

Understanding Procurement Processes for Digitally Enabled Advanced Services

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Abstract

Digitalization or industry 4.0 holds the potential of providing many benefits to industrial companies. Industrial customers are increasingly focusing on buying digitally enabled advanced services, i.e. integrated solutions that combine products and service functions with digital capabilities. However, traditional procurement processes are not well designed for evaluating and buying digitally enabled advanced services, which inhibits value co-creation between the supplier and customer. Therefore, industrial customers need to transform their procurement processes in order to improve the potential of profiting from digitalization. We use data gathered from multiple case study of 8 large companies in Sweden to develop a procurement process for digitally enabled advanced services. The proposed process consists of 4 phases with key activities at each phase. These are based on a close interaction between the internal actors of customer organization, as well as co-creation logic

between customer and supplier, leading to a win-win relationship and continuous innovation.

Keywords: Procurement, Digitalization, Industry 4.0, Servitization

Introduction

The industrial world is changing at a fast speed due to digitalization or ‘industry 4.0’ initiatives. Manufacturing has become ‘smart’ with the use of information technology, intensive data exchange, Internet of Things (IoT), and artificial intelligence. This holds a promise to provide many benefits to industrial companies, which includes improving productivity and uptime, and saving costs, thus increasing profitability. For example, smart connected equipment can provide a signal when they need maintenance before they break, which allows avoiding disruption in production. In order to realize these benefits, industrial customers need to buy innovative digitally enabled products and services. Nevertheless, industrial companies do not necessarily purchase stand-alone products or services. They are increasingly buying integrated solutions that combine products with service functions to deliver certain higher value. This represents servitization of industrial companies and transformation towards ‘advanced services’, which are “*a complex bundling of products and services, whereby manufacturers offer capabilities and outcomes instead of products alone*” (Bigdely, Baines, Schroeder, Brown, Musson, Shi et al., 2018). Advanced services are particularly relevant in the case of digitalization, where industrial customers do not only want the industrial assets and service functions, but also the digital functions and capabilities, with a guaranteed performance. We refer to these as ‘digitally enabled advanced services’.

However, traditional procurement processes are not designed for evaluating and buying complex digital solutions. Procurement of

digitally enabled advanced services requires a radical shift in the business logic for customers, as they need to better understand how to design, customize, evaluate and purchase intangible offerings. It has been emphasized that buying these is considerably different from buying simple goods or services, as specifications are based on the required result (Sjödin, Parida & Lindström, 2017). As digital technologies are rapidly changing, there is an acute need for continuous improvement and innovation approach. However, current procurement processes are often based on a transactional logic, which limits the potential for close collaboration and co-development between the customer and provider. In addition, the evaluation criteria for the procurement of products are typically not relevant for digitally enabled advanced services, which underlines a need for novel procurement approaches. Thus, we argue that customer organization need to revise their procurement processes for buying digitally enabled advanced services.

Yet, servitization literature provides limited guidance for the transformation of procurement processes. Most prior research has widely focused on providers' perspective, and current knowledge of how customer organization engage in buying digitally enabled advanced services is limited. To address this gap, this study aims to develop a framework that describes the key phases and activities for procuring digitally enabled advanced services.

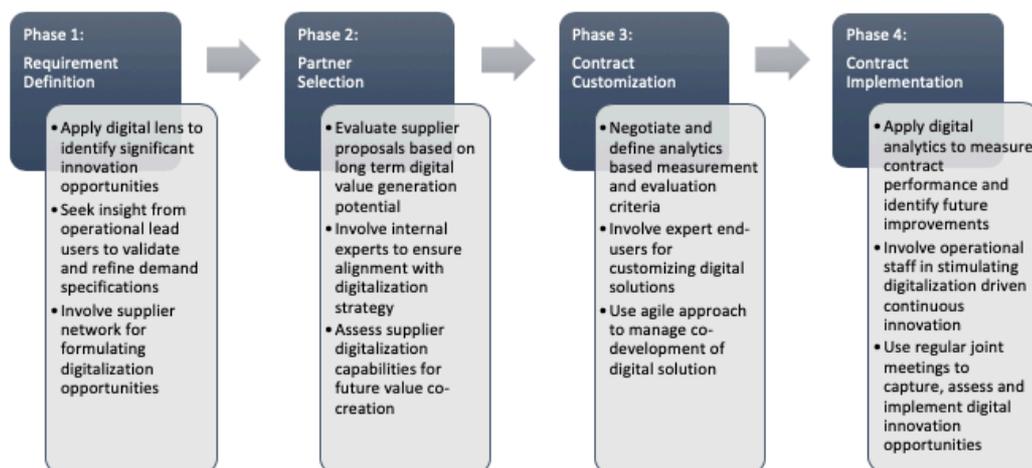
Methods

Explorative multiple case study was used to gain detailed and complementing insights into the internal procurement process of customer companies. The 8 case companies are all large sized (i.e. more than 250 employees) and based in Sweden, representing both customer and provider perspectives. They were chosen because they are leading companies that are actively pursuing procurement of

digitally enabled advanced services, thus can provide novel insights. Furthermore, we had unique access to data and established contacts in these companies due to ongoing research project which enabled rich data collection. In total, 32 interviews were conducted with 17 respondents from customers and 15 from providers within diverse industries such as mining, forestry, heavy automotive, and factories. Interviews were recorded, transcribed, and coded into categories following a thematic analysis approach to find relevant patterns and themes (Braun & Clarke, 2013).

Results

The study found that industrial companies have adapted their procurement processes when buying digitally enabled advanced services. We categorized these processes to go through four phases, and identified key activities that are done at each phase in order to improve the potential of profiting from digital solutions. These are presented in the below figure and next paragraphs.



Phase 1 – Requirement Definition: Procurement process starts with recognizing a need or a problem. Whilst demand specification

should be clear enough, they should not be too specific in a way that hinders innovation. Activities of this phase are:

- Apply digital lens to identify significant innovation opportunities
- Seek insight from operational lead users to validate and refine demand specifications
- Involve supplier network for formulating digitalization opportunities

Phase 2 – Partner Selection: The supplier selected should be able to meet the requirements, but at the same time has the capabilities to continuously improve, and the willingness to commit to a long-term relationship. Activities of this phase are:

- Evaluate supplier proposals based on long term digital value generation potential
- Involve internal experts to ensure alignment with digitalization strategy
- Assess supplier digitalization capabilities for future value co-creation

Phase 3 – Contract Customization: The aim is to reach an agreement of a feasible digital solution, definition of how success is measured, besides rights and obligations. Still, the contract should be flexible to incorporate future opportunities. Activities of this phase are:

- Negotiate and define analytics based measurement and evaluation criteria
- Involve expert end-users for customizing digital solutions
- Use agile approach to manage co-development of digital solution

Phase 4 – Contract Implementation: It should be a learning experience for both parties to continue to evaluate and improve, and the decision-making framework for new ideas should be pragmatic. Activities of this phase are:

- Apply digital analytics to measure contract performance and identify future improvements
- Involve operational staff in stimulating digitalization driven continuous innovation
- Use regular joint meetings to capture, assess and implement digital innovation opportunities

Conclusion

The study acknowledges the need for industrial customers to transform their procurement process when buying digitally enabled advanced services. Exploiting new and often uncertain opportunities from digitalization requires a co-creation logic between supplier and customer, as well as close interaction between internal actors of customer's organization, procurement and operations functions. To enable profitable relationship, goals and expectations should be aligned between parties to ensure a win-win relationship. This requires constant communication at all levels, managerial and operational, to ensure discussing new opportunities for improvement and innovation. While flexibility is needed, it is still good to have a guiding process that facilitates the phases of procurement and clarifies the roles and activities.

References

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