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Telling stories that sell : The role of storytelling and big data analytics in smart service sales

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Telling stories that sell: The role of storytelling and big data analytics in smart service sales

Abstract

The emergence of digitally connected products and big data analytics (BDA) in industrial marketing has attracted academic and managerial interest in smart services. However, suppliers' provision of smart services and customers' adoption of these services have received scarce attention in the literature, demonstrating the need to address the changing nature of customer-supplier interactions in the digital era. Responding to prior research calls, this study utilizes ethnographic research and a storytelling lens to advance our knowledge of how stories and BDA can enhance customers' attitudes toward suppliers' smart services, their behavioral intentions and their actual adoption of smart services. The study's findings demonstrate that storytelling is a collective sensemaking and sensegiving process that occurs in interactions between customers and suppliers in which both parties contribute to the story development. The use of BDA in storytelling enhances customer sensemaking of smart services by highlighting the business value extracted from the digitized data of a reference customer. By synthesizing insights from servitization, storytelling, BDA and the customer reference literature, this study offers managers practical guidance regarding how to increase smart service sales. An example of a story used to facilitate customer adoption of a supplier's smart services in the manufacturing sector is provided.

Keywords: storytelling; big data analytics; smart service; customer reference; customer-supplier relationships

1 Introduction

The increasing importance of digital transformation has led to a shift in the focus of industrial marketing research toward digital servitization (Coreynen, Matthyssens, & Van Bockhaven, 2017; Sklyar, Kowalkowski, Tronvoll, & Sörhammar, 2019) and smart servitization (Kamp, Ochoa, & Diaz, 2017). These two servitization substreams are characterized by the transition of firms from manufacturing products to providing product-service offerings that generate value through embedded digital and smart technologies (Kohtamäki, Parida, Oghazi, Gebauer, & Baines, 2019). With the rapid emergence of new digitalization trends, large manufacturers, such as Rolls-Royce, Caterpillar, and Xerox, are continuously innovating their servitization business models and moving toward autonomous systems to remain competitive in the digital era (Baines & Lightfoot, 2013).

The interest of scholars and practitioners in big data (Sivarajah, Kamal, Irani, & Weerakkody, 2017; Yaqoob et al., 2016) and connected products (Porter & Heppelmann, 2014) has contributed to fundamental changes in the nature of industrial service offerings and the proliferation of research concerning smart services (Beverungen, Müller, Matzner, Mendling, & vom Brocke, 2017). Smart services continuously monitor and analyze remotely collected data and interact with smart connected products, thereby creating new preemptive value for customers (Porter & Heppelmann, 2014). For example, in the electronics sector, Hewlett-Packard offers customers a smart printing service that automatically detects a low toner level and makes a just-in-time order for a new cartridge to keep printers running cost-effectively (Allmendinger & Lombreglia, 2005). In the commercial vehicle industry, MAN Truck and Bus UK offer a fleet management service that detects unsafe driving styles and provides real-time feedback to drivers

regarding hard braking, engine idling or excess speed, thus reducing maintenance costs and accidents (Baines & Lightfoot, 2013).

Over the past decade, numerous industrial marketing studies have attempted to bridge the service and behavioral sciences (Obal & Lancioni, 2013; Vaittinen, Martinsuo, & Ortt, 2018; Wunderlich, Wangenheim, & Bitner, 2012). However, the servitization field lacks research that improves our understanding of the behavioral issues underlying customer adoption of smart industrial services. This lack of knowledge of the mechanisms facilitating the adoption of smart services during customer-supplier interactions remains an obstacle that impedes successful smart servitization in organizations. To facilitate progress in industrial marketing and smart service sciences, this study addresses prior research calls for interdisciplinary studies and adopts a human-centered perspective to examine smart services and the transformed customer-supplier interaction in the digital era (Maglio, Kwan, & Spohrer, 2015; Medina-Borja, 2015; Wunderlich et al., 2015). From a managerial perspective, practitioners can gain new insight from the present study into how to overcome customers' behavioral barriers to smart services.

Due to the intangible nature of smart services, it is difficult for customers to perceive the value of the service offerings prior to their adoption, thereby making the process of service sales challenging for suppliers (Klein, Biehl, & Friedli, 2018). To facilitate the selling performance and reduce customers' uncertainty, suppliers tend to utilize customer reference marketing (Jaakkola & Aarikka-Stenroos, 2018; Ruokolainen & Aarikka-Stenroos, 2016; Terho & Jalkala, 2017). However, the existing literature lacks in-depth discussions of the practical and effective methods applied by firms in a B2B context when using existing customer relationships to target prospective customers. This study aims to fill this research gap by suggesting how managers can

incorporate stories as organizational narratives in reference marketing to influence customer attitudes and behavior toward smart services.

Building upon the increasing role of storytelling in industrial marketing (Anaza, Kemp, Briggs, & Borders, 2019; Gilliam & Flaherty, 2015; Lacoste & La Rocca, 2015), this study utilizes a storytelling lens to explain how deliberate stories support smart service sales in a business-to-business (B2B) environment. In the context of this study, storytelling is a process of using compelling stories to persuade people to act in certain ways (Denning, 2006). For example, to influence internal technology adoption (Boldosova, 2019), stories can be distributed within an organization in a written form through internal marketing channels (e.g., e-mail newsletters and the Intranet) or verbally through in-person presentations (e.g., trainings and management meetings). Although previous research has explored how firms apply lessons learned from customer stories (Gorry & Westbrook, 2011), less research has investigated how suppliers create and disseminate stories to customers. By fulfilling this gap and unpacking supplier storytelling, this study enriches our understanding of the factors facilitating a supplier's performance in selling smart services. New knowledge regarding how to improve smart service sales may be of interest to practitioners aiming to increase their business revenue. Given the limited insight into collective storytelling in industrial marketing research (Lacoste & La Rocca, 2015), the present study advances the field by addressing the contribution of both customers and suppliers to storytelling.

The recent interest in data-driven connected products resulted in the emergence of big data analytics (BDA), i.e., technologies characterized by the utilization and processing of large data sets and the generation of predictive and prescriptive insight for informed decision-making (Delen & Zolbanin, 2018). In the healthcare industry, BDA can analyze patients' clinical

records, lifestyles and habits to predict potential illness and reduce healthcare costs (Wang & Hajli, 2017). The use of BDA in e-commerce enables companies to track users' purchasing behavior, tastes and preferences and recommend products to consumers that they will be willing to buy (Akter & Wamba, 2016). Despite the emerging research illustrating the value of BDA to scholars and practitioners (Côrte-Real, Oliveira, & Ruivo, 2017; Côrte-Real, Ruivo, Oliveira, & Popovič, 2019; Wamba et al., 2017), studies addressing the enabling role of BDA in smart services are lacking. Fulfilling this research gap could advance suppliers' knowledge of new ways to exploit customer data from BDA in selling industrial smart services. This study could be useful to practitioners striving to build a data-driven organization by integrating big data and analytics into internal processes.

In response to the aforementioned research calls, the present study synthesizes insights from the industrial marketing, behavioral, narrative and information systems literature to explain the role of storytelling in customer adoption of suppliers' smart services. Building upon the ethnographic case study (ECS) methodology, this study is motivated by one overarching research question and two subquestions. First, why does storytelling facilitate customer adoption of suppliers' smart services in customer-supplier interactions? Second, building upon the first question, why are both customers and suppliers involved in storytelling? Third, why does BDA enhance storytelling?

The present study proposes a holistic approach toward storytelling as a collective sensemaking and sensegiving instrument by mapping key processes in customer-supplier interactions that underlie successful smart service sales. The proposed framework incorporates the roles of both customers and suppliers in storytelling and outlines how storytelling enhances customers' attitudes toward smart services, their behavioral intentions and actual smart service

adoption. The study's findings provide useful and timely implications for practitioners working with smart services by revealing a novel way of utilizing BDA and storytelling in B2B sales.

2 Theoretical background

2.1 Customer adoption of smart services in the B2B context

An emerging community of researchers has engaged in applying a digitalization lens to explore servitization in manufacturing (Coreynen et al., 2017; Lenka, Parida, & Wincent, 2017) and the changing nature of customer-supplier relationships in the digital era (Obal & Lancioni, 2013). Servitization (Vandermerwe & Rada, 1988) is the transition of manufacturing firms from solely product-centered to providing integrated solutions comprising products and services (e.g., repair, maintenance, training, and consultancy). The focus on connected products and services has led to increasing scholarly interest in the research substream *digital servitization* (Kohtamäki et al., 2019; Sklyar et al., 2019; Vendrell-Herrero, Bustinza, Parry, & Georgantzis, 2017), which is defined as the integration of digital components into physical products and the provision of digitally enabled service offerings. In response to the digitization of industrial products transforming competition (Henfridsson, Mathiassen, & Svahn, 2014; Porter & Heppelmann, 2014), the service sciences have also witnessed a proliferation of research concerning *smart servitization* (Kamp et al., 2017) and *smart services* (Beverungen et al., 2017). Smart servitization refers to a traditional product provider's transition to offering a bundle of smart connected products with smart services (Kamp et al., 2017). In contrast to traditional or digital service offerings, smart services are preemptive service offerings enabled by connected devices self-generating, -diagnosing, -monitoring and -analyzing large volumes of field data in real time

(Allmendinger & Lombreglia, 2005; Beverungen et al., 2017). For example, smart remote support and monitoring services independently collect product data through sensors and enable the monitoring of a product's condition, performance and usage to optimize product performance and enhance customer experience with the physical product (Porter & Heppelmann, 2014).

While numerous studies have examined digital transformation in servitization (Cenamor, Rönnberg Sjödin, & Parida, 2017; Holmström & Partanen, 2014; Pagani & Pardo, 2017; Vendrell-Herrero et al., 2017) and the role of smart services (Bello & Zeadally, 2019; Geum, Jeon, & Lee, 2016; Kamp et al., 2017), less attention has been paid to how the digital era has changed the nature of smart service adoption in B2B contexts. Beverungen et al. (2017) suggested that the provision of smart services transforms customer-supplier relationships as data exchange over the product lifetime creates continuous customer-supplier service interactions. Nevertheless, prior research has scarcely examined the transformed provision and adoption of industrial smart services in customer-supplier relationships (Wunderlich et al., 2012, 2015). Although prior research has explored the factors affecting the adoption of manufacturers' basic services (Vaattinen et al., 2018) and investigated the challenges in user perceptions of interactive service encounters (Wunderlich et al., 2012), there is a lack of studies on customer attitudes and adoption behavior toward suppliers' new *smart services* (Obal & Lancioni, 2013). By focusing on the barriers to the adoption of smart services, prior research (Klein et al., 2018; Töytäri et al., 2018) has demonstrated that customers are not receptive to new services and fear granting digital access to their fleet. Customers tend to underestimate the value and intangible nature of smart services due to suppliers' ineffective communication and inability to convey a clear value proposition to customers (Klein et al., 2018; Töytäri et al., 2018). As a result, to enable

successful servitization (Vaattinen et al., 2018), a further understanding of how to overcome customers' behavioral barriers in relation to suppliers' digitally enabled smart services is needed.

Kamp et al. (2017) highlighted that to unlock the full potential of smart servitization, it is necessary to build bridges between customers and suppliers to overcome cognitive barriers and improve customers' attitudes toward remote data collection and smart services. To further understand the implications of smart services, there is a need to unpack the human-centered perspective (Maglio et al., 2015) and advance our knowledge of how to influence human behavior, attitudes and perceptions in relation to smart service offerings. Therefore, following the recommendations of prior research (Lilien, 2016; Medina-Borja, 2015; Wiersema, 2013; Wunderlich et al., 2015), this interdisciplinary study aims to contribute to the discussion regarding customer adoption of suppliers' smart services and B2B interactions in the digital age.

2.2 Storytelling in customer-supplier interactions

Studies performed in various organizational contexts have demonstrated the powerful role of storytelling in management (Denning, 2006; James & Minnis, 2004), marketing (Spear & Roper, 2013), operations (Klein, Connell, & Meyer, 2007), information systems (Boldsova, 2019), and psychology (Yang, 2013). Frequently used as an equivalent to a narrative (Brown & Jones, 1998; Humphreys & Brown, 2002), storytelling refers to the use of stories with a plot and characters (Gabriel, 2000) or a "sequence of actions and experiences done or undergone by a certain number of people, whether real or imaginary" (Ricoeur, 1984, p. 150).

Extant research (Boje, 1991, 2008) has viewed storytelling in organizations as a *sensemaking instrument* that supports individual interpretations of past, present and future events and communicates socially constructed meanings to others through stories. Sensemaking is often

combined with an interrelated concept, i.e., *sensegiving*, which is defined as an interpretive process (Bartunek, Krim, Necochea, & Humphries, 1999) of “attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality” (Gioia & Chittipeddi, 1991, p. 442). For example, middle and senior management engages in sensegiving when attempting to influence the construction of meanings in organizations through stories in times of strategic change management (Dunford & Jones, 2000; Snell, 2002). Correspondingly, extant research concerning storytelling activities in organizations has been approached from both the sensemaking and sensegiving perspectives, providing multiple insights into how stories can be used for the purposes of interpreting, influencing and persuading in organizations (Maitlis & Lawrence, 2007).

Despite the wide acknowledgment of the importance of storytelling, limited studies in the literature have attempted to understand storytelling in B2B interactions. Industrial marketing scholars (Gilliam & Flaherty, 2015) introduced the role of storytelling in the field and suggested that storytelling plays an informing, persuading and bonding role in buyer-seller exchange interactions. In contrast, Lacoste and La Rocca (2015) proposed that storytelling in B2B selling is not performed solely by suppliers; instead, buyers play an active role in storytelling and value cocreation. Additionally, Anaza et al. (2019) suggested that stories in B2B advertisements are positively related to customer trust in the supplier, personal connection, and advocacy. Prior research has also explored the use of narratives when advertising a service brand image (Padgett & Allen, 1997) and customer storytelling as qualitative feedback absorbed and exploited by companies to improve customer relations (Gorry & Westbrook, 2011).

While existing research has focused on customer storytelling (Gorry & Westbrook, 2011), our present understanding of *supplier storytelling* implications in B2B services sales

remains narrow. Gilliam and Flaherty (2015) suggested that future research should devote more attention to the implications of storytelling for selling services and the role of reference customers in storytelling. Given the intangible nature of service offerings, investigating suppliers' use of storytelling with customers can provide new insight into how to improve service sales. Additionally, prior industrial marketing research has called for more studies addressing storytelling in B2B markets as a collective sensemaking process (Dawson & McLean, 2013; Lacoste & La Rocca, 2015). As a result, building upon prior research suggestions (Gilliam & Flaherty, 2015; Lacoste & La Rocca, 2015) and the increasing importance of smart services (Wünderlich et al., 2015), this ethnographic study aims to deepen our knowledge of the facilitating role of storytelling in customer-supplier interactions in smart service sales.

2.3 Big data analytics, customer references and storytelling

The digitization of industrial products and the emergence of digital data streams (Piccoli & Pigni, 2013) have led to a growing interest among researchers in data-driven service offerings (Herterich, Uebernickel, & Brenner, 2016). An increasing number of servitizing original equipment manufacturers (OEMs) are utilizing installed base equipment (or fleet) information to gain a better understanding of customers and drive industrial service sales (Stormi, Laine, Suomala, & Elomaa, 2017). By digitizing the installed product base, OEMs can compare operational customer data and use these data as leverage for new reactive and proactive service offerings (Herterich et al., 2016).

However, big data are not self-explanatory in nature, and traditional data processing applications (e.g., relational databases) are not capable of deriving useful insights from large and complex data sets (Müller, Junglas, Brocke, & Debortoli, 2016). Hence, new BDA techniques

with advanced computational logic are needed to understand customers' equipment usage and their potential needs (Müller et al., 2016). BDA is a new generation of advanced technologies used to collect, process and visualize large volumes of data to generate descriptive, predictive and prescriptive insights and support decision-making in organizations (Davenport & Harris, 2007; Delen & Zolbanin, 2018; Mortenson, Doherty, & Robinson, 2015). The use of BDA supports service providers in the process of deriving business value from digitized industrial data and utilize meaningful insights for data-driven services (Ehret & Wirtz, 2017). Despite the relevance of BDA in the digital era, there is a lack of research explaining how suppliers can further utilize BDA in smart services, which are driven by large volumes of product-related data collected through sensors. Fulfilling this research gap and generating new knowledge on how customer data extracted from BDA can be exploited during the smart service selling process could provide researchers and practitioners new perspectives regarding the value of BDA in B2B sales (Côte-Real et al., 2017, 2019; Wamba et al., 2017).

Given the intangible nature of services and unfamiliarity with their value, prospective customers tend to demonstrate interest in word-of-mouth recommendations and seek to hear about the successful service experiences of other customers (Solnet & Kandampully, 2008). Customer referencing reduces prospective customers' perceived risk of the service based on evidence of operational functionality (Jaakkola & Aarikka-Stenroos, 2018) and decreases customers' uncertainty (Hada, Grewal, & Lilien, 2014). Additionally, customer references support sales processes by increasing customers' purchase intentions (Anderson & Wynstra, 2010) and facilitating suppliers' selling performance (Terho & Jalkala, 2017). Despite the variety of studies concerning customer referencing in industrial marketing, the practical and effective means of customer reference marketing in smart service sales remain unclear. Because BDA

provides tangible digitized data as evidence of customers' experience with smart services, this explanatory study aims to reveal a new application of BDA in reference customer stories to facilitate service sales. Building upon existing research addressing customers' contributions to the customer reference-building process (Ruokolainen & Aarikka-Stenroos, 2016), the present study aims to further delineate the practice of using customer references in B2B interactions in which both the suppliers' and customers' input is considered in developing reference storytelling material. In light of the increasing but limited research concerning storytelling opportunities due to big data and analytics (Boldosova & Luoto, 2019), this study aims to further advance this literature by explaining how storytelling from BDA can facilitate customers' sensemaking of suppliers' smart service offerings.

3 Methodology

3.1 Research approach

This study is explanatory (Yin, 1994) in nature because it aims to answer 'why' questions regarding the role of storytelling and BDA in customer adoption of suppliers' smart services. Although the existing literature provides some evidence on the theoretical constructs discussed in this study (e.g., smart services, storytelling, BDA, and customer referencing), the cause-and-effect relationships among storytelling, BDA and smart service sales remain unclear. As a result, this study seeks to explain why and how these relationships exist.

The underlying philosophical paradigm guiding the methodology of this study is interpretivism, which aims to understand the studied phenomenon through an interpretation of the meanings people assign to it (Gummesson, 2003; Walsham, 1995). Driven by the need to

observe, interpret and explicate customer-supplier interactions, this study adopts an ECS as the methodological approach (Visconti, 2010). The use of a single ECS is favored here because it allows researchers to be immersed in the studied business context, collect rich data, and observe and interpret everyday behaviors and processes in organizational reality. Abductive reasoning (Dubois & Gadde, 2002; Van Maanen, Sorensen, & Mitchell, 2007) enables an interplay between theoretical knowledge and empirical data, leading to theory building and bridging the gap between academic and managerial communities. This study follows the recommendations of prior research regarding the methodological choices to be used in the industrial marketing literature (Beverland & Lindgreen, 2010; Visconti, 2010; Wagner, Lukassen, & Mahlendorf, 2010) and extends the use of interpretative methods in contemporary business contexts.

Following the ECS model (Visconti, 2010), the research process started with the goal-setting phase, which was followed by the sampling, immersion, data collection, data interpretation, and reporting phases. The purpose of undertaking this organizational ethnographic study over a period of two and a half years (September 2015–February 2018) was to gain an understanding of the role of storytelling and BDA in customers' adoption of suppliers' smart services by 1) mapping the processes of collecting and disseminating deliberate stories from the customer-supplier perspective and 2) exploring the content of smart service stories enhanced with BDA.

3.2 Case selection and description

During the sampling phase of this ethnographic research (Visconti, 2010), theoretical selection (Eisenhardt, 1989) and purposeful sampling (Eisenhardt & Graebner, 2007) approaches were utilized to identify and choose an information-rich case with unique circumstances. To be

selected for inclusion, first, the case company needed to belong to a B2B industrial setting characterized by the provision of smart services. Second, the company needed to be involved in deliberate storytelling or undergoing a transformation into a storytelling organization. Third, the company needed to provide access to rich empirical data.

Based on these criteria, an organization referred to here as ‘Steel Co.’ (a pseudonym) was selected as a suitable case study. Steel Co. provides an appropriate context for addressing the research questions of this ethnographic study because it represents a unique, timely setting and provided rich research access to its people and resources. Steel Co. is a large international OEM operating in the sheet metal manufacturing industry that provides laser processing, punching, shearing and bending solutions supplemented with services. As a part of an ongoing servitization transformation, Steel Co. introduced a new smart service, i.e., ‘Remote Monitoring and Diagnostics’ (RM&D), to its existing service business portfolio, which previously comprised field service, spare parts, consultation and retrofit solutions. Focusing on a smart service-oriented business model in the B2B context, Steel Co. began integrating the RM&D service into the existing product portfolio and selling integrated sheet metal working technology with the smart service.

The RM&D smart service is a real-time remote monitoring service based on online machine usage data collected through sensors, controls, software and cameras installed in the Steel Co. machinery. The purpose of the RM&D service is to support customers’ industrial assets by maximizing the machine uptime, improving productivity, and predicting and preventing potential failures. The RM&D service is based on proprietary cloud-based BDA software, i.e., ‘Fleet Management’, used internally by Steel Co. to obtain an overview of the entire fleet, support customers in real time in cases when unscheduled machine intervention is needed, and

prescribe repairs based on analytical periodic reports. The use of BDA by the service and R&D departments allows significant reductions in field-service and spare-part management costs while enhancing future product innovation. The additional transparency created by the collection of machine usage and performance data supports warranty claims and service agreement discussions.

The RM&D service was introduced to the market in June 2015; faced with customer resistance to adopting a digitally powered service and the need to increase smart service sales, Steel Co. gradually began engaging in deliberate storytelling to customers. In particular, in August–September 2015, Steel Co. started intensively collecting customer success stories based on BDA fleet data and customer discussions, integrating storytelling into the smart service sales process, and disseminating stories to customers. During the research process, statistics related to customer adoption of the RM&D service were used to determine the increasing role of storytelling in Steel Co. (Fig. 1).

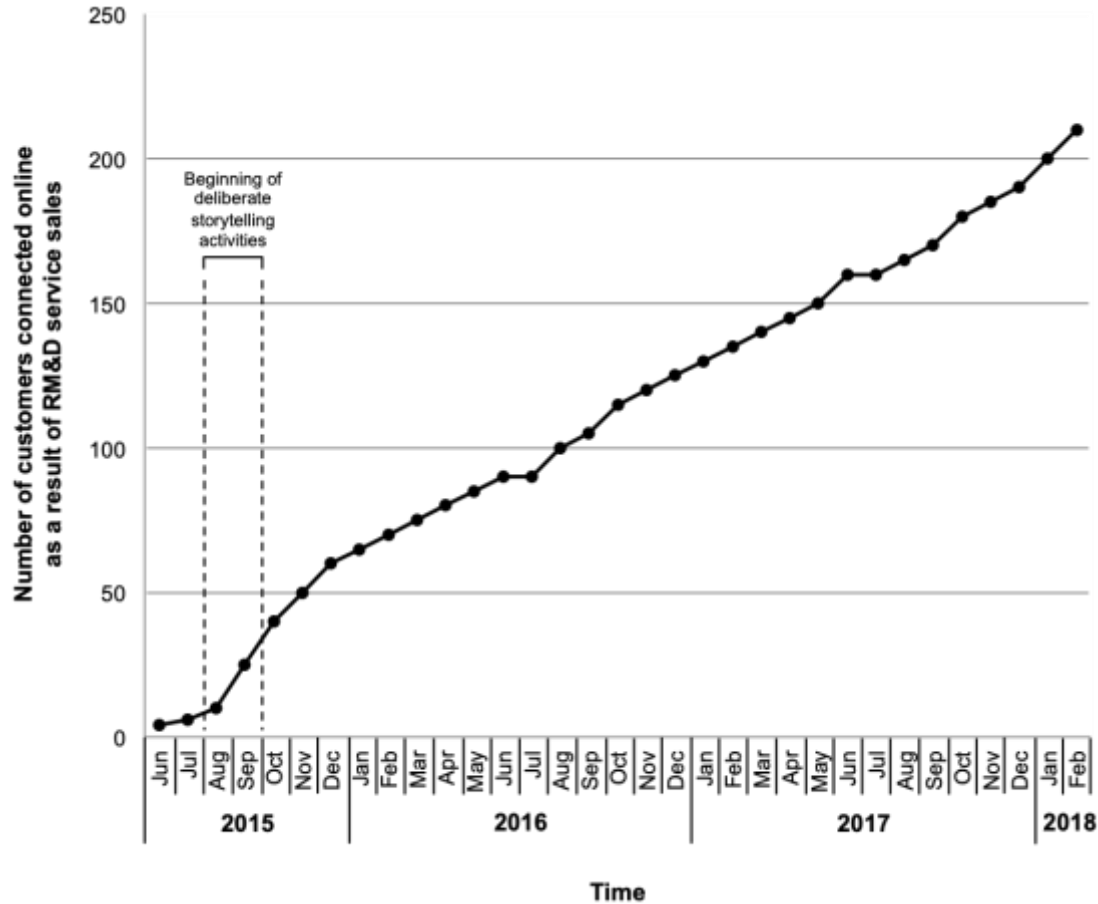


Fig. 1. Customer adoption of the RM&D service from June 2015 to February 2018.

3.3 Ethnographic immersion

To enable the researcher's gradual immersion (Harrington, 2003; Visconti, 2010) in the Steel Co. environment, a desk in the open-plan office of the Steel Co. headquarters was provided to the researcher during the research period. The processes of increasing access to data and developing relationships in the field were supported by a gradual increase in field visits and participation in meetings and international trade events. The timespan of this study, i.e., two and a half years, facilitated in-depth longitudinal immersion in the setting, and the researcher's prior knowledge of the industry helped blur the boundary between the researcher and informants.

3.4 Data collection

The data collection and analysis were performed over a 30-month period from September 2015 to February 2018. The secondary and primary data were continuously collected throughout the duration of the research project and comprised participant observations, interviews, field notes and secondary archival data. All collected data were carefully analyzed, and relevant issues were selected to develop a new theory and report the study findings. An overview of the data collection process covering the research goals is provided in Table 1.

Participant observations (Delamont, 2004) were the primary source of data and were performed during field visits to Steel Co. headquarters, exhibition premises, and customers' production facilities. During the data collection period, the researcher participated in 22 service meetings, 6 service trainings, 16 R&D project meetings, 9 customer meetings, and 2 international trade events. The ability to gain access to natural organizational settings and obtain a rich understanding of the complex organizational reality is considered an advantage of this ethnographic study.

Table 1. Data collection.

Type	Data source	Description	Duration/Quantity	Research purpose
Primary data	Participant observations	22 service meetings 6 service trainings	90–240 min per meeting 2 full working days per training	Immersion into RM&D service development and commercialization processes. Understand organizational practices in the collection and dissemination of stories.
		16 R&D project meetings	60–180 min per meeting	Become familiar with BDA functionalities, BDA software development and integration processes. Recognize the role of BDA in storytelling.
		9 customer meetings 2 international trade events	60–90 min per meeting 4 full working days per event	Explore the role of storytelling in customer discussions and RM&D service sales. Understand the role of customers in storytelling. Collect examples of success stories and identify story patterns.
	Interviews	32 face-to-face semistructured and open-ended interviews with key respondents from the service, R&D, marketing and sales departments	39–75 min per interview	Gain insights from the service, R&D, marketing and sales departments into storytelling practices and RM&D service adoption behavior.
	Field notes	92 pages of field notes from interviews, meetings and site visits	1–2 pages per interview/meeting	Strengthen data collection and interpretation.
Secondary data	Archival data	RM&D service adoption statistics, product sales and service sales presentations, marketing material and meeting minutes	Over 300 items	Become familiar with the organizational setting. Support and validate findings through data triangulation.

Additional primary data were derived from 32 formal face-to-face interviews. The sample size was not predetermined, and the interview data collection continued until theoretical saturation (Corbin & Strauss, 1990; Saunders et al., 2017), i.e., a point after which no new data emerge to support data interpretation and the number of recurrences in the responses is high, was reached. The sample size requirements in qualitative research have been a subject of continuous scholarly discussions (Boddy, 2016). Prior research (Guest, Bunce, & Johnson, 2006) suggested that 12 interviews are sufficient to reach the saturation point, while Marshall, Cardon, Poddar, and Fontenot (2013) argued that the minimum number of interviews in a qualitative study should be between 20 and 30. Other researchers (Gerson & Horowitz, 2002) have claimed that the sample size should be between 60 and 150. Based on the diversity of findings in the extant literature, the sample size utilized in this study (32 interviews) is considered appropriate since the main goal, i.e., theoretical saturation, was reached. To enable access to the most valuable and reliable data, key competent informants in Steel Co. were identified by means of purposeful and snowball sampling (Eisenhardt, 1989; Yin, 1994).

To explore and capture the complexity of the studied phenomenon, interviews were conducted with members at different organizational levels, including Service Managers, a Global Support and Spare Parts Support Manager, an O&M Maintenance Coordinator, the Vice President of Service, Software Managers, Training Managers, Software Engineers, Sales Managers, Senior Managers, Marketing Managers, and the Vice President of Sales and Marketing (Table 2). The heterogeneity of the sample maximized the generation of theoretical constructs from diverse and thick data. Each interview lasted between 39–75 min and was recorded and transcribed verbatim. All interviewees were guaranteed anonymity. The interview data were collected using in-depth semistructured interviews (Yin, 1994) during which the

respondents were given an opportunity to share their attitudes and experiences with internal storytelling practices. The interview guide was developed *a priori* and comprised open-ended questions. An outline of the topics discussed during the interviews is illustrated in the Appendix. The interview questions and the purpose of the interviews varied depending on the respondent's organizational background and experience with storytelling.

Table 2. Data description.

Organizational function	Job title	Number of respondents	Identification code	Duration in min	
Service	Service Manager	13	S1	49	
			S2	66	
			S3	40	
			S4	45	
			S5	52	
			S6	48	
			S7	50	
			S8	58	
			S9	70	
			S10	41	
			S11	62	
			S12	67	
			S13	60	
			S14	49	
	Global Support and Spare Parts Support Manager	1			
	O&M Maintenance Coordinator	1	S15	56	
	Vice President of Service	1	S16	61	
	R&D	Software Manager	2	RD1	75
				RD2	46
Training Manager		1	RD3	58	
Software Engineer		2	RD4	41	
			RD5	40	
Marketing and Sales	Sales Manager	6	MS1	42	
			MS2	54	
			MS3	58	
			MS4	47	
			MS5	63	
			MS6	39	
	Senior Manager	2	MS7	72	
			MS8	50	
	Marketing Manager	2	MS9	45	
			MS10	53	
	Vice President of Sales and Marketing	1	MS11	40	

Total:	32	1697
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The data collection process was complemented by 92 field notes (1–2 pages per interview or meeting) continuously recorded by the researcher to support the data interpretation process and identify relevant patterns. The field notes comprised both descriptive and reflective content to record a factual description of the setting and the researcher’s interpretations as they emerged during the observations. From a methodological standpoint, an ECS is rooted in observations of activities, events, people, behavior, and reflections during fieldwork with the aim of becoming immersed in the organizational culture being studied (Visconti, 2010). Although field notes are not a prevalent data collection technique in a traditional ECS, observation notes are central to qualitative research, such as ethnography (Creese, Bhatt, Bhojani, & Martin, 2008; Walford, 2009) and case studies (Yin, 1994). Hence, given the research timespan of two and half years, the recording of field notes helped track the accumulating insights and strengthen theory building.

Finally, the primary data were validated and supplemented with an extensive number of secondary documentary data provided by Steel Co. comprising RM&D service adoption statistics, RM&D training material, BDA project reporting, product sales and service sales presentations, marketing material and meeting minutes.

3.5 Data interpretation

Following ECS research guidelines (Van Maanen, 1979; Visconti, 2010), the data interpretation process was iterative and comprised a continuous interplay among emerging theory, empirical data, secondary data and the prior literature. The data were categorized using a three-stage approach, and the purpose of the data interpretation was to identify constructs, relationships, and

patterns of storytelling practices in Steel Co. that enabled customer adoption of the smart service. The data structure and coding procedure are summarized in Fig. 2. The first-order codes were derived from the interviews and observational data by means of a thorough qualitative content analysis of the interview transcripts and field notes for internal consistency. The second-order constructs were generated by the researcher's interpretation of the patterns observed in the first-order data. Finally, the refinement of the second-order theoretical explanations resulted in the emergence of aggregate theoretical dimensions. During the final stage of the data analysis procedure, the preliminary results were discussed with key respondents in Steel Co. to verify the quality and validity of the findings.

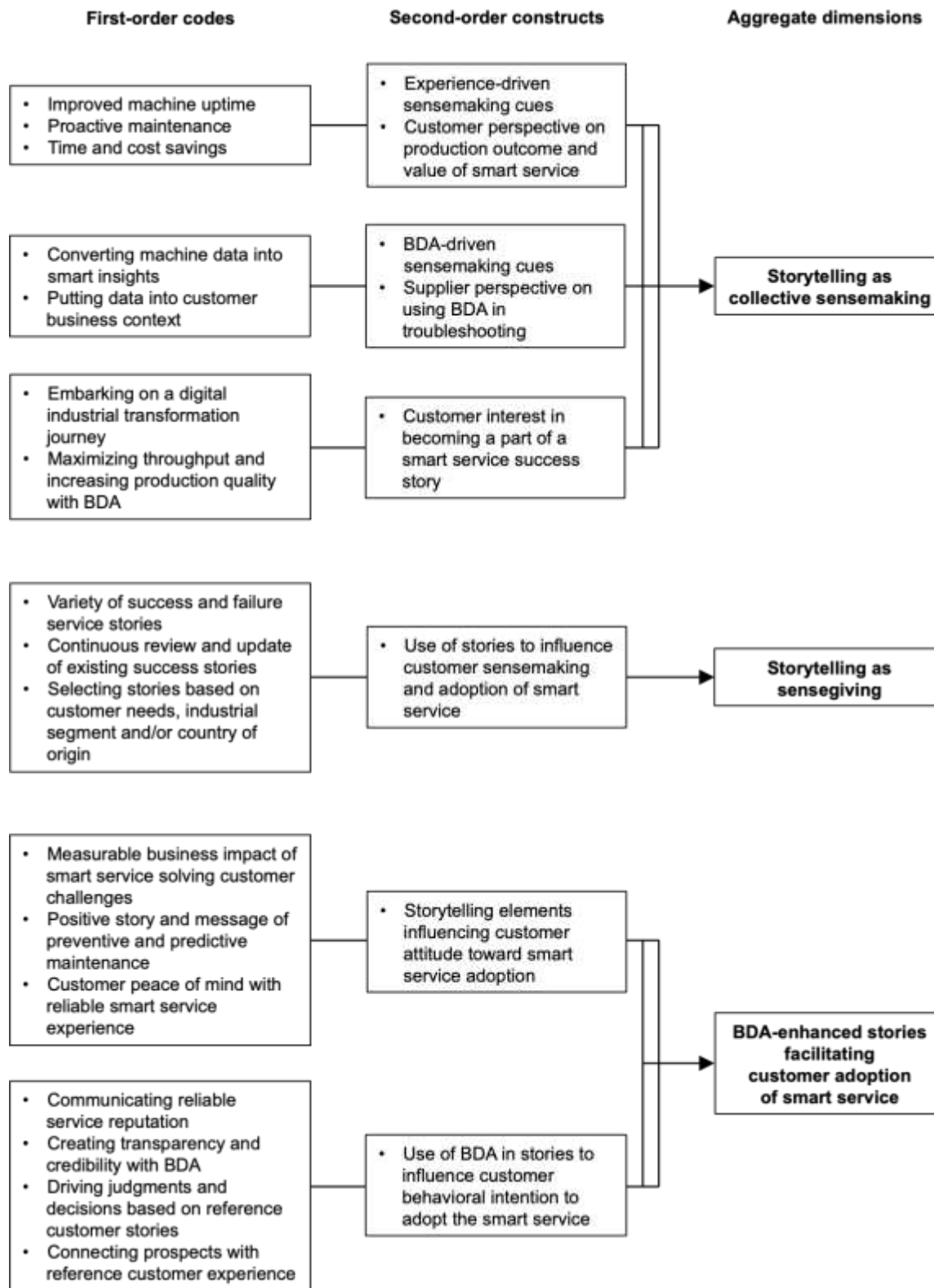


Fig. 2. Data structure.

3.6 Data quality

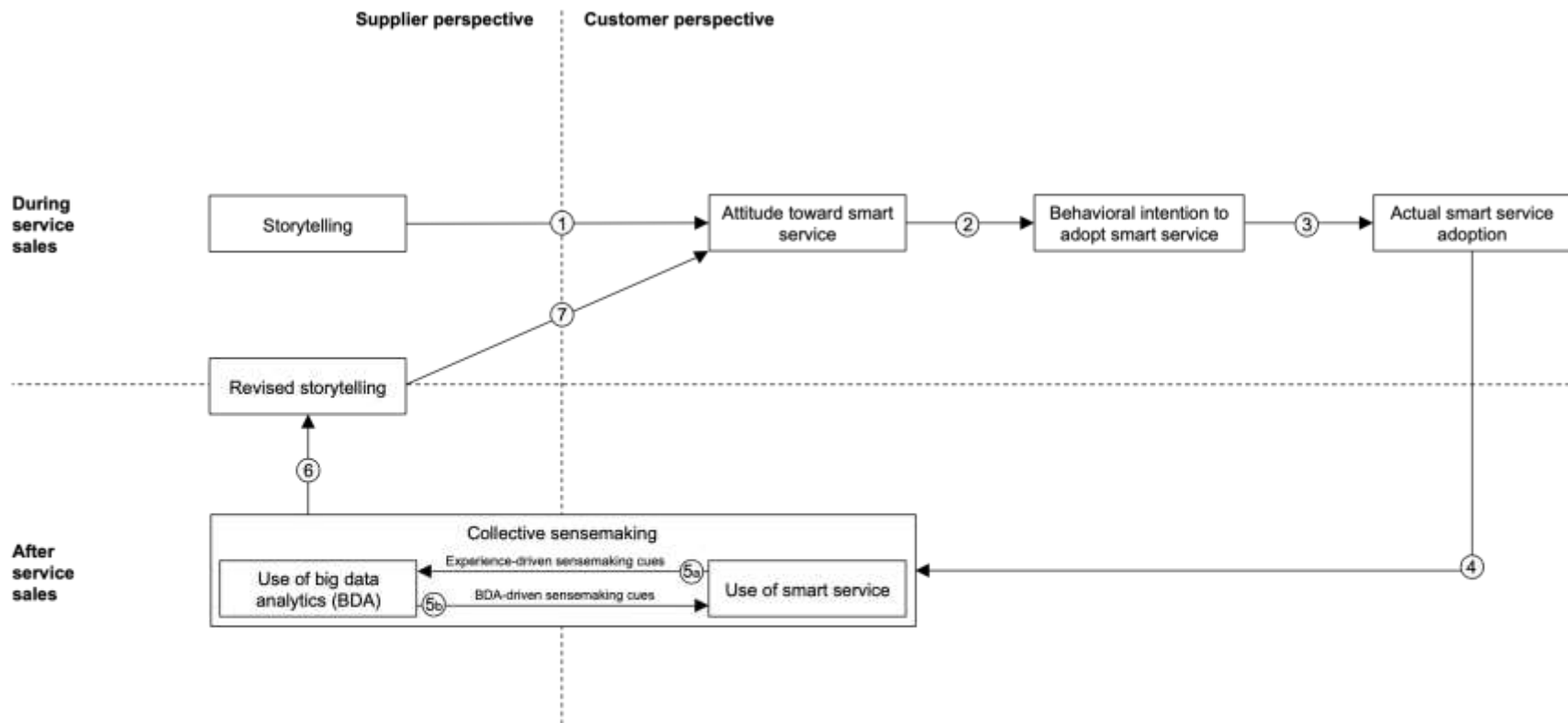
To ensure rigor during the data collection and interpretation, the research process incorporated several measures to ensure credibility, transferability, dependability, and confirmability (Guba, 1981). Research credibility was achieved by triangulating the participant observation data, individual interviews, field notes, and secondary documentary data. The use of different data collection methods and a wide range of respondents enhanced the data quality and verified the data accuracy. During the research process, the respondents were encouraged to provide feedback regarding the discussed topics, and an iterative questioning technique was utilized to address data discrepancies. To ensure the transferability of the research findings, a detailed description of the studied phenomenon and research setting was provided. Nevertheless, the unique illustrative nature of this study suggests difficulty in extrapolating the findings to other research contexts. In addressing dependability, the interview data were recorded following a thorough explanation of the research design. Data confirmability was achieved by the use of illustrative quotations to support the research claims and accurately portray the respondents' view of the organizational reality.

4 Results

The findings from the data analysis provide insight into how the case company employed storytelling as a collective sensemaking and sensegiving instrument to improve customers' adoption of a smart service. The findings highlight the importance of BDA in storytelling, and an illustrative example of a smart service story utilized by the case company is provided. Drawing upon the dyadic relationship between suppliers and customers, Fig. 3 summarizes the

observations from the empirical study, which are further discussed in detail in the remainder of this section.

The reporting of the study findings is supported with illustrative interview quotations to explain human behavior through the individuals' own words. Despite the extensive observations during the research period, the observational data do not directly disclose the respondents' personal experiences and opinions. Hence, the researcher's interpretations in this section are complemented with verbal accounts produced by the interviewees to ensure transparency, minimize researcher bias and demonstrate to the readers how the researcher arrived at the research findings.



The 'Revised storytelling' step is intentionally placed in both stages of the sales process simultaneously. Revised storytelling is originally produced in the after-sales stage and is later used by sales managers during service sales to influence customer's attitude and behavior toward the smart service.

Fig. 3. Storytelling in smart service sales.

4.1 Role of storytelling in smart service sales

Based on the evidence gathered and interpreted, storytelling is a collective sensemaking process involving both suppliers and customers during the exchange of sensemaking cues (see Fig. 3 arrows 5a and 5b) after customers adopt the smart service (arrow 4). The smart service story development begins when a customer and the supplier attempt to make sense of an unexpected event caused by a machine malfunction and aim to jointly construct a course of further actions. During the processes of real-time troubleshooting and predictive or preventive maintenance, the customer uses *experience-driven sensemaking cues* acquired from the factory (arrow 5a), while the supplier utilizes *data-driven cues* derived with the help of BDA (arrow 5b) to reach the desired service outcome:

“Storytelling is all about listening to the customer needs and experiences and interacting accordingly. A lot of story content comes from the customer. On our behalf, BDA provides the rest of the story. At the end of the day, there is always our and a customer perspective in the story.” (S7)

Storytelling is a collective sensemaking process that comprises collective interpretive efforts to improve machine uptime remotely and contribute to a smart service success story from both the customer and supplier perspectives. Supplier storytelling is dynamic in nature and is continuously revised and modified in light of new sensemaking cues emerging from the increasing installed base of customers who adopted the smart service (arrow 6):

“The storytelling quality grows with experience. Now, we have many more success stories to choose from than ever before.” (S14)

Storytelling is produced in a communicative interaction between customers and suppliers during which both develop a shared meaning of the story. The suppliers’ process of identifying

customer references for service stories is enhanced by customers' willingness to cooperate to be publicly associated with Industry 4.0 and the digitalization hype:

“Customers nowadays are very interested in digitalization and Industry 4.0 solutions. Everyone wants to become a digital industrial leader. Basically, customers get some free marketing for their company because they can write their own story about connectivity and production analytics in our story.” (M3)

The dissemination of smart service success stories occurs through internal channels (e.g., customer presentations during service sales) and external channels (e.g., customer magazines, newsletters, and website) that are continuously monitored for content coherence by the marketing department:

“Customers are much more interested in reading these stories than some technical update that we publish in the magazine. Customers want to learn about production challenges that other customers were able to solve with our service and how they can improve their own production efficiency.” (MS11)

The sales managers are responsible for consulting the reference customer regarding the storyline, recording customers' answers to specific questions, drafting a story, and asking the reference customer to review the story before publishing:

“We have a few standard questions that we go through with a customer. Usually, we discuss the impact of the service and BDA software on the customers' production.” (S10)

The marketing department provides additional support by generating an engaging headline and arranging a proper layout (e.g., pictures and bullet points) to highlight the important facts and attract customers' attention. To ensure the reference customers' privacy and data

confidentiality, smart service stories are supported with BDA screenshots that conceal the customers' critical production details:

“New customers should not investigate too deeply how other customers are organizing their production. We always have to think how much we tell in our stories and what pictures we show.” (S15)

The process of collective sensemaking in smart services generates both *success* stories and *failure* stories; remote machine diagnostics and troubleshooting can be rapid or time consuming, resulting in satisfied and unsatisfied customers:

“Pilot customers get frequent machine alarms in the first couple of months. Then, we use BDA software to find solutions, spare parts arrive on time, and machine downtime is reduced. Even though the story started in a negative tone, the final result was successful. This shows that we take good care of our customers.” (S1)

The service managers and sales managers use storytelling as a sensegiving instrument (arrows 1 and 7) that allows them to choose the stories to tell prospective customers to deliberately influence their attitude, behavioral intention to adopt the smart service and actual smart service adoption (arrows 2 and 3). Storytelling occurs throughout the entire service sales process following the identification of customer challenges and BDA software simulation:

“Telling stories is the best way to have a mutual understanding with the customer. After I tell a story, I see that customers better understand our complex processes. If you show them a service software demo, then the customers can see how well the software works, but customers still do not entirely understand what it means for their production.” (S5)

To enhance customers' attitude toward and behavioral intention to adopt the smart service, suppliers' act of sensegiving (arrows 1 and 7) involves selecting appropriate stories tailored to prospective customers' country of origin, industrial segment and/or service needs:

“Speaking about a particular industrial segment or a market is a very good way to grab customers' attention. Whether it is an elevator company or a steel door manufacturer, you should speak the same language as the customer.” (M6)

When building a relationship with a new industrial customer, a carefully selected service success story demonstrates the supplier's competence and reassures the customers of the supplier's brand credibility and reputation:

“Steel manufacturing companies tend to know each other very well, and they know what machinery, software and services everyone is using. In a new country or industrial segment where we are not so well known, the only way to convince the customer that we will fulfill our service promises is to provide success stories about local customers.” (MS2)

The customers' attitude toward the smart service improves as the stories yield real, measurable value in the eyes of the prospective customers:

“Customers are not buying just the service – they are buying production efficiency.” (MS5)

“Traveling to the customer and fixing a machine on-site takes two days, while fixing a machine remotely takes two hours. It is all about highlighting the real business impact on the customers.” (S2)

When a reference customer's experience with the smart service is showcased, the behavior of prospective customers changes favorably, and such customers become more inclined to adopt the smart service (arrows 2 and 3):

“They [new customers] see that there are real customers that are making more money with our service. Customers become more convinced that we can do what we promise. When I tell them that we can predict the wearing out of the components or temperature overheating, customers often say: ‘Oh yes, I didn’t think about it before! It would be definitely an added value for us.’ Usually, we sign the contract with the customer the same day.” (S13)

Storytelling focusing on predictive or preventive maintenance enhances customers' attitude toward the smart service as the stories emphasize proactive problem detection rather than the negative aspects of real-time troubleshooting:

“Typically, customers see service in a negative light because of machine downtime, declined production and complaints. Now, we focus more on stories that send positive proactive messages. We emphasize remote connectivity, preventive support and collaboration with customers.” (S6)

Stories highlighting continuous equipment monitoring and the reliability of smart services in the long term sell prospects peace of mind regarding their own production:

“Customers have their own business to take care of. What they need from us is peace of mind, reliability and trust.” (MS8)

4.2 Big data analytics in smart service storytelling

Thus far, the study findings concentrated largely on illustrating the role of storytelling as a collective sensemaking and sensegiving instrument used to facilitate smart service sales (as reviewed in the previous section). In this section, the advantages of using BDA-enhanced stories are discussed, and an example of a smart service success story is provided to illustrate compelling storytelling.

The findings suggest that smart service storytelling revolves around machine usage data collected and processed by BDA. Drawing upon the supplier's challenge in selling an intangible service, the use of stories enhanced by a reference customer's online data blurs the line between physical equipment and digitized data value:

“The problem with selling a remote service to customers is that you cannot see or touch it. We use stories and BDA as flesh and bones to prove to customers what we are capable of. Customers tend to believe stories when they see that the story is complemented with real data automatically collected through machine controls.” (S9)

BDA enables the supplier to psychologically influence customers' attitude toward the smart service by providing a visual overview of the globally connected installed base using these services:

“We have to remember how the human mind works. When customers need to enter a new area, such as a remote service, they step out of their comfort zone, but they try to return as quickly as possible. When you have a very well-known name as your reference customer, it is easier for other companies to make the same decision.” (MS4)

To facilitate customers' sensemaking of the smart service, the success stories are enhanced with BDA visualizations highlighting business insights extracted from data:

“One of the best aspects of BDA is that even though we and the customers might not speak the same language, we have good visualizations of machine data. Numbers and graphs are an easy way to digest information.” (S12)

The incorporation of BDA into a business setting helps prospective customers draw parallels between the reference customers’ case and their own production. Customers’ attitude and behavioral intention to adopt the smart service improve as they begin to consider how the smart service enabled by BDA could provide new unexpected insights and optimize their production:

“Just recently, I had a customer who complained about frequent machine stops during a specific time period of the day. I gave him an example of our customer who couldn’t figure out why the setup of their machine took twice as much time as needed. I explained that we used BDA software to rewind to the setup process phase, and we discovered that a truck driver did not place sheet metal into the loading table correctly. The sheet clamps couldn’t reach for it, and it delayed the process. The customer immediately bought the idea because he realized that we have this remote service tool showing what is invisible to the naked human eye.” (S8)

The example story frequently disseminated during service sales in Steel Co. is demonstrated in Fig. 4 to extend the reader’s understanding of how storytelling is used to improve customer adoption of the smart service. During the interviews with Steel Co. representatives focused on internal storytelling practices (cf. Appendix), several examples of smart service stories were provided to the researcher, including the story shown in Fig. 4. During the data interpretation phase, several content patterns and characteristics of smart service stories were identified.

The smart service stories in Steel Co. usually begin with an engaging headline and a quotation illustrating a genuine customer experience with the smart service. Each story contains elements of descriptive analytics (what occurred in the customer's production?), diagnostic analytics (why did such an event occur?), predictive analytics (what is likely to occur next?), and prescriptive analytics (what steps should be taken to mitigate future risk?).

First, the story starts with a brief description of the reference customer's background information. Second, the story describes the key challenge faced by the reference customer. The story continues by contrasting the obstacles encountered in human service diagnostic assessments with the use of BDA for the remote diagnosis of equipment malfunctions. Then, the story describes the potential future consequences of the failure. Finally, the story ends by providing a solution to the customer's challenge with the help of BDA.

Consistent with the earlier discussed interview findings regarding storytelling as a collective sensemaking process, the story example represents a content pattern in which both customer and supplier voices can be distinguished (cf. interviewee quotation by S7). The story comprises the customer's experience-driven sensemaking cues, where the customer makes sense of a declined/improved machine utilization rate (line numbers 6-8 and 19), and the supplier's data-driven cues, which originate from the use of BDA (line numbers 10-15). The illustrated example demonstrates how the story content is collectively produced through the contributions of both customers (line numbers 1-8 and 19) and suppliers (line numbers 10-18). Although this study provides a single example of a smart service story, the story description (Fig. 4) is intended to illustrate the essence of a compelling BDA-enhanced story.

5 Discussion

5.1 Theoretical implications

Drawing upon the industrial marketing, narrative and information systems literature, the present study addresses the existing gaps in the literature by explaining the role of storytelling and BDA in enhancing customer adoption of suppliers' smart services. The study's theoretical contribution is fourfold.

First, this study contributes by broadening the emerging literature on smart servitization (Bello & Zeadally, 2019; Beverungen et al., 2017; Geum et al., 2016) by providing a new perspective regarding the role of storytelling as a facilitating factor in customer adoption of suppliers' smart services. In response to prior research calls for a customer-oriented perspective of behavior and attitudes toward smart services (Kamp et al., 2017; Maglio et al., 2015; Medina-Borja, 2015; Wunderlich et al., 2015), the present study extends this line of research by capturing suppliers' storytelling practices and use of BDA to enhance customers' attitude toward smart services, their behavioral intention to adopt this service and their actual smart service adoption (Fig. 3). To record and explain the behavior of both customers and suppliers, Fig. 3 was constructed through several iterations of interpreting data from different sources. The triangulation of the observational data, interviews and field notes with secondary documentary data helped isolate invalid interpretations and enhance the quality of the findings. Whereas the existing industrial service research has focused on customer adoption of manufacturers' basic services (Vaittinen et al., 2018) and interactive services (Wunderlich et al., 2012), this study contributes to the servitization literature by taking a step forward and addressing the behavioral mechanisms underlying the successful adoption of industrial *smart services*. The present study

was able to accomplish this goal by identifying an appropriate context for studying smart services and selecting an information-rich industrial case company in a B2B setting with unique circumstances. This study advances the emerging but limited literature concerning the internal and external barriers to the successful adoption of smart services in industrial marketing (Klein et al., 2018; Töytäri et al., 2018) by offering a novel storytelling solution to suppliers for overcoming customer resistance. As a result, this study expands the research field's consideration of the changing nature of customer-supplier interactions in the digital era, which is a topic previously neglected in the literature.

Second, given that previous research (Dawson & McLean, 2013; Lacoste & La Rocca, 2015) provided limited evidence regarding the relationship between storytelling and collective sensemaking, this study's findings enrich the storytelling literature by introducing storytelling as a *collective sensemaking and sensegiving instrument*. Responding to the calls for the adoption of storytelling in industrial marketing research (Anaza et al., 2019; Gilliam & Flaherty, 2015), this study advances our understanding of storytelling in the B2B context by mapping the routinized mechanisms through which storytelling is collectively developed and disseminated in customer-supplier interactions (Fig. 3). To achieve this result, the interpretive ECS method supported the researcher in capturing the complexity of customer-supplier interactions through unique access to the case company, longitudinal immersion in the field and observations of everyday behaviors of customers and suppliers in their natural organizational setting. The empirical findings extend the limited discussion provided by Lacoste and La Rocca (2015) regarding the storytelling produced by both suppliers and customers in communicative interaction. In contrast to prior research focusing on the implications of customer stories (Gorry & Westbrook, 2011), this study advances the storytelling literature by exploring the role of *supplier storytelling* (Gilliam &

Flaherty, 2015) in smart service sales. In contrast to the previously examined use of deliberate storytelling in *internal* technological change (Boldsova, 2019), the present study advances this research stream with a novel approach to deliberate storytelling *externally* with customers. To understand and explain how suppliers tell stories to existing and prospective customers, the researcher participated in various customer meetings and international trade fairs, where it was possible to observe supplier storytelling during negotiations and sales.

Third, the present study is an important addition to the sparse literature linking storytelling and analytics (Boldsova & Luoto, 2019) because it reveals a new way of utilizing BDA in storytelling and provides an illustrative example of a smart service story (Fig. 4). To ensure that the researcher's interpretations of storytelling are aligned with the organizational reality, respondents from the case company were continuously encouraged to provide feedback and verify the results. The study's findings demonstrate that suppliers can utilize BDA in stories as a novel strategic method to influence customer behavior in relation to smart services and minimize the customer's perceived risk from the hypothesized service value. To accurately illustrate the essence of the BDA-enhanced story shown in Fig. 4, the researcher conducted interviews with members at different organization levels (Service, R&D, and Marketing and Sales) to acquire multiple viewpoints and examples of internal storytelling practices in Steel Co. This study complements the current literature concerning the application of BDA in data-driven services in B2B firms (Ehret & Wirtz, 2017; Kamp et al., 2017) by demonstrating how reference customer data can be extracted from BDA and leveraged as digitized evidence of the smart service value during interactions with prospective customers. As a result, this study enriches research on BDA value (Côte-Real et al., 2017, 2019; Wamba et al., 2017) by unlocking a new application of BDA in customer-supplier interactions to boost smart service sales. Being a

temporary member of the studied organization supported the researcher in gaining knowledge regarding the relationship among BDA (Fleet Management), storytelling and smart service (Remote Monitoring and Diagnostics) in Steel Co., which would not have been possible without the ethnographic immersion.

Finally, to advance the prior literature concerning customer referencing in industrial marketing (Jaakkola & Aarikka-Stenroos, 2018; Ruokolainen & Aarikka-Stenroos, 2016; Terho & Jalkala, 2017), the present study reveals and explains a new way by which the use of stories in references provides a powerful means of highlighting suppliers' trustworthiness and facilitating their sales of smart services. While the existing literature has paid attention to conceptualizing and measuring the impact of customer references on selling performance (Anderson & Wynstra, 2010; Terho & Jalkala, 2017), this study adopts a different approach by showing what practically constitutes an effective *reference* in smart service sales (Fig. 4) and how stories can be incorporated into customer reference marketing. During the field observations, the researcher's prior knowledge of data-driven analytics and the sheet metal processing industry facilitated the process of gaining access to internal data and blurring the boundaries between the researcher and respondents. The present study's findings are aligned with extant research related to customer reference marketing (Terho & Jalkala, 2017) by highlighting the importance of building a balanced customer reference portfolio and collecting customer stories from different customer segments and geographic regions.

5.2 Managerial implications

The present study has several valuable implications for industrial firm managers who are attempting to embark on a digitalization journey or currently struggling with smart service sales.

First, this study draws managerial attention to the importance of storytelling in business settings and encourages managers to deliberately create and disseminate stories to improve customers' attitudes toward smart services, behavioral intention to adopt smart services and actual adoption of smart services. In particular, organizations undergoing smart servitization transformation can use storytelling to increase their competitive advantage over other providers in the eyes of prospective customers and increase smart service sales.

Second, the process of smart service sales outlined in this study (Fig. 3) can help managers envision how storytelling is an interactive collective sensemaking process that can be integrated into service sales. An understanding of the factors underlying customers' attitudes and behavior toward smart services could help industrial firms improve their sales and marketing strategies. With the predefined process map (Fig. 3), managers responsible for sales or digital transformation can better familiarize employees with how to integrate stories in daily routines, change mindsets and transform the nature of the sales manager role toward storytelling (e.g., collecting reference customer stories and selecting which stories to disseminate based on customers' geographic region and industrial segment). The current study recommends that practitioners actively engage with customers in the after-service sales stage not only to support their production but also to collect reference customer success stories. Sales managers should continuously revise and systematically expand their portfolios of reference stories assuming that the number of customers adopting smart services increases. Given increasing customer interest in digitalization, to motivate existing customers to act as references, suppliers should highlight that such stories could further improve the customers' reputation by promoting their involvement in Industry 4.0 trends (smart services and BDA).

Third, given the increasing managerial interest in big data in B2B contexts, this study encourages managers to leverage the business potential of BDA in enhancing service operations. For example, prospective customers may be hesitant to invest in smart services because digitally enabled remote support is intangible, and the value of the service is unclear until its adoption. To overcome this challenge and minimize customers' perceived risk, suppliers can demonstrate to prospective customers the fleet data collected and processed by BDA for a reference customer as digitized evidence of the ability to extract business value with RM&D. Organizations considering investing in BDA technologies can use the current study's findings to communicate the potential value of BDA to the executive management team to justify BDA investments.

Finally, this study provides practical insights and guidance by offering a concrete example of a smart service story enhanced with BDA (Fig. 4). The present study encourages managers to utilize the proposed story structure as a template while developing their own stories related to smart services in an organization. According to the study's findings, the story should comprise a title, reference customer quotation, customer background information, description of the customer challenge, root cause analysis with BDA, potential future consequences, and prescribed solution with the help of BDA (Fig. 4). To realize the value of storytelling, sales managers are advised to closely cooperate with marketing departments in storytelling activities, such as creating the story layout, copywriting and disseminating the stories to customers through different channels.

5.3 Limitations and future research avenues

Although this study offers new insight into the use of BDA and storytelling in smart service sales, it is subject to (at least) two limitations that provide avenues for future research. First, as

the present study is qualitative in nature, the results are not generalizable to the population (Eisenhardt & Graebner, 2007); however, the proposed frameworks (Figs. 3 and 4) enhance our understanding of the role of storytelling in customer adoption of suppliers' smart services.

Therefore, future research could conduct quantitative studies in different empirical contexts to validate the findings and potentially yield new insights and contributions to the literature.

Another limitation of the study is that it mainly conducted research from the supplier perspective of storytelling. Hence, future research could advance our knowledge by exploring customer-oriented attitudes and perceptions and focusing on the enabling and inhibiting factors of smart service adoption. Finally, given the novelty and practical relevance of the studied phenomenon, the present study encourages future research to deepen our knowledge of the behavioral aspects of smart service adoption and the influencing role of BDA in communication among industrial actors.

6 Conclusions

The increasing role of digital transformation in servitization creates new opportunities and challenges for practitioners in exploiting the potential of industrial fleet, BDA and smart services. As customer reluctance to adopt suppliers' digitally enabled smart services remains an obstacle, suppliers are seeking new ways to influence customer behavior and increase service sales. To address this challenge, the present study suggests that practitioners use deliberate storytelling and BDA to improve customers' attitudes toward suppliers' smart services. The results of the study deepen our knowledge of storytelling as a collective sensemaking and sensegiving instrument created and utilized in a dialogue between customers and suppliers. This study is an important addition to the smart servitization, BDA, storytelling and customer

referencing literature as it provides a new perspective for B2B firms showing how to succeed in selling smart services.

Appendix. Interview guide

Interview questions (further adapted to respondents from different departments)

- How do you see the role of storytelling in RD&M service sales?
 - How does BDA software support the development of customer success stories?
 - How do you collect customer success stories?
 - How do (reference) customers contribute to story development?
 - Under what circumstances do you usually tell stories?
 - What is the purpose of using stories in discussions with prospective customers?
 - What is the key message of the story?
 - What is the usual content of the story?
 - Could you give an example of an RD&M service success story?
 - How effective is storytelling?
 - How successful has storytelling been in RD&M service sales?
 - How do prospective customers respond to stories about RD&M service?
 - How do customers' attitudes and behaviors change after hearing a story?
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