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Service confidence in bringing new data-enabled services to market

Momeni, Khadijeh; Vaittinen, Eija; Jähi, Markus; Martinsuo, Miia

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SERVICE CONFIDENCE OF MULTIPLE ACTORS IN BRINGING NEW DATA-ENABLED SERVICES TO MARKET

Khadijeh Momeni, Eija Vaittinen, Markus Jähi & Miia Martinsuo

ABSTRACT

Purpose: The emerging trend of digitalisation in manufacturing firms has created new opportunities in the servitization process through development of new data-enabled services. Despite these services appearing promising both for manufacturing firms and customers, the empirical evidence has shown that firms face different problems in selling these services. The study explores service confidence from multiple actors' perspectives (service unit, sales unit, external salespeople, and customers).

Design/Methodology/Approach: An embedded single-case study was carried out with a machine manufacturer, including its sales and service personnel, customers and external salespeople. Data were collected via 30 interviews. Through conducting a thematic data analysis, the requirements for building confidence in data-enabled services were divided into four categories: internal, external/customer-related, relational and offering-related.

Findings: This paper reveals the criticality of building confidence to bring data-enabled services to market. The findings reveal different dimensions of confidence and demonstrate that introducing data-enabled services requires the confidence of all actors involved in servitization.

Originality/Value: This paper conceptualises service confidence towards data-enabled services through six dimensions—attitude towards services, confidence in service value, confidence in service reliability, relational confidence, competence, confidence in data security and management.

Keywords: Data-enabled services, Servitization, Confidence

1. INTRODUCTION

The increased use of information and communication technologies and data analytics has enabled manufacturers to enhance the value of their existing services, such as repair and maintenance, and also develop new services, such as operation optimization and digital technical analyses (Lerch and Gotsch, 2015). Such data-enabled services are here defined as a manufacturer's activities that add value to customers' processes through digital data and the delivery of specific functions in the customer's business process. Previous studies have explored the requirements for operations to deliver advanced services (Baines and Lightfoot, 2013) and digital capabilities as well as their link with different service transformation trajectories (Ardolino et al., 2018) and related service journeys (Martinez et al., 2017). However, such studies have only partly covered data-enabled services. The main focus has been on the development and idea generation of the new services or general servitization rather than on the requirements for bringing the new services to market (Kindström and Kowalkowski, 2009).

The adoption of new services may be challenging and requires attention from multiple actors. Convincing a new customer to adopt new services may require references from existing customers about the value of the new services (Jaakkola and Aarikka-Stenroos, 2019). Introducing new services, including data-enabled services, requires the involvement of multiple actors, both within the manufacturing firm, such as salespeople and service personnel (Kindström et al., 2015), within the customer firm (Jähi, 2020; Raddats et al., 2017) and among other firms involved in the service supply chain, such as distributors or retailers (Aminoff and Hakanen, 2018; Vaittinen and Martinsuo, 2019).

Adopting data-enabled services requires alignment among the mindsets of different actors in the business network and alignment between their mindsets and capabilities (Töytari et al., 2018). However, relatively little research has explored the motives, mindset, perceptions and requirements of different actors to launch data-enabled services and the dynamics between actors. Salespeople and

customers have different concerns regarding data-enabled services, which decreases their confidence and hinders the active selling and buying of these new services (Vaittinen et al., 2018; Vaittinen and Martinsuo, 2019). This research is motivated by the need to understand how manufacturers can build confidence in data-enabled services within their own organisation as well as among their external salespeople and customers. In this paper, service confidence is understood as a multidimensional construct that deals with feeling certain or believing that services are valuable and reliable and that the service provider can provide services in an effective and credible way.

To address this research gap, this study aims to conceptualise service confidence from multiple actors' viewpoints towards data-enabled services. The research questions are as follows: What kinds of requirements do different actors have towards building service confidence in bringing data-enabled services to market; and what are the different dimensions of service confidence? The focus of this study is on manufacturing firms and their key stakeholders involved in bringing new data-enabled services to market during servitization.

2. LITERATURE REVIEW

2.1 Adding New Data-Enabled Services

Many business-to-business manufacturers in mature markets are turning towards servitization as a way to avoid the so-called 'commodity trap' and increased price competition and to gain economic benefits (Baines and Lightfoot, 2013; Kindström and Kowalkowski, 2009). The servitization of manufacturing firms calls for changes at the strategic and operational levels. Changes in organisational forms and structures, performance measurement systems, management perspective and the service-related knowledge and skills of employees are among the key changes that may occur during the servitization journey (Martinez et al., 2017). Service addition in manufacturing firms is inhibited due to various internal and external barriers, such as technical competences, attitudes, business models, internal processes and customers' willingness to co-create value and pay for services (Matthyssens and Vandenbempt, 2010). The cognitive barriers may be quite significant: firms experience uncertainty about the outcomes of service-related investments and the economic potential of a service business, which may hinder the realisation of the related financial potential (Gebauer and Friedli, 2005).

Advances in digital technologies have enabled manufacturers to change their business models by providing new data-enabled services to enhance maintenance, repair and operational services (e.g. remote monitoring) and to provide advanced analytics and integration to manufacturing supply chains (Ehret and Wirtz, 2017). In particular, Internet of Things (IoT)-based services are often driven by production and process optimisation within customers' production systems (Kiel et al., 2017). In addition to new offerings and processes, it is important to consider the structural and human resource implications of IoT-based services (Baines et al., 2017). To utilise digital technologies, industrial firms need to develop digital capabilities, such as processing, analysing and interpreting data from the installed base (Ardolino et al., 2018), and they must require an alignment of the business models of different actors (Kohtamäki et al., 2019).

Previous research has already covered how and through which capabilities, sales approaches and methods manufacturers can add new services into their portfolios and move from product sales to service sales. New requirements are also needed for the sales function and the roles and competencies of salespeople (Kindström et al., 2015), the alignment of expectations between salespeople and customers and the capabilities needed for value-based selling and use-based pricing (Töytäri et al., 2011). Most of these studies deal with services (generally) and advanced services (specifically) instead of data-enabled services. To succeed in bringing data-enabled services to market, there is a need to convince salespeople about the reliability of such services (Vaittinen and Martinsuo, 2018) and often merely services in general.

2.2 Confidence in New Services

There is a consensus about the importance of a customer's acceptance of new services and the critical role of salespeople (Kindström et al., 2015). However, the literature on internal salespeople's role in servitization is quite scarce (Kindström et al., 2015), and it is even more rare for external salespeople.

While advanced data-enabled services can potentially have a significant impact on customers' business processes (Story et al., 2017), customers need to be convinced about the benefits that will accrue to them (and not only the manufacturer) from data-enabled services. In complex service businesses, there is a need to go beyond dyadic interaction to explore dynamic interactions among multiple actors in the network (Alexander et al., 2017). Aminoff and Hakanen's (2018) study of manufacturers and distributors revealed that servitization implies new requirements for both manufacturers and distributors' operant resources; manufacturers need to develop relational ties and support distributors, and distributors need to develop relational ties and develop new solution sales, delivery and co-creation capabilities.

While the confidence of actors in bringing new services to market has not been studied previously, some studies have covered the challenges and barriers of servitization and offered insights on factors that may relate to service confidence. These factors can be divided into four main categories: strategy, roles and structures, capabilities and mindsets. The lack of a clear strategic direction may cause insecurities and confusion at the operational level (e.g. in sales and marketing functions) (Lenka et al., 2018). The value co-creation in supplier–customer relationships is often hindered by role ambiguities (i.e. unclear expectations, responsibilities and demands) (Sjödin et al., 2016). These role conflicts and confusion can dilute accountability (Lenka et al., 2018). The lack of capabilities or the mismatching of resources and capabilities can hinder the servitization process (Töytäri et al., 2018). Moreover, having service capabilities and experience in providing basic services could also facilitate offering new advanced services (Alvarez et al., 2015; Sousa and da Silveira, 2017). Finally, the mindset (i.e. beliefs, rules and norms) within the firm and at the interface of the firm and customers and other organisations regarding new services affects both the offering and the acquiring of services (Töytäri et al., 2018).

Few studies have explained and resolved the cognitive barriers to offering data-enabled services (Töytäri et al., 2018), and little is known about the early phase of bringing new data-enabled services to the market as well as the requirements within the organisation and outside its boundaries. It is these gaps that our study seeks to fill.

3. RESEARCH METHOD

To deepen the understanding of the service confidence of multiple actors in new data-enabled services, a qualitative case study was conducted in one manufacturing firm. The case company has a revenue of ~100 million Euros, and ~500 employees. The firm offers complex systems and services to industrial customers. It operates in the engineering and manufacturing sector, and its offerings are tailored for each customer and sold globally. The case was selected based on the increased importance of services in the company, its extensive effort towards developing new data-enabled services and its utilisation of both internal and external salespeople. The main data-enabled services include 24/7 technical remote support, predictive maintenance and remote system upgrades. The firm also offers and develops more advanced data-enabled services, such as data-based consulting services.

To collect rich data from the four actor groups in a real-life context, an embedded case study was conducted. Data were collected through 30 interviews: 6 in the service unit, 9 in the sales unit, 7 among external salespeople and 8 among customers. The interviewees were selected in collaboration with knowledgeable persons in the company to ensure that each participant was actively involved with either developing, selling or delivering services. The common interview themes with all actor groups included the current state of the service portfolio and experiences with the case company's services. In addition, some themes that were specific for each actor group were covered, such as the service portfolio and development with service people, the selling process and the needed skills with both sales groups, the relationship of the case company with both external actor groups and service procurement and delivery with customers. All interviews were recorded and transcribed.

A data analysis was conducted through a thematic analysis to define the codes and to identify the main themes. Each actor group's transcriptions were firstly read through and explored inductively to identify the requirements for bringing data-enabled services to market. While the focus was on data-enabled services, comments on other services were included when they were relevant to confidence in data-enabled services. By comparing the tentative themes for each actor group, the requirements

for building confidence in data-enabled services were divided into four categories (Table 2). From these requirements, six categories of dimensions of service confidence emerged (Table 3).

4. FINDINGS

4.1. Requirements for Service Confidence

To bring new data-enabled services to market, the case company had to address service confidence issues in the different actor groups involved in offering and purchasing the new services. The most important requirements of each actor group for building confidence in data-enabled services are shown in Table 2. These requirements were categorised into four themes: internal, customer-related, relational and offering-related requirements.

Table 2. Requirements of different actor groups for building confidence in data-enabled services

	Service unit	**Internal sales unit**	**External sales firms**	**Customers**
Internal: requirements of different actor groups within their own organisation	• Value proposition communication (internally/to customers) • Service capabilities (resources, expertise, skills) • Customer service capabilities	• Service sales experience • Understanding customer value • Training on the practical service sales process • A clear service sales process • Clear and simple service sales material	• Being comfortable with services • Challenges: separate service sales and a strong product business	• Understanding added value (benefits vs. sacrifices) • Understanding links to existing systems and operation • Understanding links to production optimisation
Customer-related: requirements related to customers' organisations	• Customer understanding of added value • Data access to develop and pilot services • Data access to enable service delivery	• Customer demand • Customer knowledge about the value of the service • The customer's perspective on the cost of the contract	• Customers' understanding of their service needs • Customers should gamble less (i.e. could they go one more year without some service and save money)	*Non-applicable*
Relational: requirements of the actor groups in relation to/from other actors	• Clarification of value creation/capture between actors	• Collaboration with the service unit during the sales process	• Support from the case company • Faster responses from the case company • A good reciprocal relationship and knowing people	• Understanding impacts on dependency • Understanding impacts on relationship building
Offering-related: requirements concerning the service offering and service delivery	• Selection and prioritisation of services to be developed • Technical implementation • Secure data access • Data management and ownership	• Knowledge of service content • Understanding the pricing • Productised service • The capabilities of service delivery people • Solution reliability • Trust in the quality of basic services • Enough service delivery resources to support customers	• Knowledge of service content • Trust in service quality • Challenge: some are not selling the case company's services-only systems	• Understanding the offered service concept(s) • Service capability (availability, expertise) • Solution reliability • Data security

Requirements for Service Confidence in the Service Unit

For the internal service unit, convincing them of and communicating about the benefits of novel, data-enabled services was a focal requirement. For the internal organisation and a majority of the customers, data-enabled services represented novel solutions, and their particular content, potential benefits and needed capabilities were uncertain. Internally, the organisation had been focused on machine selling, and introducing data-enabled services required different, more service-focused orientation. Moreover, data-enabled services provided a means to develop closer customer relationships. Externally, customer value and communicating it to customers needed attention. The case company was also dependent on access to customers' data to build new services. Moreover, data-enabled services provided means to develop closer relationships. Interviewees generally expected that customers would see the benefits and the value-added. Data-enabled services necessitated skills, capabilities and resources in service delivery and customer service. Therefore, it appears that introducing data-enabled services is not only a technical issue because such services can also affect customers' processes beyond delivered solutions, which could require new skills and capabilities in certain areas, such as in developing a customer's entire production system. Some interviewees from the internal service and development areas were cautious about using customer-originated data as a basis for novel services. They stressed that the case company needs to avoid the impression that they would make money by using customers' data. Accordingly, introducing data-enabled services calls for discretion and communication with customers to clarify intentions, use of data and data security.

Requirements for Service Confidence in the Internal Sales Unit

Within the organisation, the salespeople needed the right competences, tools and techniques for selling data-enabled services and a clear service sales process. The salespeople were also more confident in offering services, including data-enabled services, when the customer proactively asked for the service and knew the value of the services as well as about possible increases in the contract's cost. Some respondents also explained that the customers' feedback on the quality of different types of services affected their willingness to sell more services. Organisational support through cooperative activities with service people was also important for improving salespeople's confidence in offering new data-enabled services to customers. However, interviews with salespeople did not highlight any specific relational requirements regarding external salespeople; the head of the sales unit explained that, when their own salespeople have concerns regarding the reliability of data-enabled services, they do not expect external salespeople to offer this type of service to customers. The most frequent reason for not selling data-enabled services was related to the service offering. The salespeople needed more information on the content and on the value of the services for customers, the reliability of the new services, the service delivery capabilities and the availability of service delivery resources. The findings revealed that the attitudes of salespeople towards data-enabled services were affected by their perceptions of the reliability of basic services and the capabilities of service delivery people in general.

Requirements for Service Confidence in External Sales Firms

External salespeople's internal requirements were often related to time pressures caused by other work and to services being the task of some other department in their company. In about half the external salespeople's interviews, services were highlighted as a way to keep the machines running; they also said that, in the future, there would be more emphasis on advanced data-enabled services. Only a few interviewees thought that customer needs regarding services would not change at all in the future. Almost all the interviewees considered the existing advanced services or the basic services from the case company rather expensive. A few interviewees also noted challenges with the availability of services. A few of the external salespeople also highlighted that customers usually do not understand their service needs before they face a problem, whether it is lack of training or a lack of support when the production line stops. The external salespeople expected support and materials for selling the case company's systems. They wanted to understand the case company's situation and priorities as well as know the people at the case company. The need for responsiveness was highlighted in more than half the external salespeople's interviews: two saw the case company as very responsive, whereas a few

hoped for more responsiveness and resources to be able to answer their own and their customers' queries in a timely fashion. From the offering perspective, many external salespeople hoped that the case company's service offering would be well packaged and that they would have more knowledge about the company's services and systems. In addition, the reliability of the system and the services was described as an important aspect of the offering in the majority of these interviews. The reliability of the production was highlighted as a key requirement for their customers. Reliability was also noted as a challenge with current services (e.g. the delivery of spare parts was considered too slow).

Requirements for Service Confidence in Customer Firms

A majority of the interviewed customers expressed that they need to understand how data-enabled services would help them in practice. For example, they want to understand the actual service concept(s), the connection to the installed base, the related benefits and the price. Some customers also linked data-enabled services to broader production optimisation needs, and they were eager to know how they could benefit in that regard. A majority of customers emphasised that the case company's products are quite reliable, and they expected the same from the data-enabled services. Some customers also emphasised dependency issues in relation to data-enabled services. New services could tie customers closer to the case company. Depending on the viewpoint, it could be either a positive or a negative issue. Service capability, including service personnel availability and expertise, emerged as a focal issue to a majority of the customers interviewed. Worries about the case company's service capabilities primarily focused on the existing help-desk services. However, as many novel data-enabled services would rest on the same service infrastructure, it would play a role in how customers might respond to other data-enabled services. While a few customers explicitly raised concerns about the data security of novel data-enabled services, it was not highlighted as an insurmountable obstacle if the services would provide large enough benefits.

4.2 Dimensions of Service Confidence

The data analysis that was conducted across the requirements revealed six dimensions of confidence in relation to data-enabled services (See Table 3). The importance of the different dimensions was not the same for all actor groups. Table 3 shows how prevalent the dimensions were in the interviews.

Table 3. Dimensions of confidence in data-enabled services and how prevalent they were in the interviews of different actors (empty not mentioned at all, + some attention, ++ moderate attention +++ strong attention in the majority of the interviews)

Dimension	Definition	Service	Internal sales	External sales	Customer
Attitude towards services	How different actors feel about the service business and the case company's services	++	+++	+++	++
Confidence in service value	How the benefits that a customer receives exceed the price paid for data-enabled services and what kind of value the actors perceive that they get from the services	+++	+++	+++	+++
Confidence in service reliability	How well the system maintains its promised level of quality over time How well data-enabled service delivery fulfils the service promise in terms of responsiveness and quality of service delivery	++	+++	+++	++
Relational confidence	How different actors support one another in the process of offering data-enabled services	++	+++	+++	++
Competence	How each actor has the right knowledge and skills regarding data-enabled services How the case company supports different actors in developing their competences	++	++	++	+
Confidence in data security and management	How well the data are secured and that data management and ownership can be handled	+++		+	++

5. DISCUSSION

This study aimed to conceptualise service confidence in data-enabled services from multiple actors' viewpoints. The findings are framed as categories of requirements for service confidence and further divided into dimensions of service confidence. The study complements previous studies of servitization, which have mainly focused on the challenges of and required capabilities within manufacturers' (Gebauer and Friedli, 2005; Sousa and da Silveira, 2017) or in manufacturer–customer relationships (Kindström et al., 2015; Sjödin et al., 2016; Raddats et al., 2017). While this study acknowledges the internal and customer-related requirements, the findings emphasise that the requirements of external salespeople should also be considered to enhance service confidence. This aspect has been acknowledged in previous research (Vaittinen and Martinsuo, 2019). Importantly, the findings of this study show that, in addition to internal and relational considerations, manufacturers also need to consider offering-related requirements in building confidence because data-enabled services have specific characteristics that need to be understood by different actors. This paper also contributes to the discussion on digital servitization by offering new insights that are related to the motives, mindset, perceptions and requirements of different actors to launch data-enabled services, while the majority of prior studies have focused on strategic capabilities or business models (Ardolino et al., 2018; Kohtamäki et al., 2019).

We introduced the concept of service confidence as an important part of the manufacturer's transition towards more data-enabled services. The developed concept of service confidence can be seen as an attempt to integrate empirical evidence and conceptualise this less understood phenomenon. The analysis of the case company confirms prior research stating that the right mindset and attitude towards services are required for offering data-enabled services, not only for service adoption by customers (Töytäri et al., 2018) but also for building the confidence needed to bring data-enabled services to market. Data-enabled services have been recognised as a way to enhance customer value (Kiel et al., 2017; Momeni and Martinsuo, 2018). The findings of this study reveal that the customer (Töytäri et al., 2011) as well as the internal/external actors need to be confident about the total benefits of data-enabled services to successfully bring them to market (Vaittinen and Martinsuo, 2018). The analysis of the findings shows that the issue of reliability covers both data-enabled services and service delivery. The latter includes data-enabled services and the experiences of different actors about the delivery of other basic services. Our findings confirm the importance of relational ties between different actors (Aminoff and Hakanen, 2018) and show that having confidence in receiving support from other actors when bringing data-enabled services to market forms an integral part of total confidence in such services. Capabilities within the organisation and the business network have proven important to finding success in the adoption of data-enabled services (Töytäri et al., 2018). Moreover, strong existing capabilities for delivering basic services can facilitate the delivery of more advanced services (Sousa and da Silveira, 2017). Finally, the findings confirm that confidence about data security and management is needed, especially for actors who are involved in service delivery (i.e. service people and customers).

6. CONCLUSIONS

This study contributes to the servitization literature by exploring the cognitive needs of bringing data-enabled services to market (Gebauer and Friedli, 2005; Töytäri et al., 2018) and by providing a deeper understanding of the needs of different actors during this process. The research demonstrates that building confidence in data-enabled services in a multi-actor setting is needed when introducing new data-enabled services to the market. In addition, the findings show that the concerns and requirements of different actors regarding data-enabled services affect their confidence in offering (and accepting) new services. A connection was found between providing data-enabled services and basic services (Alvarez et al., 2015; Sousa and da Silveira, 2017). The confidence in data-enabled services does not exist in a vacuum; it is also related to previous experience with the service supplier and that supplier's credibility.

While advances in digital technologies have enabled manufacturers to provide new types of services to their customers, manufacturers struggle with the challenges of offering data-enabled services. The

findings of this study indicate that, to build confidence in data-enabled services, manufacturers need to ensure that the requirements of each actor as well as the relational requirements between the relevant actors are met. The study also developed a conceptual framework of service confidence based on identified confidence dimensions. These findings could help manufacturers in their servitization development plans by emphasising the importance of the cognitive needs of different actors.

Notably, conducting the case study in one context limits the generalisability of the findings. This case study included data from the manufacturer, external salespeople and customers, but it would have benefited from data from external service providers and/or software suppliers. Regarding the relationship between the actors, this study did not cover the external sales–customer relationship. Additional multi-actor studies are needed to improve the validity of the findings because a single case cannot be generalised to a wider population, and different contexts may provide further dimensions and requirements to complement those in this study.

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AUTHORS

Dr Khadijeh Momeni
Industrial Engineering and Management, Tampere University, Tampere, Finland, FI-33100
+358451637676, khadijeh.momeni@tuni.fi

Dr Eija Vaittinen
Gofore Plc, Tampere, Finland, FI-33100
+358449991890, eija.vaittinen@gofore.com

Markus Jähi
Smart industry and energy systems, VTT Technical Research Centre of Finland ltd, Tampere, Finland, FI-33720
+358408421397, markus.jahi@vtt.fi

Prof. Miia Martinsuo
Industrial Engineering and Management, Tampere University, Tampere, Finland, FI-33100
+358408490895, miia.martinsuo@tuni.fi