

Antecedents and Measurement of Industrial Service Excellence in Manufacturing Companies

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Introduction

An increasing number of manufacturing companies are offering services due to financial as well as competitive reasons and changing demand (Oliva & Kallenberg, 2003). This phenomenon called “servitization” (Vandermerwe & Rada, 1988) offers manufacturing companies a profitable option for growth (Fang, Palmatier & Steenkamp, 2008, Wise & Baumgartner, 1999). However, many companies still struggle on offering services in a profitable way (Gebauer et al, 2005, Martinez et al, 2010, Neely, 2008). Thus, the topic of servitization remains one of the most active service research domains with strategic priority (Ostrom et al, 2015). However, Kowalkowski, Gebauer & Oliva (2017) describe the research domain of servitization as still being in a nascent phase due to the absence of quantitative research with an emphasis on descriptive nature but lack of prescriptive research guiding companies on their servitization journey (Baines et al, 2017). The purpose of this paper is to develop empirically verified measures for the construct and antecedents of Industrial Service Excellence (ISE) and to demonstrate how an improvement of the antecedents of ISE may support an increase in ISE and performance levels. This can give companies guidance on their change process within their servitization journey.

Methodology & Framework

To define the construct of Industrial Service Excellence and identify its antecedents, a literature review as well as 26 qualitative interviews and two focus groups with manufacturing companies in Austria and Bavaria have been conducted. As a result, the construct of Industrial Service Excellence is defined as offering highly competitive top quality services in a cost effective and flexible way for business customers through the involvement of the whole company in the process of offering services. Herewith, this research is based on the resource-based view of the firm (Wernerfelt, 1984; Barney, 1991), as the focus is on the internal resources of the companies and not on the external environment. To identify which resources have an impact on performance it is important to link resources to performance, according to Priem & Butler (2001). In our study, this has been done by analyzing the impact of the antecedents on ISE and the impact of ISE on financial as well as non-financial performance. As resources in the resource-based view are often not defined clearly (Priem & Butler, 2001), we develop measures for the construct of Industrial Service Excellence as well as its antecedents.

Based upon Baines et al (2017) and their theoretical framework to critique servitization knowledge stocks, we view servitization as a change process. This study is focused on the outcomes of change and has a prescriptive orientation, as it identifies resources that contribute to ISE and its impacts on performance.

As suggested by Albers & Hildebrandt (2006), we operationalized the antecedents of ISE as formative following the guidelines outlined by Diamantopoulos & Winklhofer (2001) and Rossiter (2002). Additionally, a pretest with n=28 has been conducted to get feedback from companies on the developed measures and to ensure content validity as well as clarity of the items. As most of the constructs are formative, we adopted a PLS-SEM approach (Hair, Ringle & Sarstedt, 2011). An empirical

verification in a sample of at least 250 B2B manufacturing companies in Austria and Bavaria will be conducted until February 2018.

Industrial Service Excellence and its antecedents

Researchers use the term industrial services in different manners (Gitzel et al, 2016).

To clarify its meaning in this research, we define industrial services as services offered by manufacturing companies for other companies (B2B services) that are usually in connection with a product, covering the whole spectrum from the presales to the aftersales phase. The term Service Excellence is not used consistently in literature, but usually as a synonym for high service quality (eg den Hartog & Verburg, 2002; Wirtz & Zeithaml 2017). Wirtz & Zeithaml (2017) use the construct of cost-effective service excellence to describe companies that are able to offer high service quality at low prices, because they are produced in a cost-effective manner. Building up on this definition our study enlarges this view by adding three additional characteristics of service excellence: First, as suggested by the comparative advantage theory of competition (Hunt & Morgan, 1995), the comparison with the service performance of competitors has been included. Second, the company's flexibility has been added (Aghina, De Smet & Weerda, 2015). Third, ISE is also measured by the strength that the whole company is involved in offering services (Crotts, Dickson & Ford, 2005; Gouthier, Giese & Bartl, 2012). Therefore, Industrial Service Excellence is understood as offering services for business customers on a high level. These services are better than those of the competitors and they are produced in a cost-effective and flexible manner involving the entire company in offering excellent services. The antecedents of ISE are of special interest for servitizing companies. As a result of a systematic literature review and 26 qualitative interviews as well as two focus groups, we identify twelve antecedents of ISE as

follows: (1) *Partnership with customers* focuses on the relationship with the service customer like personal relationships with the customer including knowledge of the customer and his demands, a clearly defined contact person and viewing the relationship as a long-term partnership. (2) *Network capabilities* is about the contact with other external stakeholders except the customers, e.g. search for partners with complementary resources, personal relationships, trust and a contract that defines responsibilities. (3) *Customer and service oriented organizational culture* refers to training the employees to offer improved service and a clear definition of the values in the service business. (4) *Organizational structure* means that service and product business are structurally separated, but work together cooperatively. Further it is clear who is responsible for services. (5) *Pricing of services* is about pricing services directly or indirectly and taking into consideration costs, market prices and the value for the customer in setting the price. (6) *Sales force capabilities* refers to technical knowledge, empathy, flexibility, listening ability and cultural intelligence of the sales force. (7) *Service orientation of management and strategy* means that there is a clearly defined service strategy, services are part of the corporate strategy and management supports and rewards service-oriented behavior. (8) *Risk assessment and key performance indicators* focuses on key performance indicators that are defined, analyzed and used for decisions analyzing commercial as well as operative risks and assessing the profitability of services. (9) *Organizational processes* encompass good communication and collaboration between service and other departments, standardized, fast and efficient service processes and clearly defined instructions how to perform services. (10) *Customization vs standardization* refers to services that are customized, adequate pricing of customized solutions, standardization and modularization as well as reuse of already developed solutions. (11) *Service quality* comprises the measurement of service quality through surveys

and customer feedback as well as analyzing this data and deriving and executing policies based on this data. (12) *Development of services* focuses on the cooperation of different departments in the service development process well as customer involvement and formalized processes for new service development.

Results

The pretest has shown that the antecedents explain much of the variance of ISE. The R^2 of ISE is .925. Even the adjusted R^2 , that takes into consideration that we have quite a lot of antecedents and is lower if there are more antecedents, is .866. The antecedents therefore explain most of the variance of ISE. The path coefficients of the antecedents show that they contribute differently to ISE. Sales force capabilities, service orientation of management and strategy and service quality have path coefficients higher than .30, others have lower values. This suggests that some of the antecedents are more important in reaching ISE. The path coefficients from ISE to financial and nonfinancial performance are 0.57 and 0.48, indicating a considerable impact. However, the sample size of the pretest ($n=28$) is too low to leap to hasty conclusions. Therefore, the empirical verification in a sample of 250 manufacturing companies, which will be finished until February 2018 will show the impact and significance of the antecedents on ISE as well as ISE on financial and non-financial performance.

Conclusion

In our study, Industrial Service Excellence has been defined in a broader way by including not only service quality, but also competitive advantage, flexibility, cost-effectiveness and involvement of the whole company. The twelve identified antecedents and especially their impact on ISE and financial as well as non-financial

performance can give company guidance on their servitization journey by representing leveraging means for improving ISE and performance. The antecedents therefore form a prescriptive audit that helps companies to understand how to reach ISE and improve their performance.

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