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Outcome-Based Contracting from the Customers' Perspective: A Means-End Chain Analytical Exploration

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Outcome-Based Contracting from the Customers' Perspective: A Means-End Chain Analytical Exploration

ABSTRACT

Within the context of servitization, manufacturing firms increasingly offer outcome-based contracts (OBCs) which sell the outcome of a manufacturing process instead of the resources required for outcome creation. While extant studies have focused on the provider's viewpoint, this research explores industrial customers' requirements and goals when sourcing OBCs. We report the results of laddering interviews with purchasing and engineering managers from 32 actual and potential OBC customers. Based on a means-end chain analysis we find that, in addition to organizational goals, such as reducing costs or ensuring reliable supply, individual goals of the decision-makers also play a key role when purchasing OBCs. Specifically, the risk of being held accountable for problems that may occur in an OBC's implementation and operation emerges as an important concern of decision-makers. In contrast to extant research, that highlights how OBCs transfer operational risk from the customer to the supplier firm, our study indicates that customers also perceive elevated levels of individual and organizational risk when making OBC purchase decisions. Against this backdrop, OBC salespeople should address both individual and organizational goals of key decision-makers in the customer firm and focus on building trust in the supplier's ability to realize and operate an OBC.

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1. Introduction

Services are increasingly important for manufacturing firms. According to US Census Bureau data (US Census Bureau, 2020a, 2020b), revenues generated from industrial repair and maintenance services grew by 54.2% between 2009 and 2019, while manufacturers' sales grew by 36.4%.¹ Similarly, Fang et al. (2008) found that the revenue share of services substantially increased among manufacturing firms between 1990 and 2005. These developments reflect the notion that creating hybrid offerings that combine products and services (Ulaga and Reinartz, 2011) and selling solutions instead of products (Macdonald et al., 2016; Tuli et al., 2007) provides revenue and profit opportunities (Böhm et al., 2017; Eggert et al., 2013). This process of 'servitization' (Vandermerwe and Rada, 1988) is also regarded as beneficial because it allows manufacturers to escape the commoditization trap (Mudambi et al., 1997), reduce the risk of bankruptcy (Benedettini et al., 2017), and create a differentiated brand positioning (Davis et al., 2008).

An important manifestation of the servitization of industrial manufacturers are outcome-based contracts (Böhm et al., 2016; Liinamaa et al., 2016; Ng et al., 2009). In an outcome-based contract² (OBC), a manufacturer sells the outcome that a manufacturing process creates instead of the resources required for outcome creation (e.g., machinery, equipment), with payments

¹ For services, we analyzed annual revenues in NAICS category 8113 (commercial and industrial machinery and equipment [except automotive and electronic] repair and maintenance), which amounted to US\$ 23.92 bn. in 2009 and US\$ 36.88 bn. in 2019. For manufacturing, we considered annual sales of manufacturers, which amounted to US\$ 4,423.78 bn. in 2009 and US\$ 6,034.49 in 2019.

² In line with other authors (e.g., Böhm et al., 2016; Hou and Neely, 2018), and as we explain in detail in section 2.1, we prefer the term "outcome-based contract" over "performance-based contract".

based on the process outcome (Essig et al., 2016; Hou and Neely, 2018; Kim et al., 2007; Lay et al., 2009). The idea of pay-per-use instead of pay-for-ownership has been realized in industries such as aircraft engines (Guajardo et al., 2012; Neely, 2008), defense equipment (Ng et al., 2013), printing (Rapaccini and Visintin, 2014), compressed air (Weißfloch and Geldermann, 2016), or logistics equipment (Liinamaa et al., 2016). Currently, the digitalization of industrial manufacturing processes (Sundblad, 2018) is considered to further propel the implementation of OBCs. In a worldwide survey among industrial executives, 47% of respondents indicated that they expect pay-per-use to be of increasing relevance in the future (McKinsey, 2018).

Extant research reveals several advantages of OBCs for suppliers and customers. Among others, OBCs can lead to increased profit and customer loyalty (Hypko et al., 2010a), enhanced knowledge about product performance and customers (Böhm et al., 2016), and improved product reliability (Guajardo et al., 2012). Despite these evident advantages, complex interfirm collaborations such as OBCs frequently do not succeed (Madhok and Tallman, 1998) and suppliers regularly report major difficulties in selling solutions with complex OBC arrangements (Gebauer et al., 2017). Customers' resistance towards such far-reaching offerings is seen as the major hurdle in the critical first phase of solution sales (Liinamaa et al., 2016). To overcome this hurdle and to successfully master OBC sales, manufacturers require deep knowledge on customers' goals and requirements with regard to the purchasing of OBC-based solutions.

Extant literature has covered various aspects of OBCs (for reviews see, e.g., Essig et al., 2016; Selviaridis and Wynstra, 2015), with a focus on the concept of OBCs (e.g., Hypko et al., 2010b; Lay et al., 2009), potential consequences of OBCs (e.g., Guajardo et al., 2012), its major requirements (e.g., Ng et al., 2013), and the governance around such inter-organizational collaboration (Roehrich and Lewis, 2014; Roehrich et al., 2020). At the same time though, prior

research lacks important insights on the customers' OBC buying decision. This is because current literature primarily focuses on (1) the supplier perspective and less on the customers' viewpoint; (2) the design and implementation of OBCs instead of the pre-sales phase; and (3) the ex-post results of OBCs and less on upfront requirements. Consequently, prior research does not sufficiently explain customers' requirements and expectations regarding OBCs. This is surprising, given that the knowledge on customer requirements is central for successful OBC sales. Without knowing what existing and potential customers need and want, it is impossible to determine how a manufacturer embarking on a servitization journey can successfully sell OBCs.

Our study extends prior research by answering the following two research questions: (1) What are existing and potential customers' central requirements and expectations when purchasing solutions through OBCs? (2) How should firms address these requirements and expectations in their solution selling processes? To answer these research questions, we conducted a means-end-chain analysis based on laddering interviews with 37 representatives of 32 actual and potential OBC customers. Based on this analysis, our research makes two main contributions. First, we explore customer requirements and expectations in the purchasing process, thereby responding to Essig et al.'s (2016) call to further examine buyer-related processes in OBCs. As a major finding, our study highlights the role of both organizational as well as individual goals and risk perceptions in these purchase situations. Second, our insights build the foundation for improving the selling of OBCs and expanding the customer base, thereby offering a broader contribution to sales research (Paesbrugge et al., 2018). The results suggest that companies should pay particular attention to *how* their salespeople approach potential OBC customers during the preliminary phases of OBC sales. Following a cooperative sales approach, making the implications of an OBC agreement transparent, and the ability to

discuss both technical and commercial details represent key sales-related attributes that OBC customers require. Moreover, customers demand evidence for a supplier's ability to efficiently implement and operate an OBC in order to reduce equipment downtime. Importantly, these aspects allow providers to not only ensure the organizational and economic benefits of an OBC, but also to address the decision-makers' concern for being held accountable for an OBC's success. This individual goal emerged as a central theme underlying the expectations and requirements of both existing and potential OBC customers. Furthermore, our findings indicate that customers with OBC experience are focused more on the relational aspects of its implementation, while customers that have yet to enter into an OBC agreement require more detailed information on the consequences of their decision.

2. Conceptual Background

2.1 Defining Outcome-Based Contracting

Outcome-based contracting is a result-oriented contracting method (Liinamaa et al., 2016). In line with prior work, we define an OBC as a contract that incentivizes outcomes related to the customer's business processes instead of the resources required for these processes (Essig et al., 2016). Thus, in an OBC, a customer pays a provider based on the contracted outcomes in a continual use situation (Hou and Neely, 2018), which requires quantifiable indicators, such as the number of produced units, operating hours, or achieved revenues. Importantly, the focus of an OBC is on the effects of the resource outcome for the customer as the intended performance goal, but not on the resources that a supplier may need to implement and achieve the outcome (Kim et al., 2007; Liinamaa et al., 2016).

The term OBC is widely used in extant literature (e.g., Baines et al., 2011; Batista et al., 2017; Böhm et al., 2016; Hou and Neely, 2018; Ng et al., 2013; Ng et al., 2009; Visnjic et al., 2017). However, other terms are eminent as well, some of which reflect a focus on specific industries or disciplines. These terms include ‘performance-based contracting’ (e.g., Essig et al., 2016; Guajardo et al., 2012; Liinamaa et al., 2016; Selviaridis and Wynstra, 2015), ‘usage-based pricing’ (e.g., Stoppel and Roth, 2015), ‘performance-based logistics’ (e.g., Holmbom et al., 2014), ‘pay-for-performance’ (e.g., Petersen et al., 2006), ‘pay-per-use’ (e.g., Gebauer et al., 2017; Sato and Nakashima, 2019), ‘product-service systems’ (e.g., Adrodegari et al., 2017; Tukker, 2004), ‘advanced services’ (e.g., Baines et al., 2011), or ‘procuring complex performance’ (e.g., Hartmann et al., 2014; Roehrich and Lewis, 2014).

We believe that outcome-based contract is the most appropriate term because it is independent of specific industry circumstances and captures the inherent focus on the outcomes related to the customer’s business processes (e.g., filled and labelled bottles), which forms the basis for supplier incentives (i.e., prices). This is a clear delineation from traditional ownership-oriented business models that focus on providing customers with resources that may be used in their own value creation processes (e.g., machines for bottling and labelling).

2.2 OBCs, Solutions, and Servitization

Marketing research has long recognized the increasing importance of services and solutions for B2B firms (e.g., Forkmann et al., 2017; Jacob and Ulaga, 2008; Tuli et al., 2007). The trend of manufacturing firms to add more and more services to their core product offerings is often termed ‘servitization’ (Lightfoot et al., 2013; Vandermerwe and Rada, 1988), which is

defined as “the transformation of a firm from taking a product- to taking a service-centric approach” (Raddats et al., 2019, p. 1).

As part of their servitization attempts, manufacturers offer different types of services and solutions. Ulaga and Reinartz (2011) provide a useful classification of industrial services, building on the recipient of the service (i.e., supplier's good vs. customer's process) and the nature of the value proposition (i.e., input-based vs. output-based). Its classification resembles other service taxonomies in the marketing field (e.g., Baines and Lightfoot, 2013; Windahl and Lakemond, 2010). In its simplest form, ‘product life-cycle services’ include basic services, such as delivery, inspection, or recycling. As these services are typically standardized and transactional, they do not correspond to the prevalent view of solutions in marketing (Raddats et al., 2019). The most advanced ‘process-delegation services’ instead involve the managing/operating of complete processes on the customer's behalf (Ulaga and Reinartz, 2011), such as taking over a customer's fleet management (Ulaga, 2013). These offerings are often called “integrated solutions” (Storbacka, 2011) or “outcome-based services” (Visnjic et al., 2017) and are deemed to represent the most advanced stage of servitization (Visnjic et al., 2018).

By definition, integrated solutions are inherently results-oriented and designed to create more or better ‘value-in-use’ for the customer, defined as “all customer-perceived consequences arising from a solution that facilitate or hinder achievement of the customer's goals” (Macdonald et al., 2016, p. 98). Yet, the value-in-use of a solution cannot be predetermined and simply verified, but instead depends on both the supplier's and the customer's resources and is continually created throughout the solution processes (Macdonald et al., 2016). As such, the supplier and the customer co-create the value of a solution within the relational processes of a solution and, in turn, both assume responsibility for the solution outcome.

Due to its characteristics, integrated solutions require different forms of contracting (Hou and Neely, 2018). While basic services typically involve input-oriented contracting, such as traditional time and material contracts, integrated solutions require contracting forms that focus on the realized customer outcomes and incorporate “gain and pain sharing” mechanisms to account for shared responsibilities between the contracting partners (Hou and Neely, 2018). Recent definitions of solutions resonate this understanding in that they explicitly include OBCs as an inherent part of integrated solutions. In this vein, Storbacka (2011, p. 699) defines integrated solutions as “longitudinal relational processes, during which a solution provider integrates goods, service and knowledge components into unique combinations that solve strategically important customer specific problems, and is compensated on the basis of the customer’s value-in-use”. Similarly, Worm et al. (2017, p. 491) describe that solutions commonly have the characteristic of being an “output-based performance contract that delivers on customer-specific metrics”. In sum, OBCs represent one way in which manufacturers tailor solutions to their customers’ needs, as part of an ongoing process of servitization (Prohl and Kleinaltenkamp, 2020).

2.3 Research Streams on OBCs

Research on OBCs has been conducted in various fields, such as marketing, operations research, and logistics, and with a focus on different industries, such as mining, defense, and health care. Based on an extensive literature review on OBCs and adjacent terminology, we identify three streams of research, as summarized in Table 1 and detailed next.

The first stream of research seeks to define the *concept* and classify different types and elements of OBCs. Most of the authors agree on key characteristics of OBCs. First, OBCs are

result-oriented, as they incentivize a process outcome instead of the resources needed to implement and achieve the outcome (Essig et al., 2016). Moreover, the outcome should be customer-relevant, in that it must be linked directly to the customers' intended performance goal (Kim et al., 2007; Liinamaa et al., 2016). Delivering such an outcome further requires a continual use situation (Hou and Neely, 2018) and usually involves combining diverse products and services (Visnjic et al., 2017). When analyzing OBCs, most researchers contrast them with traditional input-based contracts (i.e., time and material-based contracts) and distinguish different types of outcome-based contracts, depending on the considered outcome: OBCs based on availability and OBCs based on economic results (Böhm et al., 2016; Grubic and Jennions, 2018). With the former, customers are charged for the operational readiness of a system (i.e., number of hours that a system operates; Guajardo et al., 2012; Ng et al., 2013); in the latter, the performance indicator is a monetary outcome variable, such as incremental revenues or profits (Böhm et al., 2016). This classification corresponds to the distinction between use-oriented and result-oriented product-service systems (Grubic and Jennions, 2018). Finally, literature identifies design elements to be specified in an OBC. An OBC should include an exact specification of the desired outcome as well as detailed information on the outcome indicators/metrics (Omizzolo Lazzarotto et al., 2014). Moreover, OBCs should indicate the payment scheme and potential positive (negative) incentives in case that outcome measures exceed (fall below) a predefined threshold (Devries, 2005; Selviaridis and Wynstra, 2015). Linked to this, the OBC should also specify the individual responsibilities of both contracting partners, thereby providing a legal means for addressing potential disputes (Handley and Benton, 2009; Sols et al., 2007).

A second research stream analyzes the *consequences* of OBCs for suppliers and customers. On the positive side, OBCs are supposed to generate long-term revenues for suppliers

(e.g., Visnjic et al., 2017), while increasing their flexibility, as contracts usually do not specify the exact operational actions of suppliers (Mirzahosseini and Piplani, 2011). Previous literature further proposes the reduction of risks (e.g., Gruneberg et al., 2007; Hünenberg and Hüttmann, 2003) and the opportunity to focus on core competences (e.g., Buse et al., 2001; Randall et al., 2011) as major advantages of OBCs for customers. Moreover, OBCs are found to increase product reliability (Guajardo et al., 2012; Mirzahosseini and Piplani, 2011) and allow for efficiency gains among customers (Buse et al., 2001; Ng and Nudurupati, 2010; Randall et al., 2011). Finally, OBCs are considered to stimulate innovative activities that result in new and improved ways of achieving performance (Sumo et al., 2016; Visnjic et al., 2017).

On the negative side, OBCs are supposed to increase suppliers' risks, resulting from budget-exceeding costs, measurement issues, as well as contractual or resource issues (Böhm et al., 2016; Gruneberg et al., 2007; Holmbom et al., 2014; Hou and Neely, 2018). Furthermore, OBCs reinforce dependence between suppliers and customers, given long-term agreements and specific investments involved (Holmbom et al., 2014; Hypko et al., 2010a; Visnjic et al., 2017).

A third stream of research investigates different groups of *requirements* for successful OBCs: environmental, supplier-related, customer-related, relationship-related, and contract-related. Several environmental requirements influence the effectiveness of OBCs. For example, technological turbulence has been found to enhance the benefits of OBCs for customers (Böhm et al., 2016). Kim et al. (2007) further show OBCs to be more effective as the product matures. Moreover, outcome uncertainty plays a major role, as it raises the likelihood of conflict and feelings of unfairness (Homburg and Stebel, 2009; Randall et al., 2011). Related to this, researchers found OBCs to be less appropriate in multivendor/multibuyer contexts, where performance is much more difficult to attribute (Roels et al., 2010; Stremersch et al., 2003).

Supplier-related requirements of OBCs have also attracted attention in the literature. For example, OBCs are found to be more effective for suppliers with relatively low risk aversion (Kim et al., 2007; Sumo et al., 2016). OBC effectiveness should also be higher for suppliers with a strong investment climate as well as customer-focused leadership (Randall et al., 2011). In contrast, customer-related requirements are rarely considered in the literature. As two exceptions, Hartmann et al. (2014) and Kreye et al. (2015) elaborate the role of contractual and relational capabilities and find that increased levels of relational capabilities are required for OBCs. Randall et al. (2011) point out the importance of OBC-oriented executives at customer organizations. Relationship-related requirements of OBCs are frequently discussed. Several authors identify relationship quality, characterized by trust and regular exchange, as an important requirement of OBCs (Hensher and Stanley, 2008; Omizzolo Lazzarotto et al., 2014; Randall et al., 2011). Moreover, the relationship between supplier and customer should feature specific relational assets, such as complementary competency and congruence of expectations (Ng et al., 2013). Finally, governance-related characteristics pertain to the requirement of easily assessing and quantifying an outcome (Datta and Roy, 2011; Homburg and Stebel, 2009; Tukker, 2004), the challenge of aligning incentive structures for both suppliers and customers (Kleemann and Essig, 2013; Selviaridis and Norrman, 2014), and the role of contractual and relational governance for effectively addressing the complexities within OBCs (Roehrich and Lewis, 2014).

While extant literature already provides valuable insights on the characteristics, consequences, and requirements of OBCs, empirical explorations of customers' buying decisions for solutions involving OBCs remain limited. In particular, we see three major gaps in the existing literature, related to the actor, the contracting phase, and the temporal perspective

considered in prior research. First, the majority of studies in an OBC setting focus on the supplier's perspective (e.g., Liinamaa et al., 2016) and put little emphasis on customers' viewpoints. Second, most research focuses on the contract design (i.e., during contract negotiation) or contract implementation phase (i.e., after signing the contract) (Essig et al., 2016). Yet, given the importance of the very first phases of solution selling (Tuli et al., 2007), it seems pivotal to understand the perceptions and activities that are relevant during the pre-sale phase of OBCs (i.e., before contract negotiation). Third, extant research primarily builds on ex-post evaluations of completed OBCs and, consequently, has paid limited attention to customers' upfront expectations, which shape their buying decision. In summary, this motivates our goal to (1) understand customers' central requirements and expectations when purchasing solutions through OBCs and (2) identify appropriate solution selling activities.

Table 1: Three Streams of Research on Outcome-Based Contracting

Research Stream and Focus	Exemplary Findings	Selected Articles
Stream 1: Concept		
<i>Definition</i>	An OBC is defined as a contract that incentivizes outcomes related to customer's business processes instead of the resources required for the processes itself.	(Essig et al., 2016; Hou and Neely, 2018; Hypko et al., 2010a; Ng et al., 2009)
<i>Types</i>	OBCs can be distinguished depending on the type of outcome considered: OBCs based on availability or OBCs based on economic results.	(Böhm et al., 2016; Grubic and Jennions, 2018; Hypko et al., 2010a, 2010b; Selviaridis and Wynstra, 2015)
<i>Design elements</i>	Several design elements need to be specified in OBCs: (a) outcome measures, (b) payment and incentives, and (c) responsibilities	(Selviaridis and Wynstra, 2015; Sols et al., 2007)
Stream 2: Consequences		
<i>Positive consequences</i>	Outcome-based contracts can (a) guarantee long-term revenues, (b) increase suppliers' flexibility, (c) reduce customers' financial, technical and/or market risks, (d) enable customers to focus on their core competences, (e) enhance product reliability, (f) increase efficiency for customers, and (g) stimulate innovation.	(Buse et al., 2001; Gruneberg et al., 2007; Guajardo et al., 2012; Hünerberg and Hüttmann, 2003; Mirzahosseini and Piplani, 2011; Ng and Nudurupati, 2010; Randall et al., 2011; Sumo et al., 2016; Visnjic et al., 2017)

<i>Negative consequences</i>	Outcome-based contracts can (a) increase risks for suppliers and (b) reinforce dependence between suppliers and customers.	(Böhm et al., 2016; Buse et al., 2001; Caldwell and Howard, 2014; Gruneberg et al., 2007; Holmbom et al., 2014; Selviaridis and Wynstra, 2015; Visnjic et al., 2017)
Stream 3: Requirements		
<i>Environmental requirements</i>	OBCs are more likely to be effective when (a) technological turbulence is high, (b) the product matures, (c) outcome uncertainty is low, and (d) no multi-vendor/multi-buyer arrangement exists.	(Böhm et al., 2016; Buse et al., 2001; Homburg and Stebel, 2009; Kim et al., 2007)
<i>Supplier-related requirements</i>	OBCs are more likely to be effective when suppliers (a) are less risk averse, (b) have a strong investment climate, and (c) show customer-focused leadership.	(Kim et al., 2007; Randall et al., 2011; Sumo et al., 2016)
<i>Customer-related requirements</i>	OBCs are more likely to be effective when customers possess extensive relational capabilities and OBC-oriented leadership.	(Hartmann et al., 2014; Kreye et al., 2015; Randall et al., 2011)
<i>Relationship-related requirements</i>	OBCs are more likely to be effective when (a) the relationship between contracting partners is of high quality (trust, regular exchange) and (b) when several relational assets are present (complementary competency, congruent expectations).	(Hensher and Stanley, 2008; Hypko et al., 2010b; Ng et al., 2013; Omizzolo Lazzarotto et al., 2014; Randall et al., 2011)
<i>Governance-related requirements</i>	OBCs are more likely to be effective when (a) outcomes are easy to measure and (b) supplier and customer incentives are aligned, and (c) contractual governance is combined with relational governance.	(Datta and Roy, 2011; Homburg and Stebel, 2009; Kleemann and Essig, 2013; Roehrich and Lewis, 2014; Selviaridis and Norrman, 2014; Tukker, 2004)

3. Method

3.1 Means-end-chain analysis

To explore the customer's perspective on OBCs, we employed a means-end-chain (MEC) analytical approach (Olson and Reynolds, 2001). MEC analysis is a method that combines qualitative and quantitative analyses in order to meaningfully explore individuals' cognitive structures in decision making, without the necessity for large respondent samples (Aurifeille and Valette-Florence, 1995; Guenzi and Troilo, 2006). It is commonly used to investigate the motives underlying customers' purchase decisions (e.g., Pieters et al., 1995; Schaeffers, 2013).

The MEC approach assumes that purchase decisions reflect underlying values and requirements (Olson and Reynolds, 2001). A purchase thus depends on the perceived suitability of an offer and its individual attributes to act as a *means* to the desired *end*.

Following a decompositional approach, the goal of a MEC analysis is to identify the attributes that decision-makers consider relevant in a purchase decision and the underlying reasons for this relevance (Olson and Reynolds, 2001). In a MEC analysis, a researcher therefore explores how different attributes contribute to achieving latent goals, which then allows for identifying requirements that providers should address in a purchase situation.

Conceptually, a MEC analysis considers cognitive linkages between attributes, consequences, and different individual goals or values that are pursued (Pieters et al., 1995). The MEC framework commonly distinguishes four different hierarchical levels: (1) specific attributes of an offer; (2) functional consequences, which are directly related to the attributes; (3) psychosocial consequences, which represent psychological and/or social outcomes; and (4) values or goals, as the centrally held cognitive elements that customers pursue with their purchase decision (Olson and Reynolds, 2001). The method thus identifies and links attributes, as the lowest elements in the MEC hierarchy, to functional consequences, to psychosocial consequences, and finally to higher-order, superordinate goals (Mooradian and Olver, 1996), such that “lower elements lead to or imply higher level elements” (Gutman, 1991, p. 144). Therefore, the method allows researchers “to develop linkages among the attributes of the research topic, the consequences from one possessing such attributes and ultimately, the root values driving the presence of those attributes” (Deeter-Schmelz et al., 2002, p. 618).

Although the MEC approach was originally used to examine consumer motives, it has also been successfully employed in industrial marketing studies (e.g., Deeter-Schmelz et al., 2002;

Henneberg et al., 2009; Huber and Kleinaltenkamp, 2020; Macdonald et al., 2016; Ringberg and Forquer Gupta, 2003), as it can elicit motives, goals, and requirements in organizational settings, too (Bourne and Jenkins, 2005). We consider it suitable for our study because it helps us uncover requirements that go beyond formal purchasing criteria of organizational decision-makers. As Deeter-Schmelz et al. (2002, p. 618) explain, the method allows for “probing beyond a superficial discussion of attributes or concrete properties of the topic under investigation”.

3.2 Data Collection Procedure

Data collection was based on a semi-structured interview guide, summarized in Appendix A. To allow for interview data that are analyzable with the MEC method, the core part of our data collection used the laddering interview technique (Grunert and Grunert, 1995; Reynolds and Gutman, 2001). Employing this approach, we first asked respondents to name important sales attributes or characteristics (i.e., “What is important to you when a supplier offers an OBC?”). The list of OBC sales-related attributes was the basis for a series of probing questions in the form of “Why is that important to you?”, with each answer acting as a starting point for subsequent questions. This process gradually led respondents to state higher-level elements that underlie the perceived importance of the initial attribute. Each interview thus resulted in several ladders that capture the hierarchical structure between the four MEC elements, OBC sales-related attributes, functional consequences, psychosocial consequences, and superordinate goals. In all interviews, we repeatedly posed probing questions until respondents were unable to provide new aspects, indicating that within-interview theoretical saturation was reached.

We conducted personal interviews with 37 managers/executives from 32 different industrial companies in Germany (interview length mean = 52 min., median = 48 min.). The

decision to stop collecting data was made after four additional interviews (i.e., two with actual OBC customers, two with potential customers) did not lead to the identification of new MEC elements, thereby indicating theoretical saturation (Glaser and Strauss, 2017, p. 61). In order to gain meaningful insights and to allow for a balance between sample heterogeneity and homogeneity, we followed a purposive sampling approach (Eisenhardt, 1989). Moreover, in order to capture a broader array of inter-company perspectives, we decided to conduct single interviews within each company, which allowed us to reach a greater number of interviews across different companies. We focused on companies that were actual or potential customers of an OBC from three supplier industries, namely compressed air systems (12 respondents), industrial gas supply (18 respondents), and beverage filling machinery (7 respondents). These supplier industries were selected after informal discussions with OBC experts (e.g., industry association representative specialized in OBCs, business development manager at a mechanical engineering company), attendance of OBC-related industry events, and monitoring of practitioner-targeted publications. While all three supplier industries share similarities, such as the mechanical engineering focus, the integration of supplied machinery in customers' core manufacturing processes, and their suitability for OBCs (e.g., quantifiable outcomes), they differ with regards to the maturity of OBCs. For compressors and industrial gases, OBCs represent a well-established sourcing alternative (e.g., Healy, 2016; Pollok, 2013; Radgen, 2014). In the food and beverages industry, OBCs are not as widely used, although several manufacturers have been offering such solutions (Baumgartner et al., 1996). Regarding the industry background of the examined customers, we aimed for a great variety to ensure the general applicability of our findings. As is evident in Table 2, although the interview participants' companies are using or

have considered using OBCs from one of the three focal supplier industries, they themselves cover 15 diverse industries.

To recruit interviewees, we identified individuals in each company who were primarily responsible for sourcing from the respective supplier industries. Thus, instead of focusing on a specific function (e.g., sourcing), we account for heterogeneity in roles and responsibilities across organizations. The viability of our approach is supported by the diversity among informants, comprising sourcing managers, as well as heads of engineering and executives. In five companies, two respondents participated in the interviews, as they were jointly responsible for sourcing OBCs. Among our participants, 17 companies were actual OBC customers, while the remaining 15 firms were potential customers. Our rationale for focusing not only on existing OBC customers was to capture the market potential, as digitalization is assumed to create new opportunities for and growth in OBCs (Sundblad, 2018). Moreover, it is important to note that all respondents in potential customer companies were aware of OBCs, some had implemented such a contract in the past or had considered implementing it. Therefore, we deemed all participants to possess sufficient knowledge for participating in the study.

The interview guideline had been refined in a pretest with one interviewee from an actual compressed air OBC customer. All interviews were conducted face-to-face, except for one, which was conducted over the phone. Each interview, after obtaining interviewees' consent, was audio-recorded and subsequently transcribed verbatim.

Table 2: Interview Participant Characteristics

<i>OBC type</i>					
ID	Position	Industry	Customer type	Interview length	
<i>Compressed air system</i>					
IP 1a/1b	Head of Engineering/ Operating Engineer	Furniture manufacturing	A	1:07 h	
IP 2	Head of Sourcing	Aerospace engineering	A	1:04 h	
IP 3	Operating Engineer	Building technology	A	0:36 h	
IP 4	Operating Engineer	Chemicals	A	0:45 h	
IP 5	Technical Sourcing Manager	Energy supply	P	0:44 h	
IP 6	Quality Manager	Logistics services	P	0:34 h	
IP 7	Technical Sourcing Manager	R&D industry	P	0:49 h	
IP 8	Head of Engineering	Health care	P	0:44 h	
IP 9	Head of After Sales	Car sales and service	P	0:42 h	
IP 10	Head of Engineering	University laboratories	P	0:29 h	
IP 11	Head of Sourcing	Cable and wire manufacturing	P	0:36 h	
<i>Industrial gas supply</i>					
IP 12	Head of Engineering	Chemicals	A	1:04 h	
IP 13	Project Engineer	Chemicals	A	1:38 h	
IP 14	Technical Sourcing Manager	University laboratories	A	0:41 h	
IP 15	Technical Sourcing Manager	Chemicals	A	0:54 h	
IP 16a/16b	Operating Engineer/ Head of MRO	Aluminum manufacturing	A	0:48 h	
IP 17	Operating Engineer	Chemicals	A	0:40 h	
IP 18a/18b	Technical Sourcing Manager / Head of Engineering	Chemicals	P	0:47 h	
IP 19	Head of Sourcing	Chemicals	A	1:03 h	
IP 20a/20b	Quality Manager/ Sourcing Manager	Aluminum manufacturing	A	0:50 h	
IP 21	Head of Sourcing	Chemicals	A	1:53 h	
IP 22	Head of Sourcing	Chemicals	A	1:02 h	
IP 23	Operating Engineer	Chemicals	A	0:57 h	
IP 24a/24b	Head of Sourcing / Head of Engineering	Chemicals	A	1:23 h	
IP 25	Technical Sourcing Manager	Chemicals	A	1:11 h	
<i>Beverage filling machinery</i>					
IP 26	Head of Engineering	Beverages manufacturing	P	0:24 h	
IP 27	Head of Engineering	Brewery	P	0:40 h	
IP 28	Head of Engineering	Brewery	P	1:00 h	
IP 29	CEO	Bottling and packing services	P	0:42 h	
IP 30	Head of Engineering	Beverages manufacturing	P	0:32 h	
IP 31	Head of Engineering	Beverages manufacturing	P	0:33 h	
IP 32	CEO	Brewery	P	0:49 h	

Notes: All interviewees were male; A = actual OBC customer, P = potential OBC customer

3.3 Data Analysis and Validation

Data analysis followed the commonly accepted procedure in MEC analyses (Grunert and Grunert, 1995) and began with content coding of the interview transcripts. For the five interviews in which two respondents participated, coded responses reflected the results of both interviewees' joint opinions. Following Veludo-de-Oliveira et al. (2006), we deemed such an approach of using multiple individuals in the data collection step adequate in our context, as it mirrors organizational decision processes that commonly also involve multiple individuals'

opinions. We coded the aspects mentioned in the laddering procedure as distinct elements and then assigned each element to a hierarchical level of the MEC. Similar or redundant codes on identical MEC levels were combined in an iterative process to reduce the number of elements to an analyzable size. Next, we captured the relationships between the different elements for each interview in an individual implication matrix. Each implication matrix thus captures whether respondents in an interview linked different MEC elements in their responses. Next, we combined the data from all individual matrices in one overall implication matrix to quantify the number of times two elements were associated among all respondents (shown in Appendix B).

Based on the aggregated implication data, we created a hierarchical value map (HVM) that depicts the connections forming the different MECs. Following Gengler et al. (1995), a HVM graphically illustrates each element's hierarchical level, links between elements, and the strength of each link. Thus, the HVM shows the various paths that connect different attributes of an OBC supplier's sales approach with functional and psychosocial consequences that customers perceive, and their superordinate goals that respondents intend to address with OBCs.

In order to validate the findings of our exploratory study, we conducted a member validation check, as suggested by Creswell (2013), to ensure that our findings represent an authentic and credible description of the decision-making criteria for OBCs. After a preliminary data analysis, we randomly selected three respondent companies in each of the three supplier industries and proposed visiting each of them again for a workshop to present and discuss the study findings. Seven interviewees agreed to meet (compressed air systems: 2; industrial gas supply: 3; beverage filling machinery: 2). Four of these validation check interviewees were actual OBC customers, three were potential customers. In the workshops, participants provided feedback and suggestions (e.g., labeling of MEC elements) that we incorporated in our data

analysis. More importantly, all workshop participants confirmed that the results adequately reflected their own perspective and judged them to be applicable to other context of OBC purchasing. Overall, the validation check thus provided evidence for the validity and generalizability of our findings.

4. Results

As explained above, the first result of our analysis was the identification of means-end chain elements on the four different hierarchical levels (i.e., sales-related attributes, functional consequences, psychosocial consequences, and superordinate goals). In a second step, we identified and interpreted relationships between these elements. Finally, as a third part of our analysis, we explored possible differences between existing and potential OBC customers.

4.1 Identified Means-End Chain Elements

In total, our data analysis yielded seven sales-related bundles of OBC attributes, five functional consequences, three psychosocial consequences, and four superordinate goals. Table 3 provides an overview of these elements, which we describe in detail below.

Table 3: Overview of Means-End-Chain Elements

1. Sales-related attributes	2. Functional consequences	3. Psychosocial consequences	4. Superordinate goals
<u>Selling process:</u> <ul style="list-style-type: none"> • OBC reputation • Salesperson technical and commercial expertise <u>OBC development:</u> <ul style="list-style-type: none"> • Thorough requirements analysis • Co-creation and cooperation <u>OBC elements:</u> <ul style="list-style-type: none"> • Price and OBC economics • Transparency • Integration of innovations 	<u>Decision-making process:</u> <ul style="list-style-type: none"> • Broader and deeper information • Understanding of customer's value creation processes <u>OBC operating phase:</u> <ul style="list-style-type: none"> • Implementation efficiency • Operational efficiency • Downtime avoidance 	<ul style="list-style-type: none"> • "We're in this together" • Attachment • Confidence 	<ul style="list-style-type: none"> • Economic benefit • Performance reliability • Organizational and individual security • Individual accountability

4.1.1 Sales-Related Attributes

On the first hierarchical MEC level, interview participants described attributes that they deemed important in an OBC purchasing process. We grouped these into three categories: attributes related to (1) the selling process; (2) OBC development; and (3) OBC elements. Related to the first category, respondents mentioned the OBC provider's reputation for being able to realize and operate an OBC as a requirement of great importance. Consider a furniture manufacturer that uses a compressed air OBC:

"For me, a sales rep benefits from a providers' reputation. If I don't have that [reputation], such a sales rep creates a negative feeling. And since we are talking about a contractual obligation over a longer period of time, [without the reputation] then you question everything." (IP 1a) (1)

In this vein, several interviewees indicated the expectation to see tangible evidence for a provider's competence by, for instance, reviewing references of prior OBCs for other customers. This is in line with Ulaga and Reinartz (2011), who refer to the use of best practices to communicate the value potential of solutions as an important approach of successful firms. As the head of engineering of an aerospace engineering company explained:

“If, for example, a supplier is established in the automotive industry and can offer 24/7 service there, then they have a pretty good reference. And if they have been doing that for several years and did not get kicked out by the car manufacturer, then they seem to be able to deliver. And [...] these aspects play a much bigger role in contracting than in an investment decision.” (IP 2) (2)

As the second attribute, interviewees explained that a provider who intends to sell OBCs must make sure that its salespeople not only understand the commercial, but also the technical issues involved. This is in line with the finding by Ulaga and Loveland (2014) that solutions salespeople need T-shaped skills by integrating knowledge from many domains. Consider the following three statements from a specialty chemicals manufacturer and an aluminum manufacturer, both using an industrial gas supply OBC, and from a brewery that has been considering switching to an OBC for its bottling machinery:

“The salespeople are really crucial. These need to be people who have not only commercial competence, but also have engineering knowledge.” (IP 25) (3)

“In principle, I have to have someone who is familiar with quantities, margins et cetera, and contracts, as well as someone who is familiar with the application of the technology or who at least dives in so quickly that he says ‘okay, I understand and I could even assemble this’. And that’s a pretty challenging situation, because the salesperson constantly has to bridge the gap between commercial and technical aspects.” (IP 16a) (4)

“The salesperson has to know the brewery [...], has to have mechanical engineering competence, needs to know about cost accounting, know the production processes. [...] So you need people who are competent in both areas, the business side and mechanical engineering.” (IP 28) (5)

Related to OBC development, interviewees pointed to the importance of a supplier’s capabilities to specify a customer’s requirements as the third attribute. This corresponds with the observation by Ulaga and Reinartz (2011, p. 13) that “when selling goods, vendors generally attempt to meet customer-defined specifications, whereas the object of a hybrid offering sale is rarely well defined from the outset”. In particular, participants voiced the expectation that a

salesperson takes the time and has the expertise for conducting a detailed, individually tailored analysis of the customers' initial situation. Consider the following statements from the head of sourcing of a cable and wire manufacturer, the head of engineering of a specialty chemicals manufacturer, and the head of engineering of a furniture manufacturer:

"In general we know how an outcome-based contract works. But we are not the experts who say that we need this and this and that and then it works. [...] Then we need support by specialists who deals with it on a daily basis." (IP 11) (6)

"It is always important that they get an idea here on site, that they don't try to do everything from their office." (IP 23) (7)

"It is important that they precisely address our requirements, but also that they supplement it with their own innovative ideas. I mean, we have a limited perspective, because we do not know the technology and the developments at the compressor manufacturers and therefore rely on their ideas. And that is the crucial thing that distinguishes a good sales team." (IP 1a) (8)

The fourth attribute, co-creation and collaboration, is less operational, but rather related to a general sales approach, as it describes the expectation that selling an OBC is not primarily based on persuasion but more on joint development of a solution to a problem that may be ill-defined. This is in line with extant studies in the OBC context which revealed a cooperative culture to be important (Glas and Kleemann, 2017) and that such cooperation can move from reciprocal to communal (Guo and Ng, 2011). Customers thus expect OBC salespeople to use the requirements analysis result to jointly define what is actually needed. Engineers from two chemicals manufacturers that currently use OBCs expressed it as follows:

"During the sales approach, I want to be informed about my mistakes proactively. If our tender is not optimal, I expect the provider to tell me about better options. [...] And to tell me when there are mistakes on my end, so that we can jointly come to a good contract. [...] But we expect that they [salespeople] work with us creatively, because as the one who is looking for a supplier, I rely (9)

on suggestions for new technologies, that they are lateral thinkers, become involved, and are willing to engage with our problem, then I feel good.” (IP 4)

“It’s important to me that [...] they see a problem with the system on the horizon, that would come up in the future, that they inform me in time, so that I can do my work. Not afterwards.” (IP 17) (10)

The third category, OBC elements, comprises three attributes that are related to the execution of an OBC. The first, ‘price and OBC economics’, refers to the general price level, price components, and payment modalities. Interviewees consistently pointed out the need for an OBC to be economically feasible as a key decision criterion. As the head of engineering of a furniture manufacturer, currently using a compressed air OBC, points out:

“Ultimately, the salesperson who wants to sell such a contracting solution has to break down the numbers and the bottom line has to make sense, be cheaper.” (IP 1a) (11)

At the same time, the lengthy and close collaboration that occurs already in the OBC development phase was considered to influence the price negotiations, as explained by the head of sourcing of a chemicals manufacturer:

“In the end, of course, it’s all about the price, no question about it; but we talk about it honestly.” (IP 19) (12)

The next attribute, ‘transparency’, describes customers’ need to be able to understand the complex inter-relationships between what needs to be paid under which conditions and what is received in return. Compared to conventional investments, OBCs commonly comprise contractual agreements that have a high level of complexity due to accounting for many contingencies. As in the case of a brewery, for which the head of engineering has considered entering into an OBC for beverage filling machinery:

“There is greater complexity; you have to deal with the contract setup in much more detail. This requires a transparency about the total costs.” (IP 28) (13)

In these complex settings, interviewees expect suppliers to be clear about the cost implications of different contract alternatives and to openly discuss issues before signing the contract. As described by the head of sourcing of an aerospace engineering company, who was involved in negotiating an OBC for compressed air, and the head of engineering of a beverages manufacturer:

“Transparency is important for us; that means what is our investment, what are different contract durations, [...] what are the costs for personnel and service.” (IP 2) (14)

“I need open and honest communication; transparency. This is what it looks like, here are the calculations, and so on. Whether or not it makes sense to even consider such a model. [...] What is most important is that they [salespeople] show everything honestly and transparently.” (IP 31) (15)

Finally, some participants considered the integration of innovations in an OBC as important. Although, in contrast to purchasing a machine, customers do not invest in technology, the extent to which innovative technologies are included in an OBC made a difference for a specialty chemicals manufacturer that is employing a gas supply OBC:

“With nitrogen, it was different. We had multiple, diverse offers. And in the end, the innovative technology clearly made the difference.” (IP 13) (16)

The integration of innovations was, however, not only important for the initial purchase decision. Participants also expected providers to update OBC components and processes regularly during the contract period to ensure the use of technical innovations:

“Of course, you have to look at such contractual thing. [...] Is he willing to make improvements in case of technical innovations?” (IP 7) (17)

4.1.2 Functional Consequences

The second hierarchical MEC level comprises consequences related to participants' decision-making processes as well as to the realization and operating phase of an OBC.

Regarding the former, interviewees pointed out that when deciding about an OBC, they need more detailed information than for a conventional product or service purchase. This is due to the greater complexity of the long-term contractual agreement underlying an OBC and the necessary integration of an OBC supplier in a customer's value creation processes, as illustrated in the following statements from a beverage manufacturer and a brewery:

"There are so many components that come together for such a machine. As I said, energy costs, a machine's level of efficiency, the individual components that actually are assembled. How can I clean them? There are so many things; you must have someone who you are able to consult with." (18)
(IP 26)

"Comprehensive technical information that I can understand. [...] I actually need complete information, about how everything comes together and functions, and maybe also where the weak spots are. Sometimes, a supplier may tell you about the weaknesses of their system. That is very, very helpful because you realize that you are talking openly and honestly. You know, I think that we need full information." (19)
(IP 32)

Moreover, participants indicated that a supplier's salespeople need to understand their customers' value creation processes at a very detailed and technical level. This finding aligns with one of the core elements of value-based selling, according to which salespeople need to understand the drivers of value in the customer's business (Terho et al., 2012; Töytäri et al., 2011; Töytäri and Rajala, 2015). As the CEO of a bottling service provider for beverage manufacturers explains:

"Important to me is their customer orientation, that we speak the same language [...]. This means that a provider's sales department [...] knows what we are talking about and simply understands what it is that we are doing here." (20)
(IP 29)

Regarding the operational aspects of an OBC, a focus on efficiency is evident that, according to participants, is even more important in OBCs than in input-based purchase

decisions. Because the implementation of an OBC has a greater direct impact on customers' operations (e.g., setting up an air separation plant on site vs. oxygen delivery), an interest in a timely and smooth implementation is evident. Interviewees also pointed out that because an OBC is operated by the supplier that has extensive know-how about its machines, they expect a more efficient implementation phase. Consider the following quotes from a furniture manufacturer and a beverage manufacturer:

"[...] production has to keep on running. I cannot refurbish a compressor station and close it down, work on it for one week, then we cannot produce." (IP 1b) (21)

"[...] the know-how is there right away. [...] The start-up phase of new machines should be considerably shorter. That means it's installed and then runs." (IP 31) (22)

In the operating phase, customers put a strong emphasis on the efficient operation of an OBC. However, in contrast to purchasing an investment good, there appeared to be less focus on the immediate capital expenditure, which is generally lower in OBCs. Consider the example of a bottling company:

"At the end of the day, the system has to work, the product has to be put into the bottle as efficiently as possible and the whole thing has to be hassle-free, low-labor, low-maintenance." (IP 29) (23)

Thus, in contrast to a unidimensional focus on the customer's monetary input, a strong focus on the contracted outcome (e.g., compressed air) was evident, that also emphasized quality requirements (e.g., dry and oil-free compressed air), as can also be seen in the quote from a furniture manufacturer:

"Our production needs around 40 million cubic meters of air. That means we require four million kilowatt hours per year only for compressed air. That is where I will calculate even the second decimal, because if a machine needs 100, 200, or 500 thousand kilowatts more, that will be a lot of money. And that is why the energetic comparison is a basic requirement." (IP 1b) (24)

Finally, the avoidance of production downtime represented a fundamental requirement, mirroring the findings by Macdonald et al. (2016). Respondents pointed out the consequences of having the supplier run a vital business process and their interest in ensuring smooth and reliable operations, and thus avoiding downtime or reduced production due to the OBC, as exemplified in the quotes from a chemicals manufacturer and a furniture manufacturer.

“If compressed air is not working [...] and the machines cannot produce, then we are talking about thousands of tons of material that are not being produced. And then we are getting pretty quickly into a massive damage.” (IP 4) (25)

“In our production, if compressed air fails, that is similar to having a power outage. [...] They [contractor] guarantee that within twelve or 24 hours, a replacement aggregate will be set up. And we cannot afford to stop production longer than that [...] In [location] we are producing 1.1 million parts per day, if production stops for a whole day that is difficult to make up for.” (IP 1a) (26)

To this end, purchasing managers attempt to reduce the likelihood of downtime during an OBC's operation by, for instance, critically reviewing whether the proposed capacity of the installed equipment provided enough buffer for maintenance periods. Consider the case of an operator of university laboratories:

“It's not like [purchasing] a door handle or something similar. [...] In outcome-based contracts, I am so dependent on the manufacturer, in the case of compressed air, from the production unit, that I want to make sure that the provider will be able to operate it for a long time.” (IP 10) (27)

4.1.3 Psychosocial Consequences

The third hierarchical level indicates respondents' individual perspective, as the elements are not grounded in the company's operations, but in their individual needs. Participants pointed out that because implementing and operating an OBC is a joint effort by the supplier and the customer, the relationships between the individuals involved on both sides and their alignment

with regards to goal structures are important. Consider the following two examples from industrial gas supply customers who both highlight the relational perspective and the joint effort, which we denote as a feeling of “being in this together”:

“It is important, not only for our management, but also for me personally, to have the feeling that there is a partner who views us as a long-term partner. [...] Therefore, this partnership [...] is of really high importance.” (IP 19) (28)

“We need to work together. Because otherwise the whole relationship is standing on shaky ground [...]. So if there are negative signals right at the beginning, then it's not worth continuing.” (IP 21) (29)

This echoes the findings by Macdonald et al. (2016) that customers' value-in-use of solutions is reflected in the extent to which there is a collaborative effort. Similarly, it highlights the importance of goal alignment found by Caldwell et al. (2017). In contrast, the head of sourcing of a specialty chemicals manufacturer describes his interaction with a potential supplier that, in the end, was not selected for an OBC, as not giving him this feeling of partnership:

“I can still remember that with them, I simply didn't feel as if I was in good hands. [...] And their behavior was not professional or partnership-oriented.” (IP 22) (30)

Interestingly, this co-creation also leads to a feeling of individual attachment that goes beyond contractual obligations, which we identify as the second psychosocial consequence. Initially, this attachment is based on the long-term contractual obligations of an OBC, as explained by the head of sourcing of an aerospace engineering company that uses a compressed air OBC:

“To be honest, it doesn't make sense to switch to a different provider for the second unit. [...] Because we had previously already negotiated the whole contract, we actually only needed to change the location address and did not have to go through seven rounds of revising the contract. [...] We knew it's working in plant 1” (IP 2) (31)

In addition, however, respondents indicated that the personal relationship that may develop due to the joint effort increases their own loyalty to the OBC provider. This is evident in the statements from a furniture manufacturer and a chemicals manufacturer:

“It comes from the fact that we make such a decision for ten years. That’s the bottom line. I can’t say that I throw this out in half a year [...] and do the next one.” (IP 1b) (32)

“Sure, when I buy a product then that is a one-time thing. Then I can switch relatively quickly and can look for an alternative supplier [...] because, A, the competitor is cheaper and, B, the competitor has better quality, faster delivery, etc. [If] I enter an outcome-based contract somewhere, then I have quite some attachment, because I cannot change as quickly.” (IP 12) (33)

Lastly, as the third psychosocial consequence, it was pointed out how important it is for respondents to feel confident about making a decision and selecting a provider. Consider the following quotes from the head of engineering of a beverages manufacturer and a brewery CEO:

“What I find very important is the confidence in the supplier and also the human aspect, the personal interactions. So there should be employees who you understand and who you get along with.” (IP 31) (34)

“It is definitely helpful if you feel that you have an open and honest basis for negotiations” (IP 32) (35)

Thus, in addition to the often very structured supplier selection and negotiation process, the feelings of the decision makers appeared to play an important role. This is in line with recent findings on the importance of emotions in organizational buying (Kemp et al., 2018) and the notion that “industrial buying is a combination of individual and organizational decision-making processes” (Webster Jr and Keller, 2004, p. 393). As pointed out by a building technology manufacturer and a brewery:

“I just need to have a good feeling.” (IP 3) (36)

“That feeling of being certain that you are in good hands.” (IP 28) (37)

It is important to note that this feeling of confidence appears not to be limited to the selection process. Due to the long-term relationship that an OBC entails, respondents pointed out the need to be able to perceive the supplier as trustworthy and reliable on a personal level. This is reflected in the following statement from a sourcing manager at a chemical manufacturer:

“Can I rely on that person in a crisis situation, when I call and say, I need it today, or immediately. Then I want that it happens immediately and not in 48 hours. These kind of things are super important.” (IP 15) (38)

4.1.4 Superordinate Goals

On the highest level of the MEC analysis, four superordinate goals emerged that OBC customers seek to address, which reflect both organizational and individual needs (Tellefsen, 2002). Respondents highlighted the goal of achieving an economic benefit for their company through the OBC, such as reducing costs and enhancing productivity. Not surprisingly, this economic viability was a must-have, as consistently pointed out by respondents, such as the aerospace engineering provider quoted below:

“Ultimately, the goal is to achieve a cost-optimal solution.” (IP 2) (39)

It is important to note, however, that the long-term relationship entailed in an OBC moves the focus away from initial expenditures and leads to a more comprehensive cost assessment.

This is evident in the statement from a university laboratories head of engineering:

“What counts for me, in the end, are the total costs, essentially the life cycle costs.” (IP 10) (40)

A second goal that emerged was related to the OBC's reliability due to its integration into the organization's manufacturing processes. This becomes clear in the following statement of a chemicals manufacturer:

“Reliability is number one for us. We check that very thoroughly [...]. The second most important criterion is reliability and the third most important as well.” (IP 19) (41)

Interestingly, several respondents justified their focus on reliability not only with abstract organizational needs, such as meeting production volumes. Additionally, the consequences that unreliable OBC operations would have for their colleagues in operations were very salient, as reflected in the following comment from a furniture manufacturer:

“So that the colleagues [in production] can work, so that we can show the reliability of what we purchased to colleagues, it's this chain of reliability.” (IP 1a) (42)

In the third goal of achieving security, both organizational and individual elements were evident. Several participants mentioned that the long-term commitment of an OBC requires adequately assessing and managing the risks that such a contract entails in the long run. For example, the head of engineering of a brewery that has been considering switching to an OBC focused on this security for the whole company:

“In OBCs, it is always risk management and how the risks are distributed.” (IP 28) (43)

In addition to this abstract organizational perspective, however, respondents repeatedly pointed out their individual desire for security with regards to making the right decisions. They perceived OBCs to also entail greater risks for themselves personally, which they sought to be addressed in a purchase process. Consider the quotes from a car sales and service company and a chemicals manufacturer, where both interviewees highlight their personal viewpoint:

“I need to be sure that it works. This is also related to the risks that I mentioned earlier.” (IP 9) (44)

“I need to be sure that I can supply my customers, because in the end, I'm the one who's screwed and I need the security for the company.” (IP 12) (45)

The concern for one's individual consequences became even clearer in the fourth element, which we denoted 'individual accountability'. All participants felt personally responsible for the

functioning of an OBC, such as the technical sourcing manager for several university laboratories:

“Because in the end, I’m in charge for our supply. And if it doesn’t work, it will become my personal problem.” (IP 14) (46)

While malfunctions in a purchased machine may be attributed to operations personnel, the sourcing managers and engineers who participated in our study felt that mishaps during the long operating period of an OBC would be attributed to their own decision for an OBC from a specific provider. Therefore, they perceived a greater personal accountability when purchasing OBCs than when making conventional purchases. This is exemplified by the following quote of the CEO of a mid-sized brewery, who is also responsible for purchasing:

“It’s my responsibility to take care of the company and not purchase something that is wrong, but the right services and the right equipment.” (IP32) (47)

4.2 Hierarchical Relationships

The HVM depicted in Figure 1 illustrates the analysis results for the connections between the individual elements, as shown in the implications matrix in Appendix B. The different hierarchical levels and the differences in connection strength can be distinguished due the use of different forms and shades. To ensure sufficient reliability of the discussed links and for the sake of clarity, we depict only connections that were mentioned at least six times. The HVM therefore illustrates 31 of the 75 identified paths that account for 329 of the 448 connections mentioned in the laddering interviews.³

³ As a robustness check, we also examined an illustration with a reduced threshold of at least five connections. This would add six paths and thus 30 connections to the HVM. However, we agreed that the additional insights provided by these connections were marginal, while the clarity of the HVM illustration was notably reduced.

The cognitive associations that lead to the four superordinate goals allow for important insights about what customers require when purchasing an OBC. On the one hand, several functional or operational paths appear to be important for achieving organizational goals. For example, a thorough requirements analysis and the pricing scheme are important to ensure operational efficiency of an OBC for a customer and, ultimately, an economic benefit. Similarly, having a reputation for being capable of implementing and operating an OBC is crucial due to the vital nature of the provided resources for customers, who want to avoid downtime in order to ensure performance reliability and security in the manufacturing processes.

On the other hand, based on the number and the strengths of the connections, 'individual accountability' clearly emerges as a central goal. All of the functional and the psychosocial consequences are linked to this goal. In contrast, the organizational goals of reliability and benefits play a less prominent role, as does the hybrid goal of security. This is also evident in the three most prominent means-end chains: First, OBC reputation is viewed as an important characteristic to avoid equipment downtime (23 connections), which represents the core consequence to address the aspect of individual accountability (26 connections). Second, a transparency in an OBC sales process is important to satisfy the need for broader and deeper information (14 connections), which directly addresses the individual accountability (13 connections) and indirectly helps establish a closer relationship and greater attachment (12 connections), which also contributes to individual accountability (10 connections). Third, a thorough requirements analysis represents a key characteristic, as it contributes to operational efficiency (16 connection), which also contributes to respondents' individual accountability (13 connections). Further details on all connections can be found in Appendix B.

Interestingly, the concern about individual accountability is predominantly addressed by attributes that a salesperson can directly influence. For instance, approaching customers in a co-creative and cooperative manner gives customer representatives confidence in the purchasing process and ensures that they are willing to make a far-reaching decision that they will be held accountable for. Similarly, salespeople who can answer both commercial and technical questions about an OBC are more likely to give customers the feeling that they really understand their process of value creation (i.e., business model and manufacturing processes). Because of the complexity of OBCs, it appears to pay off for salespeople to communicate transparently about details and implications of such a contract; greater transparency addresses customers' need for more extensive information and may even create a sense of attachment to the supplier among customer representatives.

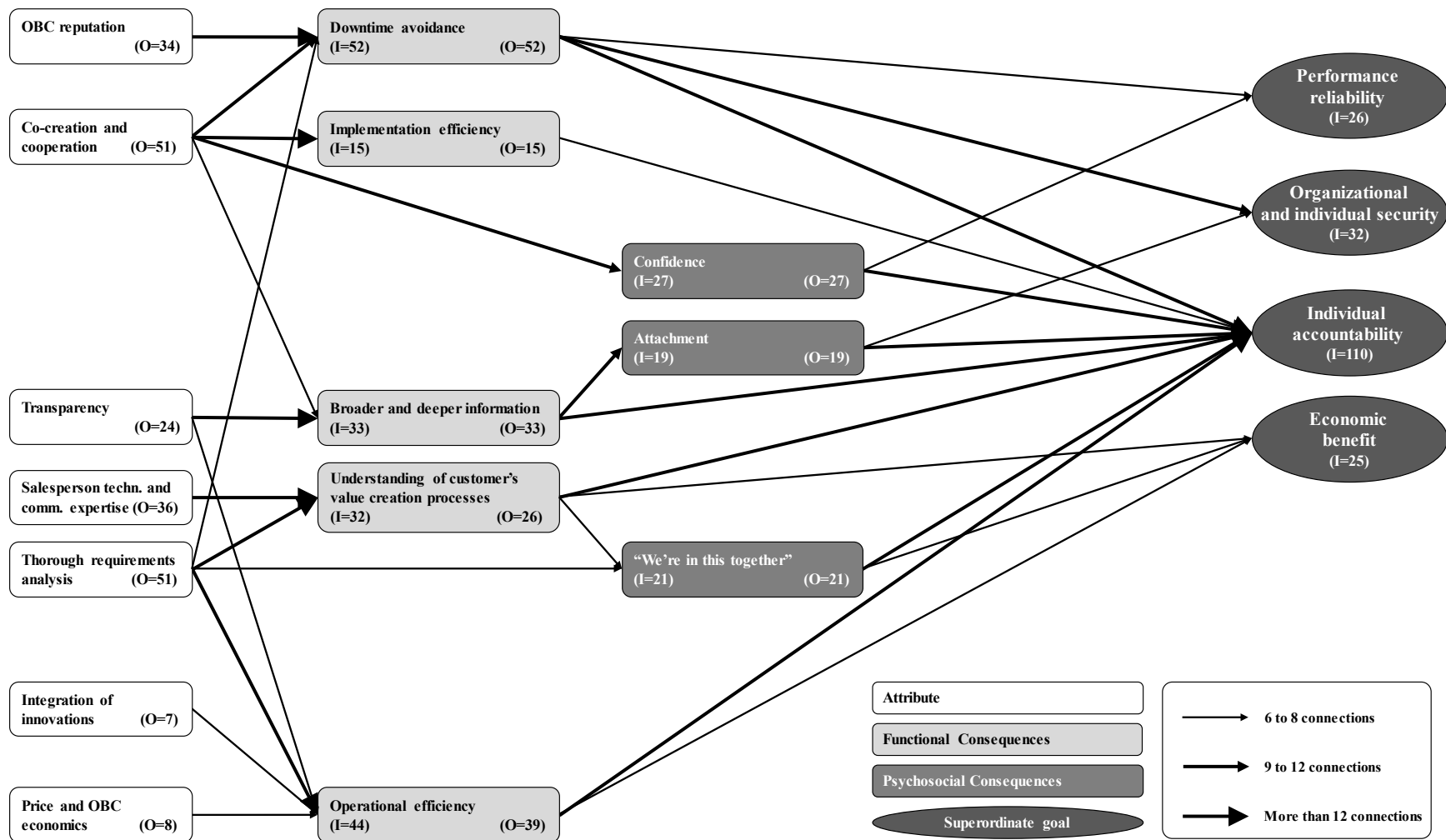


Figure 1. Hierarchical Value Map

Note: For each element, O denotes the total number of outgoing connections and I denotes the total number of incoming connections.

4.3 Differences Between Actual and Potential OBC Customers

Our participant group consisted of both OBC customers (n = 17 companies) and companies that have only considered sourcing an OBC. While we deliberately recruited participants from both groups to create generalizable insights that are relevant for the marketing of OBCs, this also allowed us to examine differences between customers and non-customers.⁴

Examination of the interview data revealed customers to put a stronger emphasis on MEC elements related to the cooperative nature of an OBC. For instance, the importance of co-creation during OBC development was stressed especially by customers (see quotes 9 and 10). Similarly, the feeling that 'we're in this together' was articulated more clearly by customers than by non-customers (see quotes 28 and 29). Understandably, the attachment to a provider, also on a personal level, during an OBC operating phase appeared contingent on actual OBC experience.

In contrast, non-customers emphasized the need for extensive information in the decision-making process due to an OBC being perceived as more complex than a conventional investment. Specifically, the need for a salesperson to be transparent about consequences and implications was highlighted especially by non-customers (see quotes 13 and 15), who also indicated more strongly the need for broad and deep information (see quotes 18 and 19). Overall, we thus conclude that customers, drawing from their experience in implementing and operating an OBC, place greater importance on relational aspects, while non-customers have a greater need for understanding the implications of entering in an OBC.⁵

⁴ We also examined possible differences across the three OBC supplier industries, the 15 customer industries, and across interview participants' roles and responsibilities. However, no substantial differences were evident.

⁵ In addition to these differences in the relevance of individual MEC elements, we also assessed possible differences regarding the hierarchical relationships between MEC elements. However, no clear differences were evident.

5. Conclusion

In the ongoing process of servitization and fueled by technological advancements such as the Internet of Things, OBCs are gaining increasing importance for manufacturing companies (Sundblad, 2018). A thorough understanding of customers' requirements and goals is needed to successfully transition to business models that are based on selling customer-relevant business outcomes instead of the industrial equipment required for their provision. Insights about such requirements are particularly important for the sales function that plays a crucial role for co-creating value (Terho et al., 2012) in the context of complex services and solutions (Worm et al., 2017). In the present study, we thus explored actual and potential customers' requirements and expectations when purchasing solutions through OBCs, with a specific focus on the implications of this customer perspective for OBC providers' selling processes.

5.1 Contributions to Theory

Our research adds to extant literature in four ways. First, our results highlight the relevance of individual goals in OBC purchasing decisions. Although prior studies pointed to the relevance of relational exchange in OBC provision (e.g., Ng et al., 2013; Randall et al., 2011), their focus was mainly on the relationship between the supplier and the customer organization. Our findings shed light on the perceptions and goals of individual decision-makers involved in OBC purchasing. While the conclusion that both individual and organizational goals need to be met is not novel, our finding that the feeling of being held accountable for the results delivered by an OBC is a central driver of OBC purchasing decisions highlights the relative importance of this individual goal. Moreover, this result supports the more general findings on the role of individual goals for judging the value-in-use of business solutions (Macdonald et al., 2016). As Webster Jr

and Keller (2004, p. 395) note: “The fundamental point is that individuals, not organisations, make decisions. These individuals are motivated by their own needs and perceptions as they do their organisational work in an attempt to maximise the rewards (pay, advancement, recognition and feelings of achievement) offered by the organisation.” At the same time, our study relates to recent findings by Huber and Kleinaltenkamp (2020) on the interplay between individual and collective goals.

Second, our findings provide a starting point for expanding research on solution selling and value-based selling. Interestingly, the sales-related challenges in OBCs have received limited attention, despite the general understanding that “a manufacturer’s sales force constitutes a major hurdle in the path toward a service-centric business model” (Ulaga and Loveland, 2014, p. 113). Companies that intend to become service providers need to adjust their sales function with regards to its organization, its role, and its competences (Kindström et al., 2015). However, as Ulaga and Reinartz (2011, p. 13) state, “research has not clarified the unique characteristics of the sales approaches or distinctive capabilities required for mastering hybrid offering sales”. The sales-related OBC attributes and functional consequences that we identified are largely consistent with the conceptualization of value-based selling (Terho et al., 2012; Töytäri and Rajala, 2015). At the same time, the psychosocial consequences and superordinate goals show the importance of decision-makers’ individual goals. While the relevance of individual factors in value-based selling has been demonstrated for the salespeople implementing it (Terho et al., 2017), our results suggest expanding the concept toward the individual viewpoints of customer representatives.

Third, our findings enrich the ongoing discussion about what constitutes customer value and how it is co-created (Eggert et al., 2019; Lindgreen et al., 2012; Macdonald et al., 2016). The

prominent role that individual goals appear to play in the industrial purchase decision that we studied can be linked to the discussion about the socio-cognitive construction of value in business relationships (Haas et al., 2012). According to Vargo and Lusch (2008, p. 7), “value is always uniquely and phenomenologically determined by the beneficiary”. Our findings indicate that this beneficiary is not only the abstract customer organization, but also comprises the individual member(s) of that organization who are involved in the decision-making. Adding to the notion that the value-in-use that is co-created in solutions “is individual and not just collective” (Macdonald et al., 2016, p. 102), we demonstrate how important it is to address this aspect during the sales process.

Fourth, on a broader level, our study contributes to the literature on inter-organizational governance. Extant research has highlighted the interplay between contractual and relational governance (e.g., Caldwell et al., 2017; Cao and Lumineau, 2015; Roehrich et al., 2020). Primarily, OBCs represent a specific application of formal contractual governance. At the same time, however, our findings highlight the importance of more informal, socially derived, interpersonal mechanisms for the realization of such long-term collaborations. This aligns with the notion of complementarity of formal and informal arrangements (Poppo and Zenger, 2002; for a detailed discussion see Roehrich et al., 2020).

5.2 Managerial Implications

Based on our MEC analysis of existing and potential OBC customers, we can derive four important implications for selling OBCs. First, our results suggest that companies should pay particular attention to *how* their salespeople approach potential OBC customers during the preliminary phases of OBC sales. A high level of co-creation and cooperation awareness,

transparent communication, and the ability to discuss both technical and commercial details of an OBC emerged as key sales-related attributes. Understanding the importance of joint problem solving enables salespeople to “to go beyond explicit problems to focus on solving problems that are ill-defined” (Luotola et al., 2017, p. 60). The emphasis on individual connections with customer representatives is in line with prior findings about the importance of personal relationships (Ulaga and Eggert, 2006) and networking capabilities for solution salespeople (Ulaga and Reinartz, 2011). Salespersons should therefore strive for understanding their customers' business processes in detail, both from an engineering and a business standpoint, and, instead of merely presenting standardized solutions to general problems, take the time to jointly identify each customer's individual problems and possible solutions.

Second, our study indicates the importance of reliable evidence of a supplier's capability to successfully implement and operate an OBC. Compared to conventional input-based transactions, customers expect an OBC offer to be tailored to their specific situation. Manufacturers can address this by conducting detailed requirement analyses for each customer and by offering individualized pricing options and contract terms instead of standardized off-the-rack services. When designing an OBC to a specific customer's needs, it is crucial to credibly demonstrate how it will create value. This could, for instance, be addressed by providing references and guarantees (Terho et al., 2012), simulations (Ulaga and Reinartz, 2011), or visualizations (Kindström et al., 2012). Our study also suggests an innovation guarantee that ensures a customer always obtains an outcome-based process using the latest technology as a feasible component.

However, our results indicate that the importance of demonstrating customer value is not limited to the economic and procedural benefits realized from an OBC, such as cost savings or

process acceleration. While these aspects are undoubtedly important and call for a clear demonstration of operational efficiency, the reliability of the service appears to be equally relevant. This may be driven by the long contract period, which is likely to result in lock-in effects. When customers outsource parts of their operations to suppliers in the form of an OBC, their expectations regarding service availability and the avoidance of machine downtimes may be higher than when they operate the equipment themselves. Suppliers can address these high standards with preventive and predictive maintenance (Stremersch et al., 2001), which are enabled by the fact that suppliers necessarily maintain direct access to their machines during customers' usage period in order to measure the outcome.

Third, when considering the individual goals of customer representatives, our findings suggest that salespeople should address the decision-maker's concern for being held accountable for an OBC's success. This is in line with the finding by Tellefsen (2002) that the individual benefits which a purchasing manager receives are equally, if not more important than the organizational benefits. Here, activities that reduce the individual pressure and risk that a decision-maker may perceive appear to be useful. Salespeople should thus demonstrate the supplier's reputation and expertise and acknowledge customers' desire to obtain detailed information on the specifics of an OBC in order to increase their decision confidence. Such activities should then create a feeling of joint problem solving, confidence, and a sense of attachment that may ultimately create customer loyalty beyond the current OBC. Combining these individual benefit bundles (Tellefsen, 2002) with quantified organizational benefits should increase the likelihood of OBC sales success.

Fourth, OBC suppliers need to acknowledge that customers who already have experience with OBCs require a sales approach that centers on the relational and cooperative aspects of

OBC operations. In contrast, customers that have not yet implemented an OBC have greater information requirements to understand the implications of their choices. Here, salespeople should put more effort on explaining the route to successful OBC implementation, in order to make the consequences as concrete as possible.

In addition to these implications for selling OBCs, our study also provides directions for purchasing OBCs. Against the backdrop of our findings, customer firms should explicitly take their decision-makers' individual goals into account when designing purchasing processes and delegating decision-making authority for OBCs. In particular, they should be aware of the elevated level of decision-makers' risk perception when purchasing OBCs. While OBCs transfer operational risk from the customer to the supplier firm (Guajardo et al., 2012), customer firm's decision-makers may perceive higher individual risk of being held accountable for a low performing or failing OBC compared to purchasing industrial equipment. At the same time, a decision-maker's individual goals may not be aligned with the collective, organizational goals, which may lead to intra-organizational conflict (Tate et al., 2010) or even intra-individual conflict (Locke et al., 1994). Ignoring potential conflicts between individual and organizational goals can lead to suboptimal purchasing decisions for the customer firm.

5.3 Limitations and Future Research

Although the present study employs established methods to uncover insights about selling OBCs, several limitations should be considered when interpreting the results. First, the qualitative, exploratory investigation allows neither for any statistical inferences about OBC customers' requirements, nor for a quantification of the relative importance of the different MECs. While qualitative methods are common in the context of OBCs (e.g., Caldwell and

Howard, 2014; Liinamaa et al., 2016), our study should be regarded as a first step that requires quantitative and confirmatory follow-up studies to validate the identified requirements.

Second, although we deliberately included respondents who were actual or potential customers of OBCs from three different industries, our research design does have a limited industry scope and is limited to German respondents. Additionally, our interviews with actual OBC customers could have been expanded to the supplier perspective. Future studies should therefore aim for a broader, and more international setting and the use of a dyadic design.

Third, our interviews were targeted at the key decision-makers for sourcing OBCs and thus primarily comprise sourcing managers, executives, and heads of engineering. However, other roles and departments are likely to be involved in organizational buying decisions about OBCs as well, such as operations or finance (Sheth, 1973; Töllner et al., 2011). Future studies should thus examine the possibility of diverse, and possibly conflicting, viewpoints within customer organizations.

Fourth, due to our focus on the selling of an OBC, we did not consider possible customer requirements that emerge during an OBC's operating phase. As OBCs represent long-term contractual agreements, longitudinal studies should examine changes of customer requirements over time. For example, ongoing interaction between salespeople and customers during OBC operations may provide opportunities for cross-selling, but may also come with specific requirements from customers. Ng et al. (2009) describe how individuals and their "service behavior and skills" play an important role in operating an OBC, and the post-deployment phase has been identified as an important process stage in providing solutions (Töllner et al., 2011; Tuli et al., 2007).

Despite these limitations, we believe that our study offers important insights for academics and practitioners dealing with the intricacies of servitization. Understanding the organizational and especially the individual requirements and goals for complex services such as OBCs can help researchers explain the effects of service transition strategies and may assist companies in achieving its benefits and growth potential.

References

- Adrodegari, F., Saccani, N., Kowalkowski, C., & Vilo, J. (2017). PSS Business Model Conceptualization and Application. *Production Planning & Control*, 28(15), 1251-1263.
- Aurifeille, J.-M., & Valette-Florence, P. (1995). Determination of the Dominant Means-End Chains: A Constrained Clustering Approach. *International Journal of Research in Marketing*, 12(3), 267-278.
- Baines, T., & Lightfoot, H. (2013). *Made to Serve: How Manufacturers Can Compete through Servitization and Product Service Systems*. New York, NY: John Wiley & Sons.
- Baines, T., Lightfoot, H., & Smart, P. (2011). Servitization within Manufacturing: Exploring the Provision of Advanced Services and Their Impact on Vertical Integration. *Journal of Manufacturing Technology Management*, 22(7), 947-954.
- Batista, L., Davis-Poynter, S., Ng, I., & Maull, R. (2017). Servitization through Outcome-Based Contract – a Systems Perspective from the Defence Industry. *International Journal of Production Economics*, 192, 133-143.
- Baumgartner, P., Kalmbach, R., Mahnel, M., & Lütjens, H.J. (1996). Service as Strategy at Khs Maschinen- Und Anlagenbau. *Managing Service Quality: An International Journal*, 6(3), 27-30.
- Benedettini, O., Swink, M., & Neely, A. (2017). Examining the Influence of Service Additions on Manufacturing Firms' Bankruptcy Likelihood. *Industrial Marketing Management*, 60, 112-125.
- Böhm, E., Backhaus, C., Eggert, A., & Cummins, T. (2016). Understanding Outcome-Based Contracts: Benefits and Risks from the Buyers' and Sellers' Perspective. *Journal of Strategic Contracting and Negotiation*, 2(1-2), 128-149.
- Böhm, E., Eggert, A., & Thiesbrummel, C. (2017). Service Transition: A Viable Option for Manufacturing Companies with Deteriorating Financial Performance? *Industrial Marketing Management*, 60, 101-111.
- Bourne, H., & Jenkins, M. (2005). Eliciting Managers' Personal Values: An Adaptation of the Laddering Interview Method. *Organizational Research Methods*, 8(4), 410-428.
- Buse, C., Freiling, J., & Weissenfels, S. (2001). Turning Product Business into Service Business: Performance Contracting as a Challenge of SME Customer/Supplier Networks. *Paper*

- presents at the 17th Annual IMP Conference in Oslo/Norway. Retrieved Aug 14, 2019 from <https://www.impgroup.org/uploads/papers/4277.pdf>
- Caldwell, N.D., & Howard, M. (2014). Contracting for Complex Performance in Markets of Few Buyers and Sellers: The Case of Military Procurement. *International Journal of Operations & Production Management*, 34(2), 270-294.
- Caldwell, N.D., Roehrich, J.K., & George, G. (2017). Social Value Creation and Relational Coordination in Public-Private Collaborations. *Journal of Management Studies*, 54(6), 906-928.
- Cao, Z., & Lumineau, F. (2015). Revisiting the Interplay between Contractual and Relational Governance: A Qualitative and Meta-Analytic Investigation. *Journal of Operations Management*, 33-34(1), 15-42.
- Creswell, J.W. (2013). *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (3rd ed.). Los Angeles: Sage.
- Datta, P.P., & Roy, R. (2011). Operations Strategy for the Effective Delivery of Integrated Industrial Product-Service Offerings: Two Exploratory Defence Industry Case Studies. *International Journal of Operations & Production Management*, 31(5), 579-603.
- Davis, D.F., Golicic, S.L., & Marquardt, A.J. (2008). Branding a B2B Service: Does a Brand Differentiate a Logistics Service Provider? *Industrial Marketing Management*, 37(2), 218-227.
- Deeter-Schmelz, D.R., Kennedy, K.N., & Goebel, D.J. (2002). Understanding Sales Manager Effectiveness: Linking Attributes to Sales Force Values. *Industrial Marketing Management*, 31(7), 617-626.
- Devries, H.J. (2005). Performance-Based Logistics-Barriers and Enablers to Effective Implementation. *Defense Acquisition Review Journal*, 11(3), 243-254.
- Eggert, A., Hogueve, J., Ulaga, W., & Muenkhoff, E. (2013). Revenue and Profit Implications of Industrial Service Strategies. *Journal of Service Research*, 17(1), 23-39.
- Eggert, A., Kleinaltenkamp, M., & Kashyap, V. (2019). Mapping Value in Business Markets: An Integrative Framework. *Industrial Marketing Management*, 79, 13-20.
- Eisenhardt, K.M. (1989). Building Theories from Case Study Research. *The Academy of Management Review*, 14(4), 532-550.

- Essig, M., Glas, A.H., Selviaridis, K., & Roehrich, J.K. (2016). Performance-Based Contracting in Business Markets. *Industrial Marketing Management*, 59, 5-11.
- Fang, E., Palmatier, R.W., & Steenkamp, J.-B.E.M. (2008). Effect of Service Transition Strategies on Firm Value. *Journal of Marketing*, 72(5), 1-14.
- Forkmann, S., Henneberg, S.C., Witell, L., & Kindström, D. (2017). Driver Configurations for Successful Service Infusion. *Journal of Service Research*, 20(3), 275-291.
- Gebauer, H., Haldimann, M., & Jennings Saul, C. (2017). Competing in Business-to-Business Sectors through Pay-Per-Use Services. *Journal of Service Management*, 28(5), 914-935.
- Gengler, C.E., Klenosky, D.B., & Mulvey, M.S. (1995). Improving the Graphic Representation of Means-End Results. *International Journal of Research in Marketing*, 12(3), 245-256.
- Glas, A.H., & Kleemann, F.C. (2017). Performance-Based Contracting: Contextual Factors and the Degree of Buyer Supplier Integration. *Journal of Business & Industrial Marketing*, 32(5), 677-692.
- Glaser, B.G., & Strauss, A.L. (2017). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. London et al.: Routledge.
- Grubic, T., & Jennions, I. (2018). Do Outcome-Based Contracts Exist? The Investigation of Power-by-the-Hour and Similar Result-Oriented Cases. *International Journal of Production Economics*, 206, 209-219.
- Gruneberg, S., Hughes, W., & Ancell, D. (2007). Risk under Performance-Based Contracting in the Uk Construction Sector. *Construction Management and Economics*, 25(7), 691-699.
- Grunert, K.G., & Grunert, S.C. (1995). Measuring Subjective Meaning Structures by the Laddering Method: Theoretical Considerations and Methodological Problems. *International Journal of Research in Marketing*, 12(3), 209-225.
- Guajardo, J.A., Cohen, M.A., Kim, S.-H., & Netessine, S. (2012). Impact of Performance-Based Contracting on Product Reliability: An Empirical Analysis. *Management Science*, 58(5), 961-979.
- Guenzi, P., & Troilo, G. (2006). Developing Marketing Capabilities for Customer Value Creation through Marketing-Sales Integration. *Industrial Marketing Management*, 35(8), 974-988.
- Guo, L., & Ng, I. (2011). The Co-Production of Equipment-Based Services: An Interpersonal Approach. *European Management Journal*, 29(1), 43-50.

- Gutman, J. (1991). Exploring the Nature of Linkages between Consequences and Values. *Journal of Business Research*, 22(2), 143-148.
- Haas, A., Snehota, I., & Corsaro, D. (2012). Creating Value in Business Relationships: The Role of Sales. *Industrial Marketing Management*, 41(1), 94-105.
- Handley, S.M., & Benton, W.C. (2009). Unlocking the Business Outsourcing Process Model. *Journal of Operations Management*, 27(5), 344-361.
- Hartmann, A., Roehrich, J.K., Frederiksen, L., & Davies, A. (2014). Procuring Complex Performance: The Transition Process in Public Infrastructure. *International Journal of Operations & Production Management*, 34(2), 174-194.
- Healy, R. (2016). Hygear Implements Flexible Contracting Policy with 'Pay Per Use' Leasing System. *Gasworld*. Retrieved September 19, 2019 from <https://www.gasworld.com/hygear-implements-pay-per-use-contracting/2010464.article>
- Henneberg, S.C., Gruber, T., Reppel, A., Ashnai, B., & Naudé, P. (2009). Complaint Management Expectations: An Online Laddering Analysis of Small Versus Large Firms. *Industrial Marketing Management*, 38(6), 584-598.
- Hensher, D.A., & Stanley, J. (2008). Transacting under a Performance-Based Contract: The Role of Negotiation and Competitive Tendering. *Transportation Research Part A: Policy and Practice*, 42(9), 1143-1151.
- Holmbom, M., Bergquist, B., & Vanhatalo, E. (2014). Performance-Based Logistics – an Illusive Panacea or a Concept for the Future? *Journal of Manufacturing Technology Management*, 25(7), 958-979.
- Homburg, C., & Stebel, P. (2009). Determinants of Contract Terms for Professional Services. *Management Accounting Research*, 20(2), 129-145.
- Hou, J., & Neely, A. (2018). Investigating Risks of Outcome-Based Service Contracts from a Provider's Perspective. *International Journal of Production Research*, 56(6), 2103-2115.
- Huber, M., & Kleinaltenkamp, M. (2020). A Typology of Business Usage Center Members. *Industrial Marketing Management*, 85, 21-31.
- Hünerberg, R., & Hüttmann, A. (2003). Performance as a Basis for Price-Setting in the Capital Goods Industry: Concepts and Empirical Evidence. *European Management Journal*, 21(6), 717-730.

- Hypko, P., Tilebein, M., & Gleich, R. (2010a). Benefits and Uncertainties of Performance-Based Contracting in Manufacturing Industries: An Agency Theory Perspective. *Journal of Service Management, 21*(4), 460-489.
- Hypko, P., Tilebein, M., & Gleich, R. (2010b). Clarifying the Concept of Performance-Based Contracting in Manufacturing Industries: A Research Synthesis. *Journal of Service Management, 21*(5), 625-655.
- Jacob, F., & Ulaga, W. (2008). The Transition from Product to Service in Business Markets: An Agenda for Academic Inquiry. *Industrial Marketing Management, 37*(3), 247-253.
- Kemp, E.A., Borders, A.L., Anaza, N.A., & Johnston, W.J. (2018). The Heart in Organizational Buying: Marketers' Understanding of Emotions and Decision-Making of Buyers. *Journal of Business & Industrial Marketing, 33*(1), 19-28.
- Kim, S.-H., Cohen, M.A., & Netessine, S. (2007). Performance Contracting in after-Sales Service Supply Chains. *Management Science, 53*(12), 1843-1858.
- Kindström, D., Kowalkowski, C., & Alejandro, T.B. (2015). Adding Services to Product-Based Portfolios: An Exploration of the Implications for the Sales Function. *Journal of Service Management, 26*(3), 372-393.
- Kindström, D., Kowalkowski, C., & Nordin, F. (2012). Visualizing the Value of Service-Based Offerings: Empirical Findings from the Manufacturing Industry. *Journal of Business & Industrial Marketing, 27*(7), 538-546.
- Kleemann, F.C., & Essig, M. (2013). A Providers' Perspective on Supplier Relationships in Performance-Based Contracting. *Journal of Purchasing and Supply Management, 19*(3), 185-198.
- Kreye, M.E., Roehrich, J.K., & Lewis, M.A. (2015). Servitising Manufacturers: The Impact of Service Complexity and Contractual and Relational Capabilities. *Production Planning & Control, 26*(14-15), 1233-1246.
- Lay, G., Schroeter, M., & Biege, S. (2009). Service-Based Business Concepts: A Typology for Business-to-Business Markets. *European Management Journal, 27*(6), 442-455.
- Lightfoot, H., Baines, T., & Smart, P. (2013). The Servitization of Manufacturing. *International Journal of Operations & Production Management, 33*(11/12), 1408-1434.

- Liinamaa, J., Viljanen, M., Hurmerinta, A., Ivanova-Gongne, M., Luotola, H., & Gustafsson, M. (2016). Performance-Based and Functional Contracting in Value-Based Solution Selling. *Industrial Marketing Management, 59*, 37-49.
- Lindgreen, A., Hingley, M.K., Grant, D.B., & Morgan, R.E. (2012). Value in Business and Industrial Marketing: Past, Present, and Future. *Industrial Marketing Management, 41*(1), 207-214.
- Locke, E.A., Smith, K.G., Erez, M., Chah, D.-O., & Schaffer, A. (1994). The Effects of Intra-Individual Goal Conflict on Performance. *Journal of Management, 20*(1), 67-91.
- Luotola, H., Hellström, M., Gustafsson, M., & Perminova-Harikoski, O. (2017). Embracing Uncertainty in Value-Based Selling by Means of Design Thinking. *Industrial Marketing Management, 65*, 59-75.
- Macdonald, E.K., Kleinaltenkamp, M., & Wilson, H.N. (2016). How Business Customers Judge Solutions: Solution Quality and Value-in-Use. *Journal of Marketing, 80*(3), 96-120.
- Madhok, A., & Tallman, S.B. (1998). Resources, Transactions and Rents: Managing Value through Interfirm Collaborative Relationships. *Organization Science, 9*(3), 326-339.
- McKinsey (2018). Disruptive Forces in the Industrial Sectors. Retrieved September 15, 2019 from <https://www.mckinsey.com/~/media/mckinsey/industries/automotive%20and%20assembly/our%20insights/how%20industrial%20companies%20can%20respond%20to%20disruptive%20forces/disruptive-forces-in-the-industrial-sectors.ashx>
- Mirzahosseini, H., & Piplani, R. (2011). A Study of Repairable Parts Inventory System Operating under Performance-Based Contract. *European Journal of Operational Research, 214*(2), 256-261.
- Mooradian, T.A., & Olver, J.M. (1996). Shopping Motives and the Five Factor Model: An Integration and Preliminary Study. *Psychological Reports, 78*(2), 579-592.
- Mudambi, S.M., Doyle, P., & Wong, V. (1997). An Exploration of Branding in Industrial Markets. *Industrial Marketing Management, 26*(5), 433-446.
- Neely, A. (2008). Exploring the Financial Consequences of the Servitization of Manufacturing. *Operations Management Research, 1*(2), 103-118.

- Ng, I.C.L., Ding, D.X., & Yip, N. (2013). Outcome-Based Contracts as New Business Model: The Role of Partnership and Value-Driven Relational Assets. *Industrial Marketing Management*, 42(5), 730-743.
- Ng, I.C.L., Maull, R., & Yip, N. (2009). Outcome-Based Contracts as a Driver for Systems Thinking and Service-Dominant Logic in Service Science: Evidence from the Defence Industry. *European Management Journal*, 27(6), 377-387.
- Ng, I.C.L., & Nudurupati, S.S. (2010). Outcome-Based Service Contracts in the Defence Industry – Mitigating the Challenges. *Journal of Service Management*, 21(5), 656-674.
- Olson, J.C., & Reynolds, T.J. (2001). The Means-End Approach to Understanding Consumer Decision Making. In T. J. Reynolds & J. C. Olson (Eds.), *Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy* (pp. 3-20). Mahwah, NJ: Lawrence Erlbaum Associates.
- Omizzolo Lazzarotto, B., Borchardt, M., Pereira, G., & Almeida, C. (2014). Analysis of Management Practices in Performance-Based Outsourcing Contracts. *Business Process Management Journal*, 20(2), 178-194.
- Paesbrugge, B., Sharma, A., Rangarajan, D., & Syam, N. (2018). Personal Selling and the Purchasing Function: Where Do We Go from Here? *Journal of Personal Selling & Sales Management*, 38(1), 123-143.
- Petersen, L.A., Woodard, L.D., Urech, T., Daw, C., & Sookanan, S. (2006). Does Pay-for-Performance Improve the Quality of Health Care? Effectiveness of Pay-for-Performance. *Annals of Internal Medicine*, 145(4), 265-272.
- Pieters, R., Baumgartner, H., & Allen, D. (1995). A Means-End Chain Approach to Consumer Goal Structures. *International Journal of Research in Marketing*, 12(3), 227-244.
- Pollok, M. (2013). Interview: Thomas Kaeser on Compressed Air and Split-Rentals. *International Rental News*. Retrieved November 5, 2019 from <https://www.khl.com/features/interview-thomas-kaeser-on-compressed-air-and-split-rentals/82443.article>
- Poppo, L., & Zenger, T. (2002). Do Formal Contracts and Relational Governance Function as Substitutes or Complements? *Strategic Management Journal*, 23(8), 707-725.
- Prohl, K., & Kleinaltenkamp, M. (2020). Managing Value in Use in Business Markets. *Industrial Marketing Management*, forthcoming(<https://doi.org/10.1016/j.indmarman.2020.03.017>).

- Raddats, C., Kowalkowski, C., Benedettini, O., Burton, J., & Gebauer, H. (2019). Servitization: A Contemporary Thematic Review of Four Major Research Streams. *Industrial Marketing Management*, 83, 207-223.
- Radgen, P. (2014). Air Compressors or Compressed Air: Harvesting the Benefits. In G. Lay (Ed.), *Servitization in Industry* (pp. 91-107). Cham: Springer.
- Randall, W.S., Nowicki, D.R., & Hawkins, T.G. (2011). Explaining the Effectiveness of Performance-Based Logistics: A Quantitative Examination. *The International Journal of Logistics Management*, 22(3), 324-348.
- Rapaccini, M., & Visintin, F. (2014, 23-25 June 2014). *Full Service Contracts in the Printing Industry: An Empirical Investigation of Service Definition*. Paper presented at the 2014 International Conference on Engineering, Technology and Innovation (ICE).
- Reynolds, T.J., & Gutman, J. (2001). Laddering Theory, Method, Analysis, and Interpretation. In T. J. Reynolds & J. C. Olson (Eds.), *Understanding Consumer Decision Making: The Means-End Approach to Marketing and Advertising Strategy* (pp. 25-62). Mahwah, NJ: Lawrence Erlbaum Associates.
- Ringberg, T., & Forquer Gupta, S. (2003). The Importance of Understanding the Symbolic World of Customers in Asymmetric Business-to-Business Relationships. *Journal of Business & Industrial Marketing*, 18(6/7), 607-626.
- Roehrich, J.K., & Lewis, M. (2014). Procuring Complex Performance: Implications for Exchange Governance Complexity. *International Journal of Operations & Production Management*, 34(2), 221-241.
- Roehrich, J.K., Selviaridis, K., Kalra, J., Van der Valk, W., & Fang, F. (2020). Inter-Organizational Governance: A Review, Conceptualisation and Extension. *Production Planning & Control*, 31(6), 453-469.
- Roels, G., Karmarkar, U.S., & Carr, S. (2010). Contracting for Collaborative Services. *Management Science*, 56(5), 849-863.
- Sato, K., & Nakashima, K. (2019). Optimal Pricing Problem for a Pay-Per-Use System Based on the Internet of Things with Intertemporal Demand. *International Journal of Production Economics*, in press(<https://doi.org/10.1016/j.ijpe.2019.08.012>).
- Schaefers, T. (2013). Exploring Carsharing Usage Motives: A Hierarchical Means-End Chain Analysis. *Transportation Research Part A: Policy and Practice*, 47(1), 69-77.

- Selviaridis, K., & Norrman, A. (2014). Performance-Based Contracting in Service Supply Chains: A Service Provider Risk Perspective. *Supply Chain Management: An International Journal*, 19(2), 153-172.
- Selviaridis, K., & Wynstra, F. (2015). Performance-Based Contracting: A Literature Review and Future Research Directions. *International Journal of Production Research*, 53(12), 3505-3540.
- Sheth, J.N. (1973). A Model of Industrial Buyer Behavior. *Journal of Marketing*, 37(4), 50-56.
- Sols, A., Nowick, D., & Verma, D. (2007). Defining the Fundamental Framework of an Effective Performance-Based Logistics (Pbl) Contract. *Engineering Management Journal*, 19(2), 40-50.
- Stoppel, E., & Roth, S. (2015). Consequences of Usage-Based Pricing in Industrial Markets. *Journal of Revenue and Pricing Management*, 14(3), 140-154.
- Storbacka, K. (2011). A Solution Business Model: Capabilities and Management Practices for Integrated Solutions. *Industrial Marketing Management*, 40(5), 699-711.
- Stremersch, S., Weiss, A.M., Dellaert, B.G.C., & Frambach, R.T. (2003). Buying Modular Systems in Technology-Intensive Markets. *Journal of Marketing Research*, 40(3), 335-350.
- Stremersch, S., Wuyts, S., & Frambach, R.T. (2001). The Purchasing of Full-Service Contracts: An Exploratory Study within the Industrial Maintenance Market. *Industrial Marketing Management*, 30(1), 1-12.
- Sumo, R., van der Valk, W., van Weele, A., & Bode, C. (2016). Fostering Incremental and Radical Innovation through Performance-Based Contracting in Buyer-Supplier Relationships. *International Journal of Operations & Production Management*, 36(11), 1482-1503.
- Sundblad, W. (2018). 'Machines as a Service': Industry 4.0 Powers OEM Aftermarket Revenue Growth. *Forbes*. Retrieved 12/19/2018 from <https://www.forbes.com/sites/willemsundbladeurope/2018/08/13/machines-as-a-service-industry-4-0-powers-oem-aftermarket-revenue-growth/>
- Tate, W.L., Ellram, L.M., Bals, L., Hartmann, E., & van der Valk, W. (2010). An Agency Theory Perspective on the Purchase of Marketing Services. *Industrial Marketing Management*, 39(5), 806-819.

- Tellefsen, T. (2002). Commitment in Business-to-Business Relationships: The Role of Organizational and Personal Needs. *Industrial Marketing Management*, 31(8), 645-652.
- Terho, H., Eggert, A., Ulaga, W., Haas, A., & Böhm, E. (2017). Selling Value in Business Markets: Individual and Organizational Factors for Turning the Idea into Action. *Industrial Marketing Management*, 66, 42-55.
- Terho, H., Haas, A., Eggert, A., & Ulaga, W. (2012). 'It's Almost Like Taking the Sales out of Selling'—Towards a Conceptualization of Value-Based Selling in Business Markets. *Industrial Marketing Management*, 41(1), 174-185.
- Töllner, A., Blut, M., & Holzmüller, H.H. (2011). Customer Solutions in the Capital Goods Industry: Examining the Impact of the Buying Center. *Industrial Marketing Management*, 40(5), 712-722.
- Töytäri, P., Brashear Alejandro, T., Parvinen, P., Ollila, I., & Rosendahl, N. (2011). Bridging the Theory to Application Gap in Value-Based Selling. *Journal of Business & Industrial Marketing*, 26(7), 493-502.
- Töytäri, P., & Rajala, R. (2015). Value-Based Selling: An Organizational Capability Perspective. *Industrial Marketing Management*, 45, 101-112.
- Tukker, A. (2004). Eight Types of Product–Service System: Eight Ways to Sustainability? Experiences from Suspronet. *Business Strategy and the Environment*, 13(4), 246-260.
- Tuli, K.R., Kohli, A.K., & Bharadwaj, S.G. (2007). Rethinking Customer Solutions: From Product Bundles to Relational Processes. *Journal of Marketing*, 71(3), 1-17.
- Ulaga, W. (2013). From Product to Service: Navigating the Transition. *Insights@IMD*, 26.
- Ulaga, W., & Eggert, A. (2006). Value-Based Differentiation in Business Relationships: Gaining and Sustaining Key Supplier Status. *Journal of Marketing*, 70(1), 119-136.
- Ulaga, W., & Loveland, J.M. (2014). Transitioning from Product to Service-Led Growth in Manufacturing Firms: Emergent Challenges in Selecting and Managing the Industrial Sales Force. *Industrial Marketing Management*, 43(1), 113-125.
- Ulaga, W., & Reinartz, W.J. (2011). Hybrid Offerings: How Manufacturing Firms Combine Goods and Services Successfully. *Journal of Marketing*, 75(6), 5-23.
- US Census Bureau (2020a). Manufacturing and Trade Inventories and Sales. Retrieved 06/02/2020 from www.census.gov/mtis

- US Census Bureau (2020b). Quarterly Services Survey. Retrieved 06/02/2020 from www.census.gov/services
- Vandermerwe, S., & Rada, J. (1988). Servitization of Business: Adding Value by Adding Services. *European Management Journal*, 6(4), 314-324.
- Vargo, S.L., & Lusch, R.F. (2008). Service-Dominant Logic: Continuing the Evolution. *Journal of the Academy of Marketing Science*, 36(1), 1-10.
- Veludo-de-Oliveira, T.M., Ikeda, A.A., & Campomar, M.C. (2006). Discussing Laddering Application by the Means-End Chain Theory *The Qualitative Report*, 11(4), 626-642.
- Visnjic, I., Jovanovic, M., Neely, A., & Engwall, M. (2017). What Brings the Value to Outcome-Based Contract Providers? Value Drivers in Outcome Business Models. *International Journal of Production Economics*, 192, 169-181.
- Visnjic, I., Neely, A., & Jovanovic, M. (2018). The Path to Outcome Delivery: Interplay of Service Market Strategy and Open Business Models. *Technovation*, 72-73, 46-59.
- Webster Jr, F.E., & Keller, K.L. (2004). A Roadmap for Branding in Industrial Markets. *Journal of Brand Management*, 11(5), 388-402.
- Weißfloch, U., & Geldermann, J. (2016). Assessment of Product-Service Systems for Increasing the Energy Efficiency of Compressed Air Systems. *European Journal of Industrial Engineering*, 10(3), 341-366.
- Windahl, C., & Lakemond, N. (2010). Integrated Solutions from a Service-Centered Perspective: Applicability and Limitations in the Capital Goods Industry. *Industrial Marketing Management*, 39(8), 1278-1290.
- Worm, S., Bharadwaj, S.G., Ulaga, W., & Reinartz, W.J. (2017). When and Why Do Customer Solutions Pay Off in Business Markets? *Journal of the Academy of Marketing Science*, 45(4), 490-512.

Appendix A: Summary of the Interview Guideline

Introduction	<ul style="list-style-type: none"> • Short presentation of the background of the study • Informed consent about audio-recording and anonymized analyses
Interviewee(s) and company	<ul style="list-style-type: none"> • Position and role • Tenure and experience • Company background and competitive position
OBC top-of-mind	<ul style="list-style-type: none"> • Spontaneous associations with “outcome-based contracting”
Contracting	<ul style="list-style-type: none"> • Experience with OBCs (company and personal) • Peculiarities of negotiating and signing OBCs
Laddering	<ul style="list-style-type: none"> • Important sales-related attributes when deciding about an OBC (“What is important to you when a supplier offers an OBC?”) • Iterative laddering and probing questions for each attribute and each subsequent consequence (“Why is this important to you?”)
“Ideal world”	<ul style="list-style-type: none"> • Ideal purchasing/sales process when negotiating and signing OBC (“What would an ideal process of sourcing an OBC look like?” “What would a supplier’s salesperson ideally do in such a process?”)
Closing	<ul style="list-style-type: none"> • Final comments and conclusion

Appendix B: Implications Matrix

From... \ to...	Broader and deeper information	Understanding of customer's value creation processes	Implementation efficiency	Operational efficiency	Downtime avoidance	"We're in this together"	Attachment	Confidence	Economic benefit	Performance reliability	Organizational and individual security	Individual accountability
OBC reputation	5	1	1	1	23		1	2				
Salesperson techn. and comm. expertise		13		5	4	3		3		2	1	5
Thorough requirements analysis	4	13		16	6	7		5				
Co-creation and cooperation	6	4	14	5	10	2		10				
Price and OBC economics	4			7	1			1				
Transparency	14	1		8	1							
Integration of innovations				7								
Broader and deeper information					1	2	12		1	2	2	13
Understanding of customer's value creation processes					2	7			6			11
Implementation efficiency						3				4		8
Operational efficiency					4	4	5	2	7	2	2	13
Downtime avoidance							1	4	1	7	13	26
"We're in this together"									6		4	11
Attachment										3	6	10
Confidence									4	6	4	13

Note: Numbers indicate the frequency of identified connections between a vertical and a horizontal element. For example, the element 'OBC reputation' was connected 23 times to the element 'downtime avoidance'. Elements with at least six connections shaded and in bold type.