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## Digital platforms as tools for exchanges in business networks

### 1 Introduction

A current trend for companies is the utilization of digital tools in order to improve productivity and efficiency. Therefore, it is crucial for buyers and suppliers to understand how the utilization of digital tools influence their relationships and performance (Obal & Lancioni, 2013; Srai & Lorentz, 2019). In addition, there are some challenges related to the use of digital tools as they have to fit with company strategy and systems and also with the cooperation partners of the company.

The managing of the exchanges and interactions within a business network is one of the core topics within the IMP-group and business network research. However, a majority of the studies focus on interaction between one company and another and on exchanges of resources and activities from one firm to another. These exchanges are often related to products, services and money. More lately, the importance of tacit resources such as knowledge exchange has been stressed (Hakanen, 2014). The exchange of information and knowledge are especially relevant in today's digitalized business world where different digital tools offer various possibilities for fast, simultaneous and multilevel exchanges between several actors. Therefore, today buyer-supplier relationships are less dependent on face to face interactions and more dependent on digital interactions (McIvor & Humphreys, 2004; Obal & Lancioni, 2013). Companies also need to develop digital business strategies that aim to coordinate activities and thereby create dynamic platforms for managing interactions with different actors within their network (Pagani & Pardo, 2017).

The aim of this study is to increase our understanding of digital platforms as tools for exchanges within business relationship. The research questions is as follows: What are the challenges related to digital platforms for business networks and how can these be managed? The empirical part of this study is based on a qualitative single case study research of a business network of a manufacturing company. The findings of the study that the challenges related to digital platforms for exchanges in business networks can be found on multiple levels, the individual level, the firm-level and the relational level. Moreover, our findings indicate that the strategies for managing the challenges can be *forcing* and *incorporating*.

This study contributes to prior research on exchanges in business networks by focusing on challenges related to the use of digital platforms for exchanges between firms and how these challenges are managed. From a managerial perspective the findings of the study show how digital platforms should be used for efficient exchanges within business networks.

## 2 Theoretical background

In this study we rely on prior literature from the business network approach, and on literature related to digitalization and digital platforms. There are three types of digital platforms related to business: internal platforms, supply-chain platforms and industry platforms (Gawer, 2014). Most studies related to business networks and digitalization relates to industry platforms and concern service, sales and customers (e.g., Palo & Tähtinen, 2011). From the perspective of digitalization in business networks, there is for example a recent stream of research focusing on service and servitization (Cenamor, Rönnerberg Sjödin, & Parida, 2017; Eloranta & Turunen, 2016). There is scarce research related to digital platforms as facilitators of exchanges in supply-chain and inter-firm networks. A network approach entails complexity when digitalizing, and this arises from the networked inter-firm structures (Eloranta & Turunen, 2016).

The literature related to digitalization is ambiguous in terms of defining digitalization (Srai & Lorentz, 2019). We define digitalization as the use of digital technologies, similarly as, for example, Srai and Lorentz (2019) and Warner and Wäger (2019). Digitalization in manufacturing industries relate closely to Industry 4.0, which means “participating in the development, merchandising and operation of autonomous, knowledge- and sensor-based, self-regulating production systems” (Hofmann & Rüscher, 2017, p. 23). However, Industry 4.0 is more focused on IoT and automation, while digitalization also involves interaction between people and actors *using* digital technologies.

Prior research related to impacts of digital technologies on business relationships classifies digitalization into three types: activities links centered digitalization, resource-ties centered digitalization, and actor-bonds-centered digitalization (Pagani & Pardo, 2017). This classification follows ARA-model (see e.g., Håkansson & Snehota, 1995), however, the classification does not consider digital technologies that aims to cover all the classifications. Therefore, this kind of classification do not fit our research, as manufacturing companies are all the time investing time and money for introducing new digital technologies and integrating their digital technologies working as a complete system. Cenamor et. al (2017) put forward three logics of platforms: connecting, sharing and integrating. These logics are relevant for the digital interaction within business networks.

Digitalization in manufacturing industry is developing fast and new technologies are continuously introduced in supplying and buying companies, which also leads to challenges. For example, disparate capabilities for using and adopting new technologies differs across companies (Obal & Lancioni, 2013). Therefore, adopting new digital technologies may even cause shifts of power or inequality of power in a buyer-supplier relationships (Obal & Lancioni, 2013). In addition, connectivity through digitalization between a buyer and a supplier may also challenge the traditional relationships governance mechanisms, and it also gives rise to cyber security considerations (Srai & Lorentz, 2019).

As the existing literature on the impact of digitalization on business relationships is scarce (Srai & Lorentz, 2019), we aim to explore the challenges and use of a digital collaborative platform in a manufacturing network. As prior business relationship studies have shown that interaction

between companies is a key factor in maintaining a relationship (Guercini, La Rocca, Runfola, & Snehota, 2015; La Rocca & Snehota, 2014), we are interested in the interaction occurring through a digital platform, potential challenges and how these are dealt with.

### 3 Methodology

The study employs single case study research in studying digital platforms from a network perspective. A single case study was considered the most appropriate research approach because the research topic is new (Easton, 2010; Eisenhardt, 1989). Moreover, a single case study method approach allows for an extensive description and an in-depth analysis of rich data and context dependent issues (see e.g., Bodolica, Spraggon, & Zaidi, 2015; Dubois & Gadde, 2014; Halinen & Törnroos, 2005; Melewar & Skinner, 2018). Even though single case study research has been criticized for lacking external validity and poor generalizability of results, it has been also argued that in understanding complex structures single case study is considered appropriate (Dubois & Gadde, 2014).

The empirical case was purposefully selected to exemplify a business network (figure 1), including a subcontractor (Alpha), a manufacturer company (Beta), a customer company (Gamma) and a platform provider company (Omega). This particular network is operating in the manufacturing industry, which is known as quite traditional and digital transformation generally is at an early stage in small and medium manufacturing companies. Alpha, Beta and Gamma are using a collaborative digital platform provided by Omega.

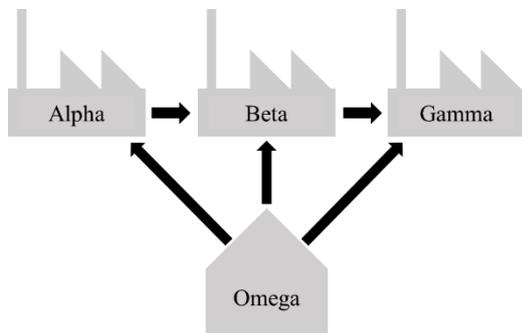


Figure 1. The empirical setting.

#### 3.1 Data collection and analysis

The empirical material has been gathered in 2018 and 2019 by interviews. In total ten interviews has been carried out and nine of these were conducted as personal interviews and one as a telephone interview because of the geographical distance. The informants were chosen based on their connectedness with the digital platform, either as a developer, user or decision-maker. The informants were considered to have the most extensive knowledge about the digital platform. Two researchers were present in nine out of the ten interviews, which means that the interviewers were able to discuss the detail of the interview to acquire a shared and complete understanding of what was said, which also increased the trustworthiness of the interview material. All interviews were recorded and transcribed. The interviews were unstructured but addressed the use of the digital platform in handling business relationships. The length of the interviews varied between 30 and 68 minutes, and the average length was 49 minutes.

A content analysis was used for analyzing the empirical material. The content analysis used was inspired by the technique used by Corley and Gioia (2004), which moves from excerpts to more abstract categories. In the following we present and analyze the initial findings of the empirical study related to the challenges of the digital platform and the methods for managing these challenges.

## 4 Findings

### 4.1 Challenges of implementing and using a collaborative platform

#### *Individual attitudes and preferences*

There are still lots of small companies operating in manufacturing industry, that are not willing to invest time or money for digital technologies as they are willing to handle business through e-mail or phone. Moreover, the data analysis revealed that adopting and using a collaborative platform depends on the individuals operating in company boundaries.

*“it is easier to handle orders through e-mail in smaller businesses” (Beta)*

Personal preferences and attitudes towards digital technologies and the changes that digital technologies would cause, lead to some granted exceptions. The reason behind exceptions and negative attitude towards the collaborative platform seems to be related to attitudes but also to expectations related to the amount of additional work that using platform would cause.

*“We have decided with some suppliers that we will not invite them to Omega’s platform... ..we will do our business with them same as earlier”  
(Beta)*

*“We think that it will increase work more than anything” (Alpha)*

The implementation and use of a collaborative digital platform in a business network is consequently to a large extend dependent on micro-level issues such as individual attitudes and preferences.

#### *Timing of the launch*

The usability of the collaborative platform cause some difficulties to companies adopting it. Omega’s platform is developed for the manufacturing industry and it was co-developed with manufacturing companies. Gamma and Beta has been active in the co-development of the platform. However, both co-developer companies felt that they launched the wider use of the platform too early to whole supply network, as difficulties related to using the platform arouse.

*“Now we would be smarter and would have developed the platform further before launching it to the whole supplier network... But we wanted to test it and start using it as fast as possible back then...” (Gamma)*

The early launch of the platform also caused challenges for the suppliers that were not able to in a convenient manner receive the required information about orders.

*“We criticized that you cannot get information or notifications about new orders or changes in orders, you need to manually go to the platform and check those... or the other option was that you got notification of everything that happened in the platform” (Alpha)*

This challenge related to the functional aspect of the digital platform that did not serve its purpose as it should have done.

### *Overlapping platforms*

Companies that function as suppliers in a business network revealed that almost every customer has its own digital platform and using multiple platforms is difficult and time-consuming. Customer companies reported the same challenge, as they mentioned the use of different and sometimes even overlapping platforms.

*“We have, for example, in logistics four to five portals through which we supply to our customers.. ...I think that the usage of these different portals goes over the top.” (Beta)*

*“From our viewpoint, digitalization means more manual work. ...systems where people are filling information for others portals...” (Alpha)*

The usage of multiple overlapping platforms also caused additional routine work for supplier companies, which naturally was seen as an inefficient way of doing business. However, the increase in work was also related to the maturity of digitalization in companies. Overlapping work could be avoided by integrating the collaborative platform to ERP-systems, but some supplier companies were not willing to do that, even though, these companies recognized the possible benefits of integrating.

*“The aim of implementing the collaborative platform obviously is the willingness of customer companies to reduce the costs of their purchasing. In practice this means that these saved costs shifts partially to us, suppliers. The reason for this is that we have not integrated this platform to our systems and therefore order handling is twice amount of work..” (Alpha)*

*“If we would do some integrations, it would change the game completely... It could even provide some long-term cost savings to us...” (Alpha)*

This challenge occur on the inter-firm level and related to the organizing and coordinating of different platforms.

### *Collaboration development*

The aims of implementing the collaborative platform were usually related to efficiency seeking and collaboration development between companies. However, collaboration development has not succeed as expected. The reasons behind this relates to the narrow use of the platform and to lack of investments of companies.

*“Beta has not investment enough.. . poor quality statistics and delays in supplies because of their machinery... I would hope that they would do something about that after seeing their statistics in there (the platform)... but it has change nothing.” (Gamma)*

This challenge is related both to the inter- and intra-organizational level, as the interaction through the platform did not lead to desired changes in companies.

## **4.2 Managing the challenges of implementing and using a collaborative platform**

### *Persuasion and coercion*

As most of the supplier companies were not that willing to adopt and start using the collaborative platform, customer companies need to work for getting their suppliers to use it. Persuasion was the first strategy of customer companies that aimed at implementing the use of the platform in their supplier networks. Persuasion was conducted through emphasizing the benefits of the platform for effectiveness of handling orders and reclamations. Moreover, the benefits for the whole network were stressed. However, more coercive tactics were needed to get suppliers to use the platform.

*“What went wrong in the implementation phase of the collaborative platform was that we were too nice.. We started persuading suppliers to use the collaborative platform.. it was a catastrophe... Instead, we should have just said that starting from next week, all our orders come through the collaborative platform, take it or leave it” (Gamma)*

*“They said that if we want to supply something to them, we should be in there (the platform)” (Alpha)*

The style for handling the challenge of using the digital platform consequently takes two different forms, moving from persuasion to coercion.

### *Participation in platform development*

Customer companies managed usability issues by being involved in the platform development. The co-developer roles of Gamma and Beta facilitated possibilities of modifying the platform in accordance with their needs.

*“In the beginning, Omega made all the changes we asked for concerning the platform. But now, it has grown and has also other big customers and Omega develops the platform in accordance with market demand not just according to what Gamma or I want. Almost every week we are still in contact with Omega” (Gamma)*

### *Transparency and availability of knowledge*

Important objectives of implementing and using a collaborative platform for companies were increasing transparency within a business network and improving the availability of knowledge. Knowledge availability was also used for managing challenges on a relational level

between the companies. This was done through supplier classification index, which included some key performance indicators of suppliers and it was published in every quarter.

*“We have started to use a supplier evaluation application and we publish the results in the platform. And if we think that there would be a room for improvements in the supplier’s activities, we demand actions, which we follow through the platform.” (Beta)*

Increased knowledge availability also provide efficiency for supply chain management. However, the dark side of this was too open knowledge sharing.

*“We have noticed that in our network, younger the person easier to share knowledge. We even need to limit our trainees in sharing information... telling them that this information is confidential and cannot be shared with suppliers” (Gamma)*

## **5 Discussion and conclusion**

This study aims to fill an important gap in existing business network literature as it focuses on the use of digital platforms as a tool for interaction and exchange. The initial analysis of the findings of the empirical study indicate that challenges related to digital platforms can be found on individual-, and intra- and inter-company levels. The challenges are managed in different ways, but a mixture of forcing and incorporating styles seems to be dominating.

As a first and suppressed version of our study, this paper contains several limitations that will be covered in a developed version of the paper. Firstly, we well more thoroughly explore the challenges from a dynamic and multi-level perspective and integrate these with styles of managing the challenges. Secondly, we will investigate the use of the digital platform more in-depth based on the different actors and their role in the business network.

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