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Bridging Relational Asymmetry through Servitization: An Exploratory Study[1]

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Abstract

Purpose of the paper –**This paper aims to investigate how a firm that has transitioned to a digital servitization business model bridges relational asymmetry. It continues the theme of sustainability from the traditional three dimensions—environmental, economic, and social sustainability—to relational in terms of the quality of the relationship between the service provider and the customers.**

Methodology – **Adopting an exploratory approach, qualitative data has been gathered from the case of Xerox, a pioneering company that adapts servitization business models. The combination of exploratory archival and literature search studies allowed a deeper understanding of servitization and how it directly or indirectly bridges (or not) the relational asymmetry.**

Main Findings – **According to the findings, the servitization business model is relational by nature, but in order to be viable, it needs to invest in transparency. When considered from a relational standpoint, servitization is not only a process of creating value but co-creating it with the customers.**

Practical implications – **This exploratory paper gives managers rational insight into whether it is sustainable to fill the relational asymmetry between them as service providers and their customers in delivering quality service.**

Originality/value: **This paper takes a fresh look at servitization, arguing that the relational asymmetry filled by servitization will define the future of businesses that differentiate themselves through quality relationships.**

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[1] The paper is the result of the joint work of the three authors. However, the findings, discussions, and conclusion are attributable to Aiza de Torres Asi; the methods, implications, and limitations to Michela Floris; and the introduction and the theoretical background to Giuseppe Argiolas.

1. Introduction

Servitization, the term coined by Vandermerwe and Rada in 1988, is now commonly used to refer to the practice of adding services to products in order to enhance value. It deals with the transition from selling products to providing "bundles" of customer-focused packages of products, services, support, and knowledge in order to provide value in use. Since the late 1980s, a variety of scholars have explored its adoption as a competitive manufacturing strategy in an effort to comprehend the origins and implications of the concept (e.g. Wise & Baumgartner, 1999; Oliva & Kallenberg, 2003; Slack, 2005).

In the current literature, the product-service system or servitization has attracted growing interest to capture sustainable value creation and has increased the awareness of the need to break the linear economy and strive for a circular economy (Retamal & Schandl, 2018; Stål & Corvellec, 2018). The development of the product service system as a business model and the inclusion of sustainability in the core of its business development are continuously addressed through its three main dimensions: environmental, economic, and social. The potentialities offered by servitization clearly cover both the economic and the environmental dimensions of sustainability, and, with the effective implementation of product servitization on the market, the prolonged life cycle of products and physical components involved (made possible by services) can also have an impact on the social dimension of sustainability, as, for instance, with the impact on customers consumption schemes (Annarelli et al., 2019).

According to recent research, the quality of interaction between provider and customer is continuously transforming the sustainable value creation in servitization, resulting in customized and comprehensive solutions that provide real value (Kohtamäki et al., 2013; Lerch & Gotsch, 2015; Reim et al., 2015; Viljakainen & Toivonen, 2014).The closeness and quality of this interaction is key to value co-creation (Grönroos & Voima, 2013; Sjödin, 2019) because the development of customized solutions needs a collaborative innovation approach as well as connected production resources shared between partners (Martín-Peña et al., 2018). According to Hara and colleagues (2016) the provider–customer relationship in terms of knowledge transfer is a key to capturing the servitization process. However, little attempt has been made to identify how servitization bridges the distance between provider and customers to co-create sustainable value.

Kamalaldin et al. (2020) have begun to investigate how providers and customers transform their relationships in order to reap the benefits of digital services through business-to-business (B2B) relationships.This study extends this analysis not only by taking into account the business-to-customers (B2C) relationship but also to capture when, in particular, this relationship happens in the provider-customer interface from the relational asymmetry lens. Relationships in business are often asymmetric (Bove and Okada, 2018), but they do not necessarily mean that the provider hegemonizes the scenario. It could either be a customer-dominated or supplier-dominated relationship

(Johnsen and Ford, 2001). Neither of them fit with the concept of compatible, collaborative relationships. Customers are placing increasing demands for "value" on suppliers (Gadde and Snehota, 2000). However, suppliers too may be seeking increased value from their customer relationships and looking for new and more liberated ways to conduct these relationships. This study looks at possible reciprocal engagements present in digital servitization where both parties are operating in a collaborative manner.

Based on these assumptions, the current exploratory article adds to the existing literature on digital servitization in management contexts by answering the following research question: how does the digital servitization model bridge relational asymmetry between provider and customer? It builds on the literature search and archival studies of the case of Xerox as a frontrunner in digital servitization and its relationship with the customers.

Through the relational asymmetry perspective, the findings suggest that the pivotal cause of any asymmetric relationship is all about transparency issues. The interaction between provider and customer is digitally enhanced in the servitization business model. But to make this relationship sustainable, it needs to address the possible actors adverse behavior. The Xerox case illuminates the dual effect of transparency, which, depending on the intention, can be either an "enabling" or an "impairing" factor in valuing co-creation.

The article is organized as follows: Section 2 reviews the main theoretical concepts of the study and offers three main theoretical speculations. Section 3 describes the research design and method. Section 4 presents the study findings. Finally, drawing on such findings, Section 5 discusses the results, provides various theoretical and managerial implications as well as the limitations of the study.

2. Theoretical Background

According to recent service literature, there are several advantages for manufacturers. Due to the financial (Neely, 2008), strategic (Baines & Lightfoot, 2014; Kowalkowski et al., 2017), and marketing (Gebauer et al., 2017) advantages of servitization, which add to the value of their current product offerings, they perceive it as a key strategy. Notably, it is regarded as a strategic alternative for product innovation (Carlborg et al., 2014) and standardization (Baines et al., 2007), a technique to overcome commoditization (Matthyssens & Vandenbempt, 2010), and an opportunity to build unique, lasting relationships with customers (Tukker, 2004). Servitization is arguably a complex field, with contributions coming from several interconnected research communities.

2.1 The Servitization using PSS Model

Among those equally important factors to capture additional value, our focus is on the relational dynamics between the provider and customers in servitization as the main way to survive and maximize income in the current highly globalized market demands (Guerola-Navarro et al. 2021). According to Tukker (2004), the Product Service System (PSS), a business model that represents

the most suitable way to achieve servitization (Annarelli et al., 2016; Reim et al., 2015), offers a better means of ensuring client loyalty than the mere purchasing of products. The PSS can be defined as consisting of "tangible products and intangible services designed and combined so that they are jointly capable of fulfilling specific customer needs" (see e.g., Tukker and Tischner et al., 2017).

There are various classifications of PSS, but most classifications make a distinction between three main categories (see Figure 1). The study on PSS as a system underlines the combination of tangibles (the goods) and intangibles (the services) to meet particular client demands. In product servitization, manufacturing companies are more willing to produce "results" rather than just "commodities" as distinct artifacts, and customers are more willing to consume such products as "solutions." These three main categories—product oriented, use-oriented, and result-oriented—are further elaborated by Tukker (2004) into eight sub-categories to identify the more specific PSS types, including different economic and environmental characteristics.

2.1.1 Product-oriented services

• Product-related service. In this situation, the supplier not only sells a product but also provides services required while the product is being used. This may indicate a maintenance agreement, a financing plan, or the provision of consumables, but it could also entail a take-back arrangement when the product approaches the end of its useful life.

• Advice and consultancy. Here, the seller offers advice on how to utilize the product in the most effective way. This might involve, for instance, suggestions for the team utilizing the product's organizational structure or for improving the logistics in a plant where the product is utilized as a production unit.

Figure 1. Product–Service Continuum Model
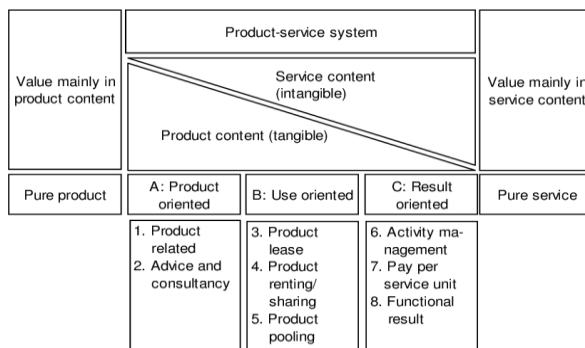
Tukker, A. (2004). Eight types of product–service system

2.1.2 Use-oriented services

• Product lease. In this arrangement, the product's ownership remains constant. Ownership belongs to the supplier, who is frequently also in charge of control, maintenance, and repair. The lessee pays a regular charge to utilize the product; in this instance, generally, he or she has unrestricted access to the leased product on an individual basis.

• Product renting or sharing. In this case as well, the product is held by a provider who is also in charge of maintenance, repair, and control. The cost of using the product is borne by the user. The key distinction from product leasing is that the user does not have unrestricted access to the product alone; other people may use it at other times. Multiple consumers utilize the same product in sequence.

• Product pooling. This is quite similar to renting or sharing products. However, the product is being used concurrently in this circumstance.

2.1.3 Result-oriented services

• Activity management/outsourcing. Here, a portion of a business's operations are delegated to a third party, as is often the case with office cleaning and catering, which are now standard practices in many companies.

• Pay per service unit. The PSS still uses a fairly mainstream product as its foundation, but the customer no longer purchases the product itself; instead, they only pay for the output of the product based on their usage. The pay-per-print formulae that are currently used by the majority of copier manufacturers are well-known instances in this category. By using this formula, the copier producer assumes responsibility for all tasks required to maintain an office's copying function (i.e., paper and toner supply, maintenance, repair, and replacement of the copier when appropriate).

• Functional result. Here, after defining with the customer what they need, the provider is totally free to choose how to execute the solution.

The model demonstrates that when a client's dependence on the product as the fundamental component of the PSS reduces, the client's demand is expressed in more abstract terms. The supplier has a bit more flexibility in meeting the client's genuine end requirement. Abstract criteria, on the other hand, are frequently difficult to convert into actual (quality performance) metrics. Providers struggle to discern what they have to provide, and consumers are unsure whether they received what they requested.

The PSS model reveals that, although existing literature in either the pure product or pure service industries is built on suppliers' product-centric perspective of customer demands, servitization tends to have a relational process view of solutions. Suppliers prefer to consider a solution as a personalized, integrated bundle of goods and services, which is consistent with pure product or pure service literature (e.g., Galbraith, 2002; Sawhney et al., 2006). In contrast, servitization views a solution as a collection of customer-supplier relational activities that include trust and creativity (Johnsen and Ford, 2001). Suppliers' failure to pay attention to these procedures may result in lost sales opportunities, dissatisfied customers, and poorer profitability. Tuli et al. (2007) suggest that solution providers could benefit from supplanting their product-centric view of solutions with a relational process view.

2.2 Servitization and the Relational Dimension

Prior research indicates that, as in the publishing sector, digital servitization alters the business environment (Sklyar et al., 2019), its supply chains, and business connections (Vendrell-Herrero et al., 2017). As a result, the supplier's ability to lead its customer to success (Rymaszewska et al.,

2017) by offering value-added services through a variety of digital and customer-oriented business models (Martn-Pena et al., 2018; Kohtamaki et al., 2019; Paiola and Gebauer, 2020) determines its value creation in digital services. Nowadys, high-quality supplier-customer connections are critical competitiveness drivers that manufacturing organizations may use and exploit through the Internet and digital technology (Gaiardelli et al., 2014).

Researchers of this nascent theme on relational transformation brought about by digital servitization from product-centric to relational service-oriented engagement view this phenomenon as a source of future competitiveness due to its potential for unlocking new value-creation (Kamalaldin et al., 2020).

The relational dimension between the provider and the customer in servitization has been sustained in literature as a cornerstone for engagement longevity, a source of reciprocal value creation, and an established concept in industrial marketing literature (Ulaga and Eggert, 2006; Athanasopoulou, 2009). It has been analyzed how these relationships are transformed to achieve revenue-generation opportunities (Kamalaldin et al., 2020), and the quality of these relationships and their components have been identified (Grandinetti et al., 2020). However, it remains unclear if the provider-customer relationship is inherently a sustainable relationship in a digital servitization from the relationship asymmetry lens.

2.3 Servitization and the Relational Asymmetry

The terms "asymmetrical" and "symmetrical" have tended to be used in industrial marketing literature to refer to the asymmetrical nature of one or a few characteristics such as commitment, power, or dependence (e.g., Gundlach et al., 1995).

Asymmetry, defined as a situation where at least one party possesses "private" information unknown to but beneficial to the other party or parties (Akerlof, 1970), is a cornerstone of management research. Although the concept is mainly analyzed under the information imbalance between the principal and the agent, researchers in the field of supply chain management have started to rethink asymmetry from the relational dimension (i.e., Michalski et al., 2018; Talay et al., 2019; Johnsen et al., 2020). The past studies in this research strand aim at mitigating the likelihood of adverse behavior (Reim, 2018), traditionally attributed to the opportunistic behavior of providers. It is where the customer has to cope with asymmetric information related to the provider's activities (Homburg & Stebel, 2009; Singh & Sirdeshmukh, 2000). Transparency issues, therefore, become more acute as relationships with customers become more complex (Sufi, 2007). By shifting from transactional to relational interaction (Reim, Sjödin, & Parida, 2018), digital servitization tends to create closer provider–customer relationships characterized by transparency (Eggert et al., 2022) that enable providers to offer customized digital solutions.

In line with Dapko s conceptual work (2012, p71), which defines transparency as "the extent to which a stakeholder perceives a firm s conduct is forthright and open regarding matters relevant to the stakeholder," the literature supports the claim that there is a negative correlation between transparency and asymmetry (Liu et al., 2015; Kumar and Yakhlef, 2016). By increasing transparency between the provider and customers, asymmetry is reduced. But what needs to be transparent in the relationship between the provider and the customer to bridge relational asymmetry?

Transparency can be defined from the customer s or supplier s perspective. Eggert and Helm (2003) define relationship transparency as "an individual s subjective perception of being informed about the relevant actions and properties of the other party in the interaction." In a business-to-business (B2B) setting, they demonstrate that transparency delivers value to the customer, increases customer satisfaction, and ultimately leads to favorable behavioral intentions. From the supplier s perspective, transparency refers to the process of making explicitly and openly available (disclosing) some information that can then be exploited by potential users for their decision-making processes (Turilli and Floridi, 2009, pp. 105-106).

Buell and colleagues (2017) argue that the co-creation of value is generated by the term they introduce, "reciprocal transparency." Their laboratory studies reveal that transparency, by visually revealing operating processes to consumers and beneficiaries to producers, generates a positive feedback loop through which value is created for both parties. The next section will look at this reciprocal transparency through the case of Xerox, which is one of the forerunners of servitization (Finne et al. 2013, Matsumoto and Kamigaki 2012), and considered the epitome of servitized enterprise (Visintin, 2014).

3. Research Methodology

The purpose of this study, which is the first component of an ongoing project, was to investigate the relational asymmetry in product servitization between provider and customer exchange at one of the industry's pioneering organizations. We intended to investigate how a product servitization model could bridge the relationship gap and improve the customer's positive experience.

With the relation-centric servitization model being an emerging and complex phenomenon (Smith, 1998; Kamalaldin et al., 2020; Cimini et al., 2021), a combination of literature search and archival inquiry through an analysis of Xerox company was implemented in this research. Ventresca and Mohr (2017) suggest that the study of historical records is one of several activities used in archival research methodologies, which also entail the analysis of texts and documents generated by or concerning organizations. The examination of digital texts, such as those found in electronic databases, emails, and web pages, may also be done using archival techniques. They argue that archival research should be used as a tool to reinforce other research methodologies; in our study, we combined it with a literature search of peer-reviewed articles on servitization. This is due to the fact that archive data, according to Das and colleagues (2018), is particularly vulnerable to experimenter bias, which may tempt researchers to formulate commodious hypotheses. The research design employed to develop this work was adapted from Makri and Neely (2021) and minimally elaborated to fit the objectives of this study (see Fig. 2).

A literature search was carried out to find pertinent theoretical areas connected to our research subject under the broad category of an exploratory study employing a qualitative technique. Utilizing the aforementioned keywords, a review of peer-reviewed scientific journals that were accessible over the Internet was conducted using interdisciplinary search engines including Google Scholar, SCOPUS, and Web of Science. In order to capture the relational component of this business model, the literature search also sought for pertinent published case studies of made to Xerox from the relational dimension as a pioneering company in product servitization. An archival investigation comes hand in hand with the literature search. To evaluate productivity, we studied organizational archives such as corporate annual reports, as well as websites and media articles on

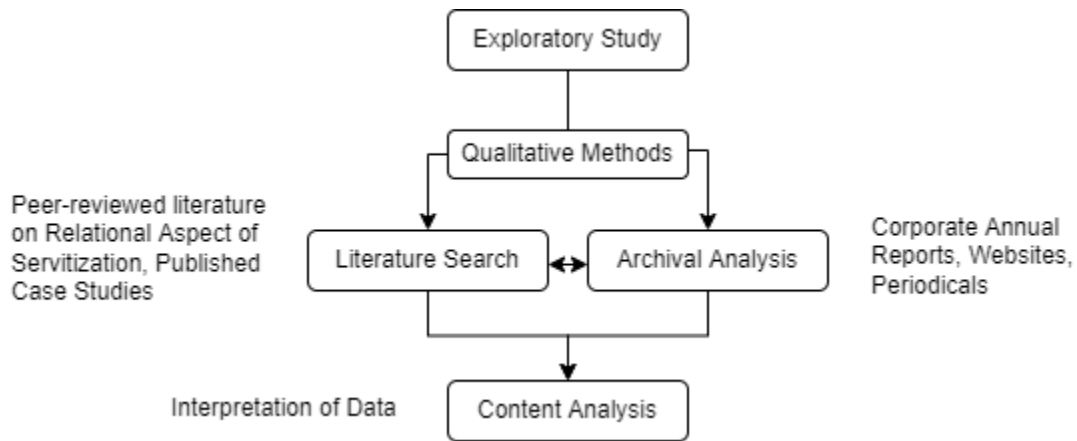value creation that emphasize the customer experience. Content analysis is used to examine the collected data.

Figure 2. Research Design (author's elaboration)

It can be argued that archival data combined with a literature search may play a threefold role in such contemporary-oriented research: the data obtained can be used to add theoretical depth to the study by illuminating the topic and enabling the verification of existing data from other sources; data from the archives and published literature are particularly well-suited to generating developmental explanations or explaining processes of change; and the combined data enables us to integrate hard and soft skills evidenced in relational asymmetry that may serve as a ground for performing empirical research.

4. Findings

Xerox Servitization Journey

Manufacturing companies recognized that in order to provide more value to customers, build long-term relationships, and increase profits, they would need to broaden their offerings beyond simply selling and maintaining hardware products to include solutions that ensure the optimization of the processes that these products enable (Visintin 2012).

In reality, in the second part of the 1990s, Xerox Corporation was the first corporation to provide this sort of solution to the US market (Matsumoto and Kamigaki 2013). It pioneered the deployment of servitized business models and has amassed significant system-integration, application-development, and consulting skills over time. External and internal factors have now motivated nearly all of the major photocopier firms to enter the solution sector. However, providing answers is far from straightforward. It necessitates the implementation of a new, more customer-focused, relationship-based company strategy (Spring and Araujo 2009; T. Baines et al. 2009). It also necessitates that the producer acquire new skills (Oliva and Kallenberg 2003; Storbacka 2011; Paiola et al. 2013). Indeed, some photocopier companies have succeeded in the transition while others are still transitioning and/or lagging behind (Weilerstein and Drew 2012; Le Clair 2012; Fernandes and Longbottom 2012; Muscolino 2011).

The photocopier industry, on the other hand, was one of the first to challenge the 'razor and razor blades' business model, which was based on the provision of product-related services (Tukker 2004), with an innovative and more servitized business model (Finne et al. 2013) rooted in use-oriented rental services (Tukker 2004). In the late 1950s, Haloid Company (as Xerox was known at the time) devised such a business plan in order to produce the first modern photocopier.

The Xerox model 914 (1959) was projected to cost $2,000 to build, whereas rivals' photocopiers cost approximately $300. Haloid finally chose to leave the dominating "razor and razor blades" business model and began leasing its 914 model for $95 per month (Chesbrough and Rosenbloom 2002), which covered the first 2,000 copies each month, with further copies paid at $4 per copy. This price concept was certainly appealing. Finally, to assuage consumers' concerns about this new and creative service, Haloid enabled contract termination with only 15 days' notice (Chesbrough and Rosenbloom 2002).

Haloid was able to make the product cheap for a far greater number of clients by utilizing such a strategy. As a result, a rapidly developing and valuable aftermarket emerged, with rivals totally shut out. The Federal Trade Commission, however, filed an antitrust complaint against Xerox in January 1972 for alleged monopolization of the office photocopier market (Tom 2001). As a result of the antitrust litigation, Xerox was forced to revert to its pre-1959 "razor and razor blades" business model. In a market where Xerox was no longer a monopolist, a formerly integrated solution was unbundled, and goods and services were offered independently (Finne et al. 2013).

IBM and Kodak were the first businesses to enter this newly developed sector (Markides 1999). IBM and Kodak's strategies emphasized gaining market share by providing better goods and/or better maintenance services at cheaper prices (Ortt 2007). Their strategy failed mostly because of the great loyalty of Xerox's business clients.

4.1 Transparency enabled Customer Co-creation

Due to changes in business context, Fuji Xerox changed their strategy from "Make & Sell" to "Sense & Respond" (Haeckel, 2010) through the Voice of the Customer (VOC). According to Griffin and Hauser (1992), the "voice of the customer" (VOC) is basically the customer's needs, wants, expectations, and requirements expressed in their own language. On the other hand, Marina et al. (2013) consider VOC an important strategy for the product development process. Apart from new product development, VOC is also widely used for hearing feedback, responses, and claims from customers who have already bought the products or services or had plans to buy them. The whole picture of these customer knowledge transfer and co-creation processes are components of the new VOC 3.0 (Sachamanorom and Senoo, 2016). Fuji Xerox implements VOC 3.0 through a laboratory called Customer Co-creation. It consists of an "Open Laboratory" and a "Secure Laboratory". With the concept that value, which Fuji Xerox believes is essential, might not always be the same from their customers viewpoints, Fuji Xerox invites their customers, partners, and other stakeholders to join the co-creation session. By doing activities together, they can find and create value through the process.

Customers and Fuji Xerox must sign a non-disclosure agreement contract in order to co-create solutions. After some adaptation and modification, the final solution will be made available for use in the customer's business or subsequently put on the market.

4.2 Community-promoting Transparency

Xerox uses Eureka to assist customer care engineers who repair copiers and printers located at client sites. We show how Xerox constructs community knowledge-sharing systems using Bobrow and Whalen's (2002) description based on their experiment with the design, development, deployment, and assessment of the Eureka system at Xerox Corporation.

They begin by defining who the members of the work community are. They define "community" as a common identity and practices. Members' communication might draw on previous understanding or information that does not have to be explicitly communicated since they share practices. Trust is built on community participation, and successful knowledge sharing is dependent on reliable information. In the case of Xerox, technicians write suggestions for other technicians, ensuring that the material is not just contextually intelligible but also trustworthy.

Second, they determine what knowledge is important to the community. Observing how individuals conduct their work will tell you what sort of information they most frequently share because they value it. For example, technicians valued not only diagnostic information but also hints on how to make particular activities easier and changes or updates to documentation.

Third, they examine how sharing occurs in the community on a daily basis. They realize that a successful knowledge-sharing system must respect natural sharing habits. To impart their knowledge and expertise, service technicians tell stories about specific equipment and their difficulties. Although the recommendations are written papers, the style tends to follow this narrative format. They seek and provide guidance, as well as provide various forms of support to one another.

Finally, for implementation, they examine how individuals will learn the new system. Learning should become a regular, everyday activity in utilizing the system, rather than a distinct training activity. Learning to share information entails learning what is valued, how to articulate it, and where to find it. It also entails providing an incentive in the appropriate atmosphere for learning.

5. Discussions and Implications

Transparency in Product Servitization

Full transparency is not necessary for all business relationships (N Goala, 2015). According to Willliamson (1993), economic agents will not truthfully provide all important information on enquiry and will not reliably discharge all agreements. Managers must decide what amount and type of transparency to encourage in order to foster trustworthy relationships. For example, a company cannot share all information about its strategy and disruptive technologies with its customers and rivals, but it may supply customers with information about the origins and composition of its products to increase customer confidence. In other words, complete openness is not required nor desired, especially when the company's survival is at stake (N Goala, 2015).

Our finding on reciprocal transparency, which promotes a positive feedback loop that creates benefit for both parties, is consistent with the literature (Buell et al., 2015). As a result, transparency is a determinant of the value co-creation process (Sesliokuyucu and Sesliokuyucu, 2020). To be effective, transparency necessitates agreement between the firm and its clients, implying that both parties consider long-term partnership rather than short-term competition. Managers frequently think in terms of value distribution (competition to obtain an edge over their consumers) rather than value co-creation (cooperation in a win-win situation). As Bertini and Gourville (2012) suggest, to create shared value with their customers, managers must then focus on relationships (not on transactions), be proactive, put a premium on flexibility, promote transparency, and manage the market s standard for fairness.

Increased openness and reduced relational asymmetry between service organizations and their consumers are becoming increasingly common in the marketplace. Transparency that arises from a feeling of community is unsolicited because trust is activated. Because members of the corporate community share practices, communication between them might rely on background understanding or information that does not need to be expressly expressed. Trust is built on community participation, and successful knowledge sharing is dependent on reliable information.

5.1 Theoretical Implications

The main contribution of this work is to the literature on digital servitization. Although the literature recognizes its relational dimension (Ulaga and Eggert, 2006; Athanasopoulou, 2009; Kamalaldin et al., 2020; Grandinetti et al., 2020), the analysis is fragmented, and insights into how such relationships between the provider and customer are either preferred or required to be bridged in a servitization business model have yet to be identified. The current study addresses this gap by defining and exemplifying the type of connection inherent in digital servitization from the standpoint of relational asymmetry. The current study identifies the essential dimension of asymmetric relationship-the transparency dynamics-by employing the relational lens through literature search coupled with archival investigations (Dapko, 2012; Buell et al., 2017; Eggert et al., 2022). This offers an innovative but organized method of examining what type of relation-based transparency exists or is required for a sustainable partnership in servitization. The current study demonstrates empirical evidence of the importance of openness in value co-creation and establishing a sense of community through the case of Xerox.

The research in both servitization and asymmetry (Reim, 2018; Kamal et al., 2020) emphasizes that adverse behavior is a common issue that must be addressed, but it does so in a fragmented manner that fails to give the identifier to minimize its effect. This research explores transparency as a source of relationship asymmetry as well as the very element that mitigates it. Depending on the stimulus, it may be useful or detrimental to both the firm and its clients.

5.2 Managerial Implications

The research also makes many managerial recommendations. The findings have significant implications for marketing and operational managers who are in charge of selling and delivering PSS to a wide range of customers.

First, the example of Xerox, which pioneered product servitization, informs managers that, while the PSS model depicts how to support sustainable partnerships, it does not happen automatically, and hence relational asymmetry must be reconciled. Both the supplier and the consumers feel the fundamental foundation of value, which is co-created as a result of the transparency that allows co-creation. Managers must thus discover innovative and smart methods to provide "common space" to their consumers on a frequent basis, if not in a real-time voice-of-the-customer session.

Second, managers need to take a radically new approach to rekindling the bond between themselves as providers and their clients. Companies and consumers have different roles in production and consumption in the traditional value generation process. Product servitization incorporates this difference as consumers participate in both the defining and producing of value processes. In a community-promoting transparency, managers must decode the organization's most valuable knowledge, which includes the mostly undocumented ideas, insights, and know-how of its people (Nonaka and Takeuchi, 1995). Because in a transparent community where members share practices, communication between them can draw on background understanding or knowledge that doesn't have to be explicitly stated.

Third, recognizing what needs to be transparent is critical in a digitally powered business since it involves both information about decision-making processes and information about other people's conduct. This study provides managers with a bird's-eye view of how transparency overcomes relationship imbalance. According to N'Goala (2015), there are many sorts of transparency that must be handled in exchange relationships, one of which is information transparency. According to Turili and Floridi (2009), while it might be morally neutral, it can quickly become an "enabling" or "impairing" factor. Incomplete information sharing is not ethically immoral in and of itself, provided it does not lead to manipulative or misleading techniques.

5.3 Limitations and Further Research

Although the current study's findings clearly contribute to the digital servitization literature, the study does have several limitations that should be acknowledged when assessing the findings and addressed in future research. The first is that the case firm was confined to Xerox as an industry forerunner and hence could only represent mature and multinational enterprises. However, because we only studied one example firm, drawing broad conclusions is difficult; additional cases would provide new insights that the current study cannot.As a result, more empirical research is required to validate the current study's conclusions while also incorporating the levels of transparency. The other is that, because Xerox is located all over the world, a technique from the relational transparency dimension may differ elsewhere, and therefore the results may differ in various cultural or industrial situations. Future studies should be conducted to discover whether these conclusions hold true under different settings.

6. Conclusion

Companies can no longer function autonomously in inventing goods, devising manufacturing methods, crafting marketing messages, and controlling sales channels with little or no customer intervention. Consumers now attempt to exert influence on many aspects of the corporate system.

Consumers, armed with new technologies and dissatisfied with current options, want to connect with enterprises and thereby co-create value.

In this study, we demonstrated that the relationship between provider and client in the servitization business model is digitally strengthened. However, in order for it to be sustainable, it must address the potential actors' adverse behavior. From the relational asymmetry perspective, we shed light on the aspect of transparency, which is a pivotal cause of any asymmetric relationship. Through the case of Xerox, the study further sheds light on the dual effect of transparency, which could either be an "enabling" or an "impairing" factor. Putting it together, the use of interaction as a basis for co-creation is at the crux of our emerging reality.

References

Akerlof, G. A. (1970). 4. The market for 'lemons': quality uncertainty and the market mechanism. *Market Failure or Success*, 66.

Annarelli, A., Battistella, C., & Nonino, F. (2019). *The road to servitization: How product service systems can disrupt companies' business models*. Springer.

Baines, T. S., Lightfoot, H. W., Benedettini, O., & Kay, J. M. (2009). The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of manufacturing technology management*.

Baines, T. S., Lightfoot, H. W., Evans, S., Neely, A., Greenough, R., Peppard, J., ... & Wilson, H. (2007). State-of-the-art in product-service systems. *Proceedings of the Institution of Mechanical Engineers, Part B: journal of engineering manufacture*, *221*(10), 1543-1552.

Baines, T., & Lightfoot, H. W. (2014). Servitization of the manufacturing firm: Exploring the operations practices and technologies that deliver advanced services. *International Journal of Operations & Production Management*.

Bertini, M., & Gourville, J. T. (2012). Pricing to create shared value.

Bobrow, D. G., & Whalen, J. (2002). Community knowledge sharing in practice: the Eureka story. *Reflections: The SoL Journal*, *4*(2), 47-59.

Bove, G., & Okada, A. (2018). Methods for the analysis of asymmetric pairwise relationships. *Advances in Data Analysis and Classification*, *12*(1), 5-31.

Buell, R. W., Kim, T., & Tsay, C. J. (2017). Creating reciprocal value through operational transparency. *Management Science*, *63*(6), 1673-1695.

Carlborg, P., Kindström, D., & Kowalkowski, C. (2014). The evolution of service innovation research: a critical review and synthesis. *The Service Industries Journal*, *34*(5), 373-398.

Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies. Industrial and Corporate Change, 11(3), 529–555.

Cimini, C., Adrodegari, F., Paschou, T., Rondini, A., & Pezzotta, G. (2021). Digital servitization and competence development: A case-study research. *CIRP journal of manufacturing science and technology*, *32*, 447-460.

Dapko, J. L. (2012). *Perceived firm transparency: Scale and model development*. University of South Florida.

Das, R., Jain, K. K., & Mishra, S. K. (2018). Archival research: A neglected method in organization studies. *Benchmarking: An International Journal*.

Eggert, A., & Helm, S. (2003). Exploring the impact of relationship transparency on business relationships: A cross-sectional study among purchasing managers in Germany. *Industrial Marketing Management*, *32*(2), 101-108.

Fernandes, L., & Longbottom, C. (2012). Vendor Landscape: Managed Print Services. Quocirca Ltd.

Finne, M., Brax, S., & Holmström, J. (2013). Reversed servitization paths: a case analysis of two manufacturers. *Service Business*, *7*(4), 513-537.

Gadde, L. E., & Snehota, I. (2000). Making the most of supplier relationships. *Industrial marketing management*, *29*(4), 305-316.

Gaiardelli, P., Resta, B., Martinez, V., Pinto, R., & Albores, P. (2014). A classification model for product-service offerings. *Journal of cleaner production*, *66*, 507-519.

Galbraith, J. R. (2002). Organizing to deliver solutions. *Organizational dynamics*, *31*(2), 194.

Gebauer, H., Saul, C. J., Haldimann, M., & Gustafsson, A. (2017). Organizational capabilities for pay-per-use services in product-oriented companies. *International Journal of Production Economics*, *192*, 157-168.

Grandinetti, R., Ciasullo, M. V., Paiola, M., & Schiavone, F. (2020). Fourth industrial revolution, digital servitization and relationship quality in Italian B2B manufacturing firms. An exploratory study. *The TQM Journal*.

Griffin, A. and Hauser, J. R. (1992). The voice of the customer. Cambridge, MA: Marketing Science Institute.

Grönroos, C., & Voima, P. (2013). Critical service logic: making sense of value creation and co-creation. *Journal of the academy of marketing science*, *41*(2), 133-150.

Guerola-Navarro, V., Oltra-Badenes, R., Gil-Gomez, H., & Gil-Gomez, J. A. (2021). Research model for measuring the impact of customer relationship management (CRM) on performance indicators. *Economic research-ekonomska istraživanja*, *34*(1), 2669-2691.

Gundlach, G. T., Achrol, R. S., & Mentzer, J. T. (1995). The structure of commitment in exchange. *Journal of marketing*, *59*(1), 78-92.

Haeckel, S. (2010). The post-industrial manager. *Marketing Management Magazine*, *24*, 32.

Hara, T., Sato, K., & Arai, T. (2016). Modeling the transition to a provider–customer relationship in servitization for expansion of customer activity cycles. *CIRP Annals*, *65*(1), 173-176.

Homburg, C., & Stebel, P. (2009). Determinants of contract terms for professional services. *Management Accounting Research*, *20*(2), 129-145.

Johnsen, R. E., & Ford, D. (2001, September). Asymmetrical and symmetrical customer-supplier relationships: contrasts, evolution and strategy. In *Proceedings of the 17th Annual IMP Conference*.

Johnsen, R. E., Lacoste, S., & Meehan, J. (2020). Hegemony in asymmetric customer-supplier relationships. *Industrial Marketing Management*, *87*, 63-75.

Kamalaldin, A., Linde, L., Sjödin, D., & Parida, V. (2020). Transforming provider-customer relationships in digital servitization: A relational view on digitalization. Industrial Marketing Management, 89, 306-325.

Kohtamäki, M., Partanen, J., Parida, V., & Wincent, J. (2013). Non-linear relationship between industrial service offering and sales growth: The moderating role of network capabilities. *Industrial Marketing Management*, *42*(8), 1374-1385.

Kowalkowski, C., Gebauer, H., Kamp, B., & Parry, G. (2017). Servitization and deservitization: Overview, concepts, and definitions. *Industrial Marketing Management*, *60*, 4-10.

Kumar, N., & Yakhlef, A. (2016). Managing business-to-business relationships under conditions of employee attrition: A transparency approach. *Industrial Marketing Management*, *56*, 143-155.

Le Clair, C. (2012). The forrester waveTM: Managed print services, Q2 2012. In Forrester Research, Inc.

Lerch, C., & Gotsch, M. (2015). Digitalized product-service systems in manufacturing firms: A case study analysis. *Research-technology management*, *58*(5), 45-52.

Liu, Y., Eisingerich, A. B., Auh, S., Merlo, O., & Chun, H. E. H. (2015). Service firm performance transparency: How, when, and why does it pay off?. *Journal of Service Research*, *18*(4), 451-467.

Makri, C., & Neely, A. (2021). Grounded theory: a guide for exploratory studies in management research. *International Journal of Qualitative Methods*, *20*, 16094069211013654.

Markides, C. (1999). Six principles of breakthrough strategy. Business Strategy Review, 10(2), 1–10.

Matsumoto, M., & Kamigaki, K. (2013). Development and changes in the industrial product service systems–A case study of the photocopier PSS. In *The Philosopher's Stone for Sustainability* (pp. 167-172). Springer, Berlin, Heidelberg.

Matthyssens, P., & Vandenbempt, K. (2010). Service addition as business market strategy: identification of transition trajectories. *Journal of service management*, *21*(5), 693-714.

Michalski, M., Montes, J. L., & Narasimhan, R. (2018). Relational asymmetry, trust, and innovation in supply chain management: a non-linear approach. *The International Journal of Logistics Management*.

Muscolino, H. (2011). IDC MarketScape: Worldwide Managed Print Services 2011 Hardcopy Vendor Analysis. IDC.

N'Goala, G. (2015). Opportunism, transparency, manipulation, deception and exploitation of customers' vulnerabilities in CRM. *The dark side of CRM: Customers, relationships and management*, *122*.

Neely, A. (2008). Exploring the financial consequences of the servitization of manufacturing. *Operations management research*, *1*(2), 103-118.

Nonaka, I., & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. *New York, NY*.

Oliva, R., & Kallenberg, R. (2003). Managing the transition from products to services. *International journal of service industry management*.

Oliva, R., & Kallenberg, R. (2003). Managing the transition from products to services. *International journal of service industry management*.

Ortt, R. (2007). Strategies to commercialise breakthrough technologies. International Association for Management of Technology Proceedings, pp. 2029–2048.

Paiola, M., & Gebauer, H. (2020). Internet of things technologies, digital servitization and business model innovation in BtoB manufacturing firms. *Industrial Marketing Management*, *89*, 245-264.

Reim, W., Parida, V., & Örtqvist, D. (2015). Product–Service Systems (PSS) business models and tactics– a systematic literature review. *Journal of Cleaner Production*, *97*, 61-75.

Retamal, M., & Schandl, H. (2018). Dirty laundry in Manila: Comparing resource consumption practices for individual and shared laundering. *Journal of Industrial Ecology*, *22*(6), 1389-1401.

Rymaszewska, A., Helo, P., & Gunasekaran, A. (2017). IoT powered servitization of manufacturing–an exploratory case study. *International journal of production economics*, *192*, 92-105.

Sachamanorom, W., & Senoo, D. (2016). Voice of the customer through customer cocreation: the case of Fuji Xerox Japan.

Sawhney, M., Wolcott, R. C., & Arroniz, I. (2006). The 12 different ways for companies to innovate. *MIT Sloan management review*, *47*(3), 75.

Sesliokuyucu, O. S., & Sesliokuyucu, İ. P. (2020). Dialogue and transparency in value co-creation: An empirical analysis of airline passengers. *Journal of Aviation Research*, *2*(2), 168-181.

Singh, J., & Sirdeshmukh, D. (2000). Agency and trust mechanisms in consumer satisfaction and loyalty judgments. *Journal of the Academy of marketing Science*, *28*(1), 150-167

Sjödin, D. (2019). Knowledge processing and ecosystem co-creation for process innovation: Managing joint knowledge processing in process innovation projects. *International Entrepreneurship and Management Journal*, *15*(1), 135-162.

Sklyar, A., Kowalkowski, C., Tronvoll, B., & Sörhammar, D. (2019). Organizing for digital servitization: A service ecosystem perspective. *Journal of Business Research*, *104*, 450-460.

Slack, N. (2005). Operations strategy: will it ever realize its potential? *Gestão & Produção*, *12*, 323-332.

Smith, J. B. (1998). Buyer–seller relationships: similarity, relationship management, and quality. Psychology & Marketing, 15(1), 3-21.

Spring, M., & Araujo, L. (2009). Service, services and products: rethinking operations strategy. *International Journal of Operations & Production Management*.

Stål, H. I., & Corvellec, H. (2018). A decoupling perspective on circular business model implementation: Illustrations from Swedish apparel. *Journal of Cleaner Production*, *171*, 630-643.

Storbacka, K. (2011). A solution business model: Capabilities and management practices for integrated solutions. *Industrial Marketing Management*, *40*(5), 699-711.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *The Journal of Finance*, *62*(2), 629-668.

Talay, C., Oxborrow, L., & Claxton, S. (2019). Types of relationship asymmetry and the implementation of sustainable product development in fashion supply chains.

Tom, W. (2001). The 1975 Xerox consent decree: ancient artifacts and current tensions. Antitrust Law J, 68(3), 967–990.

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.

Tukker, A., & Tischner, U. (Eds.). (2017). *New business for old Europe: product-service development, competitiveness and sustainability*. Routledge.

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.

Turilli, M., & Floridi, L. (2009). The ethics of information transparency. *Ethics and Information Technology*, *11*(2), 105-112.

Ulaga, W., & Eggert, A. (2006). Value-based differentiation in business relationships: Gaining and sustaining key supplier status. *Journal of marketing*, *70*(1), 119-136.

Vandermerwe, S., & Rada, J. (1988). Servitization of business: adding value by adding services. *European management journal*, *6*(4), 314-324.

Vendrell-Herrero, F., Bustinza, O. F., Parry, G., & Georgantzis, N. (2017). Servitization, digitization and supply chain interdependency. *Industrial Marketing Management*, *60*, 69-81.

Ventresca, M. J., & Mohr, J. W. (2017). Archival research methods. The Blackwell companion to organizations, 805-828.

Viljakainen, A., & Toivonen, M. (2014). The futures of magazine publishing: Servitization and co-creation of customer value. *Futures*, *64*, 19-28.

Visintin, F. (2014). Photocopier industry: at the forefront of servitization. In *Servitization in industry* (pp. 23-43). Springer, Cham.

Weilerstein, K., & Drew, C. (2012). Magic quadrant for managed print services, Worldwide. USA: Gartner Inc.

Willliamson, H. E. (1993). The Re-Emergence of Correctional Intervention.

Wise, R., & Baumgartner, P. (1999). Go downstream. *Harvard business review*, *77*(5), 133-133.