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Procurement Goes Digital: The Supplier Relationship Management Case

Prof. Dr Lisa Fröhlich¹, Prof. Dr Kristina Steinbiß²

A shift in attitudes to purchasing departments can be perceived. No longer is the chief goal solely to reduce costs; the procurement function is assuming strategic relevance in the business model, leveraging the supplier as a foundation for innovation. The knowledge accumulated by suppliers is accessed over the journey of long-term partnerships to streamline business practice. Businesses are finding themselves in increasingly competitive environments, and thus need to address inefficiencies in supplier management. "Procurement 4.0" is a concept used in discussing digitalisation in business processes, referring to the process of supplier relationship management and optimisation. This model and its application to supplier relationship management will be the focus of this article. Realising the efficiencies to be obtained in buyer-supplier relationships through "Procurement 4.0" will be explored, primarily through an emphasis on digitalisation of the relationship between the procurement department and supplier.

Keywords: Supplier relationship Management, Procurement 4.0, Digitalization, Strategic procurement, Maturity models in procurement

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1. INTRODUCTION

Increasingly, businesses face challenges posed by the current sales market situation and a trend toward customised solutions. To keep up with such enhanced requirements, companies are forced to reduce the development period for new products. Since this leads to increased volatility of the markets, businesses are pushed to reduce costs and become increasingly innovative. In particular, purchasing departments are required to act more efficiently. A lean procurement approach can be a significant asset, ensuring that an enterprise maintains a competitive advantage (Fröhlich and Karlshaus, 2017). Rather than reducing costs the single highest priority, procurement will primarily need to employ actions that will enable strategic competitive differentiation (Nowosel et al., 2015). The main challenge this poses to companies will be to find ways for purchasing to address those new demands. Further, it will be necessary to identify, establish and assess actions that can promote the company's objectives.

2. PREREQUISITES FOR DIGITAL PROCUREMENT

A requirement for the implementation of a digitalisation strategy in procurement is to identify the level of maturity of the firm's purchasing department (Fröhlich et al., 2018).

- In the ad hoc stage (first level of maturity), purchasing solely reacts and mainly performs standard operations rather than proactively pursuing a strategy. On this level, procurement is merely a supporting function with unstructured processes rather than a vital part of the company's strategy. The selection of vendors mainly relies on criteria like cost and availability.
- In the independent stage (second level of maturity), purchasing plays a more active role and implements present trends and methods. Its main objective is to efficiently deal with expenditures. Sourcing can act as a distinct business unit which is linked to research and development departments. The board regards the procurement function as a contributor to the business's economic success. Processes along the supply chain are detailed and recorded.
- At the supporting stage (third level of maturity), purchasing becomes a part of the overall competitive strategy of the business and is an integral part of the distribution chain. Vendors are increasingly seen as a significant component with the potential to add value. Relationship management both inside the company and outside is implemented and examined on a regular basis.
- If the procurement function is regarded as an essential component of the company's strategy and shapes long-term objectives and plans, the company is in the integrative stage (fourth level of maturity). Interdepartmental communication structures are in place and are constantly improved and extended. Its share in the business's success determines how well the purchasing department has achieved its goals.
- Once purchasing fully adopts the idea of digitalisation, the company has reached the extended or digital level (fifth level of maturity).

The competitive potential is generated by the purchasing department through the digitalisation of the relationship to its vendors. To reap its full benefit, this link must be incorporated into the business's overarching strategy. Therefore, the foundation for the digitalisation of the supplier-buyer relationship is laid in the fourth level of maturity (Lockamy and McCormack, 2004). It follows then that goals for efficiency in purchasing must be defined within the framework of overarching innovation aims already set out by the business.

3. A CONCEPTUALIZATION OF PROCUREMENT 4.0

The conceptual model of Procurement 4.0 is built on four elements that fuel digitalisation:

- Procurement adds value mostly through collaboration between different parties and the availability of information along the value chain (Schuh et al., 2015). This generates customisation possibilities within the framework of **Industry 4.0** as well as the integration of different stakeholders (**people**) into the processes of a company. According to McKinsey Studies, maintenance cost can be decreased by up to 40% through digitalisation of the purchasing function. Additionally, the drop in time-to-market can be in the order of 50% and forecast reliability improved by 85%, owing to the incorporation of large amounts of data (McKinsey, 2016). This enables businesses to let their customers benefit from this reduction in cost by reducing prices.
- Big Data is another driver for digital transformation. Countless sources provide a nearly endless supply of data that a purchasing team can work with. Appropriate and professional handling of this data requires special solutions for storage, processing and appraisal of this enormous amount of information. The treatment of such data volumes will play a pivotal role in a company's future competitive success (Cavanillas et al., 2016). So far, the flow of data along the product lifecycle has not often been used to its full potential as a foundation for innovation. This would result in firms being able to handle their data professionally and exercising more control over their core processes (Bechtold et al., 2014). Process analysis is driven by data and interdepartmental product development records lead to chances for innovation stemming from purchasing (Manyika et al., 2011). It is necessary to fix data safety issues by establishing Big Data value chains.
- Other key elements in this model that progress digital transformation are **Cyber-Physical Systems (CPS)** and the **Internet of Things (IoT)**. CPS are systems with embedded software, sensors and actuators (Esterle and Grosu, 2016), which have a multitude of capabilities. CPS assess and store data and can interact with each other. They can use globally accessible data and services and can be reached via human-machine ports (Gilchrist, 2016). A significant product of this technology is SMART products (Kang et al., 2016) which are intelligent and interactive, and can respond to external stimuli. They also can learn autonomously and can adjust to special demands (Bechtold et al., 2014). A CPS

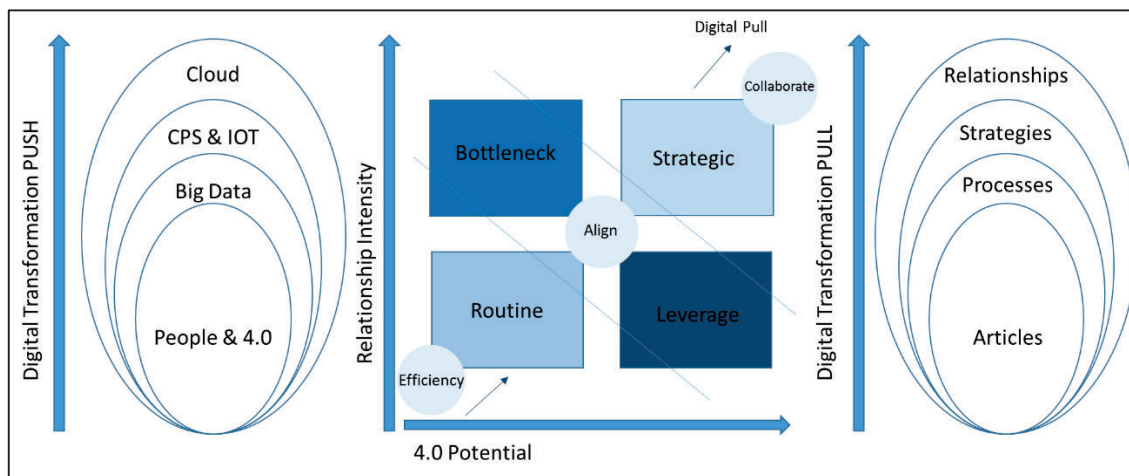
can be used to transmit production data in real time to be utilized in capacity planning, logistics and maintenance.

- In contrast, IoT refers to the autonomous communication of objects with each other via the internet for the purpose of performing particular operations. This communication can range from the provision of routine data updates to alarm and emergency purposes (Manyika et al., 2015). IoT enables interaction between machines but also communication from humans to machines or from humans to their surroundings (Khodadadi et al., 2016). Further, IoT provides a platform for monitoring cooperation along the value chain in addition to managing the lifecycles of products (Russo, 2015).
- **Cloud Computing** is the remaining important push factor for digitalisation. Cloud Computing is the flexible provision of IT resources, independent of location and with various forms of access, via a service-based business model (Internet or Intranet) (Kushida et al., 2011). Benefits for purchasing range from reduced storage cost and improved processing power of hardware too much lower costs for systems and licenses (Narayanan et al., 2017). Thus, the procurement department's access to relevant data can be maintained even when finances are restricted. However, there is a data safety risk associated with storing data outside the business' direct sphere of control.

The underlying theory for the model (see figure 1) presented is Kraljic's (1983) portfolio approach. Two aspects are relevant when deciding on strategically important procurement objects: how they contribute value and the extent to which risk is associated with purchasing them. An approach has required that deals differently with resources from various fields of economic activity, related to their associated prospect of success. As applied to purchase digitalisation, this means that the main drivers for digitalisation are "4.0 potential" as well as "relationship management".

Regarding the first facet (**4.0 potential**), it is important to consider that this is heavily dependent on people. It is the stakeholders that initiate the digital transformation which in turn triggers the production of Big Data, making CPS as well as IoT possible. Due to this, the Cloud can be regarded as the overarching framework encompassing all digitalisation actions. In addition to 4.0 potential, the progression of transformation addresses relationship intensity, in order to rate the digitalisation process. Standard items and transactions are required to be handled efficiently with regards to digitalisation. However, those items are encountered at lesser tiers of relationship intensity and a low cumulative 4.0 potential, owing to digital handling efficiency. A thorough commitment to digitalisation needs to be integrated into the business strategy to enable the company to take full advantage of the potential through this transformation. Within the conceptual model, this would translate to finding the company in the strategic and collaborative area of the diagram.

Figure 1: A Conceptual Model of Procurement 4.0



Source: Fröhlich et al., 2018

Linking this with the fourth level of maturity, it can be determined that digital purchasing solutions need to be applied at the product level so that efficiency of sourcing can be ensured and that digitalisation of purchasing strategies is made possible.

It must be kept in mind that in order to reach the fifth maturity level, the collaboration between the purchasing department and suppliers needs to be addressed if the digital transformation is to be fully exploited.

4. MANAGING DIGITALIZATION OF PROCUREMENT AND SUPPLIER RELATIONS: INITIAL FINDINGS

The conceptual model of Procurement 4.0 has been discussed. Following the finding that digitalisation of the purchasing function starts with e-procurement, which refers to the sourcing of articles and processes (Quesada et al., 2010), the logical next step is the integration into the overall strategy. Eventually, however, the way relationships with the supplier are set up will need to be the predominant focus of digitalisation efforts.

Many factors make supplier relationship management significant within this context. A widely appreciated reason is the cost reduction that know-how provided by the vendor can offer, thus addressing one of the primary and enduring goals of a purchasing department. Another important goal is ensuring that operations do not come to a standstill, which could cause a threat to the company's reputation. Procurement has to ensure that the main company goal - meeting its customers' needs - can be performed to the required standards with the required resources (Glock et al., 2017). Newly realised advantages of supplier relationship management are the main motive for the digital approach to supplier relations. Today, advanced capabilities of vendors are a crucial source for innovations (Glock et al., 2017). Reaping the benefits of previously discussed technologies is only possible if procurement also adjusts the method with which it establishes relationships with its suppliers.

The example below stems from a Cologne Business School study based on a firm in the energy sector. The authors acknowledge that results from such a case design (Yin, 2018) are only able to give an insight into existing challenges regarding the establishment of a supplier relationship management system. Nevertheless, the following insights resulted from this case study:

- Businesses **lack a structured approach to supplier segmentation**. Without supplier segmentation, it is difficult to identify vendors prepared for a more digitalised relationship.
- In general, purchasing staff **lack knowledge of management's regulations on supplier relationships** and how to optimise gain from those relationships. It is necessary for Procurement 4.0 to ensure that employees gain a better understanding of the toolkit at their disposal to improve procurement performance.
- It is crucial to **invite the vendors onto the team** as early as possible (Fröhlich, 2015), in particular when it comes to establishing new processes that will impact the supplier touchpoints throughout the digital supplier journey (see figure 3).
- While businesses know that **long-term relationships** (Krause et al., 1998) with suppliers can be a key asset for improved results in the future, their significance is not self-evident. It is costly to establish them, which makes it a contrasting priority to the important target of cost reduction through the procurement function.
- Lastly, the lack of **supplier satisfaction** rating tools is a lost opportunity for feedback from the vendor's side. The data not currently collected could be used to further the strategic goals for all organisations involved.

The study's findings permit proposals to be made regarding a recalibration of supplier relations in the light of Procurement 4.0. As outlined in the conceptual model for Procurement 4.0, automation allows purchasing to focus on actions that add value since the segmentation and appraisal of supplier can take place automatically. Information gathered can be communicated to all stakeholders involved and serve as a foundation for decisions on the next steps to be taken. Purchasing systems that can be used intuitively will enable customisation by individuals during procurement. Important relationships to suppliers are handled by key account supplier managers with detailed knowledge of the supplier data they receive. Centring the approach around the supplier and establishing online platforms to exchange knowledge and communicate well furthers innovation and supports collaboration.

In summary, to realise digital transformation in purchasing, the right strategy and leadership approach, as well as support from top management, is crucial.

Whether or not a company understands its suppliers in a digital environment is the most relevant question to be posted when focusing on the relationship aspect within the framework of Procurement 4.0. Attracting and retaining digital talents who can manage digital supplier relations will require investment and organisational support.

Suitable digital processes, as well as the right toolkit and control instruments, are crucial for purchasing departments to meet the company's requirements (Deloitte, 2018).

5. CONCLUSION

An emerging 'digital reality' in purchasing can be discerned in Germany. Procurement is seen as an essential part of the strategy to drive future innovation, primarily harnessing digitalisation of buyer-supplier relationships. The issue that arises here is how to implement the various tools encompassed by Procurement 4.0. A diversity of existing levels of maturity can be observed, ranging from businesses only starting to implement basic e-procurement procedures through to sophisticated AI solutions. With this discussion in mind, realising multiple benefits through digitalisation in purchasing can be achieved.

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