# Network triads – the linkages between small and large worlds

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## Introduction

The early 2000 witnessed an increasing interest in triadic analysis of what is ongoing in the business landscape (Khurana, 2002; Madhavan et al., 2004, Havila et al., 2004). Some basic concepts for analysis of triadic conditions were launched more than one century ago (Simmel, 1908) and have been applied substantially in sociology. In business research, however, the interest in these ideas was limited since the focus of business analysis for long time was directed primarily to the operations and strategies of single firms (e.g. Chandler, 1962; Porter, 1980). The drive for specialization and outsourcing, starting in the late 1900s, called for increasing attention to the business relationships with other firms and how these relationships are embedded in larger network constellations. In this expansion of the unit of analysis, the triadic construct showed to be useful.

The benefits of a triadic approach were recently illustrated in empirical studies in several business fields. The most significant one is probably within logistics and supply chain management where one of the triadic actors is normally identified as a third-party logistics provider (e.g. Selviaridis & Spring, 2007; Marasco, 2008). Triads in service industries are scrutinized by, for example, Wynstra et al. (2015) and Hartmann & Herb (2015). Van der Valk & van Iwaarden (2011), as well as Li & Choi (2019), explore the role of triads in outsourcing of services. Other findings regarding triadic conditions are reported in relation to international business (Havila et al., 2004), marketing channels (Vedel, 2016), category management (Castaldo et al., 2019), and transport services (Andersson et al., 2019). Several studies deal with the role of triads in buyer and supplier relationships (Choi et al., 2002; Wu et al., 2010; Adobor & McMullen, 2014). Finally, the impact of triads is studied regarding relationship ending (Schreiner, 2015), as well as relationship recovery (Salo et al., 2019).

A common denominator of the mainstream approach applied in these (and other) studies is that they tend to take dyadic business relationship as the point of departure. The dyad is considered the basic norm and the focus is directed to the associated consequences when a third party is introduced to the analysis. The expansion from the dyad to the triad is crucial for the understanding of the linkage between a relationship and the network. In this paper we launch a complementary approach for analysis of this linkage. The starting point for our approach is to identify the features of the relationship-network linkage from the network and the connections among the actors residing in this larger constellation. Owing to the inherent complexity of such structures it is natural to focus on the connections among three actors since they together constitute the smallest possible network constellation. We identify this group of actors as a *network triad*.

## Aim and content of the paper

The aim of the paper is to explore the role of network triads as linkages between the business network and single business relationships. Since the network triad is identified from the perspective of the network, this exploration offers a complement to mainstream approaches where business triads are analyzed through the adding of a third party to a business relationship between two actors. The two views are illustrated in Figure 1.

The three-party constellation as
an extended business relationship

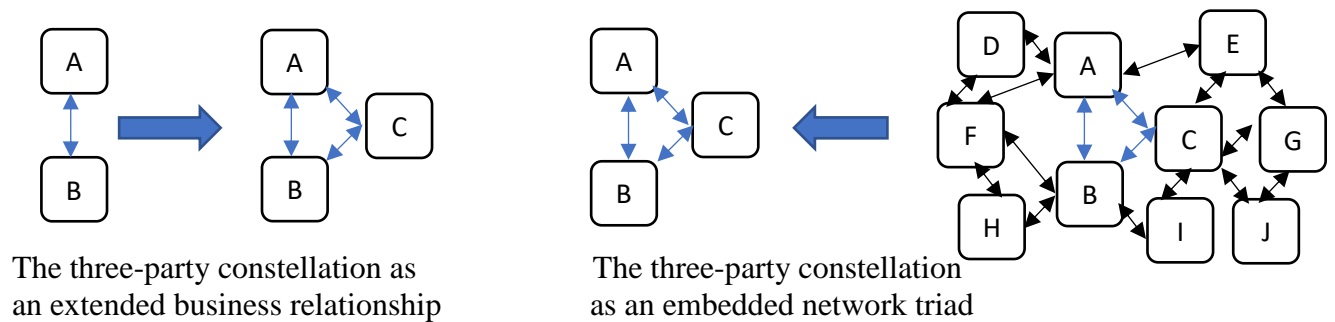The three-party constellation
as an embedded network triad

FIGURE 1.   Two complementary perspectives on triadic constellations

In both perspectives the three-party constellation functions as a linkage between a "small world" represented by the single relationship and a "large world" involving the whole network of connected relationships. While the triad as an extended relationship is a well-researched issue, there is scant research related to the features and consequences of the other perspective building on network triads, which implies a need for more research.

A triad represents an arena for the important coupling between an individual firm and the network in which all activities, resources and actors are embedded. In this way the triad constitutes the linkage between two fundamental phenomena in the business landscape that are central for the development of all firms. The first is the interaction processes that are ongoing in dyadic relationships, which provide opportunities for unique cooperation with specific counterparts in a fairly small world of business relationships. The second phenomenon is the nurturing of the connectivity in the network, which enables active participation in the dynamic processes in this large world. Through the network triad, both phenomena will be integrated, considered, and handled in special ways. The notions of network triads thus add to the mainstream perceptions of triads as extended dyads. The conceptualisation and analysis of network triads is therefore a further step in the expansion of the analysis of the interactive context of a business relationship. Network triads provide specific contexts to all dyads. In the real world there are no isolated dyads. All dyads have an active context and the network triad is the first step to take this context into consideration.

We begin the paper with an exploration of network triads – their features and their consequences for the linkage between the small and the large world. Then we scrutinize these conditions in network triads in comparison with those prevailing in various types of extended relationships. In the final part of the paper we discuss how single relationships can be extended to become network triads and present some managerial implications.

**Network triads**

Any business network is full of triads, tetrads, pentads and other types of connections between network actors. In this paper we focus on network triads since a triad is recognized as the smallest possible set of firms featuring network dimensions (Smith & Laage-Hellman, 1992; Carter, 2015). Figure 2 portrays a simple network involving a number of network triads – A-B-C, A-E-F, B-G-A, B-C-K and C-J-K. Our focus is on the A-B-C network triad, involving three separate dyads: A-B, A-C and BC. The main consequence of applying the network triad approach in comparison with the mainstream analysis is the significance of the impact of indirect connections.
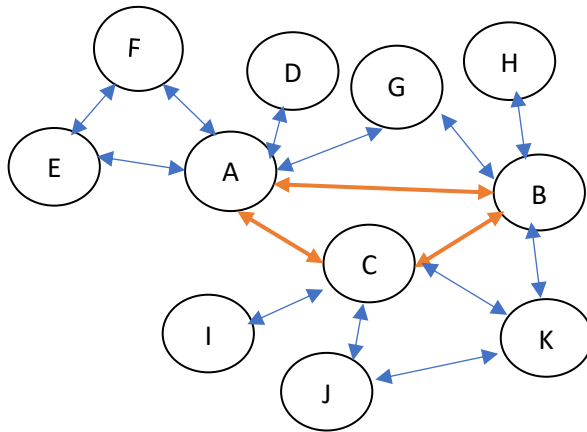
FIGURE 2.  Network triads in a business network

Figure 2 illustrates that the actors in the network triad A-B-C also are involved in direct interaction with other firms. For example, besides being directly connected to B and C, A is in direct interaction with D, E, F and G. These direct interactions of A serve as indirect connections to B and C, and it is the same with the direct interactions of B in relation to A and C, and for C in relation to A and B. As the primary linkage between the dyad and the network, the network triad enables two important functions for the involved firms.  Firstly, through the network triad they can exploit what is ongoing in the surrounding network into their dyads. Secondly, what they develop in each dyad can be tested in a broader context. The better the network triad is functioning, the better the bridging in these two respects. Below we discuss the features and the consequences of these two linkages.

*Network triads as linkages between the network and the dyads*

Expanding the number of actors from two to three increases the number of involved business relationships from one to three. Even more important is the number of actors that are indirectly connected to the three firms. Consequently, there is a multiplying effect regarding the actors that are related and connected in a network triad. The network triad offers each of the three business relationships a very specific context. To each business relationship two other relationships are connected, featuring contents that are related in various ways. These conditions provide significant implications for the interaction processes. The environment of an isolated business relationship tends to be more or less given. Considered as part of a network triad provides a much richer interface to the environment, that is also possible to influence. Moreover, this environment is not anonymous – it is actively trying to become involved and influence back. A network triad offers the single relationship a specific and dynamic context in terms of two connected business relationships covering a related content. Thus, the context is not general, but very specific. Furthermore, the context is far from passive, instead it is very active. The extended context enables modifications of parameters in resource combining and activity coordination that from a dyadic perspective would be considered as givens within the relationship boundary.

Expansion from business relationship to network triad implies that three connected problem solving processes will be ongoing simultaneously. Each process deals with its specific issue, but through the interrelations the processes become connected. The network triad is therefore extremely instrumental for the business relationship processes in which three main effects can be identified. The first effect is stability. The involvement of three actors with specific identities leads to a situation that can be compared with triangulation. Through the three

'pillars'(A-B, A-C and B-C), the network triad increases the stability as perceived from the three actors' points of view. This enhanced stability will promote direct learning between the three actors, as well as indirect learning in relation to their connected partners. Moreover, enhanced stability will reduce uncertainty in relation to businesses outside the focal dyad.

The second implication of the network triad is sharpening of focus. In their specific problem-solving processes, the actors will identify some common problems and/or opportunities that are overlapping. The common issues will direct the firms' interest and the three problem-solving processes to focused areas that are covered thoroughly as all three have their specific knowledge and ambitions. A specific benefit is provided by the fact that their knowledge and ambitions differ, since they are rooted in different contexts. Successful exploitation of these conditions requires that the processes are open and multidimensional within the common and narrow area, where the three actors make their best to influence their business partners.

The third consequence regards increasing dynamics. In the network triad, three business relationships evolve in tight connection. Thus, there are lots of opportunities to combine and recombine resources and link activities in multitudes of new and innovative ways. Moreover, these dynamics will generate further dynamics since a lot of reactions can be expected in relation to the changes. The tighter the connections, the more reactions can be expected.

*Network triads as linkages between the dyads and the network*

Above, we analyzed the relation between the network and dyadic business relationship. The other gap covered by the network triad regards the linkages to the network. The network represents a structure where connectivity is a central feature. The triad is the smallest analytical unit within a network structure that captures this connectivity. The single network triad is related to the surrounding network through connections to individual actors, to business relationships, to other network triads, and to even larger actor constellations. Each type of connection features its specific characteristics and consequences. In the following, we limit the discussion to the connections to other network triads.

As illustrated in Figures 1 and 2, networks can be perceived as containing huge numbers of network triads that are partially overlapping. These network triads are important building blocks for the functioning of the network, thus providing some central features to this structure. The first one is that connected network triads are vital parts in the generation of multiple scale advantages. Within each network triad the actors do their best to develop cost efficient solutions based on the specific conditions in the triad. These achievements can then be utilized by actors outside the focal triad that are directly or indirectly connected via overlapping network triads. Through these combinations of network triads further possibilities will appear to design better solutions in each triad, for example in terms of reduced complexity or improved performance. The collective work in connected network triads can be exploited by each of the involved actors.

A second, related, feature is the systematic dynamic effects that are generated. When two network triads become related, a certain 'friction' will always be generated, as they never will fit perfectly together. In turn, this friction leads to further changes of technological, logistical and other aspects. There is thus an inbuilt dynamic force in the efforts to improve the connection between the individual network triad and the network. The linking and relinking of network triads is therefore full of tensions, creating thousands of reactions, and in turn generating new reactions in a never-ending process. The resulting dynamics become

increasingly systematic and directed through the connected processes within and between the network triads. At the same time, these dynamics influence the individual actors that are involved. Each actor is provided with numerous opportunities for renewal, both in relation to directly connected parties, as well as in relation to more distant, but indirectly connected parties. In this way, the collective networking can be better utilized by each single actor.

As shown above, the network triad perspective provides several benefits in comparison with the dyadic view of the business landscape. It is therefore an interesting issue to explore how dyadic relationships can evolve towards triadic connections. Dyads can be extended to triads in two different ways: through connecting parallel dyads and through linking coupled dyads.

**From dyads to network triads**

*Parallel dyads*

Two types of parallel dyads are present in any company. One of them regards the direct interaction in which the firm (F) is involved with its various customers (C). The other one takes the point of departure in the firm's parallel interaction with two or more suppliers (S) (Figure 3).
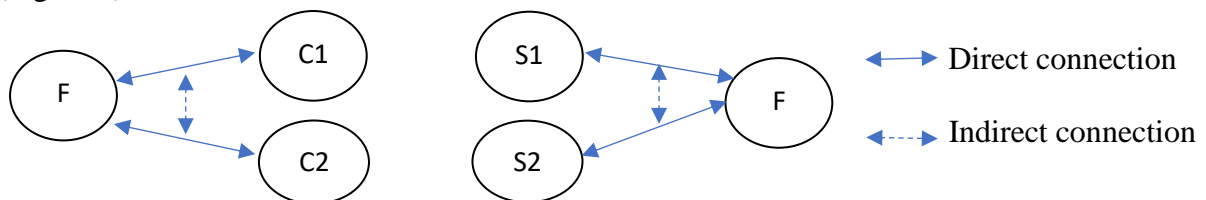


FIGURE 3. Parallel dyads representing partial triads in marketing and purchasing

The focal firm (F) is involved in direct interaction with customers C1 and C2, as well with suppliers S1 and S2. Through these connections there are also indirect connections between C1 and C2, and between S1 and S2 through F's relationships. Choi & Wu (2009) characterise such triads as containing a 'structural hole' since two of the nodes are not connected. In our vocabulary we identify such constellations as *partial triads*.

Regarding the triad to the right, Wu et al. (2010, p. 121) argue that the buyer "needs to be aware of the fact that what is taking place between suppliers indirectly will have a direct effect on the operations of his or her own company", implying that proactive steps are necessary to influence supplier-supplier relationships. One approach then would be to encourage cooperation between suppliers to stimulate that "suppliers work together closely, exchange ideas, and even engage in joint venture projects" (Choi et al., 2002, p. 122). In relation to Figure 3, it would be beneficial for buyer F to promote a direct connection between S1 and S2, thus enabling what Dubois & Fredriksson (2008) identify as 'triadic sourcing', involving two suppliers with overlapping capabilities. Another approach would be to rely on system sourcing, implying that one supplier is responsible for delivering a package containing components manufactured by several specialized suppliers. Other examples regard logistics and administrative arrangements that make suppliers deliver in similar ways.

The left-hand side of Figure 1 illustrates the relationships with two buyers C1 and C2. Suppliers have always tried to exploit indirect connections among customers by creating constellations of buyers in terms of homogeneous customer groups or market segments. In such partial triads we prefer to stress the complementarities between different buyers that can

be utilized in the relationships. A triadic approach for analysis of these issues is presented in Siltaloppi & Vargo (2017), who identify potential roles for the parties.

*Coupled dyads*

Also regarding coupled dyads, two types can be identified. The first one is represented by the traditional role of middlemen and intermediaries in marketing channels. In such structures, wholesalers, retailers, distributors and agents always have been instrumental in connecting producers and users that lack the necessary resources to be in direct contact. Intermediaries are significant also in other business contexts, such as finance and insurance. In Figure 4, middleman M is involved in relationships with producer P and user U, with no direct P-U connection. However, the two dyads P-M and M-U are indirectly connected because M's relationship with P is affected by M's relationship with U, thus forming a partial triad.
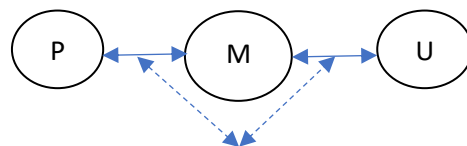


FIGURE 4. A partial triad formed by two coupled dyads

In some cases P and U are completely unrelated – they may not even be aware of one another. This is often the case in marketing channels for completely standardized products where M conducts a typical brokerage role (Vedel, 2016, p. 851). She presents an important task for the mediating actor: to stimulate and initiate a direct relation between P and U even if the business exchange is directed through the two dyads P-M and M-U. These conditions may be to hand in business exchange regarding complex products or advanced logistics. Vedel (2016) derives a 'triad value function', showing that different types of connectedness in triads result in different levels of value potential. Especially, it is explicated that the actions and decisions "taken by parties in separate dyads (i.e. coupled dyads) are influenced by the actors' individual perception of the overall value potential of the structural context" (p. 856).

The second type of coupled dyads appeared because of increasing specialisation and outsourcing in supply chain management. A literature review showed that this field accounts for most of the triadic studies (Vedel et al., (2016). The new conditions created opportunities for new business constellations. Early arrangements appeared in the automotive industry in the late 1900s, for example in terms of just-in-time deliveries (Håkansson et al., 2009). Owing to increasing specialization, the length of supply chains were extended, involving several firms on different levels. When car manufacturers began to offer customized cars built to customer order, synchronization across several supply chain levels was required: consumer – car dealer – car assembler – system supplier – component supplier – various sub-suppliers. In these constellations, several coupled dyads need to cooperate in partial triads.

*The complete triad – a dynamic network element*

We consider it important to make the distinction between partial and complete triads to really understand the features and consequences of network triad analysis. Madhavan et al. (2004) discuss the same conditions by defining a 'transitive' triad as one where each of the three firms has a direct tie to both of the others, thus contrasting triads with structural holes. They conclude that the main argument behind transitive triads is that "the partners would have access to a much wider range of resources" (p. 921). Castaldo et al. (2019) show how a third party may contribute to a dyadic relationship by enabling alternative forms of interaction. Wu

et al. (2010, p. 115) point out that when relationship dyads are considered in a triadic perspective "we are able to gain a richer and more realistic perspective of buyer-supplier relationships". Particular benefits are expected for the understanding of change and dynamics related to what is ongoing in a relationship. When the two actors are considered from a triadic perspective "we begin to see entirely different relational dynamics and meaning of dyadic engagement within the triad", since "a triadic analytical framework unveils the relational dynamics played out in the collective whole" (Choi & Wu, 2009, p. 10 and p. 20, respectively). For example, Li & Choi (2009, p. 35) conclude that many attempts in service outsourcing have failed due to "lack of understanding of the dynamic nature of the triadic relationships among the services buyer, services supplier, and the buyer's customer".

**Network triads and management**

Developing network triads from partial triads and extended dyads require managerial actions. Management is the main force behind the features and effects of individual network triads, as well as in which ways they are connected. The total process underlying these arrangements involves a large number of conscious sub-processes orchestrated by managers. However, individual managers, or groups of managers, are not forceful enough to compose these structures. Connected network triads evolve through bottom-up processes in several firms where large numbers of managers are involved in the operations related to separate network triads and their connections.

To benefit from direct and indirect connections, companies have to nurture their embeddedness in the network through establishing, maintaining and terminating business, relationships, network triads and their further connections. Successful network building requires long term attention and thoughtful logic in the collaborative efforts in relation to suppliers, customers, and other business partners. It is important to influence these partners to activity coordination and resource combining and recombining that generates benefits to the focal firm. In the same way, it is important for the focal firm to act in ways that offer similar advantages to the business partners. Two issues appear particularly significant in these respects. First, managers need to systematically connect the interaction processes in their business relationships, for example by linking and integrating processes to improve operational functionality. Second, striving to influence indirect relationships is a crucial issue in any network building. Such influencing should be directed towards the direct business partner's customers, suppliers, and other relevant counterparts.

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