering, which allowed operationalizing dimensions of network relations (all network relations' features were clustered according to three dimensions: exchange, involvement, reciprocation – see Tab. 1).

I carried out 24 case studies. The main criteria of choice were (Flyvbjerg, 2012):

- clarity of case – researched organizations are active members of inter-organizational networks. Collected data bases on real experience, which ensures its reliability,
- access to crucial data – it refers to the possibility of carrying out interviews and analysing internal documents.

The characteristics of the related organizations are presented in Table 3. All the organizations have headquarters in Poland and they represent different types and scale of business. Network partners are not only business units, some collaborate with public organizations and NGOs. Such a diversity of cases allowed for a complex and consistent analysis of the dynamics of change in the intensity of network relations' features and expected benefits.

Table 3. Characteristics of researched cases

Criterion	Variant	Number of cases
Type of business	production	6
	trade	5
	services	13
Size	1-9 employees	3
	10-49 employees	15
	50-99 employees	6
Type of partners	business	24
	NGO	7
	public	12

Source: Own study.

Given the complexity of the analysed phenomenon and the variety of information characteristic for the multiple case study method, I implemented the strategy of triangulation of gathering data methods (Yin, 2014); they were an expert interview and a documents' analysis. I carried out in-depth group interviews between October 2022 and March 2023. In order to minimize subjective assessment, I implemented a triangulation of informants, interviewing from 2 to 3 representatives of each organization. Depending on the case, I spoke with managing directors, vice-managing directors, managers of departments (or other organizational units), and spokespersons. They filled in a relational matrix which allowed for an identification of the change in the intensity of network-relation features (which corresponds with the results presented in Table 4). Next, I used semi-structured forms, which aimed at diagnosing what sort of benefit was expected as a result of the change (Tab. 5). The analysis of documents allowed me to confront the gathered data with the information provided by the interviewees. The documents included: operational reports, development strategies, and statistical reports.

The interviews were transcribed and analysed (Miles, Huberman, 2000). The qualitative data was: 1) reduced (I transcribed all interviews, and the whole material was coded according to adopted conceptual frames (*a priori* codes)), 2) displayed (the codes were particularized and ordered), 3) verified (I interpreted the data with reference to literature concepts and theories).

In order to ensure the correctness and the trustworthiness of the research, I fulfilled three

evaluation criteria which refer to the methodological rigor of qualitative research evaluation. They are: credibility, transferability and confirmability. Credibility was ensured by: 1) interviewing people who have an in-depth knowledge of the researched phenomena, 2) conducting interviews at times and in places convenient for interviewees, 3) an iterative collection of data and detailed analysis of the material. Transferability (possibility of formulating some recommendations for other organizations) was met by presenting the contextual aspect of the research and explaining in what way the research results may be useful for other units. In order to meet the confirmability criterion, I used a triangulation of methods (interviews, documents analysis), triangulation of informants (Mason, 1996) and a detailed description of methodological perspectives in relation to the research results.

Results and discussion

Dynamics of change in the intensity of network-relation features – changing perspectives

Firstly, I analysed how the intensity of network relations' features changed at different stages (levels) of network collaboration. It allowed diagnosing in what way organizations exploit networks when conditions worsen and the environment becomes more unpredictable. The results were presented in Table 4. The change in the intensity was marked according to the following scale: 2 – considerable increase; 1 – moderate increase; 0 – not changed; -1 – moderate decrease; -2 – considerable decrease.

Table 4. Change in intensity of network-relation features

Network-relation features		Operational perspective		Strategic perspective
		Level I. Informing (consulting)	Level II. Operational projects	Level III. Strategic partnership
Ex-change	information exchange	1,57	1,64	1,40
	material exchange	0,14	1,31	- 0,64
	energy exchange	0,97	1,54	1,43
Involvement	expectation of continuing and deepening relations	1,36	1,12	1,32
	investing in co-specialized resources	- 0,54	1,32	0,44
	developing informal relations	0,56	- 0,20	0,31
	developing formal relations	0,79	1,17	0,29
	embeddedness	<u>- 0,43</u>	<u>- 0,91</u>	<u>- 0,74</u>
	building mutual trust	0,96	1,56	1,22
	building loyalty	0,32	- 0,34	0,14
	building shared values	- 0,34	- 0,24	0,14
	avoiding/de-escalation of conflicts	1,10	1,36	0,40
Reciprocation	expectation of equal efforts	1,41	1,50	1,52
	identifying common objectives	0,50	0,26	0,20
	common planning and making decisions	0,45	1,25	0,62
	common solving problems	1,04	1,13	0,69
	adapting to partners' needs	<u>- 1,12</u>	<u>- 1,04</u>	<u>- 0,76</u>

Source: own study.

Considerable increase in both perspectives (marked: bold)

The most notable increase was the intensity I observed in the features which are strongly connected with sustaining relations over the long term. Organizations wish to continue and deepen network interactions; as such, they acknowledge the value of being part of a network. Difficult conditions of doing business make this tendency only stronger. However, it should be stressed that the marked features relate to the strengthening of bonds within a network, but *not* to the doing of actual business with partners. This can be observed very well within the Exchange features; it is the information and energy exchange that is considerably more intense, but not giving rise to the material exchange. Moreover, very high ratings were given to the expectation of continuing and deepening relations, which expresses directly the idea in question, supported and complemented by two more features: expectation of equal efforts (symmetry in engagement) and building mutual trust.

A considerable increase only in an operational perspective (marked: *in italics*)

These features constitute a very important group which relates to the key research questions about the tendency of changing perspectives from strategic to operational one. It turned out that organizations increased the intensity of some features, giving priority to operational collaboration. It is worth noting that this tendency was observed among the features which

Benefits expected from change in the intensity

At the second stage of the research, I made an attempt to diagnose what benefits organizations expected to incur from change in the intensity of features. This research thread was aimed at identifying how organizations maximize rent from network relations in highly unpredictable environments (Tab. 5). Regarding *relational* rent (benefit for the whole network), generally it became less important; or the importance did not change. Most of all, organizations limited expectations for entrepreneurial (managerial) rent, which refers to exploitation of unique entrepreneurial skills and competences. Also, the possibilities of implementing different management systems and the synergy of specific innovative competences were marked as less important. There were two kinds of relational rent whose importance did not change: 1) having a

can be related to common realization of concrete tasks and projects, e.g. material exchange, investing in co-specialized resources, and common planning. Thus, this finding supports the thesis that in unfavourable conditions (highly unpredictable environments), organizations focus on exploiting network relations in a way which facilitates the completion of short-term projects.

Intensity not changed

There were very few features where the change at all levels was insignificant. They referred to the development of informal relations, the identification of common objectives, and the building of loyalty and shared values. Generally they are the features which support the very foundations of a network – the basis on which organizations can realize common projects. It should be noted that intensity of other similar-in-nature features increased considerably (see features marked bold).

Decrease in both perspectives (marked: underlined)

The most noticeable decrease in the intensity referred to adapting to partners' needs. Clearly, in unstable times organizations concentrate on their own needs and expectations, perceiving a network as a tool to secure one's own position. The second feature whose intensity diminished concerned the phenomenon of embeddedness (doing real business is preceded by developing social relations).

better competitive position on the market, 2) generating internal synergies by exploiting all resources available within the network. The only benefit for the whole network which became slightly more important was connected with exploiting rare resources available for all members of the network. The situation is quite different when we concentrate on the expectations related to *network* rent, which represents an egocentric perspective. It appears that this kind of advantage (gained only by a particular member of a network) becomes relatively more important when general operations worsen. For organizations, implementing changes in the intensity of network-relation features aimed mostly at securing own interest and maximizing own benefit. Four out of six kinds of network rent were assessed as having more importance, the other two were ranked neutrally (Tab. 5).

Table 5. Benefits expected as a result of change in the intensity of network-relation features*

Type of rent	Importance of benefit				
	Considerably less important	Slightly less important	Not changed	Slightly more important	Considerably more important
Relational rent					
resource oriented (Ricardian)				x	
monopolistic			x		
innovative (Schumpeterian)		x			
entrepreneurial, managerial	x				
organizational		x			
E. Penrose's rent			x		
Network rent					
lower transactional and hierarchical costs				x	
participating in network of value					x
appropriating value created by other participants of network			x		
creating and diffusing knowledge			x		
convergence processes				x	
creating dynamic abilities					x
network effect		x			

* 'x' mark reflects a dominant feature from answers collected in all 24 cases.

Source: Own study.

Conclusions

The carried-out research allowed me to identify a pattern which shows how organizations maximize benefits from network relations in highly unpredictable environments, when they have to face sudden and considerable unfavourable changes in operating conditions. Generally organizations intensify relation features and at the same time modify expected benefits (including both operational and strategic perspectives). A detailed analysis of the material allowed me to draw following conclusions:

1. The intensity of most features changed by a noticeable degree – this shows that a network reacts to changing conditions, and it constitutes a dynamic construct. As a collection of different organizations (knots) it adjusts to unstable, highly unpredictable environments. Members of a network modify relations with partners, thereby trying to maximize their benefits.
2. There is a strong tendency showing that most features *increased* intensity – this proves that generally organizations implemented strategies for exploring and deepening network relations, perceiving them as a way of bolstering against difficult conditions.
3. Most features whose intensity increased considerably in both perspectives were related to strengthening and sustaining bonds over the long term; but they were *not* directly connected with the carrying out of shared projects. From

a *strategic* perspective, organizations focused on deepening network relations which constitute a foundation for future collaboration. However, the features which can be related straight to doing actual business were exploited mostly within an *operational* perspective. This leads to a very important conclusion: that in unstable, highly unpredictable conditions, organizations do change perspective from strategic to operational, but this refers only to getting involved in real common projects. At the same time, a network itself (as a collection of relations) is still perceived strategically as an important basis for future collaboration, and a particular group of features was intensified accordingly also in the strategic perspective.

4. As a result of the changing intensity of network-relation features, the accent is put on various kinds of network rent, which is related to an advantage that is gained by the *individual* participant of a network. Relational rent (advantage for the whole network) was ranked as less important or neutral. This phenomenon suggests that in unstable, difficult environments, generally organizations (as part of a network) behave selfishly – they concentrate on surviving within a market by securing their own needs and gaining benefit for themselves. This conclusion is supported by other findings – the feature whose intensity

decreased the most was 'adapting to partners' needs'. This shows that expectations of other knots in a network become considerably less important (compare: Srivastava, 2015). Moreover, the feature called 'identifying common objectives' was ranked neutrally (intensity changed very slightly), which also suggests that in unpredictable conditions organizations do *not* tend to focus on collaboration for the good of all; but instead, they focus on securing own benefit. These findings lead to a very interesting and important paradox – on the one hand, organizations intensify bonds (which generally is positive, since it strengthens networks), but on the other hand, they do so for selfish reasons; they focus mostly on own benefit, not taking into consideration the sake of the network. This tendency may be quite dangerous for network cohesion (Cavalcanti, Giannitsarou, Johnson, 2017; Sharkey *et al.*, 2021), since it undermines one of the crucial conditions of a network's development, which is understanding and respecting common expectations and goals, being one team that operates for the good of all members. Thus, giving priority to own benefit may work against the network as a whole. This paradox (intensification of relations may work against the

network) definitely warrants further research; the following questions arise: where is the line beyond which gaining own benefit (network rent) by one member may become dangerous for the whole network? Where is the safe balance between gaining own benefit and caring for the benefit for the whole network?

With regard to the limitations of the paper, the implemented research methods provided all expected data, which led in turn to the achievement of the research objectives. However, the natural character of case studies requires cautiousness concerning the scale of generalizing results. I would suggest that in order to expand and deepen the results, Necessary Condition Analysis could be used, which would allow for an exploration of the hierarchy of network-relation features in terms of the maximizing of network benefit. The next direction could concentrate on expanding the research area into a structural dimension; diagnosing in what way organizations react to worsening operational conditions in terms of a modification of the network structure. This would lead to presenting more complex picture of the dynamics of inter-organizational networks in turbulent and unpredictable environments.

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