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Cooperation and competition dynamics of business networks: A strategic management perspective

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Working Paper 111

Cooperation and Competition Dynamics of Business Networks: A Strategic Management Perspective

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Cooperation and Competition Dynamics of Business Networks: A Strategic Management Perspective¹

Abstract: Business networks are cooperative entities formed by more than two firms in order to generate competitive advantages for each member. They often operate in dynamic contexts to which they need to adapt. Some of these dynamics result from other business networks' actions of adaptation and strategic maneuvering, constituting forms of competition between such networks. This chapter introduces three specific forms of such competition: (1) competition in network formation, (2) competition in network composition, and (3) competition in network governance; it explains each of these network competition forms, presents one exemplary research study for each and suggest implications for network and corporate management.

Keywords: Cooperative Strategy, Multilateral Alliances, Strategic Management, Network Dynamics, Network Competition

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1 Introduction

Strategic management is concerned with explaining superior firm performance. Researchers in this field try to find sources of (sustained) competitive advantage vis-à-vis other firms, and suggest that firms that have a competitive advantage outperform their competitors (Barney & Arikan, 2001; Powell, 2001). Various sources of competitive advantage have been identified, and represent the capstones of the dominant strategy theories: A firm's distinct resource endowment (Barney, 1991), capabilities (Teece, Pisano & Shuen, 1997), method of interacting with rivals (Chen & Miller, 2012), and positioning in its industry (Porter, 2008). Additionally, a firm's design of single relationships with other firms (for example, its suppliers, distribution channels, but also competitors), as well as the configuration, management and development of its overall relationships with other organizations, have together been identified as source of competitive advantage (Dyer & Singh, 1998). These inter-firm relations are usually discussed under such labels as (strategic) alliances, joint ventures, or networks (Cropper, Ebers, Huxham & Smith Ring, 2008). The creation, maintenance, adaptation and termination of cooperative relationships are complex tasks that have earned the interest and attention of numerous managers and scholars alike.

2 Business Networks and Strategic Management

Business networks are a specific manifestation of inter-organizational relations. They consist of multiple members and are purposefully formed. In management and organization theory, they are also labeled alliance networks (Koka & Prescott, 2008), multilateral alliances (Kleymann, 2005), alliance constellations (Gomes-Casseres, 2003) or alliance blocks (Vanhaverbeke & Noorderhaven, 2001). Business networks have spread over the last years across a variety of industries, and their strategic effectiveness – that is, their means of achieving and sustaining competitive advantage – is undisputed.

Scholars have acknowledged the role of various industry contexts that influence the design of networks in competitive interaction (Lazzarini, 2007; Vanhaverbeke & Noorderhaven, 2002). They have even observed some network-intensive industries where competition is said to take place among cooperating sets of firms rather than individual firms (Gomes-Casseres, 1994; Nohria & Garcia-Pont, 1991; Silverman and Baum, 2002). The automobile, biotechnology, mainframe, and airline industries have all been described as being, “polarize(d) into competing alliance constellations” (Gimeno, 2004: 821).

However, alliances and networks as cooperative relationships are inherently unstable (Das & Teng, 2000): studies regularly report failure rates of more than 50 percent (Park & Ungson, 2001). In contexts and situations where network membership is essential for firms' economic performance, the network's fitness and survival are major member concerns. Exits or member failures can result in troublesome repercussions for remaining partners. Especially in highly specialized networks with only a few large-sized members, the exit of one firm can lead to serious gaps in the remaining members' service portfolio, potentially leading, in turn, to the failure of the whole network. For example, in the global airline industry, Star Alliance suffered from failures of members Ansett Australia (bankruptcy in 2001) and Varig (ceased operations in 2007), which resulted in substantial white spots on the Star route network. The remaining members from the United States, Europe, Africa and Asia were hindered in their ability to offer seamless connections to and from Oceania and South America, putting them at a competitive disadvantage. Mergers and acquisitions also impact members of competing networks. For example, LAN from Oneworld acquired TAM, a Star Alliance member, in 2012, and subsequently announced that the merged company, Latam, will turn to Oneworld for both of its airline brands. As Latam's chief executive explained, "We evaluated all possibilities and we chose Oneworld, because it is the alliance that offers the best benefits, connections and products for our passengers, as well as better synergies for the Latam group" (as cited in Pearson, 2013).

For this reason, network members have an interest in establishing stable yet adaptable network structures as well as in attracting and keeping the "right" members in their ranks.

3 Business Network Dynamics

Business networks are cooperative entities formed by more than two firms in order to generate competitive advantages for each member. However not all business networks are alike: they vary with regard to their purpose, structure, size, effectiveness and efficiency. In many industries, firms can join alternative networks, and will select whichever brings the greatest advantage, as the Latam example illustrates. Cooperative entities are thus faced with specific forms of network competition as a main driver of network dynamics (see figure 1):

First, business networks can be challenged in their purpose by other competing networks (competition in network formation). Such competing networks might be substitutes with regard to their *raison d'être* and the function they serve for their members. Firms may consider the membership in their present network (incumbent network) as obsolete or less advantageous, project higher benefits (of whatever kind, e.g. financial benefits or higher status) to their

membership in the newcomer network, and can decide to switch from one to the other. If many member firms decide to follow this logic, incumbent networks that are unable to match the benefits of competing networks, or have lost sight of their specific advantage for their members, will degenerate. On the other hand, this type of competition gives rise to innovative networks that provide timely and relevant benefits to their members and do not lose sight of their purpose.

Second, networks compete for growth and stability in their member constellation (competition in network composition). They attempt to attract new members, but also to retain existing members. To do so, networks need to employ processes and tactics that produce more or unique member advantages. This relates to network competition with regard to membership structure.

Third, networks compete in achieving and maintaining an effective and efficient administrative structure (competition in network governance): The most effectively organized network can generate more benefits for its members than other networks, or it can generate similar benefits than other networks faster, at lower costs, or with greater frequency or reliability. In order to devise the most effective governance for a network, questions of decision-making mode, organizational structures and processes need to be addressed.

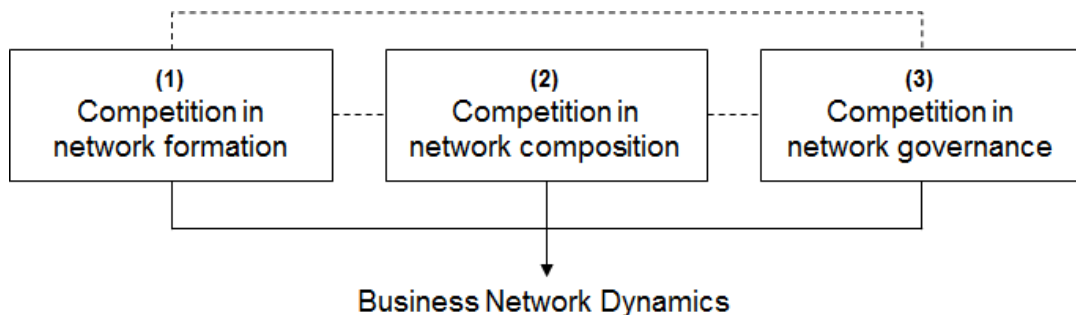


Figure 1: Three forms of network competition as drivers of network dynamics

In the remainder of this chapter, I will further elaborate on each of these network competition forms, present one exemplary research study for each and suggest implications for network and corporate management.

3.1 Competition in Network Formation

Competition in network formation occurs when a firm (or a group of firms) discovers an opportunity to realize a relevant benefit or advantage that can most effectively be exploited by cooperating with others. In this case, competitors will ponder whether they are brought into a disadvantageous situation and consider a potential reaction. Of course, a firm will strive to compensate any potential disadvantage brought about by a rival. Network formation as a competitive move has only slowly gained research attention (Silverman & Baum, 2002). Gimeno (2004) analyzed alliance formation dynamics between competitors; that is, how firms respond to their rivals' alliance strategies. He suggested that firms react by either trying to ally with the same partner that the rival has formed cooperative ties with, or building a countervailing alliance with different partners that provide similar benefits (see figure 1). An example is T-Mobile's exclusive 2007 distribution agreement for Apple's fashionable iPhone in Germany, a move that put the firm's competitors at a major disadvantage. T-Mobile's rivals (for example, Telefonica's O2, or Vodafone) were faced with two options:

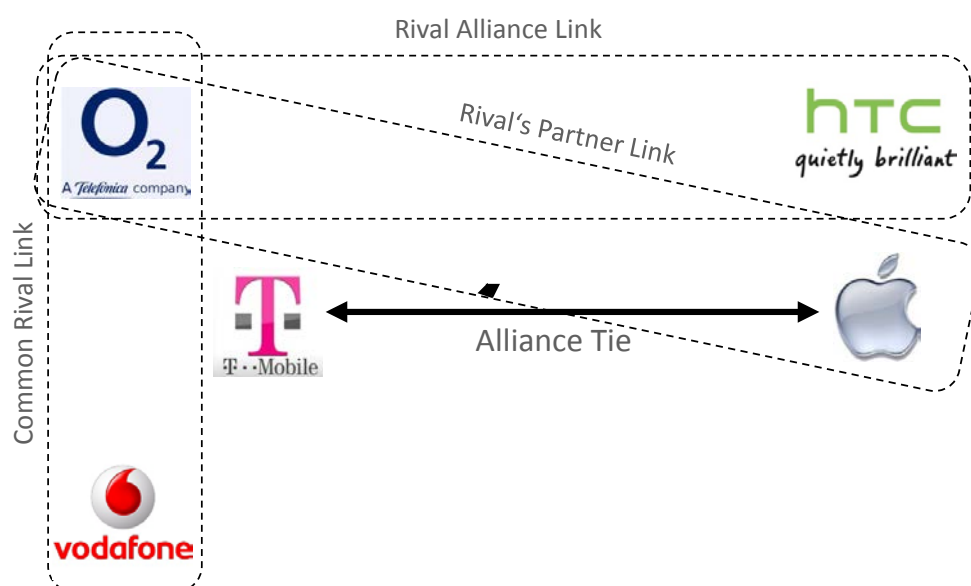


Figure 2: Illustration of Reaction-Types in Alliance Formation

Source: adapted from Gimeno (2004)

First, try to neutralize T-Mobile's advantage by imitating its move and form an alliance with Apple that would challenge T-Mobile's exclusivity (a "rival's partner link" in Gimeno's terminology). This would depend on the exclusivity clause in the T-Mobile-Apple agreement, but also on T-Mobile's bargaining power. Since Apple intentionally foregoes additional revenues and efficiency potentials in exploiting its resources by restricting its customer base to those of a

single network, T-Mobile will have to pay an exclusivity premium. Depending on the size and bargaining power of T-Mobile and its competitors, however, the exclusivity premium and clause will be more or less enduring and strict.

Second, T-Mobile's rivals could establish countervailing alliances. Within this option, two further possibilities exist: forming an alliance with one of Apple's competitors, ideally a close substitute, such as Samsung or HTC (Gimeno's "rival alliance link") in order to address similar consumer desires by different technologies, and thereby reduce the (potential) drain of own customers that turn to T-Mobile due to the iPhone offer. Or T-Mobile's competitors could form an alliance among themselves, e.g. O2 could ally with Vodafone (Gimeno's "common rival link") and attempt to jointly attack T-Mobile on different features of its offers. This countermove could then address an element in T-Mobile's product and service portfolio totally unrelated to smartphones and expose a weak spot in its competitive posture, a phenomenon known from multi-market contact theory (Yu & Cannella, 2013).

Gimeno (2004) suggested that partner selection and the type of alliance formed as a response to a competitor do not follow a naïve logic; that is, neither allying with a rival's partner nor the formation of countervailing alliances is systematically preferred. Rather, alliance type choice depends on the degree of co-specialization, which itself reflects the degree to which alliance partners emphasize the specific needs of the particular partner, inter alia through specific investments, or by providing proprietary knowledge. In our example, if Apple offered a specific version of the iPhone in the shape of a T-Mobile logo, and T-Mobile installed specific T-Mobile-iPhone stores, this would reflect relationship-specific investments into the alliance that would be lost if the alliance broke up. Gimeno is thus able to show that rivals' co-specialized alliances may involve exclusivity, precluding alliances with rivals' partners and thus encouraging countervailing alliances.

Overall, a firm's network formation, or its joining an existing network, can lead to manifold competitor responses. From a strategic management perspective, this implies at least three imperatives:

First, firms need to make sure that they are aware of competitors' partnering actions as an essential part of competitor analysis (Gnyawali & Madhavan, 2001).

Second, firms need to implement and improve the capability to assess the consequences of competitor actions in alliancing and quickly generate potential responses. The options that Gimeno (2004) provided are certainly neither exclusive nor exhaustive, but might serve as a first framework to devise possible reaction strategies.

Third, taking a proactive approach to the opportunities generated by alliance formation can lead to a temporary advantage: Firms could therefore actively seek opportunities in order to improve their own positions via alliances, and consider that first-mover advantages may offer substantial returns, at least in some environments (Suarez & Lanzolla, 2007).

3.2 Competition in Network Composition

The competition for “good ideas”, that is, identifying sources of beneficial cooperation that could otherwise not be realized, is only one dynamic that challenges firms and existing networks. Once established, networks will discover the potential – and, over time, even the imperative – to improve their setup, including their organizational structure and management (to be dealt with in the subsequent section of this chapter), as well as their member base.

The specific member constellation (network composition) with its idiosyncratic resource and capability endowment determines whether networks can deliver on their intended benefits. Therefore, to improve their resource and capability base, they often proactively search for new members. However, in most industries, strategically relevant resources are owned by a limited number of firms (Gomes-Casseres, 1996) and networks often compete for identical partners in order to secure or increase their share of the industry’s available rent (Uzzi, 1997; Gomes-Casseres, 2003). As a result, the fastest-moving network gets the most appropriate members, thereby improving its competitive position (Gomes-Casseres, 1994; Silverman & Baum, 2002). The urge to acquire new members is especially great if rival networks enlarge rapidly (Gomes-Casseres, 1994). Along with the growth of rival networks the pool of desirable members shrinks, provoking membership competition for appropriate partners (Möllering, 2010; Silverman & Baum, 2002). Due to the existence of dual membership and the usually fluid nature of network contracts, competition exceeds the remaining pool of available partners in the industry and also affects existing memberships (Möllering, 2010). Thus, networks need to deploy sufficient retention efforts, since the loss of a core member potentially reduces the network’s viability (Gomes-Casseres, 1994). In the airline industry, for example, Austrian Airlines was a founding member of Swissair’s Qualiflyer Alliance that was formed in 1992. However, in 2000, Austrian changed to the Star Alliance, which contributed to the demise of Qualiflyer and eventually to Swissair’s 2002 collapse.

In one of the first empirical studies in this area, a research group was able to shed light on business networks’ internal organizational processes (Albers, Schweiger & Gibb, 2013) by examining the instruments and processes a network uses to retain extant members, as well as to

acquire new ones. The chosen context involved a large German tire retailing network named “RubberNet”, an alias for a real network to ensure confidentiality.

Rank	Retailer	No. of outlets
1	GDHS (Goodyear-Dunlop)	962
2	Point S	552
3	Vergölst (Continental)	361
4	Euromaster (Michelin)	327
5	Team	320
6	EFR	310
7	MLX (Meyer Lissendorf)	301
8	First Stop (Bridgestone)	225

Table 1: Leading Tire Retailers in Germany (2012). Source: BRV (2012).

The tire retailing industry in Germany was chosen for the window it offered into network rivalry. Today, 83 percent of German tire retailers are members of a network (BRV, 2012) that is used to increase purchasing power and enhance consumer awareness. Overall, the top eight retail networks each operate over 200 outlets within Germany (see table 1 for an overview).

RubberNet is a network of independent tire retailers operating as a legally constituted limited liability corporation. The relevant decision and activity levels in RubberNet are the network and retail member levels. The explorative empirical study identified three core acquisition and retention processes, that is, sensing, attracting, and securing, and found that the roles of two network organizational actor levels (the network’s central management unit, or headquarters (HQ)), and the retail member organizations, combine to serve as necessary linkers and enablers in acquiring and retaining members.

The *sensing process* refers to monitoring the industry context and the early identification of potential acquisition targets; that is, individual retailers in which changes in ownership and management have just taken place, or are likely to be effective soon. Rival networks members that are not satisfied with their situation in their current retailer system are also potential recruits. For RubberNet, sensing relies on an active membership base and strong connections with local small and medium enterprises. Another important factor is the availability of central management unit “coaches”; that is, network HQ employees that are assigned to a specific region in Germany to liaise with, and tutor regional members. They are the first contact for all members in case of any business-related issue and monitor relevant developments in the local industry environment, approaching competing retailers if they think this is appropriate. The network HQ itself also contributes to sensing by its central management team which systematically collects

and analyzes industry news, both formal (for example, in industry news) and informal (for example, rumors on trade fairs). Overall, combining local retailers (member level) and network management (network HQ, network level) seems to be an effective means of increasing the membership base.

The second process, *attracting*, was found to be more analytical, and includes specific predefined service components, roles, procedures and even norms. These are driven and administered by the network HQ, with network members being comparatively passive. They can be activated if the need arises since a retailer-to-retailer talk is sometimes more effective than a manager-to-retailer talk, but the actual approach, negotiation, and contract closure is performed centrally via the network HQ and its staff.

This contrasts with the key process of *securing*, which addresses retaining existing members. In case of rival networks addressing RubberNet's members, it is again a joint effort by the network HQ and co-members to retain them. However, in contrast to attracting, the extant member-retailer base plays the essential role since social mechanisms seem to be the most effective retention method. However, the network HQ plays a central role in encouraging and offering opportunities for these social bonding mechanisms. For example, the general assembly of all members is organized such that it allows members to meet and chat even before and after the "formal" meeting parts; a big and swaying dinner party is an important ritual that is included in the annual meeting program, as is the desire to involve the retailers' families to allow for additional social bonds to develop. These social events are also encouraged on the regional level, and actively supported by the coaches as well. Potential candidates to leave the network are then addressed by co-members rather than the network HQ; this process is surprisingly effective.

Overall, this study shows that networks can have effective processes in place to attract and keep members in competitive environments. It also shows that, at least for networks of a non-trivial size, a balance between centrally administered, analytical processes and resources (for example, through a network central management organization) and more evolutionary, social processes is useful in achieving these goals (Albers et al., 2013).

The results of the study also indicate that networks should develop process and mechanism repertoires that enhance tactical flexibility. As shown herein, the two top level processes of attracting and securing follow different logics (analytical attracting process vs. evolutionary securing process) and involve the network actors in different roles.

Networks should also consider employing exit barriers for their members to inhibit members that want to leave. The distinct logic and the degree to which such barriers are used

needs to be considered carefully as the ongoing membership of an unwilling and potentially destructive member might come at higher total costs than its value for the network.

Firms in network-intensive environments should watch networks closely and critically assess the perceived membership imperative. To do so, adequate criteria to evaluate membership benefits are required. Also, firms need to monitor attractive industry partners and pay attention to their network affiliation, as well as their goals and satisfaction degree, to optimize timing in their approach.

3.3 Competition in Network Governance

A final domain of decisive influence on network performance is its organization and ongoing management, an issue that is often addressed under the label of network, or alliance, governance (Albers, 2005). The failure of many networks is attributed to ineffective governance structures, involving either misaligned organization in their formation, or failure to adapt over time (Reuer, Zollo & Singh, 2002; Sampson, 2004).

At any given point in time, various governance solutions exist (Albers, 2010; Albers, Wohlgezogen & Zajac, 2013; Ebers & Oerlemans, 2013); therefore, networks compete on structures to manage their processes and members. Independent of their concrete parameter values and design nuances, and thereby paying tribute to the sheer amount of possible configurations of organizations, institutional economists describe three essential forms of economic coordination: markets, hierarchies, and hybrids (Williamson, 1985, 1991). Each of these forms is, according to transaction cost economics (TCE), suitable (that is, efficient) in a different context. However, in some industries, different governance forms exist under seemingly similar conditions, also with regard to TCE's criteria. For example, in the German less-than-truckload (LTL) business, a logistics market that generated overall revenue of more than €6 billion in 2010, business networks ("hybrids" in TCE) compete with integrated, large firms ("hierarchies" in TCE terms), as Table 2 shows.

Pos.	Organization	Sales in €M
1	Dachser	594
2	IDS (network)	450
3	Deutsche Bahn	425
	<i>Schenker (Deutsche Bahn)</i>	425
4	System Alliance (network)	400
5	Deutsche Post	350
	<i>DHL Express (Deutsche Post)</i>	350
6	CargoLine (network)	338
7	CTL (network)	335
	<i>Hellmann (Partner System Alliance)</i>	310
8	24plus (network)	248
9	ABX Logistics	203
10	S.T.a.R. (network)	159

Table 2: Top 10 firms in the German LTL market in 2008.
Source: Albers & Klaas-Wissing (2012)

In this industry, six out of the top 10 players have consistently represented cooperative business networks over many years. The formation of LTL cooperation networks is seen as one of the most promising strategies by which small and medium-sized firms can build a geographically expanded and denser transportation network in order to generate economies of scale. In this setting, a well-organized network can create a competitive product portfolio to shippers and challenge the large integrated logistics corporations. In addition, it can compete with regard to inventing and testing organizational solutions (Klaas-Wissing & Albers, 2010). This question was targeted in an empirical analysis of two very different, yet seemingly successful networks in the German LTL business, called “Alpha” and “Beta” for reasons of confidentiality (Albers & Klaas-Wissing, 2012).²

The Alpha network has a turnover of more than one hundred million Euros and belongs to one of the largest LTL business networks in Germany. Members employ a privately held limited liability company (LLC) to serve as a central alliance management unit. The alliance offers a dense national transportation network, consisting of more than 130 local depots, owned by its more than 100 partner companies that are all small and medium-sized logistics firms. The partner companies are shareholders in the network HQ. In addition to its equity capital base from its members, Alpha LLC is financed by handling and administration service fees from the daily operational business with the partner companies.

² The following paragraphs are adapted with modifications from Albers & Klaas-Wissing (2012).

In addition to the legal requirements that stem from the legal form of the network HQ (the LLC), Alpha's network organization is influenced by two constitutive properties: the relatively large number of alliance members, and its business model value focus. Due to the large number of investing members who also hold similar Alpha equity proportions, voting rights are widely dispersed. Network members have only limited influence on managerial decisions concerning strategic matters. As a consequence, Alpha's board of directors possesses extensive authority to define the strategy, set up the general operation rules, and design network infrastructure. In fact, a single member can either agree with the board's strategic decisions or leave the alliance (exit option).

Regarding the value focus to its network partners, Alpha provides a proprietary, fully fledged hub-and-spoke production network and an IT platform that allows for consolidated and efficient LTL transportation within Germany and that is open to any non-member logistics service provider. The network HQ is responsible for maintaining, developing, and optimizing the production network and IT platform in order to ensure structural stability, operational efficiency, and system interoperability.

The network members are mainly responsible for feeding and defeeding the route network. In the course of their ordinary business activities, they acquire LTL consignments from their local customers and execute transportation services, such as local pick-up and delivery, as well as operating regular line haul connection(s). As far as Alpha network operations are affected, the network partners have to adhere to the specifications (for example, quality) and operational instructions (for example, timetables for line hauls, process guidelines) issued by HQ.

The second LTL network is the Beta network. Beta also belongs to the top ten of the German LTL service providers, but exhibits quite different features compared to its rival Alpha. Only a few more than 10 logistics service providers, including a few large-sized firms, with the rest being medium-sized, form the Beta network, which has one central hub and 40 local depots throughout Germany. The network management unit Beta LLC is headquartered at the central hub and has about 150 administrative and operational employees. Beta's financial endowment stems from the partners' capital shares as well as handling and administration service fees. The resulting revenues are first used to cover the headquarters' and the hub's running costs. Remaining profits are eventually paid to the shareholding partners – just as possible deficits will also be compensated by these legally liable partners. As a consequence, substantial investments, for example, into the alliance's infrastructure, cannot be made without the involvement of the respective shareholding partners. Network HQ organization is widely determined by its legal

status as a limited liability company and its economic dependency on the relatively small number of alliance members (equity holders). Like Alpha, it consists of a management board, a supervisory board (chaired by the CEO of the largest investing partner), and a yearly general meeting, composed of all equity holding partners. In contrast to Alpha, the Beta alliance exhibits further organizational units for participative decision-making processes: regional groups, the supervisory committee, focus teams, and the partner meeting. Depending on the location(s) of the respective depot(s), every partner company is member of at least one regional group. Here, executive management representatives meet quarterly to discuss current regional problems and to exchange, assess, and select improvement initiatives. The supervisory committee in turn consists of one delegate from each regional group. The committee regularly discusses relevant region-spanning issues and prepares decision memos for the partner meeting, acting as a link between regional groups, focus teams, and the partner meeting. However, both the regional groups and supervisory committee can delegate topics to specialized focus teams for concrete elaboration. Focus teams are assembled as needed by partner company experts and Beta's line and/or staff departments, such as marketing, IT, operations, and strategy. Overall, network partners possess extensive strategic, operational and design authority.

In its day-to-day business, Beta LLC as network HQ executes an operative coordination and control function, since all shipment data converges there. Moreover, the LLC's employees take responsibility for central hub operations, line-haul timetables, alliance marketing support, IT system development, data clearing and performance monitoring, process standards, and dedicated staff training. However, unlike Alpha, the central management unit's CEO and his staff are responsible for facilitating inter-partner exchange and participative decision processes with regard to network maintenance, strategy, and optimization. Therefore, they take care that all respective meetings proceed regularly, are prepared properly, and are attended by the correct representatives. Furthermore, Beta LLC enforces partner rule compliance, keeps control of all current project initiatives, and takes over implementation for major initiatives on behalf of the alliance partners. An overview of the key Alpha and Beta features is presented in table 3.

	Alpha	Beta
<i>No. of members</i>	>100 Shareholders	>10 Shareholders and associates
<i>Revenues</i>	> €100 million	> €100 million
<i>Shipments</i>	>5 million	> 5 million
<i>Alliance management</i>	Network HQ as privately held limited liability company	Network HQ as privately held limited liability company, forums, workgroups
<i>Network HQ's responsibility</i>	Network operations and design	Network operations, network marketing (incl. tender management)
<i>Partner firms' responsibility</i>	Customer acquisition, Marketing, production	Customer acquisition, production, network design (standard setting, etc.) through participation in forums and workgroups
<i>Other</i>	No territory protection, multiple alliance membership, optional alliance network usage	Territory protection, single alliance membership, obligatory alliance network usage

Table 3: Overview of Key Alpha and Beta Characteristics (as of 2008).

Source: adapted from Albers & Klaas-Wissing (2012)

Both alliances provide similar products and services within the same geographical area, resulting in similar provision requirements. Furthermore, they achieve and handle virtually similar revenues and shipments per year. Although present in the same business context and revealing very similar operational characteristics, both alliances differ in the way they cooperate in order to cope with their operation scale (that is, shipping volume and geographic density): whereas Alpha pools over 100 small member firms with low shipping volumes and restricted geographical scope, Beta integrates roughly a tenth of that number, but with partner firms of comparatively larger size and scope, respectively. Since coordination costs incurred by the alliance's activities are to a large extent affected by the number of partner companies involved, Alpha, Beta and their respective member companies consequently have to deal with different organizational challenges in terms of cost-efficient partner integration and coordination. Alpha relies on high standardization levels, as well as on its administrative processes, and serves as a highly efficient operations platform for its members, although it does not allow customization to individual members' needs. By contrast, Beta is a much more participative and flexible organization that reflects the requirement of catering to member needs and preferences.

The analysis shows that there is no "one best way" of alliance organization in the LTL business, since Alpha and Beta's differing organizational designs seem to match the requirements of their specific situational settings. Their differences can be widely related to the different number of partner companies within the alliance and the quest for low coordination cost. In the highly competitive LTL industry, the examined alliance networks seem to have found effective and, at least temporarily, efficient governance arrangements that allow them to compete with the large and integrated logistics corporations. The substantial number of failing

business networks in the LTL industry, albeit not all and exclusively related to ineffective and inefficient structures, support the view that the variety of effective organizational arrangements is not endless, and that networks need make sure that they identify and implement such effective organizational structures in order to provide the benefits that their members expect.

Therefore, business networks can be encouraged in that organizational forms are available that can contribute to their and their members' competitive advantage. However, they also need to be cautioned in so far as the most effective and efficient forms must be tailored to their specific situations. In addition, member political interests and potential conflicts between the network management and members more often than not prevent implementing, or even identifying, the most effective organizational solutions, and therefore risk the well-being and survival of the network and at least some of its members.

Network organization structures and processes need to take the specific, idiosyncratic conditions of the network and its members into account to devise the most effective and efficient organizational solution. Networks therefore must understand "the situation", i.e. understand the aims and needs of the own network, the characteristics of the industry and the environment in order to be able to design the network organization accordingly. In this context, generic designs can be starting points or reference points, but most likely will not correspond to any effective network governance model for a real-work business network.

Since it is also unlikely that every innovation, major progress, and new insight will be generated locally, the permanent assessment and monitoring of own and competing networks is important. For this purpose, different business environments and industries should also be taken into account. Telecommunications providers may well learn from alliance networks in the airline industry, and trade fairs from the automobile industry.

Research shows that firms benefit from past alliances if they manage to effectively store, retrieve, and disseminate knowledge on former management practices, for example by forming dedicated positions or functions for alliance management purposes (Kale, Dyer & Singh, 2002). Member firms and network HQs are therefore most likely to benefit from their continuous involvement in identifying, addressing and solving network-related issues. However, despite the important role of experience in forming stable cognitive schemes and reaction repertoires (Albers & Heuermann, 2013), a certain degree of flexibility among members and network HQ needs to be maintained to allow for experimenting with different organizational solutions.

3.4 Summary

The three forms of network competition portrayed here, (1) competition in network formation, (2) competition in network composition, and (3) competition in network governance, focus on different, yet critical domains of competition in network dynamics, and thereby illustrate that competitive interactions in each of these domains need to be taken into account in network initiation and management. These can have major performance implications not only for the network but also for every network member. Competition in network formation refers to the most foundational domain of business networks, i.e. their principal purpose and thus, the reason for their existence. This type of competition especially highlights the instrumental nature of business networks for their members. Competition in network formation focuses on the essential elements of a business network: its members, and the resources that they bring into the network. Competition in network governance reiterates that it is not sufficient to be innovative, or to have an inspiring idea and a knowledgeable and competent team, but that member organization and orchestration, that is: their interplay, are non-trivial tasks that need to be performed reasonably well and in accordance with the specificities of the actual situation. Only then the potentials of the promising idea and the competence of the team members can be leveraged.

For each of these three types of competition typical concerns that decision makers on the network and member levels frequently encounter can be formulated (see table 4 for an overview). Some of them can be addressed by the management implications outlined in the respective sections of this chapter, others are only hardly subject to general and generic implications.

Additionally, it should be noted that these forms of network competition are not independent. Various relations exist, as figure 1 indicates: a relevant and convincing network purpose requires a “good” constellation of members and an effective governance system to materialize; a constellation of members that are willing to effectively combine their resources need a legitimate purpose and a fitting governance to do so; and a highly effective governance system is of little help if members lack critical resources, or diverge in their understanding and assessment of the purpose of their joint endeavor. Thus, networks and network members are subject to all three forms of network competition simultaneously – even though in varying, probably even fluctuating strength and prominence.

	Competition in network formation	Competition in network composition	Competition in network governance
<i>Competition domain</i>	Network purpose	Network members	Interaction of network members
<i>Competition parameter</i>	Network promise and function	Resource combination of members	Fit between administrative structures, processes and situation
<i>Typical network level concerns</i>	Is the purpose why this network was founded still relevant? Is the function we serve for our members still relevant? Are we the best conceivable instrument in both respects? Which alternatives exist for our members? Which alternatives are potentially emerging in the future? Which (additional) benefits can we offer our members?	Do we have the critical type, quality and quantity of resources? How can we fill the gaps that we have, or how can we grow further? How can we retain members?	Are our governance structures and processes effectively aligned to our specific situation with regard to network purpose, member composition and industry environment? Are there competing networks that seem to be faster in decision making and implementing network-level initiatives?
<i>Typical member level concerns</i>	Is this network still corresponding to our strategic goals? What do other networks offer? Can we (better) achieve our strategic goals by initiating a new network? What are competitors' cooperative strategies?	What are the benefits and risks of membership in this particular network? Are my resources needed and valued in this network? What is my role and function in this network? Which (type of) competitors are in this network? What are the costs of entry to and exit from this network?	In how far does my membership in this network restrain my autonomy due to the governance rules and regulations that apply? What is the level of network-specific investments required? Is this restriction of my autonomy justified by the benefits that this network offers? Are the governance rules fair and applicable to all members? How do other networks compare in these aspects?

Table 4: Overview of three types of network competition, key characteristics and resulting concerns for decision makers on the network and member levels

In order to understand influencing conditions as well as performance outcomes of airline and railway competitive actions and reactions, we conducted 13 semi-structured interviews with experts from German airline and railway companies, scientific institutions and consulting firms in spring/summer 2006 (see Appendices A and B). The qualitative data collected in the form of interview texts were further structured and conceptualised by using the Grounded Theory method (Strauss and Corbin (1998a, 1998b), Charmaz (2002)). The theory of competitive dynamics and the underlying model served as a basis for analysing and structuring the data to gather insight into the particular AMC determinants of inter-industry competitive interaction. We subsequently report the interview results, organised along the main themes that emerged from these interviews (Heuermann (2007)).

4 Conclusion and Relations to Business and Competition Law

Business networks are highly interesting phenomena that have emerged as highly relevant arrangements in the explanation of firm performance. The way in which networks shape competition for the single firm has two sides: It can be positive if firms realize the potential and use the opportunities provided by network formation and membership; it can also have negative repercussions if firms ignore or are unable to find adequate responses to rivals' cooperative strategies. The above pointed out three forms of this network competition, presented one empirical study for each domain, and explicated some consequences for network and member firm management. Suggestions included differentiating (1) competition in network formation, (2) competition in network composition, and (3) competition in network governance.

Networks play an eminent role and even engage in competitive practices in many industries, and are therefore also relevant to regulators, policy makers, and competition lawyers. Also for them, interpreting networks as either one-sidedly positive (e.g. to foster innovation and to help small and medium-sized enterprises stay competitive) or negative (e.g. as a form of collusion) is too simplistic. Scholars and practitioners from all disciplines would benefit from greater awareness of each other's results and approaches in the analysis of business networks. In strategy and organization theory, network dynamics and competition are only beginning to be understood, and results from and implications for commercial and competition law are widely neglected, even though strong interrelations exist. For example, the reduction of rivalry between multi-market competitors (firms that encounter each other on several markets) is a widely acknowledged effect among industrial economists (Edwards, 1955) and strategy researchers (Yu, Subramaniam & Cannella, 2009). However, despite its implications for the functioning of competition, this "mutual forbearance effect" seems to have found only little reception in competition law and regulatory practice. Additionally, the formation of formal cooperative ties between such multi-market competitors is frequently observable (Luo, 2007); the formation of alliances among multi-market firms implies that these firms (which already "mutually forbear") add explicit, formal cooperation agreements that cover some of their common markets. The effect of such agreements among multi-market competitors, or their role in business networks would be of high relevance for the rivalry between them and thus, for firm performance (Albers, 2011; Li & Netessine, 2011), but would also unfold relevant implications for competition authorities. In competition law and regulatory practice, it seems that these interdependencies that include implicit and explicit cooperative agreements across diversified firms' markets and divisions are not yet fully acknowledged.

Thus, further research is needed in all of these fields, and dialogue between disciplines needs to be encouraged in order to allow for effective networks to emerge, and survive, but also to be terminated, in a regulatory environment that understands their inner logic to prevent misuse.

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