A conceptual framework of re-configuring a business network

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Abstract
We contribute with an empirical case study that explores the distinctions between network re-configuration and the required concurrent or sequenced reshaping of business relations. The re-configuring of industrial networks can be undertaken by changing a number of business relationships, but to-date this approach has hardly been studied. The literature mainly considers network changes occurring incrementally within business relationships, and while this is substantially the case, still some are deactivated, others change in their nature and others are developed from seemingly nowhere but with the need to acquire new market or resource access. Hidden between the incremental and disruption perspectives is a deeper understanding of two capabilities: (i) network re-configuration and (ii) business relationship reshaping. The two capabilities are conceptually distinct, yet each in an interactive approach involves the other. We introduce four types of business relationship reshaping: (i) activating (ii) reactivating, (iii) deactivating, and (iv) reviving. A single-case study is presented to understand these phenomena and network re-configuration.

Introduction
Business networks have an imbalanced stability (Håkansson & Johanson 1988), they are constantly being re-configured. The re-configuration is often obscured within business relationships (ibid.) and completed according to adaptations between the firms (Hallén et al. 1991). This incremental change gives the network the appearance of stability. Alternatively, the re-configuration is radical and involves comprehensive change of business relationships. In this paper, our focus is on the more radical type of change that occurs when a business network needs to be *re-configured*, for example, when new business relationships emerge or others end. To date, research has mostly focused on the dynamics in one business relationship at time. However, network re-configuration rarely involves changes in only one relationship. We follow the definition of a network as related business relationships (Anderson et al. 1994), rather than connected actors. The distinction notes a network, rather than a relationship focus to our research.
In radical network re-configuration, comprehensive business relationship change may occur synchronously or in parallel but asynchronously, or in a sequenced manner. Re-configuring the network always involves two parts: (i) reshaping any on-going business relationship/s and (ii) changing the constellation of connected business relationships. In many cases these two parts occur within connected sequences. Likely is that changes in one relationship are dependent on the timing and change in other multiple relationships. Since management of business relationships is multi-sided and not available according to command (Ritter et al. 2004) the issues of re-configuring a network deserves special research attention. In this paper, we offer a conceptual framework for radical business network change: the re-configuring of business networks.
This paper is structured in the following way: We start by discussing our theoretical framework. Thereafter, we present our method and the empirical case. Next, we use the case to discuss the reshaping of business relationships and the re-configuration of the business network.

Theoretical framework

Research on radical change of business networks follows two opposing views. Easton and Lundgren (1992) see change as either continuous or discontinuous, within a constraining competitive environment. Conversely without an environment Halinen et al. (1999) describe a radical or incremental endogenous development. In the first the decisions are managerial and firm centred within a cooperative and competitive context, thus endogenous and evolutionary managerial processes are involved. By contrast Halinen et al. (1999) focus on how other connected relationship are affected by managerial actions. Thus, rather than an exogenous evolutionary process forcing change, network re-configuration is simply the repositioning of business relationships. Without an environmental constraint, Halinen et al. (1999) forefront an enacted and more open futured view.

Reshaping individual business relationships

For an individual business relationship, abrupt and radical types of change may involve reviving and changing activities to save a problematic relationship (e.g. Polonsky et al. 2010), deactivating the relationship (e.g. Alajoutsijärvi et al. 2000), reactivating a former relationship (e.g. Poblete 2017) or activating a totally new relationship (e.g. Edvardsson et al. 2008). Thus, reshaping of business relationships can include any or all of the following possibilities: (i) activating a new relationship, (ii) reactivating a former, (iii) deactivating or (iv) reviving an existing relationship.

1. Activating a new business relationship

Earlier research on business relationships has in different ways focused on the initiation of totally new business relationships (e.g. Edvardsson et al. 2008). These studies often assume that the business partner is new, in the meaning that no pre-history exists (e.g. Valtakoski 2015). Activation of a new business relationship always means that the existing industrial network needs to be re-configured, to allow a new actor to enter the scene. Change is always connected to other relationships and the network is re-configured.

2. Reactivating a former business relationship

Earlier research (e.g. Gadde & Mattsson 1987) has shown that some business relationships may go through different patterns of trading and non-trading periods, which means that some relationships become reactivated later on. Based on the customer behaviour literature of regaining lost customers (e.g. Homburg et al. 2007), some researchers have examined suppliers that put efforts into reactivating relationships with former business-to-business (B2B) customers. For example, Leach and Liu (2013) found that suppliers need to develop a set of skills and capabilities, which allow them to evaluate the expected value of a customer to engage in reactivating efforts. In the same vein, Liu et al. (2015) discuss that once the supplier has evaluated and understands the specific reason(s), which led to the interruption of the relationship, the firm may be able to regain a lost customer. Another stream of research takes instead the customer's perspective and studies how and why customers' switch back to former suppliers (Poblete 2017). In this change three companies, one buyer and two suppliers, become involved during the switching-back process (ibid.) and the network is re-configured.

3. Deactivating an existing business relationship

Several terms with various shades of meaning have been used to refer to deactivating business relationships. These include, for example, "ending" (Halinen & Tähtinen 2002), "dissolution" (Pressey & Mathews 2003), and "termination" (Giller & Matear 2001). Other studies (e.g. Polonsky et al. 2010) pose that relationships do not get dissolved but rather deactivated and thus, can return to an active status at a later stage. According to Havila and Wilkinson (2002), an entirely terminated business relationship is problematic, because social bonds between personnel that build up in long-term business relationships can hardly be broken. Even if the two firms have stopped doing business with one another, individuals are conscious of each other as possible counterparts at a later time (Westphal et al. 2006). Thus, deactivating the relationship enables disconnecting the two firms from each other, but allows the relationship to return to an active stage in the future (Polonsky et al. 2010). Although, deactivating a relationship can be challenging, firms may make efforts to exit the relationship in a way that maintains the potential for future co-operation (Alajoutsijärvi et al. 2000).

4. Reviving an existing business relationship

Firms have the opportunity to solve issues in their relationship and, rather than ending it, continue doing business with each other by reviving the relationship. To undertake a business relationship change implies confronting the reason(s) that might lead to a breach in the relationship (Halinen & Tähtinen

2002). Reviving a relationship involves firms engaging in direct meetings with each other to re-establish and change interorganizational routines (Bygballe 2016). By reviving established terms and conditions in the relationship, and reorganizing aspects of operations, the relationship can be saved (Halinen & Tähtinen 2002). Thus, the firms may continue doing business with each other as a result of a new agreement and conditions in the relationship. While change appears limited to inside the relationship, there is the likelihood that elsewhere the network is re-configured.

Reshaping of business relationships leads to re-configuring of the business network

The four ways to reshape individual business relationships necessarily lead to network re-configuring. The way relationships are connected in a structured manner will likely affect the sequencing of relationship changes as the network is re-configured. Next, we will present our method and the case, and thereafter continue our discussion on the re-configuring of networks.

Method

Following Halinen and Törnroos (2005) we adopt a single-case study approach with a deep description of a contemporary business network to learn about its nature, management and development. The changes, which brought about re-configuring the network, came from customer and innovating technology firms connected to the case study firms. To study the sequential and/or synchronicity of change we adopted a process approach, in which events and activities are noted within the managers' temporality (Langley, et al. 2013). However, to provide a single overview in reporting we follow chronological time.

The business relationships in the single-case study concern the Swedish equipment manufacturer Flir, and two of its suppliers, Natech/Habu and Note. Natech was bought and underwent a change of name to Habu. Natech/Habu was a supplier to Flir from the early 1980s until 2003, and again from 2013. In-depth interviews were conducted with 21 senior managers, two engineers, and two operational employees between 2013 and 2016. All of these individuals had been in different ways responsible for the business relationships. The researcher approached the firms via e-mail and telephone. An interview guide with a retrospective starting point was used. The interview material was supplemented by secondary sources consisting of nine Annual Reports and seven media articles.

The first draft of the case was written from the point of view of each of the three companies involved. Subsequently, this draft was sent to the main representatives (e.g. CEOs and purchasing/sales managers) from each of the three companies to present the opportunity to review the material and notify the research team of anything they considered missing or misinterpreted. Thereafter, the draft was used to write the final case description. The case was analysed using the framework presented earlier.

Reshaping the firm´s business relationships with two suppliers (1994-2003)

This is a case of disruptive change in business networks between the Swedish manufacturer Flir Systems AB (Flir) and two of its suppliers, the Norwegian manufacturer Natech AS (Natech) and the Swedish manufacturer Note AB (see Table 1 for a summary). In 2014, Flir had 357 employees and a turnover of around SEK 1 billion. Flir's main products are infrared cameras and thermal imaging systems for customers in the defence and security industry. Already in the early 80s, Flir initiated a relationship with Natech. But it was not until the 1990s that Flir started to establish a high-tech production line to design and develop infrared cameras and systems, which required substantial investments from both Flir and Natech. The products manufactured by Natech, electronic and electro-optics systems and components, were crucial for the infrared cameras and thermal imaging systems produced by Flir. Manufacturing was conducted at Natech in Norway, but Flir owned all patents. Flir acquired special machinery that was located at the Natech's manufacturing plant in Norway and provided training of Natech's engineers and technicians in Sweden to support them in producing the required technologically complex products. Personnel at different organizational levels, such as CEOs, sales and purchasing managers, engineers and administrative staff were involved in the relationship. This contributed positively to building trust in the relationship between the two firms. An engineer at Natech recalls:

> *"We got to know each other very well and our cooperation was excellent."*

Table 1. Summary of the disruptive events

Rearranging elements of the Flir´s business relationships with two suppliers	**Deactivation of the business relationship between Flir and Natech**	**Prior the reactivation decision of the former business relationship**	**Reactivation of the business relationship – in a context of other relationships**
Flir changed its working methods to adjust to the way of working of the supplier Natech The supplier Natech made adaptations to manufacture customized products for Flir Development of social ties between top management and operations staff of the two firms	The equipment manufacturer Flir stopped doing business with the supplier Natech No negative experiences when disengaging from the relationship CEOs from the two firms agreed on the decision Social ties between key individuals involved were not negatively affected	Key personal from Flir and Natech continued having social interactions Flir developed a new relationship with the supplier Note The supplier Natech filed for bankruptcy. New investors acquired the firm and changed the name to Habu. Most operations staff were retained Flir's customer demanded highly complex customized products	Flir regarded it too risky and costly to work with an unfamiliar, new supplier Doing business again with the former supplier Habu was perceived as an efficient way to access critical resources controlled by the supplier and efficient use of previous investments The two suppliers (Habu and Note) initiated a new business relationship with each other The supplier Habu initiated a new relationship with Flir's customer
Early 80s-2003	**2003**	**2003-2013**	**2013-2014**

Nature of the business relationship between Flir and Natech (2003)

After more than twenty years of business interactions, Flir stopped doing business with Natech in 2003 due to a decrease in demand of infrared cameras. That is, the business relationship was stopped from continuing as usual, but contracts were terminated professionally. Hence, there were no negative experiences during the deactivation of the relationship. The CEO at Natech remarks:

> "*We had discussed with Flir, and we were aware of the situation. After all these years working together, we had achieved a good understanding, which made the process unproblematic.*"

1. The relationship is deactivated, but business in the context continues

Although there were no business exchanges between the firms for more than ten years, Natech did not divest the machinery and tools for manufacturing the products for Flir. Also, it preserved the blueprints and know-how for manufacturing products for Flir. An engineer at Natech explains:

> *"We kept machinery and other tools that were modified to work with Flir. These are not assets that you can just throw away after they are used."*

Certain individuals from both firms continued to be in touch with each other. For example, the both CEOs met at different conferences and trade fairs. After deactivating the relationship, Flir developed a business with the Swedish company Note that produced electronic components for manufacturing the infrared cameras produced by Flir. The coordination to ensure that the electronic products worked perfectly in the infrared cameras meant frequent interactions between engineers and technicians from both firms.

Meanwhile, Natech went through a turbulent period with internal disagreements and financial issues. In 2011, Natech's CEO resigned but was reemployed after a few months. In 2013, following heavy losses over a sustained period of time the board members of Natech decided that the company would file for bankruptcy. Subsequently, the bankrupt company was acquired and the new investors established Habu Technology AS (Habu). The bankruptcy resulted in 60 lay-offs, but 40 people were later re-employed. After the acquisition, the CEO remained and the newly restructured company started with new strategies regarding operations. The reconstruction required new investments to further develop the company. Production processes were reorganized to control high costs and low efficiency that had contributed to the bankruptcy. Moreover, one of the main goals was to regain former customers and improve the company's position as a preferred and trustworthy supplier.

Prior the reactivation decision of the former business relationship (2003-2013)

In 2013, Flir received an important order, which required production and technical capabilities that the former supplier Natech would be able to provide. Flir's customer demanded highly complex customized products and reliability on deliveries, which required working with trustworthy suppliers. Even though there were other suppliers offering similar products, Flir considered that the reorganized Habu (former Natech) had the capacity, infrastructure and prior knowledge from the previous business relationship that could be used immediately. Consequently, Flir decided to do business again with the previous supplier. One key aspect that influenced the decision was the reconstruction the former supplier had undergone, and another was the growing demand for Flir's products. Further, Flir was developing a new product that was partly based on the technology jointly developed with the former supplier in their earlier business interactions. Flir considered that Habu already possessed the necessary resources such as a customized production plant, equipment, tools, know-how and formerly trained personnel.

Also, a large proportion of personnel from both companies had known each other for many years. The two CEOs as well as other management executives and production staff were still working for their respective companies. Engineers and technicians from both companies had interpersonal relationships, which were developed during the previous business interactions. However, although interpersonal relationships were highly valued, the decision to reactivate the relationship was closely related to the positive outcomes achieved by the firms working together in the past. Previous business commitments had certainly contributed to build trust in the supplier. Also, it was less risky than with a totally new supplier, as an engineer at Flir recognizes:

> *"There is always some risk and uncertainty whenever you start working with a new supplier. With Habu things are very different because of our history."*

From Habu's perspective, the past investments in the production plant to manufacture customized products for Flir played a major role. Although investments were not lost, the production plant was not as productive as it had been. Investments in personnel were also critical. Habu had invested in special training to specifically develop the tailor-made products. In addition, the company considered that working again with Flir would imply not only increasing productivity levels, but also innovation capabilities, as more pressure would be put on them for new products.

Reactivation of the business relationship – in a context of other relationships (2013)

Although reactivation of the relationship started from a solid base due to the number of people from the two firms who knew each other, there were concerns that needed attention. Personnel from Flir met internally on a number of occasions to discuss how to work with the supplier this time. At the management levels, issues such as legal contracts, knowledge and technology transfer, price, quality and delivery procedures were discussed. Further, engineers and technicians of the two companies met to discuss how to develop the final product and outline the responsibilities of the parties involved. Regarding the relationship with the current supplier Note, Flir decided to continue with the relationship even though this supplier did not have all the resources and capabilities necessary to produce the new technologically complex systems. However, Flir management understood that Note had the potential to cooperate with Habu to improve efficiency in the manufacturing process of the final product. Note produced complex electronic memory cards that were built into the new product produced by Flir. Thus, the products that Flir purchased from the two suppliers had to work together perfectly. For Flir, bringing the two suppliers to work together would help to ensure that new product success.

By working together, Note and Habu would be able to meet certain specific needs of Flir's customers. Consequently, Flir arranged meetings with representatives from Note and Habu. In 2014, it was agreed that the two companies would start working together to increase efficiency in the manufacturing of final product. Note and Habu began communicating with each other directly, so that Flir did not have to continue acting as intermediary. Even though Note and Habu had not worked together earlier, the relationship yielded positive outcomes as the production and assembly of the systems into the new product turned out to be successful. As the sales manager at Note expresses:

"We had never worked with Habu before so we were not sure how the results would be. Considering that Flir is an important customer for us, we had a great interest in making the collaboration with Habu work out well."

Later on, Habu became a supplier to one of the key customers of Flir. An engineer at Habu speaks with gratification about the positive effects:

"Since we started working with Flir again, we are now directly doing business with one of their main customers. We are very pleased that we have this new customer as a result of our restarted cooperation with Flir."

Concluding discussion

As the case reveals, Flir's business relationships to the suppliers were reshaped in different ways (Table 2), sometimes involving several business relationships at the same time. Reshaping business relationships implicates substantial changes that are complex and challenging to execute. Three of the reshaping types, activating a new, reactivating a former and deactivating an existing, always involve *re-configuring of business networks* as also other connected business relationships are influenced in a radical way. The fourth type, reviving an existing business relationship, involves limited change. However, limited change during reviving might be unusual (Easton and Lundgren 1992), because there is a radical change in existing business relationship so likely there is network re-configuration elsewhere.

Table 2. Reshaping one vs. several relationships

Reshaping individual relationships	**Activating** new business relationship *Flir – Natech early 80s*	**Deactivating** current business relationship *Flir – Natech relationship in 2003*	**Reactivating** former business relationship *Flir – Habu (former Natech) relationship in 2013*	**Reviving** current business relationship *Flir – Note relationship in 2013*	
Reshaping several relationships at the same time			**Reviving** a current **and reactivating** a former business relationship *Flir—Note relationship AND Flir—Habu (former Natech) in 2013*		**Forming a coalition of three parties by reviving** two current business relationships *Flir – Note — Habu in 2014*
NB. Temporal change is from left to right					

To sum up, by focusing on the different types of reshaping that may take place in individual business relationships, the radical type of change of business networks is made less opaque. This is important for managers to be aware of because changing a business relationship is likely to mean network re-configuration. Thus, coping with business network change is an important managerial competence (Chou & Zolkiewski 2012).

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