A Tension Perspective on Networks in the Construction Industry

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Abstract

Societal dynamics are challenging the Swedish construction industry at present, and the picture of an industry in transformation emerges. These challenges are exacerbated by some of the characteristics of the construction industry, which has been described as slow-moving, conservative and cost-driven. The purpose of this paper is to discuss contemporary tendencies in the construction industry as described in research, as well as to develop a framework for studying these developments in a Swedish research project that is just starting. The paper draws on three different bodies of literature; IMP literature focusing on network dynamics, literature on process studies and dialectics, and studies of the construction industry (both from an IMP perspective and more general literature). The aim is to explore the characteristics and contributions of a dialectical lens in understanding contemporary business networks in the setting of the Swedish construction industry.

Keywords: construction industry, tension, business networks, dualities, dynamics

Introduction

During recent years, the Swedish economy has gone through a number of changes which will affect the Swedish welfare system for the foreseeable future. In the domestic market there are transformations to be expected. In 2015 alone, approximately 162.000 people applied for asylum in Sweden, which will create enormous challenges for the Swedish economy. A pressing issue concerns the demand for housing. *Boverket*, the National Board of Housing, Building and Planning, has recently reviewed its figures and estimates that a further 700.000 new accommodations need to be built until 2025 (webpage of Boverket). The housing issue is currently debated in Swedish media (see e.g. *DN Debatt* from 2016-01-13 and onwards, or *SvD* from 2016-02-22 and onwards), and the question concerning how to stimulate house-building is likely to lead to several reforms within the area. Other buildings – such as schools, hospitals and supermarkets – will also see an increased need for new developments. At the heart of the societal equation lies the issue of how to increase the rate of new constructions without increasing the costs of housing and public services etc., something that will probably demand technological development. Thus, the demand for innovativeness increases; but at the same time, the construction industry has learnt the hard way that the effects of innovations can be difficult to grasp and become visible in the shape of increased costs due to quality defects many years after the end of the construction project (Bengtson, 2003).

Other changes that affect the industry take place outside the country's borders. The increasing globalization with rapid progression in several developing countries has created a world market which is changing fast (Löfgren & Benner, 2011). This development also affects the Swedish construction industry, where we can see an increased focus on international construction projects. Today, Swedish construction companies go abroad to a higher extent than before, and an increasing number of foreign companies are active on the Swedish market. It is interesting to note that construction companies quite often establish their presence inorganically, i.e. through acquisitions of domestic companies, which could result in interesting and unexpected structural changes (Havila & Salmi, 2000; 2002). Previous research shows that the companies' supplier relationships are often affected by these acquisitions (Holtström, 2013).

Altogether, the picture of a construction industry in transformation emerges, which rimes well with Sewell's (1992: 27) dynamic notion of structure as "the continually evolving outcome and matrix of a process of social interaction". Sewell (1992) calls for an analysis of the dialectical interactions through which, as he claims, "humans shape their history". Viewed in this manner, the construction industry picture clearly portrays an industry torn between opposing forces; the need for short-term

solutions is contrasted with long-term sustainability in both economic and technical terms, local roots are challenged by global presence, and innovativeness is challenged by risk-avoidance and safety awareness. The construction companies are therefore faced with, or in the middle of, a number of innovation challenges of over-arching structural character. This industry in transformation constitutes an opportunity to study "structure in motion", i.e. the process through which the underlying social structures surface, reinforce the established and guide agency in attempts of change and development.
The purpose of this paper is to discuss contemporary tendencies in the construction industry as described in research, as well as to develop a framework for studying these developments in a Swedish research project that is just starting. The aim is to explore the characteristics and contributions of a dialectical lens in understanding contemporary business networks in the setting of the Swedish construction industry. We begin the paper by introducing what a network approach to a study of the construction industry might imply, and thereafter move on to discussing a tension perspective on construction networks in order to understand these tensions' impact on industry, as well as how they affect the construction companies' potential for developing business opportunities. As a next step we will look at earlier research on construction. After a discussion of the implications of a tension perspective on our understanding of the construction industry, we will end with some concluding remarks.

A network approach to the construction industry

This study will be carried out from an industrial network perspective (Anderson, Håkansson & Johanson, 1994; Håkansson & Snehota, 1995), which means that the connections between the involved construction companies and e.g. their suppliers will be studies as relationships embedded in in a network structure of connected relationships (Dubois & Gadde, 2000; 2002). As described by Bizzi and Langley (2012:224), the atomistic view of firms is, using this perspective, "replaced by a more complex relational view characterized by continuing interaction, joint operations and resource flows among interdependent entities". Business networks are viewed as embedded in different structures or contexts, making each network unique and context specific (Halinen & Törnroos, 2005).

Networks can be characterized as flexible and loosely coupled systems which are continuously changing. Looking at the construction industry from a business network perspective, therefore, implies studying "concepts that are continuously re-created over and through time" rather than fixed structures (Halinen et al., 2012). According to Easton (1995: 419), "the explanatory power of industrial network approach comes into play when this approach is used to explain the changes that have occurred in particular networks". The construction industry involves many actors controlling various resources and requires interaction on multiple levels (Bygballe & Ingemansson, 2014), which makes it relevant and interesting to use a network approach which takes these matters into consideration. Recently the interaction with authorities based on political changes are quite visible, making a holistic network view on change, incorporating both business and political actors, interesting in order to understand industry dynamics (Welch & Wilkinson, 2004).

A tension perspective on networking in construction

Inspired by researchers such as Giddens (1976, 1979, 1981, 1984), Pettigrew (1992) and Van de Ven and Poole (1995), to mention just a few, our research will take a process view on the studied network phenomenon. According to Gidden's theory of structuration, structure must be regarded as a process, not as a steady state, since structures are "both the medium and the outcome of the practices which constitute social systems" (Giddens, 1981: 27), such as business networks. The notions of stability and change (Kreiner et al., 2015), or structure and agency (Anderson et al., 1998) as an intertwined duality is thus central to create an understanding of contemporary business practice if viewed from this perspective. Also Kreiner et al. (2015: 982f) argue that actors in contemporary organizations face a need to balance stability and change in the middle of an "ever-come complex environment", and that this need is experienced as "a set of tensions - dialectic claims in play". Studying a process from a dialectical perspective implies analyzing a process from a contradiction-ridden and tension-filled perspective, searching for "embattled tendencies" (Bakhtin, 1981; Kreiner et al., 2015). Hence,

research on tensions focuses on unsolvable tensions between contradicting and interdependent elements within organizational entities (Langley & Sloan, 2012). It emphasizes the role of the co-evolutionary interchange between tensions in organizational processes and focuses on the challenges and opportunities that the tensions create for the actors involved in e.g. business relationships or in innovation processes.

Business networks are always in a state of change, and we argue that a tension perspective helps in understanding the dynamics of a certain network since it makes it possible to study how the involved actors negotiate a set of processual tensions, and how the process of experiencing and navigating tensions change the actors' construction of the industry. The perspective helps understanding how some tensions come to operate within the network, e.g. how tensions are brought to the surface, but also how some tensions are reduced by involved actors, and foremost how network formation and dynamics are constructed through these tensions. Similarly, it is argued by De Rond and Bouchikhi (2004) that tensions help shape a certain trajectory, answering questions such as how the actors make sense of it as it unfolds and what underlying structures inform their conduct.

Research on the construction industry

In previous studies, researchers have found that the construction industry is predominately characterized by low commitment between the actors and that trust is not the norm (see e.g. Jiang et al., 2011; Shiu et al., 2014). One of the reasons for this modus operandi are the characteristics of the construction industry. Jiang et al. (2011: 3) state that "while companies are linked to each other through the dependence structures of a project, needing each other to deliver agreed outcomes, long-term cooperation and collaboration are rare". Furthermore, Akintoye et al. (2000: 167) found in their study that "contractors are more oriented towards clients rather than their suppliers" and that suppliers were treated as easily replaceable providers of a service. Nevertheless, "In recent times, the landscape for construction development delivery has been fast changing with emphasis on partnering, joint venture, public/private partnership, strategic alliances etc." (Akintoye & Main, 2007: 597). In Scandinavia, there are similar developments, with partnering becoming increasingly popular between the large construction companies and their important customers (Bygballe et al., 2010).

Another characteristic of the construction industry is that it is highly fragmented, with a few very big and a large number of small companies (Shiu et al., 2014). While the study in question refers to the UK construction industry, this holds true for the Swedish construction industry as well.

Organizing in time – project structure

One reason for the difference between construction and many other industries as explained in research is the fact that the production is organized based on a project structure (Fearne & Fowler, 2006). A project, according to Lundin (1995), is "the successful result of separating the realization of a task from its environment", while Løwendahl (1995) defines a project as "a specific finite task to be accomplished". Projects are "characterized by a life-cycle including project start-up, growth, decline, and termination" (Meredith & Mantel, 1989: 4-5), and the construction industry, among several others, "operate almost entirely in a project mode" (Manning & Sydow, 2011, p. 1370). Packendorff (1995, p. 328), claim that if a project is seen as a temporary organization, there will be an interactivity between expectations, action and learning, but all this takes place *within the predefined project time*. Hence, within industries where project-based activities are the norm, such as the construction industry, special challenges arise. One of these challenges within the construction industry concerns the trade-off, or tension, between intra-project effectiveness and more long-term benefits such as relationship adaptations and innovations.

Much has been written on what characterizes projects in relation to permanent organizational arrangements (see e.g. Ekstedt & Wirdenius, 1995; Lundin & Söderholm, 1995). Researchers have also studied how the project organization is embedded in more permanent structures (see e.g. Sahlin-Andersson & Söderholm, 2002). However, less emphasis has been given to the problem of linking the temporary organization to a more permanent supplier structure. Hadjikhani (1996), reasons that discontinuity (in resource exchange) is a strategic problem in project management. He argues that

more long term relationships are more likely to be created after the projects, if the project requires technological and structural adaptations that result in interdependence, whereas a project that results in minor changes facilitates the change of partner after the project completion. Manning and Sydow (2011) examine not just the aftermath stage of a project based relationship, but also how project entrepreneurs form core teams with clients and suppliers thereby establishing sequences of related projects in what they term "collaborative paths". Hellgren and Stjernberg (1995, p. 379), on the other hand, study what they term project networks as means to design and implement major investments. In their conceptual framework, a project network is defined as "(1) a set of relations, where no single actor may act as legitimate authority for the network as a whole, (2) where the network is open in the sense that there are no definite criteria by which the boundary of the network may be identified and controlled, and (3) where the network is temporally limited, dynamically changing and (partially) reconstructed from one project to the next."

Organizing in space – product immobility

When discussing more long term arrangements in a construction industry setting, previous research also argues that the organizational arrangements are a consequence of spatial arrangements in that the immobility of the end-product entails a need for local support at the place where the construction site is localized (Bengtson, 2003). The need for local support has, in turn, resulted in the decentralization of the large construction companies, which often can be perceived as conglomerates of several smaller construction companies. One resulting effect is that it reduces the possibilities of creating standardized development routines for the construction company's own activities (Rundquist et al., 2013). Problem solving is often delegated to the individual construction projects, and the question of how to capture and transfer project-based knowledge is a recurring theme within research (Brady & Davies, 2004; Håkansson et al., 1999). However, earlier research also warns against the uncritical belief in simplistic solutions created in other, more permanent production structures. For instance, Fearne and Fowler (2006, p. 284) claim that "the discrete and indiscriminant application of "Lean Thinking" is resulting in the removal of capacity from the system and making it vulnerable to the inherent complexity and uncertainty in which most construction projects operate". In order to still benefit from economies of scale, as well as becoming more innovative, the purchasing function has received a central role for the development of strategic supplier relationships (Jacobsson & Linderoth, 2010).

Purchasing within the construction industry

In order to manage structural challenges in industry, earlier research points towards the strategic role of purchasing (Axelsson & Wynstra, 2002; Svahn & Westerlund, 2009) – not least within the construction industry (Aloini et al., 2012; Dubois & Gadde, 2000; Ferreira et al., 2015). The major economic and functional role of the supply side for the construction industry can for instance be seen through the high share of value-added provided through purchasing; purchasing of materials alone corresponds to 30 % of the turnover in a standard construction project, and the total cost of purchasing can amount to as much as 90 % of turnover. For the construction companies, the importance of developing partnerships and/or deep relationships with their suppliers in order to handle business challenges or innovativeness is a recurring theme within much of the research in the area (Bygballe et al., 2010; Dubois & Gadde, 2010; Wood & Ellis, 2005). However, the step from acknowledging that purchasing and supplier relationships are central for the industry, to the development of knowledge concerning how the construction companies should handle these relationships in order to become more productive and / or create innovation, is a major one. Previous research shows that relationship management within project-based activities in general, and the construction industry in particular, is a complicated task (Bygballe et al., 2010; Rundquist et al., 2013).

Historically the dependence on procurement routines has benefited arms-length relationships, although other practices, such as partnering (Bygballe et al., 2010) are emerging. According to Jacobsson and Linderoth (2010), the project-based form of organizing in construction has also brought about a focus on time and action, to the detriment of reflection, innovation and overall solutions. This issue is also touched upon by Rundquist et al. (2013), who show a gap between the constructors and their sub-suppliers: the constructors focus on the project, whereas their suppliers

focus on the product. The result is a gap which hinders both communication and innovation within the sector. Several researchers imply that the time pressure project-based companies, as well as projects generally, are faced with severely impacts learning and reduces the opportunities of a long-term focus and technological renewal within and through supplier relationships (Bygballe & Ingemansson, 2014; cf. Åberg, 2013).

Discussion

The situation described initially for the construction industry results in both a need for change and a situation where changes will happen no matter the intentions of the construction companies, which gives us an opportunity to study these processes as they unfold. We notice through observations of contemporary industry developments that there are tensions in the established structure which surface or escalate through the current change in the structure. In previous research, as was described in section four above, the construction industry has been depicted as difficult to change, conservative when it comes to innovations, and cost-driven (Akintoye et al., 2012), while other research points towards the fact that the construction industry is built on a different kind of logic than other industries (Bygballe & Ingemansson, 2014; Rundquist et al., 2013). In this section we will discuss some of the characteristics and tendencies that have been discussed in previous research as a first mean to reach a better understanding of the tensions that come to play in the industry. From the literature review above, we already see a number of tensions that are interesting to study further.

Our paper highlights that previous research within the area of construction shows an industry with a high level of complexity and many tensions, all of which affect the opportunities for networking, for business and for innovation (cf. Cameron & Quinn, 1988; Smith & Lewis, 2011). There are a number of tensions mentioned in literature on the construction industry, some that have explicitly been mentioned as tensions/dualities/paradoxes and others more implicitly termed, but empirically described. Below follows some of the identified tensions.

Tensions between exploitation and exploration

From previous network research within the construction industry the tension between exploitation and exploration can be mentioned (Bygballe & Ingemansson, 2014). Given the need for the development that the construction industry is currently facing in Sweden, it can be expected that the need for new innovations in the industry is likely to change the balance between exploitation and exploration. While the construction industry has a reputation for being conservative (and focusing on exploitation), there will likely be a bigger focus on exploration as the demand for innovation increase.

Tension between market logic and relationship logic

Research also visualizes the tension between a micro-economic market logic, which focuses on tenders and price, and a more long-term, relationship logic, focusing on relationship building and overall cost (Dubois & Gadde, 2000; 2002; Åberg & Bengtson, 2015). A pilot study (Bengtson & Åberg, 2016) within the Swedish construction industry indicated that, while some actors focus mostly on price cutting, there are other actors that focus primarily on relationship development and long-tern commitment.

Tensions between the project and the network (a project focus or a product focus)

A specific construction project has a clear goal, whereas the suppliers within the network typically have both converging and contradicting goals. Previous research within the construction industry mentions the tension between the constructors' project logic and the suppliers' more long-term product orientation (Rundquist et al., 2013). A result of this tension is both communication problems and lack of innovation (Rundquist et al., 2013). Furthermore, the project has clear boundaries both in time and space, unlike the network where there are no such boundaries.

Concluding remarks

The purpose of this paper has been to discuss contemporary tendencies in the construction industry as described in research, as well as to develop a framework for studying these developments. The aim has been to explore the characteristics and contributions of a dialectical lens in understanding contemporary business networks in this setting. We believe that there is a potential in studying the construction industry from a network perspective, and that this study can benefit from a tension focus to facilitate a greater understanding of the business dynamics as they unfold.

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