Outlining the benefits of Strategic Networking

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Abstract: Social Networks have attracted enormous interest in the scientific community in recent years. The characteristics, components and impacts of social networks have been studied through different kinds of aspects, such as sociological, geographical, ethnological, political and economical. In economics social network studies have been performed on intra- and inter-organizational levels, though rarely simultaneously. Furthermore the strategic aspects of fostering and controlling informal organizational networks as well as the outcomes of these managerial attempts on the network characteristics and the performance of the organization have not been sufficiently studied yet. However, the need to develop, foster and manage networks efficiently is given for preventing negative effects and provoking positive ones. Therefore this study contributes to scientific theory and practical business development by exploring the influence of Strategic Networking in inter- as well as intra-organizational business-fields. For study the author develops and defines Strategic Networking as the strategic and target-oriented analysis, development, fostering and control of (inter- as well as intra-organizational) networks on the basis of trust, with the intention to reach certain (organizational) goals and tests its applicability and effects in an extensive survey on three levels: intra-, inter-organizational and regional networks (cluster). The survey showed that Strategic Networking goes in line with favourable network characteristics as well as the success of a firm in terms of financial and non-financial performance measures.

Key words: Social Networks, Social Network Analysis, Network Management, Corporate Culture, Stakeholder (Interest Group), Intra- and Inter-organisational Networks.

The present paper represents a synopsis of a broader study, namely the author’s dissertation thesis, which can be found at the Central Library of Tomas Bata University in Zlín as well as online on thesis.cz.

1. Organizational Networks

“Individuals do not stop being social beings when placed in a formal workplace setting”
([70], p.7)

To form social networks are a human need and ability. In private as well as in professional life social networks evolve, which are a defined set of persons, and the linkages between them [65]. Furthermore networks are a set of relations, which differ in aim and duration and emerge out of affiliation needs and the wish to belong to a group, for friendship and support ([13] and [25] in [70]).

Various ways of distinguishing social networks exist. Basically a social network can be formal, e.g. a sports club, or informal, e.g. a group of friends.

Organizational social networks can be subdivided into intra-organizational and inter-organizational networks. Intra-organizational networks are the relations between employees, while inter-organizational networks form relations to shareholders, suppliers, costumers, competitors and any other possible stakeholder, as for instance regulatory authorities [62].

Moreover there exists another type of organizational networks, the strategic and regional networks, which describe relations between companies that have characteristics of a primary organizational form and serve economic activities [63]. Examples for this kind of networks are joint ventures, strategic alliances, but also cluster. Cluster are a specific type of coherent network [56] or groups of geographically concentrated firms of different sizes, horizontally and/or vertically linked and operating in the same line of business [43], that occur or are established more often these days. The reason is
mainly that clusters are a source of innovation as being based on collaboration, proximity and networks that result in a process of mutual learning, emulation of positive role models and personal contacts [27].

The effects of social networks lie in the economies of scale (synergy effects) as well as in the economies of scope, which are focused on quality and innovation and are therefore the primary target of many companies. Another advantage of social networks lies in the transaction-cost theory, which says that the costs for coordination and transaction can be reduced due to social networks. Transaction costs such as costs for information searches, bargaining, policing and enforcement, can be limited with the help of social networks due to trust, proximity, reciprocity and social responsibility [45].

In the following the characteristics of intra-, inter-organizational and regional networks will be described and the effects outlined.

1.1 Intra-organizational Networks

Beside the formal relations, which are defined by the organizational charts, there exists another dimension of social networks within an organization, the so called informal relations. Informal relations contribute to the achievement of organizational objectives by building a supplement to the formal communication and exchange links. Those informal relations can in their greatest extent replace the formal structure [53].

The informal intra-organizational networks are influenced mainly by three conditions: the formal organization (which can be vice-versa also influenced by the informal organization), the organizational demography and the organization’s technology and environment, as for instance a turbulent corporate environment leads to a more flat structure and a more information intensive organizations show higher cohesiveness [19]. A lot of research has been done on the influence of organizational demography with inconsistent findings. Differences in education, age, sex and race, seem to lead to greater commitment to the organization while at the same time commitment of majorities decreases when the number of minority groups grows [19]. Especially the impact of homophily and heterophily in terms of sex is an often researched field. Ibarra [28] showed in her research that men are more likely to form multiplex homophilous ties, while women enjoy social support and friendship from other women and are linked to a greater extend to men in order to enjoy instrumental network access.

Effects of informal intra-organizational networks derive from the content within a network (affect, production, political and cultural), from the properties of the links (strong ties/weak ties) and the structural characteristics (density, hierarchy) [34], [70], [66], [35], [23], [32], [65], [1], [31], [24], [7].

To the positive effects of intra-organizational networks can be counted knowledge-sharing, which depends on the knowledge about another person’s knowledge, the accessibility of that person, the willingness of the person to provide information and moreover the degree of safety of the relationship to promote learning and creativity, which is highly connected to trust [21], [12]. Moreover intra-organizational networks influence turnover and absenteeism [32], job-satisfaction [55] conflicts handling [19], [31] and motivation [19]. Regarding stress, research showed that too high density as well as multiplexity leads to stress, therefore an optimum level has to be found [32].

The same way as intra-organizational social networks have an influence on the performance of an organization, good performance of an organization affects the social relations within that organization [19].

1.2 Inter-organizational Networks

Inter-organizational networks are a natural phenomenon in organizational life and shape the economic transfer [67], survival and growth of an entrepreneurial firm [37] and many more. The positive influences, mainly from embeddedness in an inter-organizational network under the existence of trust, contribute to lower transaction costs, reduced monitoring costs and faster decision making. Embeddedness in a network can be understood as a structural, cultural, political and cognitive aspect [67]. Trustful inter-organizational networks help to overcome the principal-agent problem due to lowering of information asymmetries [67] and enable growth and survival especially for small firms and start-ups [36]. The effects of inter-organizational networks can be grouped into structural, process and outcome effects. The structural ones include the embeddedness, density and multiplexity of the firms’ networks; the process effects cover mutual learning, trust, fairness, legitimation and power, while the outcomes of inter-organizational networks contain contributions to innovation, survival, financial and non-financial performance such as quality and customer satisfaction [50].
The stakeholder approach is a level of analysis of inter-organizational networks that includes all relations to stakeholders, who are defined as “any group or individual who can affect or is affected by the achievement of the firm's objectives” ([20], p.25). Therefore looking at all groups and individuals who have an influence on the company's performance ensures the analysis of all relations influencing the latter.

In a rather heuristic approach Vandekerckhove & Dentchev [68] are looking at the opportunities due to indirect or missing contact to stakeholders, whereas Rowley [57] provides a classification of positions of the focal firm in its inter-organizational network as “the existence of relationships between stakeholder can affect the behaviour of stakeholders and focal organizations” ([57], p.892). Deriving from the density of the inter-organizational network and the centrality of the focal organization four types of roles are assigned to the focal organization, and certain positive and hindering effects can be assigned to the different role-models due to the high or low density, the ratio between the realized relations to all possible relations, and the high or low centrality of the focal organization in the inter-organizational network [57]: Commander (most desirable position due to power), Compromiser (able to resist stakeholder pressure, though stakeholders hold constraint on the focal firm), Subordinates (focal firm is in a vulnerable position), Solitary (position of no possibilities of influence). Even though criticised by Vandekerckhove & Dentchev [68] for being undesirable from an ethical point of view, the classification of stakeholder networks by Rowley [57] provides the most concrete example of definition of the level of analysis as well as a model for classification and evaluation of inter-organizational networks.

1.3 Regional Networks - Clusters

Clusters became a modern way of cooperation of both profit and non-profit organizations, building islands of local cooperation among competitors in a world of global economy [46], [48]. Successful clusters enhance the efficiency of individual companies, and increase the economic growth on regional as well as national level by promoting innovation. While the European Commission ([11], p.2) defines clusters broadly as “a group of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialised expertise, services, resources, suppliers and skills,” the most cited definition on the scientific side comes from Michel E. Porter ([46], p.215). He defines clusters as a “geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities,” a definition, which outlines two things known in social network science as crucial for dense networks: the linkages and their proximity.

The characteristics and positive effects of clusters have been outlined by many scholars as manifold and therefore clusters are a central tool in the regional, science and technology, industry and enterprise innovation policies [42]. While increasing economic coordination, clusters reduce bureaucratic control and enable learning and knowledge transfer [5]. Moreover economies of specialization and labour pooling are externalities of clustering [13]. All companies within a cluster region benefit from better access to employees and suppliers as well as specialized information [47]. This also stimulates new business as market entry barriers as well as exit barriers are smaller [47]. Technology and knowledge spill-over [13] are drivers of innovation and increase productivity within clusters [47].

The benefit of reduced need for bureaucratic control depends on the trust between the member firms [5]. Trust counts as a key issue for knowledge diffusion as the sharing information and knowledge between network partners is reciprocated like a favour [44]. Whether two actors have been working together in the past facilitates future knowledge flow [44]. Therefore project networks seem to be a supporting factor of clusters. Group-thinking and active participation of members within the cluster are important requirements for successful cluster cooperation. Moreover a balance between cluster focus and market focus is needed, as a cluster can suffer from too many inward-looking actors [47].

Although many attempts, proposals and tools have been published [64], [30], still common acknowledged cluster evaluation tools and measurements for comparison are not available. This makes comparison of cluster performance as well as the impact of policies on cluster and regions difficult [42].

2. Network Management

Management is a function as well as an institution within a company, the tasks and duties of which are coordination, structuring, planning, organizing, leading and control. In general, operational and strategic management are distinguished. Strategic management determines the direction of the
company by setting up the strategies and providing the general basis for fulfilling them. Operative management deals with the concrete actions of realizing strategies [61]. The management of networks is understood as the organisation of activities and relations between the companies involved [63].

2.1 The Need for Network Management

The need for network management is a given, as inter-organizational networks can lead to the loss of strategic autonomy, core competences, organizational identity, as well as an increase of coordination costs and can lead to an uncontrolled flow of knowledge [62]. Also intra-organizational networks bear risks, in case certain employees grow too powerful by acquiring a network position as a hub or central player, which makes the network instable and the management weak. Moreover problems can occur due to homophily concerning sex or departments, so that communication and information flows just within the same department or between men and men and women and women. While too loose networks hinder efficient communication and knowledge sharing, too tight networks lead to inefficiency and hinder innovation. [12], [66], [6], [35]. Nevertheless, formal as well as informal networks both are strong factors of influence for a company's success, and their usage clearly shows various advantages, as they are a basis for innovation, communication and collective support. Therefore networking should be a proactive task and strategy, more so as networks are an important factor for the development of an entrepreneurial firm [36]. The managerial approach has to take into consideration how to design, change and control the networks in order to reduce uncertainties and improve the firm's competitive position [51].

2.2 Existing Network Management Models

Network-management models have emerged on the one hand from practical experience and on the other hand they have been developed by empiric science, such as the famous network management model by Sydow and Windeler [63], which proposes four additional functions to traditional management: Selection, Regulation, Allocation and Evaluation.

‘EQUAL’, a program of the European social fund for fighting discrimination, realizes its projects within networks and their experience showed that a competent network management is necessary, though the classical hierarchical organizational principals are not applicable. Therefore, they established a guideline of tasks and questions for network management. The objective of network management is to choose the right network members, ensuring knowledge transfer and target orientation and acting as a moderator and promoter within the team and as a communicator outside of the network [26].

A rather holistic concept is the network management framework by Riemer and Klein [54] that combines the network view, the firm’s view on network management, the view of the network environment and the mode of network management. Another important aspect of the network management is the network governance, which serves the accommodation of needs and activities as well as coordination. Provan and Kenis [49], [51] proposed four forms of network governance: Participant-Governed Networks, Lead Organization Governed Networks, Network Administration Organization (NAO) (separate administrative entity) and hybrid forms of network governance. The forms of governance partly evolve and partly are given depending on the purpose of the network. Furthermore, the form of governance might change as the size of network grows or network tasks are becoming more complex [49].

The existing network management models have in common, that the main focus lies on the development and formation of the network, neither the organization of the work nor the shaping of the networks characteristics, which are necessary in order to provoke positive effects, are mentioned. Therefore by literature and expert survey the author developed and defined a network management model that embraces these conclusions and is applicable for practical use.

2.3 Development and Definition of Strategic Networking

Using semi-structured interviews, nine Austrian networking experts, from industry, politics and consulting were asked by the author in 2008, about network basics, their personal opinion on network development, fostering and management and about network management in their company. The study revealed that network development in practice is never left completely to chance, but rather to some extent, experts act strategically to a high degree or both strategically and open to unexpected or future eventualities. Moreover it has been shown that network development and management is done to some extent informally and indirect, though with a strong emphasis on the personal component. As a conclusion from these findings, a network management model was needed, which can serve as
a compendium for practical application. This network management model has been developed by scientific deduction from empiric findings, etymologic study and literature survey from a phenomenon originating from business training sessions held by public affairs and public relations agencies: Strategic Networking.

Strategic Networking has been defined by the author as “the strategic and target-oriented analysis, development, fostering and control of (inter- as well as intra-organizational) networks on the basis of trust, with the intention to reach certain (organizational) goals.” ([17], p. 380)

The Strategic Networking-Model has a clear focus on the aim or target of the network, which shall enable appropriate network development, represented by Sydows and Windelers network management tasks: selection, allocation, regulation and evaluation. Another central tool is network analysis, which should be done regularly in order to give an overview of the network, the roles and positions of the network members and to indentify needs for network development. Four network management tasks, which are crucial for shaping the network in a way that enables efficient cooperation, are incorporated in the model: fostering social integration, alignment of strategy, organization and technology, facilitating shared visions and values, network governance and coordination of exchange. These tasks are circular, unsystematic and with reciprocal influence and are therefore located in the inner circle of the model.

![Strategic Networking Model](image)

Fig. 1: Strategic Networking Model. [16]

3. Aim and Methodology

The main target of this study has been to evaluate the network management tool ‘Strategic Networking’ in practice and to prove that it contributes to the performance of a network.

The aim is supported by the need for further research in the particular field of intra- and inter-organizational networks, their network management and impact on the network efficiency. Waldstrøm ([70], p.38) calls for answering “How does the managing of the informal networks affect organizational efficiency?” therefore this paper focuses on the impact of the management of organizational networks as it has been outlined by Flap et al. [19], that research on intra- and inter-organizational networks and performance in the economic sense of profit are scarce as managers and employees are scared to
provide information because of the sensitivity of the data. Another difficulty is the fact that real-life settings like organizational and inter-organizational arrangements for performing experiments are too costly, time-consuming, difficult to control over a specified period of time, and moreover ethically problematic ([10] in [50]). Therefore it has been analysed how many aspects of Strategic Networking in the network management are implemented, while controlling for influencing factors. Strategic Networking has been analysed and evaluated on an intra-organizational (micro), inter-organizational (meso) and regional (macro) level.

- **On micro level** the intra-organizational networks of three Austrian small-sized firms, which employ a minimum of 50 to a maximum 150 persons, were analyzed. The data about the intra-organizational networks has been collected via online questionnaires, which were addressed to all employees and in a socio-centric approach seven relations from professional till private were elaborated. Moreover has the corporate communication and culture, using a modification of Schwartz’s motivational value types [59], [41] and the competing values framework [9] been surveyed.

- **On meso level** the inter-organizational networks of eight small-sized firms, collected in a qualitative and participative interview using an ego-centric approach, have been analyzed and evaluated according to their financial performance and network management. From the total sample four companies were from Austria and four from the Czech Republic.

- **On macro level** the whole network of all organized and institutionalized clusters and their members in the Czech Republic and Austria was analyzed and the clusters compared to each other. For each sample the cluster manager (management) of one well and one poorly performing cluster in terms of their structural position (degree, betweenness) in the whole network has been interviewed.

### 3.1 Research Questions and Assumptions

The study is led by three main research questions, which shall be answered by the data collected and the analysis done:

- RQ1: How are organizational networks (intra-, inter- and regional) managed in practice?
- RQ2: What does an intra-, inter-organizational and regional network managed by Strategic Networking look like?
- RQ3: Is a network that is managed by Strategic Networking more successful in terms of financial or non-financial measures?

Thanks to previous scholarship, several assumptions on the possible outcomes from the research can be made, which shall be evaluated by the research conducted. Two main reasons call for the usage of assumptions as a guideline of the research and against the formulation of research hypothesis. First, the topic is a social one, analysing social relations of human beings, which is thanks to Social Network Analysis measureable, but does not allow to be treated like purely quantitative data. The second reason is the research sample that is compared to other surveys in the field already big, but concerning inductive research methodology, still a case study and therefore has to be treated like that.

**Micro-Level:**

It is assumed that Strategic Networking leads to denser and more central intra-organizational networks, with high multiplexity and low homophily between the departments, improving the performance of the company [33], [45].

It is assumed that the hours employees spend on networking within the company and with company stakeholders will be positively related to the outcomes, as experiments prove that simple “coffee breaks” enhance performance significantly [69].

It is assumed that intra-organizational networks that are well managed and fostered by more aspects of Strategic Networking are to some extend less hierarchical than networks which fulfill less aspects of Strategic Networking [31].

It is assumed that the organizational culture has a vivid influence on the intra-organizational networks and that only certain cultural types such as Clan and Adhocracy Culture support dense and multiplex networks [14], [15].

**Meso-Level:**

The inter-organizational network, the network between a focal firm and its stakeholders can be categorized into four types according to the density and centrality of the focal organization [57]. Due to the focused fostering and development of the inter-organizational network by Strategic Networking it is assumed that a focal organization, which conducts many aspects
of Strategic Networking, is a commander in its network resulting from a high centrality of the focal organization and a low density of the stakeholder network. As structural improvements and higher social capital increase the company's performance, the effect will be visible in the returns of the company, as transparency and rationalization are assets deriving from social capital leading to a better flow of information, reduction of transaction costs and uncertainty, as well as enhancement of flexibility [24], [38]. It is assumed that inter-organizational networks that are managed and fostered by more aspects of Strategic Networking are to some extend more efficient than networks which fulfill less aspects of Strategic Networking [31].

Macro-Level:
It is assumed that Strategic Networking is a model which is applicable not only for the management of intra- and inter-organizational networks, but also for regional networks and clusters in particular, as clusters are a specific kind of network that enjoys high density [56]. It is assumed that cluster, which are not only central by terms of degree, but moreover in their closeness centrality, are managed by more aspects of Strategic Networking as network management helps to find suitable partners, to coordinate interests and expectancies and to work effective [26]. It is assumed that the longer the tradition of regional networks (clusters), the more clusters are established, as the development of relations and networks takes time to evolve [2]. Moreover it can be assumed that with the increase of the clusters, the general density decreases. [36], [13].

3.2 Methodology
The main approach for data analysis has been social network analysis, a socio-anthropological method, used to measure and visualize the social structure of a group as a whole and the social embeddedness of its individuals [29], [71]. Social network analysis distinguishes between the analysis of an ego-centric network and a socio-centric (total, whole) network. Ego-centric networks are collected from the point of view of an individual (ego), who is asked to provide his contacts according to the research question by a name generator. The names generated are called alteri and further more the relations between ego’s alteri are asked. Whole network analysis deals with all relations (according to the research question) between a defined set of actors. Social network analysis uses special software for the calculation of network measures and the graphical illustration like Ucinet, Pajek, Visone, Gephi, Netdraw, or Vennmaker. [29], [58].

The most important measures for characterizing social networks can be calculated for the whole network as an average of all actors, or for each actor. Those measures are density, describing the ratio between existing relations and possible relations, cohesion, defined as the number of bidirectional choices in relation to the number of dyads in a network, and network-multiplexity, which calculates the share of multiplex relations on all possible relations. Another important measure within networks is the measurement of the degree of homophily, which describes whether actors with similar attributes are more connected with each other than to actors with different attributes. Centrality and prestige are concepts based on the idea that the actor, who is part of many relations within the network, is, more central and visible. There exist three types of centrality measures of actors: degree-based, closeness-based and betweenness-based. Moreover the roles and positions of actors within a network can be analysed as well as the structure of the network itself [71], [31].

The next methodology has been qualitative content analysis (QCA), a systematic and rule guided approach to analyse texts. Meant to preserve the advantages of quantitative content analysis, QCA is defined as “an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytical rules and step by step models, without rash quantification,” ([40], p.2). The subject of analysis can be all sorts of recorded communication like transcripts of interviews, protocols or video tapes. Therefore, this method appears to be ideal for analysing expert interviews and recordings of team workshops [39].

Within qualitative content analysis several different techniques are known. The technique, which will be used in this survey, follows a deductive category development process [40].

In addition descriptive statistical analysis has been put into use for summarizing and presenting the findings from the non-relational part of the questionnaire as well as the interviews with the management of organizations and clusters. The central tendency measures like arithmetic, geometric and harmonic mean as well as dispersion measures like variance, distribution and standard deviation
have been calculated. As the sample size does neither allow generalizations nor inductive theory building about a total population, linear regression analysis were only used for drawing conclusions about interrelations in the data collected and not to conclude to a total population. An overall F-test was used for testing the significance of the model against the null hypothesis $H_0 : \beta_0 = \beta_1 = \ldots = \beta_k = 0$ and additionally a t-test was performed for testing the significance of individual coefficients against the null hypothesis $H_0 : \beta_i = 0$. [3], [18], [60].

4. Main Results of the Survey

Strategic Networking has been evaluated and its impact proved on a micro-level of intra-organizational networks, on a meso-level of inter-organizational networks and on a macro-level of regional (cluster) networks. The findings shall be presented for each level separately first, before with answering the research questions can be concluded in chapter 5.

4.1 Intra-organizational Networks

The three companies participating in this survey are all located in Austria, can be categorized as small-medium sized companies and are situated in different business fields:

- Company 2: coating producer, 143 employees, since 1937.
- Company 3: polymer processing firm, 100 employees, since 1964.

It was found that Company 1 and Company 2 have a predominant market culture and Company 3 a combination of clan and market culture, which is a special combination of values provoking efficiency and network density simultaneously. Concerning Schwartz’ value dimensions Company 3 showed a balanced value combination, while Company 1 has a tendency towards Self-Transcendence (a trust supporting orientation) and Company 2 towards Self-Transcendence and Self-Enhancement (a trust limiting orientation).

Communication has been evaluated in an online questionnaire created by the author, and showed that the employees of Company 3 evaluate the communication best with 93% positive statements, while the share of positive statements was 86% in Company 1 and 85% in Company 2. In terms of average hours of communication per week Company 2 is ahead within the company as well as with stakeholders, which provides support for assumption 2 as Company 2 is the best performing company in terms of financial measures.

Regarding their intra-organizational networks Company 3 and 1 showed on their aggregated networks as well as in individual relations a higher density and lower centrality. Moreover it has been found that multiplexity in those two companies is higher than in Company 2, where only 39.8% of the relations are multiplex, which can be observed in Figure 2.

![Fig. 2: Multiplexity of Relations](source: Author’s own)
Figure 2 shows in the first column that more than 60% of all relations are one-dimensional in Company 2, whereas in Company 1 the share of one-dimensional relations is 36% and in Company 3 only 32%, which shows that multiplexity is higher in those companies and the networks respectively stronger. The following columns show the share of relations that go over two or more relational types. It can be observed that Company 1 and 3 show stronger multiplexity than Company 2, especially in the multiplexity over four or more relations Company 3 is the strongest.

Beside low multiplexity values Company 2 furthermore has the strongest hierarchy as well as lowest efficiency of social relations in its networks, which goes in line with the findings concerning network management, displayed in Table 1.

<table>
<thead>
<tr>
<th>Tab. 1: Network Management in all three Companies</th>
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<tbody>
<tr>
<td>Company 1</td>
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<tr>
<td>---</td>
</tr>
<tr>
<td>Target-orientation</td>
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<tr>
<td>Network analysis</td>
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<tr>
<td>Intra-Activities</td>
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<td>Inter-Activities</td>
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<td>Total Activities</td>
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</tbody>
</table>

Source: Author's own

Company 1 has the highest target-orientation as well as number of total network management activities and specifically intra-organizational tasks. Company 3 is on second place concerning total as well as inter-organizational network management activities, a pattern which has been found for the non-financial performance indicators (fluctuation and number of employees sick), as well as the favourable network characteristics (high density and multiplexity, low hierarchy and homophily).

4.2 Inter-organizational Networks

The meso level is focused on inter-organizational networks, which have been collected from ego-centred perspective using VennMaker. In the data set the inter-organizational networks of eight firms, four Austrian companies and four Czech ones, are included. In a first step the stakeholder networks were classified by the author according to Rowley [57] into commander, compromiser and subordinate networks after their network density and the centrality in terms of betweenness.

The analysis of the network efficiency [31] showed that firms classified as a commander in their network enjoy higher network efficiency than compromisers. Subordinate companies have the least network efficiency in the sample, which can be observed in Figure 3. The same rank has been found in the aggregated number of network management activities as well as the activities focused on inter-organizational networks. Also in terms of network management activities the commander firms rank before the compromiser and subordinates.

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1 The number of total activities is not the sum of intra- and inter-organizational activities as some activities are focused on both dimensions.
Benchmarking showed that Company 1 (Commander) is the best performing company in the sample concerning, network management, characteristics of the stakeholder network and partly also concerning performance. Poor performance was demonstrated by Company 7 (Subordinate), which had the lowest amount of network management activities as well as poor performance ratios. For further identification of interrelations in the data set between network management activities and outcomes in terms of financial, non-financial and network analytic performance linear regression analysis has been done. Despite the small sample size, which does not allow by any means to draw general assumptions or generalizations besides describing this specific data set, several statistically significant relations have been found:

With the number of inter-organizational activities as the dependent variable interrelations have been found with the total number of actors ($R^2$ 0.93, F p-value 2.654e-05), the trend of ROA ($R^2$ 0.52, F p-value 0.06), betweenness ($R^2$ 0.52, F p-value 0.04), density ($R^2$ 0.6, F p-value 0.02) and efficiency ($R^2$ 0.62, F p-value 0.02).

With the total number of network management activities as the dependent variable interrelations have been found with the betweenness ($R^2$ 0.53, F p-value 0.04), density ($R^2$ 0.53, F p-value 0.04), efficiency ($R^2$ 0.56, F p-value 0.03) and the number of days employees are per year sick ($R^2$ 0.56, F p-value 0.09).

With the number of intra-organizational activities as the dependent variable interrelations have been found with the number of days employees are per year sick ($R^2$ 0.6, F p-value 0.07).

In summary it can be said that all assumptions have been verified by the data in the particular survey.

4.3 Regional Networks - Clusters

By applying desktop survey, data about organized and institutionalized clusters in Austria and the Czech Republic has been collected and via two-mode network analysis an affiliation of the clusters with their members done for analysis of density and centrality in the emerging socio-centric networks. Two clusters per sample have been contacted and interviewed about their network management. For the Czech Republic Plastic Cluster Zlín and Omnipack Cluster have been analysed and for Austria Plastics Cluster (Kunststoff-Cluster - KC) and Association for Network Logistics (Verein Newtwerk Logistik VNL).

The survey showed that Strategic Networking is applicable as framework also on regional network level and that those two clusters while enjoying a higher centrality in terms of degree and closeness in their network, are also applying a higher number of network management activities, which can be observed in the table below:
The overall tendency showed that Czech clusters have smaller closeness measures than the Austrian clusters, which results from the overall network differences. The whole network of clusters in the Czech Republic was with 793 nodes significantly smaller than the Austrian cluster network that had 4825 nodes. The Austrian clusters have on average 147 members, while the Czech clusters have 28 members, which is natural as clusters in Austria exist for more than 20 years, while clusters in the Czech Republic have started to develop in the last 5-10 years. Regarding density the differences between the two countries were remarkable, as the ratio between realized to possible relations was 0.3% in the Czech cluster network and 0.03% in the Austria cluster network. The density dissimilarities and the differences of the number of actors support assumption 10, stating that when, the number of actors in a network increases over time, the general density decreases.

5. Discussion and Conclusion

The main target was to evaluate the network management tool Strategic Networking in practice and prove its contribution to the performance of a network, which has been done on three levels. In the following the research questions will be answered, thereby Strategic Networking evaluated, the impact for practice and science stated, limitations outlined and needs for further research named.

5.1 Evaluation of Strategic Networking

Research Question 1: How are organizational networks (intra-, inter- and regional) managed in practice?

Organizational and regional networks are managed in practice by simple activities applicable to the aspects of Strategic Networking. In organizations meetings, communication and especially informal communication are the main network management activities. Networks are developed directly and governed by databases and address directories. Also on regional network level Strategic Networking is applicable for clusters, which in contrary to organization analyse their network regularly, develop it by bottom-up approach indirectly via existing members. The most important network management activities for clusters seem to be projects and the use of the intranet.

RQ2: What does an intra-, inter-organizational and regional network managed by Strategic Networking look like?

On a micro level it has been found that intra-organizational networks of firms applying many aspects of Strategic Networking enjoy a low hierarchy, high density and efficiency accompanied by a market culture and balanced values. On a meso level companies applying many aspects of Strategic Networking have been classified as a commander in their stakeholder network with high efficiency and a larger amount of stakeholder-contacts than companies with lower amount of network management activities. On a macro level clusters applying many aspects of Strategic Networking have been found to have a higher centrality in terms of degree and closeness.

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RQ3: Is a network that is managed by Strategic Networking more successful in terms of financial or non-financial measures?

Yes. On the micro-level companies applying many aspects of Strategic Networking had a lower fluctuation and their employees were sick fewer days per year. On the meso-level benefits of many aspects of Strategic Networking were identified via benchmarking and linear regressions as a higher return on assets and equity-to-assets ratio. On the macro-level it contributes to the performance due to a “Rich-get-richer”-effect, which enhances the durability of a cluster and the number of projects.

5.2 Limitations and Need for Further Research

The present study is aimed at contributing to a scientific field that is not fully researched yet. The findings clearly show a step in the right direction, though only a small step. Several limitations have to be considered that leave space and need for further research. The first and probably the biggest limitation is the small sample size. Even though it already represents quite a big sample size in the specific field of organizational network analysis, for general assumptions and generalizations in the sense of inductive studies the sample size is still far too small. Access to organizational network data and to intra-organizational network data in particular is highly difficult. Managers are afraid of cooperation on such research projects due to the high sensitivity of the data and potential loss of time. Another limitation is the fact that the participating companies, even though being limited to small and medium-sized firms, are of different size, maturity and industry, which makes comparison, outside the network measures difficult, partly even impossible. Also the statistical analysis presented in the survey has to be treated with caution. Even though only linear regressions under a minimum significance have been considered, an underlying problem is still the small sample size and threat of “bad” leverage points [60]. Therefore it must be outlined once more that the presented linear regressions merely intended to analyse the interrelationships in the collected data set and to demonstrate that there is a need for further analysis of these findings with a bigger sample size on all three levels.

On the macro-level of analysis a limitation is that formal relations have been studied by running an affiliation of the membership in clusters towards a 2-mode network of clusters of a specific country. Hereby the data might be completed by informal relations and cooperation agreements, conducted directly from the clusters. Nevertheless it has to be outlined that this might result in an extensive amount of data especially in countries such as Austria, where more than 50 clusters exist with an average of 147 member firms. Already by collecting “only” the formal membership relations a network with a size of 4825 actors and 5966 relations, has been reached.

The problem of unknown actors is also known by the method of ego-centric data collection, where ego is not necessarily informed about all relations between its alteri, even though it is very likely. Besides this limitation the methodology proved to be highly useful for data collection as well as analysis and is proposed for application in further research, with broader samples, from different or same industries.

For better understanding of the functioning and effectiveness of the network management model Strategic Networking an accompanying study is proposed for further research.

5.3 Gains for Science and Praxis

The presented survey provided insights into fields important for science as well as practice and brought answers to open research questions by elaborating topics until now not fully researched. Those are the evaluation of the effects of network management on the intra-, inter-organizational and regional networks. Till now only a small number of surveys have observed intra- and inter-organizational networks simultaneously. Hereby the data collection of the intra-organizational network via online questionnaire using a socio-centric perspective has been found constructive and valuable, as the data collection mode gives the participants a feeling of anonymity and the data-collected is available in a suitable electronic format for further data processing. Further insights to the theoretical model of Eckenhofer & Ershova [15] about the influence of certain organizational culture on solid social networks have been provided. The Competing Value Framework as well as Schwartz’s value dimension has been used for diagnosing and classifying the organizational culture of a firm. The tools have been found useful and practical, not only for the scientific purposes, but may also be used for consulting practices. The findings that clan culture and values classified under self-transcendence support the evolvement of dense social networks within organizations are important for practice. They give a guideline of values and cultural types supporting or hindering the evolvement of dense social networks and a climate of knowledge sharing and good information flow. Further testing and analysis by scientific surveys is proposed by the author in order to have a better certainty and accuracy in the recommendations.
Another gain for science and practice is that confirmation of the suitability of a network management model for intra-, inter-organizational and regional networks has been provided, which was needed in science as well as praxis, as network management models are rare in general and suitable ones for application in practice in particular. The network management model Strategic Networking works as a compendium for network management within companies, as well as outside to stakeholders. Even for regional networks, such as clusters, it can be applied in order to fulfil all necessary criteria for the development of social networks, as well as collaborating within them. The benefits of Strategic Networking have been clearly identified on all three levels. On the intra-organizational level as the improvement of the network characteristics by supporting higher density, lower hierarchy and higher multiplexity. On the inter-organizational level Strategic Networking helps to increase the overall number of actors in the network, the efficiency of the stakeholder network, by supporting an establishment of a central position within a network of low density, which provides power due to structural holes. On the level of regional networks such as clusters, it has been found that Strategic Networking might help to attract a higher number of members and to choose the members in order to have a strategic position within the national network of cluster organizations subsequently.

5.4 Conclusion

In summary it can be said that with the tools, measures and means available for this study, networks applying Strategic Networking have been found to be successful. This does not apply strictly in financial terms, and has to be outlined as a need for further research to analyse this on a broader scope, with a bigger sample, over a longer period of time.

The main target of this study was to evaluate the network management tool ‘Strategic Networking’ in practice and to prove that it contributes to the performance of a network. This goal has been reached; the network management tool is applicable for use in practice, even though the target-orientation seems not to be taken literally and network analysis is applied only rarely in practice, which goes in line with the findings from the expert survey presented in chapter 3.3, which said that target-orientation is accompanied by ‘having an open eye’ for opportunity. Moreover it has been found that some firms, spend a lot of efforts on networking and network management, but do not characterize their networking as highly target-oriented, even though the intentions are focused on the benefits of the firm. This might not be negative, on the contrary natural, as social interaction is needed to develop trust and social capital in a row [66], which allows mutual benefits from a relationship. Target-orientation and focus on one’s own benefits, which is too strong, might hinder this process. Therefore awareness of the target and goal seem to be the key, though not networking strictly for target achievement solely.

The study showed that while in clusters the networks are analysed regularly, using performance measures and sometimes even the Balanced Scorecard, within companies the management simply talks about their networks. Here a need for development of practical tools exists, which would allow managers to analyse their networks in simple and fast manners. The perspective of the stakeholder-network and the use of the software VennMaker has been highly applicable and useful during the study. The method was comprehensive even to actors not familiar with the network term and the circular distances of relations have been understood intuitively by participants. This approach can be recommended for use in practice, as an awareness and overview of the network helps to identify structural holes and needs for network development.

The contribution of Strategic Networking to the characteristic of a network has been clearly shown in the study on all three levels analysed. The contribution to the success of a network in financial means only partially, though may be deduced from other scholars’ findings on the impact of certain social network characteristics [8], [23], [22], [67], [56], [32], [37], [57], which have been identified to be provoked by Strategic Networking.

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Bibliography


JEL Classification: M14, D85, D83, J53.