Purchasing's tasks at the interface between internal and external networks

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PURCHASING’S TASKS AT THE INTERFACE BETWEEN INTERNAL AND EXTERNAL NETWORKS

Abstract

Purpose: The strategic importance of the purchasing function increases, as its task become more dynamic in various interfaces with different suppliers. Changes in these customer-supplier interfaces pose specific challenges. The purpose of this study is to investigate how the purchasing function handles the interplay of interface changes.

Design/methodology/approach: The study applies a qualitative single case study design. Data is collected through observations and interviews conducted before, during and after a concrete change of interface taking place between a buying firm and its suppliers and customers.

Findings: Three main findings are identified in order to redefine the tasks of the purchasing function. The first concerns the new ways of defining the purchasing tasks. The main issue is to balance tasks with the simultaneous changes influencing other interfaces and relationships. The second is the division and alignment of tasks in intra- and inter-organizational networks with regards to who decides and coordinates what. Thirdly, the inter-connected performance relates to how other actors perform their tasks. For the purchasing function, managing supplier interfaces influences and is influenced by how the firm simultaneously manages its user interface.

Practical implications: For management, a new way to evaluate the performance of the purchasing function is needed by including relationship management and interactive capabilities.

Originality/value: This study contributes with new insights into how managing the dynamics of changing interfaces requires interactively defined purchasing tasks, division and alignment of tasks and inter-connected performance vis-à-vis others in the wider network setting.

Keywords: Purchasing function, tasks, customer-supplier relationship, resource interfaces

Article classification: Research paper
1. Introduction
The purchasing task of securing the availability of products and services in a cost-effective way by gaining access to supplier resources has become more strategic and dynamic (Gadde et al. 2010; Hüttinger et al. 2014; Gadde & Wynstra 2017). Managing the supply base by selecting, coordinating, appraising the performance of and developing the potential of suppliers (Lysons & Gillingham 2003) is essentially performed through the design and management of the interfaces in customer-supplier relationships (Spring & Araujo 2014; Lintukangas et al. 2010; Lutz & Ellegaard 2015). Business environment dynamics involve changes in the purchasing function capabilities needed for the effective performance of purchasing tasks (Knight et al. 2014). Moreover, additional actors, internal as well as external, are to an increasing degree involved in the performance of these tasks, which influences how the tasks of the purchasing function are defined, divided and performed.

Araujo et al. (1999) have proposed four different types of interface in the relationships between buying firms and suppliers. These authors focus on how buying and supplier firms can combine resources and synchronize their activities through the four different interfaces at firm level. In this regard, the purchasing function has different tasks at each of these interfaces. We currently lack understanding of the purchasing function’s specific tasks in managing these interfaces, how tasks are divided as changes occur in these interfaces and how it impacts on purchasing function performance. Specifically, this study focuses on how the purchasing function manages the interface between the internal intra-organizational network and the external inter-organizational network.

In order to develop the understanding of changing resource interfaces in the inter-organizational network and developing the intra-organizational role of the purchasing function, we apply a qualitative case study design, using Danhydraulics as our case-study firm. The findings contribute in three ways to the current understanding in literature about the tasks of the purchasing function: Managing the interplay between changing interfaces requires interactively defined purchasing tasks, internal and external division alignment of tasks and inter-connected performance vis-à-vis others in the wider network setting.

Despite its importance and an increasing academic interest, the purchasing discipline is still immature as a research field due to a lack of internal theories and methodological standards (Spina et al. 2015; Spina et al. 2013). Specifically, this study provides theoretical and empirical evidence to redefine the tasks of the purchasing function. The remainder of the paper is organized as follows: The following section outlines the theoretical framing for the study. In the third section the methodology is presented, whilst the fourth section presents the
case study and the analysis thereof. In the fifth section the findings from the analysis are discussed and finally, conclusions are drawn in the sixth section.

2. Theoretical framing
The tasks of the purchasing function have developed substantially, especially since the 1970s (Araujo et al. 2016; Johnsen 2018). Previously, the main focus was internal and related to purchasing procedures such as enquiries, tender management, etc. Supplier relationships were based on transactions, keeping suppliers at arm’s length to avoid dependencies (Schoenherr et al. 2012; Gadde & Håkansson 2001; Spina et al. 2015). More recently, the purchasing function has to a greater degree been recognized for its strategic importance in securing access to supplier resources in a cost-effective way (Gadde et al. 2010; Gadde & Wynstra 2017); researching the potential of suppliers and the development of their potential within complex relationships (Ford et al. 2011; Andersen & Gadde 2018). According to Schiele (2012), buying firms should strive to become preferred customers for their most important suppliers. In order to achieve a preferred customer status, the purchasing function has two important tasks: to identify innovative suppliers and to generate supplier management strategies for innovation. Today, it is considered vital for the purchasing function to continuously develop in relation to different partners (Araujo et al. 2003), calling for additional resources and new capabilities to form and manage collaborative relationships with suppliers (Cousins & Spekman 2003).

2.1 The tasks of the purchasing function
In order to secure resource availability, the purchasing function must design and manage a range of supplier relationships (Spring & Araujo 2014; Lintukangas et al. 2010; Lutz & Ellegaard 2015). As such, it is the responsibility of the purchasing function to access suppliers (Roseira et al. 2010; Roseira et al. 2013; Araujo et al. 2016; Gadde et al. 2010). However, users may have preferences regarding the choice of suppliers or may even have direct contact with suppliers. Accessing and developing knowledge of users’ preferred suppliers will often involve additional internal functions at the buying firm – e.g. sales, quality and/or the R&D function, for example, developing solutions with the R&D department of the user. Accordingly, the purchasing function must engage in interactions with internal as well as external parties in a multi-dimensional and complex intra- and inter-organizational setting, which needs to be handled. Similarly, the internal organizing – between the purchasing function and other internal functions – must be designed and managed in order to align intra-organizational issues in different supplier relationships (Gadde et al. 2010; Bocconcelli & Håkansson 2006).

Part of securing availability is selecting, coordinating and appraising the performance and developing the potential of suppliers (Lysons & Gillingham 2003). In order to match the availability to internal cost-effectiveness, the purchasing function is responsible for managing the supply base and connecting available resources. These resource connections are identified as interfaces (Gadde 2014), featuring their use and value resulting from the combination and interaction with other resources in business relationships (Mouzas & Ford 2012). The purchasing function must consider two important issues regarding access to resources. The
first concerns a classic make-or-buy decision (Welch & Nayak 1992): which resources need to be controlled internally by the buying firm and which resources should be accessed externally by suppliers? This involves the interface between the firm’s internal network and the external network. The second concerns the question: how should purchasing access suppliers’ resources (Gadde & Håkansson 1994)? The solution to this also depends on the internal organizing. In addition to these two issues, Araujo et al. (1999) argue that the buying firm’s context and the context of the buying firm’s customer (the user) also need to be taken into consideration.

2.2 Four types of interfaces for gaining access to supplier resources
When engaging with suppliers, tasks are defined, divided and performed at the interface between the buying firm and the supplying firm. According to Baraldi (2003), interfaces are understood as contact points, where resources are combined.

Taking as their point of departure different types of resource contact points in customer-supplier relationships, Araujo et al. (1999) present a typology of four different types of interfaces through which the buying firm can gain access to supplier resources. According to Araujo et al. (1999), the most important distinction between the different resource interfaces is the extent to which the buying firm and the supplier are aware of each other’s contexts, as the distinction helps define and divide the tasks between buying firm and supplier. At the standardized interface, the supplier does not need to know about the user context. For the purchasing function the task is rather straightforward: to order the standard component from the lowest cost supplier and secure availability when needed. In other words, the task is commercially focused and requires only a simple sales-to-purchasing functional interface. At the specified interface, the buying firm typically requires a customized product for which the supplier needs certain instructions about, for example, product characteristics and performance. Here the tasks for the purchasing function must be aligned with the internal R&D department regarding technical issues. Furthermore, the user context is of limited importance. The translation interface implies the active use of supplier knowledge and capabilities as the buying firm invites the supplier to make important decisions on how best to meet user requirements: the supplier needs knowledge of user contexts. For this purpose, the supplier may need to interact with other additional functions internal to the buying firm. Finally, at the interactive interface the buying firm and supplier join forces to develop specifications and it becomes a joint learning process for both buying firm and supplier. This may involve additional functions at the buyer and supplier organizations as well as user interactions.

Each interface has certain content regarding the features of the buyer-supplier relationship. Changes in the interface therefore also influence its relational content. Accordingly, the interfaces differ in terms of productivity and innovativeness as well as in terms of the costs and benefits associated with their use. Productivity is determined by the efficiency with which a given resource combination is used at any time, whereas innovativeness is related to the development of new resource combinations over time. Whereas the typology focuses on the interfaces that emerge from a concrete customer-supplier relationship, the main aim here
is to discuss how these inter-organizational interfaces influence the tasks of the purchasing function.

2.3 Aligning purchasing tasks
Managing interactive interfaces in a customer-supplier relationship demands resources and requires investments and involvement from several functions, such as R&D, sales and quality and purchasing. Moreover, interfaces with suppliers may also require involvement from users (Christopher & Jüttner 2000).

Figure 1 presents the theoretical framing of the study. It highlights the triad of interfaces between suppliers, buying firm and users as well as interfaces internal to the firm. The purchasing function needs to develop relationships to suppliers based on users’ demands. It also needs to consider the interplay between external interfaces as well as taking into consideration a new and more strategic internal role in the buying firm. Since the benefits which can be achieved for a buying firm that applies a diverse set of interfaces are subject to interplay between technological strategizing and the organizing principles (Araujo et al. 2016), it is of vital importance that the internal organizing of tasks between different functions within the buying firm connects well with the organizing of interfaces with suppliers as well as with users.

Figure 1: Theoretical framing

The task of the purchasing function is to align the interface to the suppliers with what is expected from the user. Therefore, if changes occur in the interface with the user, these changes also have implications for the supplier interface, and vice versa, especially if the change implies a significant change of interface, for example, from a specified to an interactive interface in accordance with the typologies presented by Araujo and al. As discussed above, the contents of these interfaces are quite different; therefore the tasks of the purchasing function must be adjusted accordingly. In this study, the scope of viewing the tasks of the purchasing function is therefore expanded by including the user contexts. Since most purchasing research is primarily related to the supply side (Spina et al. 2015), this study
has the potential to discuss the wider influence on intra- and inter-organizational relationships.

2.4 Interfaces determining the definition, division and performance of purchasing tasks
The ‘content’ of interfaces in a relationship between a buying firm and a supplier is influenced by the frequency of their interaction and mutual involvement. For the present purpose, the content of interfaces is seen as the agreed definition of tasks to be completed, how these tasks are divided between the partners, and how tasks are performed in order to achieve productivity and innovativeness. Agreements on how to define, divide and perform tasks are not necessarily directly discussed and negotiated but can equally effectively be settled through actions. What a supplier can do for and/or with a buying firm depends on how both parties combine their resources and capabilities (Mota et al. 2015; Schiele et al. 2011).

At the standardized interface it is quite easy to gain mutual understanding between buyer and seller about the exchange, and it is thus relatively simple to define the tasks of the purchasing function. At the specified interface, knowledgeable suppliers become more valuable for the buying firm because as MacDonald et al. (2016) argue, buying firms increasingly seek to buy customized solutions. Customization influences the relationship between the buying and selling firm as the switching costs are higher here than the standardized costs. Therefore, although the buying firm can still find alternative suppliers, it is not purely a commercial issue, as the product/service must live up to the specifications. At the translation interface the specifications and demands of the user are clearly defined. However, the supplier plays a more proactive role and the purchasing function will typically have to align its tasks internally, with the R&D department to establish whether the proposed solution from the supplier can live up to the technicality demanded in the user’s instructions. Thus, in a relationship characterized by a translation interface, the definition and division of tasks is more emergent and complex – also in relation to other internal functions.

A similar emergent and complex situation characterizes interactive interfaces; but here the user context expands the scope of task definition and division. The solution is not given beforehand and therefore the tasks are also emergently developed accordingly and must be aligned together in a dynamic, interactive interplay including users and different internal functions. Sometimes even sub-suppliers must also be involved in defining the tasks to be performed. The involvement depends on how well-defined the problem is. Through internal and external interactions, purchasing learns how to align different activities to create mutual benefits (Gadde et al. 2010): the content of the purchasing tasks is in flux as they are developed in interplay with other actors. Therefore, the focus is on managing and aligning expectations and demands whilst at the same time securing a commercial perspective.

Purchasing task performance includes various considerations of costs and benefits at the different interfaces. For the purchasing function, this is a task that involves balancing between seeking short-term advantages, e.g. choosing the supplier with the cheapest unit prices, or long-term advantages, e.g. by investing time and resources in developing a supplier. In the standard and to some degree also the specified interfaces, tasks are mainly related to
securing short-term availability. Here the internal organizing is less at stake. Managing the translation and interactive interfaces relates to gains in both long-term productivity and innovativeness. Purchasing choices are dependent on the resources which the supplier has developed over time and how these resources are utilized in single relationships as well as in the wider network. Purchasing’s responsibility for accessing and developing supplier resource in the interactive interface is influenced by the simultaneous interaction between R&D and quality functions at the buying firm and the supplier.

The four types of interfaces have consequences for how the purchasing function accesses and exploits supplier resources. On the one hand, the dynamics and interplay between interfaces characterizing different relationships as illustrated in Figure 1 affects resource access. When user demands change, this influences not only the interface between user and buying firm, but also the interfaces between the buying firm and its various suppliers in a way which alters the way resources are accessed (Baraldi et al., 2012). When there is a change of interface, this change also has some side-effects due to the interdependencies between interfaces. Such changes foster experiential learning and have consequences for knowledge generation and knowledge integration. Also, they impact the level of supplier responsibility, the scope of innovation and the control ambitions of the buying firm. Moreover, Andersen & Gadde (2018), in their discussion of the dynamics of customer-supplier interfaces, show how over time a focal firm adjusts the type of interface with suppliers. On the other hand, the changing content of inter-organizational interfaces has implications for the tasks of the purchasing function. In interactive interfaces in particular, there are consequences for intra-organizational organizing and for the performance of the buying firm. Internal organizational boundaries between the purchasing function and other functions can even inhibit the benefits from interacting with suppliers (Andersen & Gadde 2018).

An example of such internal changes is shown by Bocconcelli & Håkansson (2006) who investigate how the Italian motorcycle producer Ducati revises its purchasing methods and changes the name of the purchasing function to “supplier development”, while also changing the internal organizing accordingly. Bocconcelli & Håkansson (2006) argue that these internal changes should also be mirrored by internal supplier changes. Externally, the nature of the relationship between individual suppliers is an important task to address with regard to how to organize the overall production and development work.

In short, the theoretical framing illustrated in Figure 1 aims to provide a basis for responding to the call made by Andersen & Gadde (2018) and Araujo et al (2016), who encourage studies about interface dynamics and the consequences for the internal organizing of the purchasing function. Accordingly, this study focuses on identifying complementary concepts in order to address the issues associated with changing resource interfaces determining the tasks of the purchasing function. The study seeks answers to the following research question: How does changing resource interfaces redefine purchasing function tasks?

3. Methodology

3.1 Case study and data collection
This study is based on a qualitative single case study allowing for building an in-depth understanding of how changing resource interfaces redefines the tasks of the purchasing function. Qualitative studies are relevant for research problems in empirical settings with less clear boundaries; providing richness, depth and detail in the empirical data (Dubois & Araujo 2004). The case study approach is applicable to complex situations (Eisenhardt 1989) and for understanding dynamics in contemporary business contexts (Halinen & Törnroos 2005).

This study is part of a larger research project on purchasing. The individual case selected, the purchasing function at Danhydraulics A/S (anonymized – hereafter Danhydraulics), is an appropriate one, since it has experienced a change in interfaces towards suppliers. Danhydraulics is a Danish hydraulics firm with around 60 employees and a turnover in 2017 of around 34 million euros. The firm, a subsidiary of the worldwide concern Worldhydraulics, develops and sells hydraulic solutions primarily for serial production in the wind turbine industry. Danhydraulics is an interesting case-study because it is a technically focused SME where the purchasing function is specifically transitioning towards performing more complex and strategically important tasks. During this transition, the supplier interfaces are changed with vital implications for the internal organizing at Danhydraulics, as purchasing gains a new and more strategic role.

As part of the larger research project, one of the authors had the advantage of having access to a rich set of data from multiple sources, primarily as a participant-as-observer in the firm over a period spanning from October 2014 to October 2018 and through face-to-face interviews. The data collection was divided into two phases, where the first phase covers the period prior up to and during the change (occurring in late 2015/early 2016) and the second phase covers the period after this.

Qualitative interviews and participant observations were the primary methods used for gathering data in both the first and second phase of data collection (Carson et al. 2008). Since the occurring change could only be recognized as it was happening, scoping interviews and observations collected as part of the ongoing larger research project prior to the change in Phase 1 are included as information to the authors about the purchasing function’s tasks and context. In Phase 2, additional semi-structured interviews were completed with key informants (CEO and Supply Chain Manager) at Danhydraulics A/S after the change. These informants were chosen based on their experience with and involvement in the changes taking place in purchasing. A sales engineer, who has been working together with Danhydraulics A/S since 2013, was also interviewed. Observation data was collected through participation (participant-as-observer) in internal and external meetings with both users and suppliers (Gold 1958; Saldaña 2016). These observation studies were chosen to collect multi-faceted, in-depth data by studying actors in interaction (Brinkmann 2014; Jarzabkowski et al. 2014) in order to understand the tasks and interactions of the purchasing function. An overview of data is provided in Table 1. Secondary data in terms of Technical Purchasing Specifications from customers, e-mails and concrete offers from suppliers, internal as well as external reports (e.g. from the official Danish Wind Industry Association
Table 1: Collection of primary data

### Phase 1: Prior to change

<table>
<thead>
<tr>
<th>Description</th>
<th>Participants/ interviewees</th>
<th>Time period</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoping interviews with internal informants</td>
<td>Danhydraulics: Strategic purchaser, CEO, Supply Chain Manager</td>
<td>October, 2014 – December, 2015</td>
<td>Initial understanding of internal processes&lt;br&gt;Initial understanding of supply base structure</td>
</tr>
</tbody>
</table>

### Observations of meetings and site visits

<table>
<thead>
<tr>
<th>Description</th>
<th>Participants/ interviewees</th>
<th>Time period</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven internal meetings</td>
<td>Danhydraulics: CEO, QS*, R&amp;D, Supply Chain, R&amp;D Manager, Supply Chain Manager, Sales Representative</td>
<td>December, 2015-April, 2016</td>
<td>Observe preparation for supplier and customer meetings</td>
</tr>
<tr>
<td>Site visit at Mid-German Motors with Alpha and Spanish Solutions</td>
<td>Danhydraulics: QS, R&amp;D, Supply Chain Mid-German Motors: Sales Representatives Alpha: Strategic purchaser, R&amp;D Spanish Hydraulic Solutions: QS, Supply Chain</td>
<td>December, 2015</td>
<td>Observe interaction with suppliers and customer</td>
</tr>
<tr>
<td>Visit from Mid-German Motors</td>
<td>Danhydraulics: QS, R&amp;D, Supply Chain Mid-German Motors: Sales Representatives</td>
<td>February, 2016</td>
<td>Observe interaction with supplier</td>
</tr>
<tr>
<td>One internal visit from Swedish Motors</td>
<td>Danhydraulics: QS, R&amp;D, Supply Chain Swedish Motors:</td>
<td>December, 2015</td>
<td>Observe interaction with supplier</td>
</tr>
<tr>
<td>One telephone conference meeting with Alpha</td>
<td>Danhydraulics: CEO, Supply Chain, R&amp;D, QS, Sales Representative Alpha: Strategic</td>
<td>March, 2016</td>
<td>Observe interaction with customer</td>
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<td>Phase 2: After change</td>
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<tr>
<td><strong>Internal in-depth interviews</strong></td>
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<tr>
<td><strong>Description</strong></td>
<td><strong>Participants/ interviewees</strong></td>
<td><strong>Time period</strong></td>
<td><strong>Purpose</strong></td>
</tr>
<tr>
<td>Semi-structured interviews with key internal informants from Danhydraulics</td>
<td>Danhydraulics: CEO, Supply Chain Manager</td>
<td>August, 2016</td>
<td>Development and specific events changing the industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Influences on internal organizing</td>
</tr>
<tr>
<td><strong>Supplier interview</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td><strong>Participants/ interviewees</strong></td>
<td><strong>Time period</strong></td>
<td><strong>Purpose</strong></td>
</tr>
<tr>
<td>Semi-structured interview with key informant from Swedish Motors</td>
<td>Swedish Motors: Sales Engineer</td>
<td>February, 2018</td>
<td>Relationship with Danhydraulics and Alpha</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Development and specific events changing the industry</td>
</tr>
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</table>

*) QS is the Quality and Safety department

### 3.2 The research process

The study applies an abductive approach, which Dubois and Gadde (2002; 2014) call systematic combining and which implies a continuous movement between an empirical world and a model world. The approach is applied with the purpose of illuminating new ways of thinking about the research problem in a specified context within a specific period of time. Figure 2, inspired by Kovács and Spens (2005) as well as Gadde and Andersen (2018), illustrates the process, which is described in more detail below. Since the research activities are intertwined in a non-linear and path-dependent process, the illustration is a simplistic way of depicting some degree of linearity. During this process the case description materialized – explained by some as a process of ‘casing’ (e.g. Dubois & Gadde 2014).
The starting point of the research process (a) was an ongoing and larger research project concerning challenges for developing the capabilities of the purchasing function. Initial investigations and narratives from the ongoing study created initial understandings of the empirical challenges experienced at the case firm. This led to first theoretical framing (b) through a process of re-reading and searching for theoretical perspectives for investigating further the identified challenges related to managing interfaces with suppliers as the change materialized from specified to interactive. Interviews and observations in the case firm after the change (c) informed further matching in the theoretical world, identifying interesting new angles to the problem (La Rocca 2013; Berg 2009). Applying the first framework to the existing dataset also provided new insights and revealed possible new theoretical re-directions to explain the more specific empirical challenges experienced. At the final stage (d), where no substantial novelty was gained, and some degree of saturation was reached, the researchers engaged in the final matching and writing of the case.

3.3 Data coding and analysis
Due to the abductive nature of the research, coding and analysis of the data have been ongoing and were developed systematically throughout the process. In general, the ongoing analysis of collected data followed Miles and Huberman’s (1994) framework to secure transparency, following a systematic approach based on three phases; 1) data reduction, 2) data display and 3) conclusion drawing and verification. However, the process was repeated
several times, leading to more nuanced and fine-grained coding. The purpose of the data reduction phase was to select, focus, simplify, abstract and transform the data (Miles & Huberman 1994). Firstly, data was selected based upon its potential relevance for representing the case from multiple sources. A thorough description of the case is often necessary to reveal the complexities involved, requiring access to in-depth and broad empirical data (Halinen & Törnroos 2005). The multiple sources of data enable the cross-checking of information through triangulation, which Lincoln & Guba (1985) recommend for ensuring credibility in qualitative studies. The multiple sources of information also contributed to revealing new dimensions of the research problem (Gadde et al. 2012) and thereby redirecting the study.

The data display phase provided an organized, compressed assembly of information (Miles & Huberman, 1994) as all the data files were coded in NVivo based on the first theoretical framing. The display phase was repeated as additional data was collected and new theoretical perspectives provided new insights. During the coding process, the coding categories were revised when new categories emerged or the initial codes did not work (Seuring & Gold 2012; Saldaña 2016) through cycles of category refinement. The initial first cycle of category building took as its staring point Araujo et al’s (1999) typology of customer-supplier interface coding for ‘characteristics of interfaces’, ‘instructions set by users’ and ‘tasks’ associated with these instructions. During the category refinement cycle the data codes in NVivo were then extracted in order to refine the categories manually by discussing the interfaces and tasks with peers. Having reached a satisfactory saturation with respect to the nature of the case level, the final matching of the theoretical framing and case description was performed, leading to the theoretical framing presented in Figure 1. The following section presents the case study based upon this theoretical framing.

4. Case study presentation

The following section presents a change that occurred in the interfaces of customer-supplier relationships involving the purchasing function at Danhydraulics. In recent years, Danhydraulics has been a preferred supplier of different hydraulic solutions to its biggest and most important customer (user), the European wind turbine producer Alpha. This study focuses on Danhydraulics as the buying firm and the tasks of the purchasing function.

4.1 Before the change: purchasing tasks at Danhydraulics

The basic task of the purchasing function at Danhydraulics is to secure the cost-effective availability of goods for the serial assembly of hydraulic solutions as motors and steel tanks for users in the wind turbine industry. Solutions are developed in collaboration with users such as Alpha. Alpha has strong influence and power in the relationship as an important user of Danhydraulics’ solutions. The technical specifications for solutions are defined in a Technical Purchasing Specification (TPS) which outlines the features of the resources required. Outlining the TPS usually involves Danhydraulics’ R&D department and Alpha’s R&D department. For the purchasing function at Danhydraulics the features of the TPS define the precise characteristics of the products and therefore the interface towards the suppliers is specified.
Danhydraulics has experienced exponential growth as a supplier to Alpha. Danhydraulics’ CEO explains: "When we started having a close dialogue with the customer it was their R&D function which had the power. It was technical solutions that the wind turbines were based on." But the user context is changing as the global wind turbine industry is maturing (Lorentzen et al. 2015), and this also has an influence on the competition. The CEO claims: "Three to five years ago our competitors were primarily Danish. But today our biggest competitors are Spanish. So we can improve, but we cannot do exactly the same, we actually have to do some significantly different things."

As the industry and user setting starts changing, Alpha expects Danhydraulics to proactively contribute with thorough and detailed suggestions for innovative value adding and to continuously present cost-competitive ideas. This entails taking ownership of and running new technological advancements as well as making general supply chain efficiency improvements. Since productivity and innovativeness are being requested, these directions highlight the increasingly important role of the purchasing function with regard to performing these tasks. The CEO at Danhydraulics states: “We have been forced to have a more strategic approach to purchasing than we had before.” The Supply Chain Manager at Danhydraulics confirms: “Earlier on there was a focus on sales while purchasing was a service function. And now we experience that purchasing is actually essential in order to create value.” However, the features of the user context challenge the possibility of the purchasing function to source the goods for assembly in a cost-effective way since the number of units is small: Interfaces towards the suppliers are still specified. Internally, the content of such an interface requires the purchasing function to actively engage with sales, the management team and the R&D function, with regard to how to achieve the productivity and innovativeness benefits requested by the user.

4.2 In search of a new solution: the hydraulic tank
Among the solutions which Danhydraulics delivers to Alpha is a hydraulic tank. Alpha developed the tank some years ago and as the tank needed back-up motor power Alpha contacted Swedish Motors, a motor supplier, requesting a motor that meets specific demands in terms of design and technical capability. However, Swedish Motors had to develop a special motor: "We were part of designing the motor. They approached us, because we were already quite a big supplier to the wind turbine industry. But Alpha came up with some requirements which we thought were unfair. So we had to design a special motor for the tank," explains the sales engineer from Swedish Motors. The specifications for the specially designed motor were then added to the TPS for the tank. For Swedish Motors this meant that they now had a competitive advantage.

Since Alpha has a dual sourcing strategy regarding the tank, Alpha recommended that their suppliers buy the motor for the tank from Swedish Motors. In mid-2013, Danhydraulics became the secondary supplier of the tank to Alpha, while a Spanish competitor, Spanish Hydraulic Solutions, was selected as the primary supplier. Consequently, Danhydraulics became a customer at Swedish Motors through a specified interface.
4.3 The change: new user interfaces
In 2014, Swedish Motors moved its production from Sweden to Eastern Europe to save costs. Yet the shift in production site had some consequences in the user context as Alpha experienced recurring problems with abnormal noises from the motor. Alpha became worried about the performance of the motor and therefore Alpha approached the management team of Danhydraulics as well as the main competitor Spanish Hydraulic Solutions and demanded an immediate solution. Alpha urged Danhydraulics and Spanish Hydraulic Solutions to approve a second alternative supplier in order to accommodate any potential future risks. Alpha appointed three potential alternative motor suppliers which they then encouraged Danhydraulics and Spanish Hydraulic Solutions to assess. The first of them was Munich Motors from Germany, the second was Brazil Motors from Brazil and the third potential supplier was also German, Mid-German Motors. Furthermore, Danhydraulics and Spanish Hydraulic Solutions were encouraged to search for and assess a fourth potential alternative; including the European supplier No Name in the process.

The dialog with Alpha on directions for supplier approval occurred via the management team at Danhydraulics, thus changing the user interface. The management team defined and divided the tasks internally, based on the information received from Alpha. For the purchasing function, the capabilities to assess the suppliers mainly relate to the commercial issues. Yet technical- and process-oriented capabilities are also needed, so Danhydraulics’ purchasing function, R&D and QS departments worked together in a cross-functional assessment team, with management and the sales department as support. At an internal meeting, tasks were defined and divided between the functions. At this meeting the team also proposed a three-stage process (pre-qualification, qualification and approval) for the assessment of the suppliers. Each stage required the purchasing function to coordinate with QS and R&D regarding criteria for pre-qualification, qualification and approval of the suppliers.

4.4 Balancing interface changes
The pre-qualification process was conducted by Danhydraulics’ CEO, based on meetings and site-visits at suppliers. Based on the CEO’s reporting, the task of the purchasing function was to assess whether the five suppliers were capable of supplying the resource requested. Based on the commercial, technical and process criteria set out in the cross-functional assessment team, two suppliers – Brazil Motors and No Name - were de-selected at this stage.

When entering the stage of qualifying suppliers, the purchasing function’s task was to thoroughly assess what the three remaining suppliers were able to offer from a commercial perspective, and align this assessment with the technical and process-oriented perspective from the other team members. To Swedish Motors, Alpha was an important indirect reference, since 70-80 % of all motors sold to Danhydraulics were for production to Alpha. So Swedish Motors was highly dependent on the cooperation between Danhydraulics and Alpha and pulled its technical capabilities to resolve the issue. Based on this effort Swedish Motors remained qualified as supplier.
However, Alpha considered Munich Motors to be the better option. Munich Motors had been working directly with Alpha on the development of a new motor prototype. When initiating the assessment of this supplier, Danhydraulics’ CEO once more engaged in the process, taking over negotiations with Munich Motors. The CEO reported to the assessment team that there were some concerns regarding Munich Motors’ agility and attitude. In its approach to Danhydraulics, Munich Motors’ sales department acted in what the CEO called “…an arrogant way” and seemed difficult to manage. Based on the CEOs recommendations, Munich Motors was therefore not qualified for approval.

Regarding Mid-German Motors, the assessment from the Central Purchasing Department at Worldhydraulics showed that the motor quality was good, but its pricing was not. Based on the input from Alpha and Worldhydraulics’ Central Purchasing Department, Danhydraulics decided to make its own assessments of Mid-German Motors. It was Alpha who arranged a meeting at Mid-German Motors. In order to be able to assess Mid-German Motors both commercially, technically and in terms of quality, Danhydraulics was represented by the assessment team. The meeting resulted in Mid-German Motors being qualified for approval.

Entering the final phase to assess whether the two remaining suppliers – Mid-German Motors and Swedish Motors – could be approved, the purchasing function engaged in supplier visits along with other assessment team members. A final evaluation report was presented to the management and sales department. The report presented commercial arguments concluding that Swedish Motors should continue as preferred supplier. This conclusion was supported by the R&D and QS departments. Mid-German Motors was recommended as a possible second supplier. Danhydraulics’ management then informed Alpha about the decision to continue with Swedish Motors as primary motor supplier while qualifying Mid-German Motors as a second supplier.

Throughout the assessment process, the purchasing function needed to coordinate the effort internally with other functions being part of the assessment team. Moreover, management decisions often became the main factor defining the tasks of the purchasing function. Particularly when experiencing pressure in the interface with Alpha, the CEO at Danhydraulics essentially takes over and performs purchasing tasks. The purchasing function also experienced changes in interfaces. In particular the relationship to Alpha influences the interfaces of supplier relationships – for example, when Swedish Motors uses its dual interface with Alpha and Danhydraulics to secure its preferred supplier status. As such, the purchasing function must constantly balance the developments of different interfaces – externally as well as internally.

5. Case analysis and discussion
The interface between Danhydraulics and Swedish Motors changes from specified to interactive as changes in the user context have shifted the focus from a specified product to an interactive search for solutions. Danhydraulics’ CEO reflects upon the process: “We did it to please the customer and because of that, once we have a second source, we are able to
negotiate the price. Furthermore, they got better control over their quality, so we actually won in both instances.”

The joint solution also balances the interdependences between the firms. Before the motor problems, Danhydraulics was highly dependent on Swedish Motors as the motor could only be purchased from them. By appointing Mid-German Motors as a qualified supplier, Danhydraulics now has an alternative to Swedish Motors. Therefore, Swedish Motors depends on whom the purchasing function at Danhydraulics chooses as the preferred supplier. The sales engineer from Swedish Motors reflects on the consequences: “We did everything we could to solve this problem. But it also meant that we went from having monopoly to competition. And though it is a pity for us it is actually also healthy.” Furthermore, he states that Danhydraulics and Swedish Motors have become closer collaborators in the wake of the motor issues: “Because before we just supplied these motors at a certain price whereas in this case we had to join forces in order to find the best solution for both parties.” The resource combinations that characterize the relationship are now more innovative, focused on finding joint solutions.

Internally, at Danhydraulics the tasks of the purchasing function also shift from being clearly defined to become emergently defined, divided and performed in close coordination with other functions. This also influences the purchasing task of accessing supplier resources. At Danhydraulics, the purchasing function has thereby acquired a new internal role. However, Danhydraulics’ Supply Chain Manager claims that it will be a challenge to change the internal perception of the purchasing function: "Still, a lot of other functions in our firm view purchasing as dispatchers. When people say ‘purchasing’ they think of disposition. Whereas I see the negotiations and the agreements as the most important tasks.” So it can be challenging to implement a more interactive approach to the tasks of the purchasing function, as the Supply Chain Manager explains: ”...the purchasers themselves play an important role in releasing themselves from the operational tasks and roles.” An example of this can be seen when the CEO takes over some of the tasks of the purchasing function by conducting negotiations with potential suppliers.

Moving towards an interactive interface implies a process characterized by the constant alignment of how tasks are defined, divided and performed – with regard to internal as well as external parties. The relationship towards the user has become more important for the purchasing function because the collaboration with the user during the process had some positive learning effects for Danhydraulics. The Supply Chain Manager explains: “Actually it was quite beneficial. I am confident that we could perform a similar project in a better way based on what we learned from this process. We will appear more professional towards the customer.” These are new features for the purchasing function at Danhydraulics, as the interface towards the supplier only was related to their sales department, whereas now several departments from both Danhydraulics and the two qualified suppliers are involved.
The change of interface content imposes a different vision of the future. Before, the relationship with Swedish Motors was mainly related to securing the availability of the motor. For the purchasing function at Danhydraulics, the appointment of an alternative supplier means that they are now in a better position to negotiate deals for future business with Swedish Motors. Furthermore, because the scope and scales of doing business have increased, Danhydraulics appears a more attractive customer. For Swedish Motors, the investment in solving the motor issues and strengthening the relationship with Danhydraulics means that it has kept its business and now it also supplies other motors for Danhydraulics to other users and projects. For Swedish Motors the relationship with Danhydraulics is now more long-term future-oriented: “The future perspective primarily depends on the production split which Danhydraulics can get from Alpha. But Danhydraulics is also approaching other markets so it looks promising. There are some good opportunities, for example a global contract with all Worldhydraulics firms.” The situation is similar in the relationship with Mid-German Motors which now also sells motors to projects for Danhydraulics.

In short, the changes initiated by the user had a strong influence on the interfaces towards suppliers. What started as a specified interface between the buying firm Danhydraulics and the supplier Swedish Motors evolved to involve other actors such as the user and other suppliers. Interfaces needed to be interactive. The demands set by the user Alpha clearly challenged the cooperation between Danhydraulics and the suppliers. Since the appointment and approval of suppliers were initiated by the user, it was only later in the process that the purchasing function at Danhydraulics became involved. This limits the possibilities to interact with and influence the supplier due to the specifications already set by the user. The task of the purchasing function is defined, both in relation to gathering and acting upon internal and external information about the different contexts and to using and dispersing this knowledge towards the supplier base.

5.1 Findings: three purchasing task challenges

One main challenge identified in this study is related to developing and coordinating internal resources and activities to support different interfaces. For example, the assessment of suppliers had to be coordinated with other functions at Danhydraulics, leading to new divisions of tasks for aligning commercial, technical and processual aspects of supplier assessment. Another example is when Danhydraulics’ CEO took over some of the purchasing tasks in the assessment process. Initially, the internal division of tasks leaves the purchasing function with a mainly operational and reactive role. So, despite the internal recognition of the purchasing function’s increasingly strategic role, we can speculate on the internal barriers that must be surmounted. Similar to Gadde & Wynstra (2017), the maturity and/or recognition of the purchasing function also matters with regards to its resources to effectively manage the roles and interfaces. In the case, the change in interface demands a new role internally in the firm and the perception of the purchasing function must also change in order to be able to perform these more strategic and collaborative tasks.

Another main challenge is the role played by the timing of change for the tasks of the purchasing function. Before the change, the purchasing function could mainly focus on the
interface with suppliers at present, whereas subsequently the scope of understanding and managing future potentials has become much more important. For purchasing this requires building an understanding of the characteristics of the existing resource base and the potential content of future interfaces (Baraldi et al. 2012). For example, in the short term there were no commercial incentives based on the supplier assessment to appoint a second alternative supplier. Yet in order to secure future business with Alpha and due to the instructions received, Danhydraulics decided to do so anyway.

A third challenge relates to the different modifications in the commitment of the actors which Andersen & Medlin (2016) term transient commitments. Alpha is committed, as its line of production depends on this specific motor. Furthermore, by proposing additional suppliers and demanding transparency in the supplier approval process it is able to use this knowledge to remain in indirect control. Danhydraulics is committed to finding a solution to keep production running, to accommodate future risks, and to appear professional towards the user. Swedish Motors is committed as it risks its relationship with Danhydraulics and indirectly with Alpha if it does not commit itself to solving the issue and proposing a solution. Mid-German Motors is committed as it sees this as an opportunity to enter into collaboration with Danhydraulics. The commitments are closely related to the interdependencies between the actors, similar to Andersen & Medlin’s (2016) findings. Before, Danhydraulics was highly dependent on Swedish Motors as the motor could only be purchased from them at a specified interface. By appointing Mid-German Motors, Danhydraulics now has an alternative to Swedish Motors. However, this has led to intensified resource combinations at the Danhydraulics-Swedish Motors interface as the focus is on finding joint solutions (Macdonald et al. 2016). For the purchasing function, the same supplier must now be managed in new ways and understanding the dynamics of these transient commitments is therefore an important task.

5.2 Redefining the definition, division and performance of purchasing tasks

This study shows how changing resource interfaces has implications for how purchasing tasks are defined, divided and performed. Based on the case presentation and discussion, three important factors can be identified for redefining the tasks of the purchasing function.

The first factor relates to how purchasing tasks are interactively defined. As the findings show, purchasing tasks are to be defined in a dynamic interplay between intra- and inter-organizational networks. Defining and managing purchasing tasks therefore becomes a multidimensional matter of identifying and qualifying the features of the tasks, as also argued by Lutz & Ellegaard (2015) The main issue here is to balance these features with the simultaneous changes that influence other interfaces and relationships. In the specific case, it is not only a matter of aligning the tasks internally at Danhydraulics and with the immediate supplier and user. Rather, it is a matter of aligning the task division in accordance with changes taking place outside the initial triad. Competitors and other suppliers are meanwhile negotiating with each other and with Alpha and imposing additional dimensions to the initial task of solving the supplier issue.
The second factor concerns the *division and alignment* of tasks in intra- and inter-organizational networks. A key feature is the intra-organizational alignment of tasks regarding who decides and coordinates what. As observed, the purchasing function needs to simultaneously manage direct and indirect inter-organizational contexts of suppliers and the user as well as the intra-organizational network of other functions. Similar to the findings from Andersen & Gadde (2018) the purchasing function must do this directly, because purchasing becomes involved in finding solutions and solving problems with other internal and external functions, and indirectly, because there is a simultaneous interaction between other functions (not necessarily including purchasing). It is important to manage the indirect relationships in order to gather knowledge (Roseira et al. 2013). For example, it is sales that manages the interface with the user’s purchasing function whereas technical issues are cleared between R&D functions.

Thirdly and finally, once the tasks have been defined and divided, the *inter-connected performance* relates to how other actors perform their tasks (Roseira et al. 2013). For the purchasing function, managing supplier interfaces affects and is affected by how the firm manages its user interface. The interface features of a relationship strongly affect what the individual firm is able to achieve internally and in other relationships. Not only are the interfaces interdependent towards the suppliers but the interfaces are also interdependent between supplier(s) and user(s) in a wider network setting. As the interfaces changes, the actors are constantly faced with trade-offs between short-term and long-term costs and benefits as well as balancing their own costs and benefits with those of their counterparts (Håkansson & Ford, 2016). This means that the way of managing the supplier interface requires a change in outlook from an internal focus on costs and benefits to an interactive focus. It is not enough to know about the user context; the user also plays an interactive role with regard to specifying directions and tasks and the user interface must therefore be managed simultaneously.

Managing interactive interfaces (Forkmann et al. 2016) requires relational capabilities, not only in relation to external partners, but also internally - ranging from simple market transactions to intense strategic partnerships (Roseira et al. 2013). This diversity requires the purchasing function to develop capabilities for managing these different types of interfaces – as well as the interplay between interfaces. The networking capability of the purchasing function is at stake (Ritter & Gemünden 2003; Ritter et al. 2002) as an integrated effort of the entire firm. Thus, the purchasing function must be capable of and have the capacity to coordinate and manage these interfaces. Capabilities relate to the know-how of the purchasing function, whereas the capacity can be understood as the limitations of the purchasing function’s potential to interact, such as prioritizing efforts to develop differentiated relationships (Araujo et al. 2016).

6. Conclusions
This study provides in-depth insights into how the purchasing function tasks are defined, divided and performed. Through an in-depth case study of a key event affecting the purchasing function at Danhydraulics, a Danish hydraulic solution firm, the study sheds new
light on the task of managing changing customer-supplier interfaces and more importantly the interplay between these interfaces. The purchasing function must gain, maintain and develop access to supplier resources through the design and management of inter- and intra-organizational relationships. The case study revealed that the features of the task, the involvement of other actors and the time horizon all influence how the tasks of the purchasing function are defined, divided and performed. Regarding the features of the tasks, the management interfaces demand a new role internally in the firm as the tasks become more strategic and collaborative. The main challenge for the purchasing function is to develop and coordinate the resources and activities of internal functions to support changing interfaces, not only in the relationships to the suppliers but also taking into consideration the user context. When the purchasing tasks are redefined, unlearning of existing processes and routines and the formation of new collaborations are required. Finally, in relation to the time horizon, the findings highlight the importance for the purchasing function of understanding the ongoing dynamic changes to develop and adjust related capabilities required to perform these tasks.

The findings from the study allow for analytical generalization by expanding the current theory (Dubois & Gadde 2002; Easton 2010) of managing customer-supplier interfaces and provide a trifold theoretical contribution. Firstly, the study highlights new ways of redefining the purchasing tasks through interaction. In some instances the user gives clear instructions and clear definitions regarding what is required and in other instances the tasks have to be aligned in internal networks with other departments. Secondly, the study identifies division and alignment of tasks in intra- and inter-organizational networks as the purchasing function needs to simultaneously manage both direct and indirect inter-organizational contexts. A key feature here is the intra-organizational alignment of tasks about who decides and coordinates what. Finally, the study highlights the capabilities and capacity of the purchasing function to perform the more strategic and collaborative tasks. The capabilities include understanding and managing the time horizon as the strategic tasks relates to having a long-term future outlook.

6.1 Limitations & future research
The research design as a single case study also gives rise to some issues. One issue is that the outside-in data was collected at meetings and through written communication. Although it provides the opportunity to observe the actors in action, additional reflections from outside actors might provide nuances and new angles to the current case. The study will be seen as an attempt to understand the dynamic interplay between interfaces and the tasks of the purchasing function. Applying and testing the framing in other contexts could be an avenue for future research to provide further insights into the phenomenon of the development of the purchasing function’s tasks. Future research could also focus on the roles of the purchasing function in relation to the involvement of intra/inter-organizational actors since the change of roles requires the unlearning of existing processes and routines, especially since the tasks are constantly in flux, which affects role perceptions.

6.2 Managerial implications
For firms the study highlights the factors and features of how to manage customer-supplier interfaces. A new outlook on the purchasing function is therefore required to accommodate the change in its tasks. The tasks for the purchasing function are not only about managing the supplier interfaces. They are also about managing the internal network of other functions, adding to the basic task of securing availability in a cost-effective way. A new understanding of the internal and external networks is required, especially in relation to the way the tasks are defined, divided and performed and considering the on-going alignment of internal roles and division of tasks. Developing from primarily reactive and specific purchasing tasks to interactively developed and emergent tasks involves a new way of evaluating the performance of the purchasing function. For management, it is therefore necessary to expand the scope from focusing only on purchasing as pure commercial sourcing to including aspects of relationship management and interactive capabilities. This can be challenging if the purchasing function is to maintain a reactive, administrative role. Finally, understanding and taking into consideration the aspect of time is also an important purchasing task.
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