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Customer view on servitization: the influence of strategic goals and service mix offering on firm performance

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ABSTRACT

Following a mixed methods approach, this research investigates the reasons that lead B2B customers in the pharmaceutical sector to use different types of services and their impact on servitization outcomes and firm performance. Main findings show that base services are selected by B2B customers with the goal to develop profitability, but these base services produce no impact on servitization outcomes or firm performance. Advanced services are used to foster loyalty, profitability and competitive advantage, showing a significant positive effect on servitization outcomes and have an indirect impact on firm performance through servitization outcomes. Business customers should adopt a combination of services where base services are qualifiers needed to compete whilst a service mix combination would enable an optimization of their servitization outcomes and firm performance.

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1. Introduction

The 'power-by-the-hour' concept Rolls-Royce introduced back in the early 60's is arguably, one of the earliest, if not the first, effort a manufacturer took towards what we nowadays identify in the operations-led school of thought as 'product-service systems' and 'servitization' (Ostrom et al. 2015; Yang et al. 2018). Servitization is generally understood as the transition from traditional product-based to strategic and operational services to enhance manufacturer's competitiveness and performance (Baines et al. 2020; Brax and Visintin 2017; Khan et al. 2022; Kharlamov and Parry 2021; Rabetino, Kohtamäki, and Gebauer 2017; Wang, Lai, and Shou 2018).

Servitization is conceived as a transformation journey in which a manufacturer embarks to develop the capabilities necessary to augment the value for the customer through the provision of services and solutions that supplement the product the manufacturer offers (Baines et al. 2009;2020; Khan et al. 2022; Kharlamov and Parry 2021; Rabetino, Kohtamäki, and Gebauer 2017; Vendrell-Herrero, Gomes, et al. 2022). During the last two decades, servitization has been widely investigated and discussed in academic and practitioners' forums. Most studies have investigated the benefits of servitization from the perspective of focal manufacturers and its impact on performance has been relatively well established with the support of empirical studies such as Ambroise, Prim-Allaz, and Teyssier (2018), Bustinza et al. (2019) Abou-Foul, Ruiz-Alba, and Soares (2021) Vendrell-Herrero, Gomes, et al. (2022) and Li et al. (2023).

However, some authors have alerted regarding the 'servitization paradox' (Gebauer, Fleisch, and Friedli 2005, Gebauer, Paiola, and Saccani 2013) stating that the higher performance through servitization is not always achieved. In addition to this, there are limited studies that have considered servitization from a customers' perspective and its impact on customer's performance outcomes (Alghisi and Saccani 2015; Baines et al. 2020; Baines and Shi 2015; Khanra et al. 2021; Rabetino et al. 2021a; Vendrell-Herrero et al. 2023). Thus, although research has considered servitization drivers from a focal manufacturers' perspective (Bowen and Schneider 2014; Forkmann et al. 2017; Gebauer, Gustafsson, and Witell 2011; Jiang et al. 2022; Kowalkowski, Gebauer, and Oliva 2017), to the best of our knowledge most studies neglected the reasons why business customers use the services provided by the focal manufacturer servitization strategies and the impact of these services on the customer's performance (Baines et al. 2020; Baines and Shi 2015; Khanra et al. 2021; Rabetino et al. 2021a).

We understand this is an important gap that needs to be investigated as it might also explain why some of the manufacturer's servitization efforts are or not successful, and because the whole point in manufacturers' servitization journey is to deliver services that can be used by their customers (Morgan, Anokhin, and Wincent 2019; Raja et al. 2013). Nonetheless, relevant empirical findings in this direction

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remain scarce and mainly descriptive (Forkmann et al. 2017), exploratory, inductive and qualitative (Rabetino et al. 2021b), providing mainly a classification of the various services a manufacturer can provide as part of a servitization strategy (cf. Baines et al. 2013; Ruiz-Alba, Soares, and Morales Mediano 2016, Ruiz-Alba et al. 2019) or focusing on the manufacturer's drivers and performance benefits with few instances where customers' benefits are explored (Baines et al. 2020). Moreover, empirical literature focused on the performance outcomes of the different service types and evidence of these effects in different international contexts is still scarce (Turunen and Finne 2014).

There are a few studies that investigated how the use of different service types separately impact on performance (Benedettini, Swink, and Neely 2017; Bustinza et al. 2019; Cusumano, Kahl, and Suarez 2015; Li et al. 2021; Saccani, Visintin, and Rapaccini 2014; Sjödin, Parida, and Kohtamäki 2019), however none of them has considered the combination of different types of services considering simultaneously 'multiple services offerings' as suggested by Kowalkowski, Gebauer, and Oliva (2017). This is another relevant gap and we propose in this research that the concept of *service mix* to refer to the combination of the different services selected by customers is critical to understanding how these contribute to servitization success from a customer's perspective, supporting the idea of implementing a balanced portfolio of services (Benedettini, Swink, and Neely 2017) to enhance servitization outcomes and firm performance.

Furthermore, the effects of the considered context in servitization have also been acknowledged which therefore highlights the potentially context specific nature of servitization research findings (Annarelli et al. 2018; Benedettini, Swink, and Neely 2017; Cusumano, Kahl, and Suarez 2015; Turunen and Finne 2014; van der Valk and Axelsson 2015). Xing, Rapaccini, and Visintin (2017) noted the lack of servitization research in the pharmaceutical sector with only a limited number of articles empirically investigating servitization in this industry (including Gáspár and Szász 2014; Ruiz-Alba, Soares, and Morales Mediano 2016, Ruiz-Alba et al. 2019; Cobelli and Chiarini 2020; Negash et al. 2021; Salwin, Andrzejewski, and Kraslawski 2021) and the additional constraint that the pharmaceutical industry players vary significantly across different countries (Salazar García et al. 2015; Schiavone et al. 2021).

Given this and enticed by practitioners in the pharmaceutical industry curious to learn if their efforts to servitize were paying off, the present research attempts to address the identified gaps in the context of the pharmaceutical industry in Spain, investigating the reasons why business-to-business (B2B) customers use the services offered by their manufacturers and how these services and their combination impact on their outcomes of servitization and firm performance. Based on the above-mentioned research gaps, we propose the following research questions:

RQ1: How do different strategic goals (pursuit of profitability, competitive advantage and loyalty goals) lead the business customers to use the different types of services (base, intermediate and advanced)?

RQ2: What is the influence of different types of services usage on business customers' servitization outcomes and firm performance?

RQ3: What is the influence of servitization outcomes on business customer's firm performance?

The methodology to address these research questions, was a mixed methods research strategy, using an explanatory sequential model (Creswell 2013; Molina-Azorin et al. 2017), where a quantitative study with 219 responses from customers' perspective was conducted followed by a qualitative study with 17 in depth interviews. Several authors have categorized mixed method approaches and argued their effectiveness (Gibson 2017; Molina-Azorin et al. 2017). In line with those authors, this study benefits from considering the findings of the quantitative study for generalizability purposes and further investigating them in a qualitative study to improve our analysis. This mixed methods approach was the best choice for this study because it gave a fuller understanding of the research questions. It allowed us to explore unexpected results and gain deeper insights from different perspectives, adding context and detail that a purely quantitative approach could not provide. In doing so, we go beyond quantifying the variables to understand more in-depth what business customers in the pharmaceutical context believe and think about the servitized offer provided by their manufacturers.

This paper proposes that only through looking at manufacturers' servitization efforts from the customers' perspective, is it then possible to understand what drives customers to select those bundles of products and services provided by the manufacturer. From a customers' perspective, the product and the service are not independent, therefore generating very intricate solutions. This approach makes a significant contribution to the servitization literature by empirically demonstrating the reasons that lead business customers to use the service offering from their manufacturer/suppliers, that is the *strategic goals* that the customers have when selecting those services. This demonstrates the benefits the business customers of a servitizing firm see and receive from the suppliers' effort to servitize. Main results of the study support this providing guidance with regards to the combination of services that should be adopted – the *service mix*. This research also contributes to the literature by addressing the impact on the business customer's servitization outcomes and firm performance. Finally, this paper makes a significant contribution to practitioners, not only from the supplier's side as our findings allow them to understand how they can better meet customers' expectations, but also from the customers' perspective, providing guidance on how to best use the mix of services provided by the manufacturers.

The remainder of this paper includes an explanation of the context of the research, a review of the literature highlighting servitization from a customer's perspective and explaining the emerging hypotheses. The paper concludes

with the analysis of results of study 1 (quantitative) and 2 (qualitative) and a discussion of main implications.

2. The context of the study: pharmaceutical industry

The pharmaceutical industry varies across different countries (Salazar García et al. 2015; Schiavone et al. 2021) due to the evolution of the industry in each country, but also due to the regulations in place that set the stage for different servitization scenarios that have disrupted how the industry operates. As the 'fifth-largest pharmaceutical market in Europe in terms of revenue and the ninth-largest market worldwide' (Mendoza 2021), the Spanish market is worth the attention. The Spanish pharmaceutical industry engaged in a long process of differentiation based on the development of new services (Ruiz-Alba, Soares, and Morales Mediano 2016) and is organized quite differently from the UK or US due to regulatory restrictions (MarketLine 2021; Salazar García et al. 2015). A main difference is, for example, that only the pharmacy stores (with trained pharmacists in charge) are allowed to sell medications directly to the end-user/patients which in turn influences the way manufacturers advertise their products (mostly aimed at healthcare professionals) (MarketLine 2021). Another specific characteristic of the Spanish market is that most pharmacy stores are family businesses passed down through generations and their main distributors are also manufacturers organized into cooperatives to negotiate with their business customers (the pharmacy stores) (cf. Figure 1). By 2013, 90% of the Spanish market share was controlled by the top 10 wholesalers (Ruiz-Alba, Soares, and Morales Mediano 2016; Vitale 2014) and in 2021 the top three leading suppliers accounted for 8.7% of the total market (MarketLine 2021). Main goals of this industry concentration into cooperatives included: minimizing transaction costs and increasing efficiency, purchase capacity and negotiation, as well as logistics optimisation (storage and distribution).

As a result of this concentration and competitive moves in such a highly regulated market with limited profit margins (López-Casasnovas 2008; MarketLine 2021), the cooperatives started designing and delivering services other than solely selling physical products. For example, the cooperatives tried to compete offering at least three standard delivery services a day, and in some cases up to six delivery services a day on demand to their business customers. This completely transformed and disrupted the market and their competitive advantages, underpinned by this move towards service enhancement. This context is particularly exciting because, unlike typical 'product-centric servitization' scenarios where hybrid solutions are developed by individuals close to the customer but only slightly involved in product development (Rapaccini and Visintin 2015), in the pharmaceutical context, these hybrid solutions are collaboratively designed by cooperatives that include manufacturers, wholesalers, and distributors (Ruiz-Alba et al. 2019).

Even though this is a critical sector for EU economy (Eurostat 2023), only a limited number of articles empirically investigate servitization in this context (Cobelli and Chiarini 2020; Gáspár and Szász 2014; Ruiz-Alba, Soares, and Morales Mediano 2016, Ruiz-Alba et al. 2019; Salwin, Andrzejewski, and Kraslawski 2021), which provides scope for contributions. This is supported by Xing, Rapaccini, and Visintin (2017) who conducted a structured literature review on the application of Product-Service Systems (PSS) in the healthcare industry encouraging the need for further research in this sector. Although an important sector, it is not an easy one to investigate due to the complex supply chains it entails in each country as above mentioned. In most servitization studies, there is a clear identification of the manufacturer as the focal point of interest, but in the Spanish pharmaceutical context, a manufacturer can also be the distributor and belong to a cooperative that directly negotiates with pharmacy stores. This ecosystem changes the balance of power, and the dynamic of relationships established in SME supply chains (Zimmermann, Soares, and Roca 2024). Moreover, existing studies in the pharmaceutical context tend to share the trend of servitization studies considering the manufacturing perspective with some also focusing on the final consumer. Hence, there is a limited understanding of how servitization is perceived from the customers' perspective, particularly in European pharmaceutical markets. Aligned with this, the present paper focuses on the Spanish pharmaceutical industry from the perspective of business customers (pharmacy stores) who benefit from the servitized offers provided by the cooperatives.

3. Literature review

Research so far has acknowledged the capabilities required to transition to servitization, its challenges, and the relationship shifts required to make this happen (Kamal et al. 2020; Oliva and Kallenberg 2003; Rabetino et al. 2021a; Zhang and Banerji 2017) emphasizing that two elements appear to be pivotal for the manufacturer when implementing and

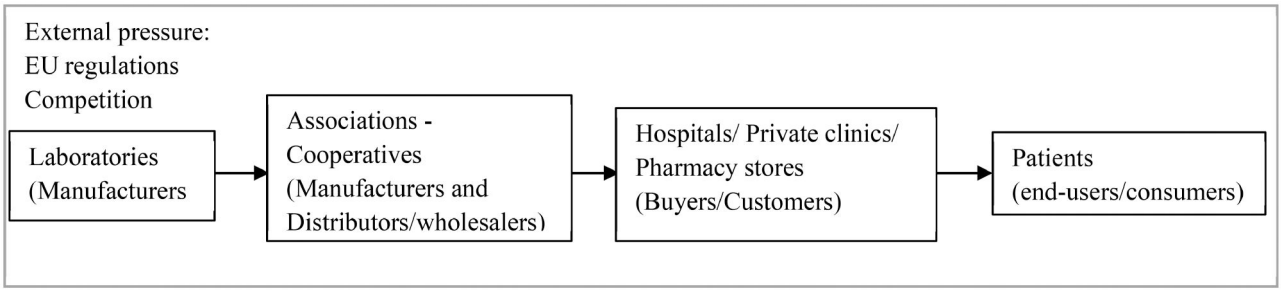


Figure 1. Spanish pharmaceutical supply chain summarized.

delivering a servitization strategy: (1) developing their own capabilities required for a servitization strategy (Khan et al. 2022; Kreye, Roehrich, and Lewis 2015; Paiola et al. 2013; Parida et al. 2014; Raddats et al. 2017; Story et al. 2017) and (2) responding to customers' needs improving customers' service processes and operations to ensure that continued relationships are established (Alves, Ferreira, and Magalhães 2022; Morgan, Anokhin, and Wincent 2019; Wang, Gao, and Wei 2022), which is a critical challenge to servitization success (Zhang and Banerji 2017). However, there is still a need to understand the role of customers in this B2B process. Most studies view the customer as the company being supported by the manufacturer (Baines and Shi 2015; Brax and Visintin 2017).

The focus on focal manufacturers in servitization research appears to have been shaped by the differing viewpoints of service-dominant logic vs goods-dominant logic. The literature tends to adopt a *service logic* where the manufacturer acts as value co-creator (e.g. Raddats, Naik, and Bigdeli 2022) or a *goods logic* where the manufacturer enables the customer value creation process (e.g. Khan et al. 2022) but does not get involved (Grönroos 2008; Lindberg and Nordin 2008). It is also argued that one or the other approach is not always beneficial, depending on the context considered and the type of services offered. Hence the challenge is to select which approach is appropriate at any given time and which services contribute to the value creation process (Raddats, Naik, and Bigdeli 2022; Rapaccini and Visintin 2015), whilst managing the complex network of configurations that emerge from those different approaches at any given time (Chakkol et al. 2014).

Instead of focusing on its definitions (Kowalkowski, Gebauer, and Oliva 2017), challenges or drivers (Hidalgo-Carvajal, Carrasco-Gallego, and Morales-Alonso 2021; Zhang and Banerji 2017), capabilities (Kreye, Roehrich, and Lewis 2015), or impact on the manufacturer's performance (Vendrell-Herrero, Gomes, et al. 2022), which have been extensively explored in previous literature reviews (Brax and Visintin 2017; Kamal et al. 2020; Rabetino et al. 2021a; Raddats et al. 2019; Wang, Lai, and Shou 2018; Zhang and Banerji 2017), the present study attempts to address the questions that remain unanswered regarding servitization from a business customer's perspective, particularly: what are the business customer's goals? Why are business customers compelled to use those services? Which ones prove more beneficial to them? And do they see any performance returns on those investments? This research aims to clarify this by looking at the main reasons customers in a B2B relationship use the service offerings provided by manufacturers and how these different types of services (what we named *service mix*) impact the customer in terms of the expected *servitization outcomes* and their firm performance.

3.1. Servitization from a customers' perspective

Multi-actor perspectives are recognized as crucial in the servitization journey (Alghisi and Saccani 2015; Baines et al. 2020). However, there is limited research focusing on the customer's point of view (Baines and Shi 2015; Rapaccini and Visintin 2015). Often, customers are considered an afterthought. Most studies that focus on customer involvement emphasize co-production/co-creation or collaboration (Jang, Bae, and Kim 2021; Morgan, Anokhin, and Wincent 2019; Raddats, Naik, and Bigdeli 2022; Ruiz-Alba et al. 2019) and outcomes such as customer loyalty and satisfaction (Jang, Bae, and Kim 2021; Raja et al. 2013; Vaittinen, Nenonen, and Story 2019; Vila-Lopez and Kuster-Boluda 2017; Wang, Lai, and Shou 2018). This focus is supported by literature reviews from Rabetino et al. (2021a) and Khanra et al. (2021). Notably, Kreye, Roehrich, and Lewis (2015) examined the healthcare industry, considering service complexity and relational capabilities, while Ruiz-Alba et al. (2019) investigated the pharmaceutical industry, focusing on co-creation in servitization strategies.

Yet, current research often overlooks customer-centric implications such as their development and performance (Eggert et al. 2022; Johansson, Raddats, and Witell 2019; Khan et al. 2022; Kohtamäki et al. 2013; Selviaridis and Norrman 2014). Therefore, there is still limited empirical investigation of customer motives to select servitized offers from suppliers/manufacturers and the outcomes generated for customers from using those service offerings from manufacturers (Zhang, Wei, and Gao 2023). Hence the focus of the present paper, which leads us to the exploration of the different types of services that customers can use and their expected impact.

3.2. The service mix

The literature has so far suggested that the types of services considered are not a 'one size fits all' and that they have an influence on outcomes (Chakkol et al. 2014; Raddats, Naik, and Bigdeli 2022; Rapaccini and Visintin 2015; Saccani, Visintin, and Rapaccini 2014; Zhang, Wei, and Gao 2023). Some studies go further and address the impact of the different types of services and the need to have different types of services in your portfolio (Benedettini, Swink, and Neely 2017; Bustinza et al. 2019; Cusumano, Kahl, and Suarez 2015; Li et al. 2021; Sjödin, Parida, and Kohtamäki 2019). We have named this as *service mix* in this study.

While various authors have considered alternative ways to classify the type of services a manufacturer can deliver as part of a servitization strategy (cf. Mathieu 2001b; Gaiardelli et al. 2014; Cusumano, Kahl, and Suarez 2015; Rabetino et al. 2015; van der Valk and Axelsson 2015), the three types classification proposed by Baines and Lightfoot (2013b) that considers *base* (e.g. warranties and spare parts), *intermediate* (e.g. maintenance, repair, overhaul) and *advanced services* (sophisticated value propositions that generate positive performance outcomes to customers), appears to be the prevalent one in both academia and practice due to its simplicity (Paschou et al. 2020). Nonetheless, given their context specific nature (van der Valk and Axelsson 2015), it was important for the present study to consider a classification used in the pharmaceutical industry. Ruiz-Alba, Soares, and Morales Mediano (2016) defined the specific type of services used in

the pharmaceutical industry in Portugal and Spain, which is relevant to the present study. They followed Baines and Lightfoot (2013b) taxonomy and according to their classification, services in this industry included for example logistics of storage and delivery as base services; services provided to improve the SC in terms of time, accuracy or cost (e.g. IT services aimed to manage stocks, orders and more frequent delivery) as intermediate services; and loyalty programmes, financial services, renovation and decoration, occupational risk prevention, data protection and brand management as examples of advanced services. This classification was later used by Ruiz-Alba et al. (2019) to explore the role of co-creation in servitization strategies within the pharmaceutical industry, highlighting its moderating effect on firm performance. Subsequently, this classification (Ruizalba et al. 2016) has also been used in the present investigation.

Although diverse servitization paths have been proposed, for example from base to advanced services (Gebauer, Fleisch, and Friedli 2005; Kowalkowski et al. 2015; Martinez et al. 2010; Oliva and Kallenberg 2003), most research and practitioners seems to liken servitization with the utilisation of advanced services (Baines et al. 2020; Lütjen, Tietze, and Schultz 2017; Oliva and Kallenberg 2003). Calabrese et al. (2019) contribute to this discussion by defining the firm-level servitization degree as 'extension', 'infusion', and 'orientation'. Their study seems to suggest that what should be considered a different development level is at times classified as advanced service provision, which has also been later suggested by Baines et al. (2020) when alluding to the difference between looking at servitization as transition (from one service type to the other) or transformation (a process).

Therefore, empirical literature focused on the performance outcomes of the different service types is still sparse and there is still much left to learn about the impact of servitization on performance in specific sectors (Turunen and Finne 2014) such as the pharmaceutical industry (Cobelli and Chiarini 2020; Gáspár and Szász 2014; Negash et al. 2021; Ruiz-Alba, Soares, and Morales Mediano 2016, Ruiz-Alba et al. 2019; Salwin, Andrzejewski, and Kraslawski 2021; Xing, Rapaccini, and Visintin 2017). Moreover, not as much is known about the reasons to use certain services, particularly from a customer's perspective, or the specific impact of base and intermediate services, as it is known about the impact of advanced services (Baines and Shi 2015; Gebauer, Fleisch, and Friedli 2005; Gebauer et al. 2012). A research framework is proposed to further investigate these gaps.

3.3. Research framework

In this research we consider strategic priorities (Baines et al. 2009) from the point of view of the customers, here named *strategic goals* (including pursuit of profitability, competitive advantage and loyalty goals) (Baines et al. 2009; Garcia Martin, Schroeder, and Ziaee Bigdeli 2019; Junior, Scur, and Nunes 2021; Khan et al. 2022; Ruiz-Alba, Soares, and Morales Mediano 2016), to refer to the main reasons why business customers decide to use the services provided by their manufacturing suppliers. The framework also considers the different types of services provided by the manufacturers and used by the business customers, which we named *service mix*. We use the concept of *service mix* to emphasize that the adoption of a combination of different types of services is key to success (Benedettini, Swink, and Neely 2017; Cusumano, Kahl, and Suarez 2015; Saccani, Visintin, and Rapaccini 2014). We suggest that this mix or combination of services is necessary and will be selected with different strategic goals, and will naturally generate differentiated outcomes, not only in terms of what can be seen as direct benefits of servitization by customers but also in terms of their firm performance (as illustrated in Figure 2). Finally, customers' firm performance and servitization outcomes are also measured as a proxy to the impact of the servitization strategy originally implemented by the manufacturer.

This framework enables the measurement of the relationships between the reasons for customers to use the servitized offer from their suppliers/manufacturers and the impact on their performance through the different types of services used. These hypotheses are explored in the following sections of the paper.

3.3.1. Strategic goals: Reasons for using servitized offers

Research has contributed to understanding the diverse approaches to servitization, but its emphasis on operational tactics tends to overlook the broader strategic implications for businesses and consumers. It is well established that the main reasons for manufacturers to adopt servitization strategies include, amongst others, retaining or creating competitive advantage (e.g. Gebauer, Gustafsson, and Witell 2011; Eloranta and Turunen 2015; Lee, Yoo, and Kim 2016), generating loyalty (e.g. Li et al. 2021) and/or profitability (e.g. Eggert et al. 2011; Settanni et al. 2014; Vendrell-Herrero et al. 2014). The reasons to adopt servitization from a manufacturer's perspective have been summarized in the literature into strategic (e.g. competitive opportunities and advantage), market and financial drivers (Baines et al. 2009; Garcia Martin, Schroeder, and Ziaee Bigdeli 2019; Khan et al. 2022). Ruiz-Alba, Soares, and Morales Mediano (2016) empirically supported these three main reasons for manufacturers to adopt servitization and Junior, Scur, and Nunes (2021) found similar reasons underlying the lack of success in the implementation of a smart product-service system.

Since its inception, the literature has explored servitization drivers in different contexts and in recent times the focus has moved to more specific servitization topics such as digital (Coreynen et al. 2020), circular (Hidalgo-Carvajal, Carrasco-Gallego, and Morales-Alonso 2021) or territorial (Lombardi, Santini, and Vecciolini 2022) servitization. The literature related to servitization drivers has also identified which strategy would better suit which manufacturer type, depending on what they are trying to achieve, and different competitiveness levels and results have been related to firms pursing different service strategies or types (Annarelli et al. 2018; Eggert et al. 2011; Gebauer 2008; Lee, Yoo, and Kim 2016; Vaittinen and Martinsuo 2019).

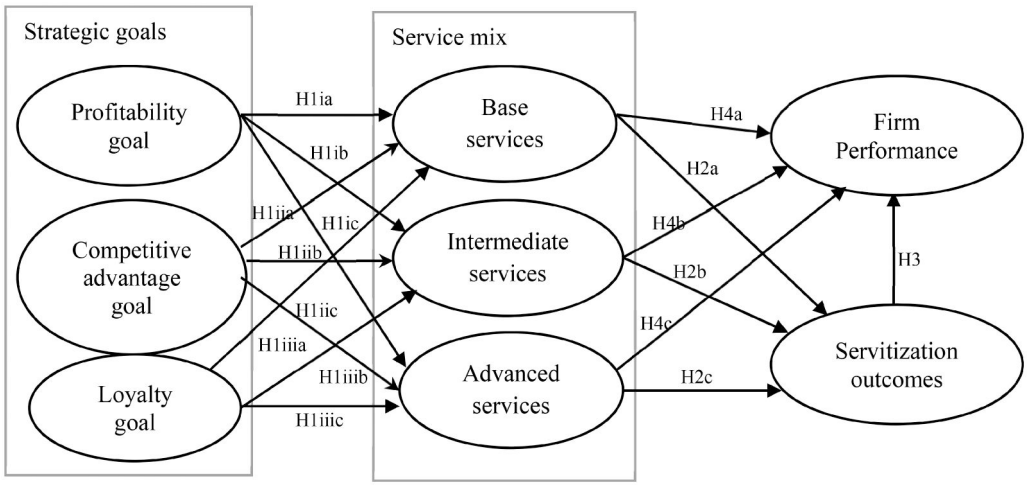


Figure 2. Proposed research framework.

Besides alluding to the impact of different servitization strategies or service types as briefly explained above, the literature considering servitization drivers has also explored the role of family run businesses (Adrodegari and Saccani 2020; Guedes et al. 2022; Queiroz et al. 2020; Rondi, De Massis, and Kraus 2021) and culture (Ambroise, Prim-Allaz, and Teyssier 2018; Yan, Li, and Cheng 2020; Zighan and Abualqumboz 2022), as the drivers that encourage or prevent servitization strategy adoption. The drivers and impact of servitization in family run businesses is relevant to our study because most pharmacy stores in Spain have been passed down through generations. According to the literature, being a family-owned business can both benefit and inhibit servitization given the strength of relationships established with inherited networks (Adrodegari and Saccani 2020; Queiroz et al. 2020). It seems that in family-owned businesses, close relationships with supply chain partners might both help and hinder their servitization transformation due to the desire to maintain the relational status-quo (Guedes et al. 2022; Rondi, De Massis, and Kraus 2021).

Although Baines and Shi (2015) and Vaittinen and Martinsuo (2019) presented findings related to advanced service strategies and explored customer benefits, there is room to further explore customer motivations to engage with the manufacturers' servitized offers and the impact of adopting a mix of different types of services (Gebauer 2008; Morgan, Anokhin, and Wincent 2019). Servitization seeks to augment the value the supplier offers to the business customer (Raddats et al. 2019). In this paper, we argue that the same reasons investigated for focal manufacturers to adopt servitization (strategic, market, financial drivers) would apply from a customer's point of view when they chose which service offers to use from the manufacturers based on the expected benefits (Baines and Shi 2015; Vaittinen and Martinsuo 2019).

In line with this, we attempt to clarify if these strategic goals (in this study the pursuit of profitability, competitive advantage and loyalty) (Baines et al. 2009; Baines and Shi 2015; Garcia Martin, Schroeder, and Ziaee Bigdeli 2019; Junior, Scur, and Nunes 2021; Khan et al. 2022; Ruiz-Alba, Soares, and Morales Mediano 2016; Vaittinen and Martinsuo 2019) that underpin the servitization decisions for manufacturers apply to customers. Moreover, as suggested by previous literature (Gebauer 2008; Cusumano, Kahl, and Suarez 2015; Lee, Yoo, and Kim 2016; Benedettini, Swink, and Neely 2017; Annarelli et al. 2018; Bustinza et al. 2019; Morgan, Anokhin, and Wincent 2019; Sjödin, Parida, and Kohtamäki 2019; Vaittinen and Martinsuo 2019; Li et al. 2021), there's a need to understand the relationship that exists between different strategic goals and the use of different types of services. Therefore, the following hypothesis is suggested:

Hypothesis 1: Seeking the strategic goals of (i) profitability, (ii) competitive advantage and (iii) loyalty will positively influence business customers to use (a) base, (b) intermediate and (c) advanced services from their suppliers.

3.3.2. Service mix and servitization outcomes

Oliva and Kallenberg (2003) and Baines et al. (2009) suggest, through their definitions of servitization, that the value co-creation and the value-in-use results from companies investing in the development of processes and capabilities. Additionally, Baines, Lightfoot, and Smart (2011) as well as Baines and Lightfoot (2013a, 61/101) support particularly the positive impact of advanced services on manufacturer capabilities and processes. Likewise, Gaiardelli, Martinez, and Cavalieri (2015, 1165) defined servitization as the 'transformational journey, which commits industrial organisations to move along a continuum, from the provision of products and artefacts, through the proposition of product–service solutions, to a change in their structural and infrastructural capabilities and decision-making processes'. What we refer to as *servitization outcomes* in this research is based on these definitions and the basic principle that through servitization manufacturers will not only develop their own processes and capabilities, but also those of their customers through the provision of services that would otherwise not be available to them.

Unsurprisingly, the literature suggests that the adoption of a varying pallet of services (*service mix)* will naturally generate differentiated results (Benedettini, Swink, and Neely 2017; Bustinza et al. 2019; Cusumano, Kahl, and Suarez 2015;

Li et al. 2021; Sjödin, Parida, and Kohtamäki 2019). This is true particularly in terms of what can be seen as direct outcomes of servitization for both the manufacturer and the customer, such as process improvement and the development of capabilities (Alves, Ferreira, and Magalhães 2022; Khan et al. 2022; Kreye, Roehrich, and Lewis 2015; Morgan, Anokhin, and Wincent 2019; Paiola et al. 2013; Parida et al. 2014; Raddats et al. 2017; Story et al. 2017; Wang, Gao, and Wei 2022) – what we have named here *servitization outcomes*.

The existing literature established the impacts of the adoption of different servitization strategies, which then suggest different capabilities, arguing that a particular servitization strategy (and/or service type) would better suit a particular manufacturer, depending on what they are trying to achieve (Annarelli et al. 2018; Gebauer 2008; Lee, Yoo, and Kim 2016; Morgan, Anokhin, and Wincent 2019). Most research seems to equate servitization as the use of advanced services and advanced services as the path to achieve servitization outcomes or generate enhanced performance (Baines et al. 2020; Story et al. 2017). In addition to the overemphasis on advanced services, there's a strong focus on the viewpoint of manufacturers, but less is known of how customers' processes and capabilities are influenced in servitization journeys from their own viewpoint (Baines and Shi 2015; Vaittinen and Martinsuo 2019).

No research could be located that established a connection between particular types of services and customer capabilities, nor any enhancement thereof, except for Gebauer (2008) that explored the differentiated results of four service strategies (after-sales, customer support, outsourcing partners, and development partners) and stated that only with development partners would the customers benefit directly from competency development; Manufacturing capabilities are associated to base services whilst service capabilities were associated with both base and advanced; and Rapaccini and Visintin (2015) that explored how different services (Product Support, Customer Support sand Process-Related services) influenced the role that suppliers can play in their customers' value-creation process.

This suggests, that similarly to what happens with manufacturers, the different types of service or strategies implemented will also have an impact on customers' servitization outcomes. We hypothesise a positive impact of all service types in line with the current literature (Annarelli et al. 2018; Gebauer 2008; Lee, Yoo, and Kim 2016; Morgan, Anokhin, and Wincent 2019) and discussions on servitization as a transition or as different development levels (Baines et al. 2020; Calabrese et al. 2019). Therefore suggesting:

Hypothesis 2: There is a positive relationship between the different types of services used (a) base, (b) intermediate and (c) advanced and servitization outcomes.

3.3.3. Servitization outcomes and firm performance

When considering outcomes, most research tends to consider financial performance measures or a combination of business/operational performance measures. And most studies affirm the existence of a relationship between servitization and performance (Abou-Foul, Ruiz-Alba, and Soares 2021; Ambroise, Prim-Allaz, and Teyssier 2018; Vendrell-Herrero, Gomes, et al. 2022), even if the effect is not always positive (Eggert et al. 2011; Kowalkowski, Gebauer, and Oliva 2017). This highlighted the importance of organizational, network (Kohtamäki et al. 2013) and relational capabilities (including visibility, site visits and informal information exchange), instead of contractual capabilities (Kreye, Roehrich, and Lewis 2015). Vendrell-Herrero, Gomes, et al. (2022) emphasized the moderating role of product lifespan in managing these long-lasting industrial relationships as it positively impacts the relationship between servitization and performance. They argued that the manufacturer no longer sells products, but instead sells business solutions for its customers, developing a continuous relationship throughout the lifespan of the product where customers pay for services delivered by suppliers.

Nonetheless, Calabrese et al. (2019) found that servitization measures were inconsistent across studies and lacked theoretical grounding. Common criticisms in the literature include the differentiated measures of servitization used such as service-related revenue – service revenue growth or service market share growth versus the number of service types (Benedettini, Swink, and Neely 2017) or types of services provided (Baines and Lightfoot 2013b).

In this study, we aim to distinguish between what are the outcomes for the customer in terms of their capabilities and process development and what their firm performance results are. This idea is closely aligned with the benefits gained from servitization (Baines and Shi 2015; Rapaccini and Visintin 2015; Zhang and Banerji 2017) but is different from this in the sense that the focus is the customer and what they take from it themselves for their own development and, more importantly how those benefits impact their own firm performance.

Looking at the literature that has explored the benefits of servitization, it tends to focus mostly on the benefits for the manufacturer even when considering the customer (for example, generation of increased satisfaction, retention or closer relationships – Raja et al 2013; Vila-Lopez and Kuster-Boluda 2017; Vaittinen, Nenonen, and Story 2019; Jang, Bae, and Kim 2021). Very few studies address the direct benefits for customers, such as Baines and Shi (2015), Ruiz-Alba et al. (2019), Vaittinen, Nenonen, and Story (2019), and Zhang, Wei, and Gao (2023). Using Delphi method, Baines and Shi (2015) identified benefits for both manufacturers and customers. Customer benefits included improved financial, risk, asset, and investment management (through a focus on core competencies, higher capital investment, advanced technology adoption, and access to associated skills). Also focused on B2B customers, Ruiz-Alba et al. (2019) investigated the moderating role of co-creation in the implementation of servitization strategies, suggesting that when the level of co-creation of the design of services is high, there are significant effects of servitization on customer firm performance. Vaittinen, Nenonen, and Story (2019) looked at retailers' acceptance of a service, arguing that manufacturers must

ensure the usefulness of the service for the retailer, give retailers a reason to commit to the service sales and provide enough support to make retailers comfortable in selling the service. This relates to a certain extent to the context of the present study where pharmaceutical store owners use services provided by their manufacturers, but instead of focusing on acceptance or continuation of use we investigate their reasons to engage, and the combination of services used. Zhang, Wei, and Gao (2023) showed that manufacturers' service depth had a significant positive effect on customer-based performance, but service breadth had an insignificant effect on the performance. They also found a positive moderating effect of technological turbulence, but supply chain position only positively moderated the effect of service depth.

The links between servitization and performance tend to be seen from the manufacturers' perspective (Bigdeli et al. 2018a; Wang, Lai, and Shou 2018) and little to no research has empirically investigated the performance impact from other perspectives (Kowalkowski, Gebauer, and Oliva 2017), but because servitization implies a multi-actor transformation process (Baines et al. 2020; Khanra et al. 2021; Kreye and van Donk 2021; Rabetino et al. 2021a; Raddats et al. 2019; Vaittinen and Martinsuo 2019; Vendrell-Herrero et al. 2023), this means that the level of impact in each tier of the supply chain will be much more nuanced, sometimes with non-existent or limited impact of the supply chain position (Zhang, Wei, and Gao 2023) and, in many cases, relying on perceptions from those in between the chain, instead of the manufacturers themselves, as considered in most studies (Bigdeli et al. 2018a; Wang, Lai, and Shou 2018), or the final consumers (as investigated by Parry, Bustinza, and Vendrell-Herrero 2012; Kreye and van Donk 2021). To consider this nuance we propose the term servitization outcomes to represent the development of the capabilities and process improvement from the customers' perspective, and to further explore how that is perceived to influence the performance of those actors in the use of servitized offerings from their suppliers/manufacturers. Therefore, it is suggested that:

Hypothesis 3: There is a positive relationship between servitization outcomes and business customer's firm performance.

3.3.4. Service mix and firm performance

Besides the disagreement regarding servitization measures (Calabrese et al. 2019), there is also little agreement in the literature on what performance indicators should be used in servitization. Bigdeli et al. (2018b) argued that performance measures currently used in servitization research 'lack the breadth and focus to assess progress or outcomes'. Different studies consider different measures of performance focusing on different operational, market or financial indicators. For example, Ambroise, Prim-Allaz, and Teyssier (2018), Abou-Foul, Ruiz-Alba, and Soares (2021) and Li et al. (2023) use revenue generation, profit and market value as financial measures of performance, whilst Bustinza et al. (2019) consider organisational performance (competitive advantage, higher customer satisfaction), and business performance (profit level, profit level change, increased profitability). Therefore, there is still room for further research clearly establishing these impacts and recent studies invite researchers to reach a consensus that enables replication and comparisons (Kowalkowski, Gebauer, and Oliva 2017; Wang, Lai, and Shou 2018). For this reason, we adopted the most used indicators using in the present study a combination of both financial and market performance items to measure the broader concept of firm performance (Antioco et al. 2008; Fang, Palmatier, and Steenkamp 2008; Gunday et al. 2011; Hultén 2012; Neely 2008; Qrunfleh and Tarafdar, 2014).

Furthermore, based on previously explained literature regarding the impact of different services (e.g. Benedettini, Swink, and Neely 2017; Bustinza et al. 2019; Cusumano, Kahl, and Suarez 2015; Li et al. 2021; Sjödin, Parida, and Kohtamäki 2019) it is believed that the different types of services selected by customers will affect their firm performance. This is based on the literature that investigated separately the impact of each service type following Baines and Lightfoot (2013a) terminology. Benedettini, Swink, and Neely (2017) and Sjödin, Parida, and Kohtamäki (2019) support the idea of a balanced portfolio of service provision to respectively reduce bankruptcy likelihood and increase financial performance. Bustinza et al. (2019) supported specifically a combination of base, intermediate and advanced services stating that, in most industries, higher performance is achieved through collaborations with value-added service providers for base and intermediate services but with in-house development of advanced services. Base services had no impact on financial performance but supported the delivery of advanced services but Li et al. (2021) demonstrated that base services were positively related to sales growth, while advanced services were positively related to return on sales (ROS) growth, also highlighting the need to consider service types to maximise servitization benefits. As stated previously, conflicting results can be found in the literature. Hence, to investigate how this phenomenon occurs in this context and considering its transitional nature (Baines et al. 2020; Calabrese et al. 2019) it is suggested that:

Hypothesis 4: There is a positive relationship between the use of the service mix (base, intermediate and advanced services) and customers' firm performance.

4. Methodology

Following the calls for the use of different methodological approaches in servitization (e.g. Brax and Visintin 2017; Kamal et al. 2020; Rabetino et al. 2021a; Raddats et al. 2019; Wang, Lai, and Shou 2018; Zhang and Banerji 2017), this research used a mixed method approach: first a quantitative study was conducted, followed by a qualitative study to further investigate the obtained results. Although most studies follow another sequence (exploratory sequential approach: first qualitative and then quantitative), this investigation followed an explanatory sequential mixed method as defined by Creswell (2013) developing first the quantitative study and then the qualitative investigation. Recent studies have

followed a similar methodology (Ashok, Day, and Narula 2018). The quantitative element has a limited capacity of providing profound insights about the explanation of results and contextual factors critical for a deeper understanding of the phenomenon under investigation (Gibson 2017; Morse and Niehaus 2009), therefore the qualitative approach was insightful to help us further understand the results obtained in the quantitative investigation. The following sections provide the methodology details and findings for each of the conducted studies.

5. Study 1 (quantitative)

5.1. Sample and data collection

A group of nine pharmaceutical cooperatives collaborated in this survey, representing 25% of the distribution market share of Spain that integrates 5.500 pharmacy stores that provide services to 12.7 million inhabitants, which represents 25% of total inhabitants of Spain (final consumers from 15 provinces). The sample was selected in collaboration with the cooperatives to ensure that it was representative. Questionnaires were emailed to 750 pharmacy stores in collaboration with the distributors, professional bodies and pharmacies in Spain. A total of 219 pharmacy stores participated in the questionnaire with valid responses adding up to a 29% of response rate. Hair et al. (2014, 633) recommend a minimum sample size of 150 units in cases where the model has seven constructs and modest communalities (around 0.5). In our case, the model meets these requirements with the exception that it has one more construct. However, the sample size is significantly larger than 150. In addition to these considerations, we must consider the difficulty of the sector we are working with, the pharmaceutical industry, which is traditionally reluctant to provide information through surveys and which works with companies (not consumers, for example), making accessibility difficult. For all the above reasons, the sample size used in this study (219 pharmacy stores) is considered adequate.

The participant pharmacy stores had less than 3 employees (12%), between 3 and 5 employees (70%), between 6 to 10 employees (13%), more than 10 employees (2%) and 3% of respondents skipped this question. This distribution by employees is similar to that in other studies and reports from the pharmaceutical industry (Cuesta 2022). In addition, 33% of pharmacies are close to a hospital, while 63% are not, and 4% do not answer this question. Finally, the distribution in the territory of the pharmacies that are part of the sample is conditioned by the scope of the pharmaceutical cooperatives' access that helped in this research, most of them being in the south of Spain.

5.2. Measurement instrument

The questionnaire was developed in three phases to ensure content validity (Conway and Lance 2010). Firstly, the constructs were identified based on the previously published research and measured using Likert scales (1–7). Validated scales were used as much as possible for the various constructs measured but given the lack of consensus regarding the measurement of servitization (Calabrese et al. 2019; Kamal et al. 2020; Rabetino et al. 2021a), most of the scale items had to be further developed and adapted to fit the customer's perspective.

The scales used in Ruiz-Alba, Soares, and Morales Mediano (2016) research conducted in the Spanish and Portuguese pharmaceutical industry from a manufacturer's perspective were used as a starting point. In the present study an initial set of 19 services (originally 25 in Ruiz-Alba, Soares, and Morales Mediano 2016) were selected for the questionnaire representing the three types of service provision: base, intermediate and advanced (following Baines and Lightfoot 2013a taxonomy as categorised by Ruiz-Alba, Soares, and Morales Mediano 2016 for the pharmaceutical industry). The scales were adapted to enable the measurement (from a customer's perspective) of the *service mix* and for the *strategic goals* that lead to the use of servitization offerings, using respectively Likert scale items referring to intensity of use (1: I never use, and 7: I use very frequently) and agreement (1: Totally disagree, 7: Totally disagree). In turn, the *servitization outcomes* construct included Likert scale items focusing on process improvement and development of capabilities (Ruiz-Alba et al. 2019). Finally, the performance construct included both financial and market dimensions similarly to what has been done in other servitization studies (Abou-Foul, Ruiz-Alba, and Soares 2021; Ambroise, Prim-Allaz, and Teyssier 2018; Bigdeli et al. 2018b; Bustinza et al. 2019; Li et al. 2023) with direct questions and Likert scale items adapted from Antioco et al. (2008), Fang, Palmatier, and Steenkamp (2008), Neely (2008), Gunday et al. (2011), Hultén (2012) and Qrunfleh and Tarafdar (2014). All the indicators for the latent constructs were measured as Likert scales (1 = totally disagree; 7 = totally agree) except for some of the financial performance indicators (self-reported ratio scales). Thus, when elaborating the survey, background variables were also included such as number of employees, location and main supplier (cooperative or private – with a note that when responding they should consider the supplier that during the past year provided more than a half of total products and services).

Secondly, individual discussions took place with ten pharmacy store owners with long sector experience that contributed towards the revision of the questionnaire. The questionnaires were also sent to three academics that also contributed to the pre-test stage. These interviews helped in the design of the questionnaire, regarding the clarity and relevance of items, particularly when it came to firm performance helping in the selection of the main performance indicators that are used in the sector. Six key performance indicators were identified as the most relevant for their business decisions, based on their experience and on the usage in practice, hence kept in the questionnaire. Three of these indicators were related to financial performance namely profitability of sales, profitability of assets and overall profit. The other three were market performance indicators namely total

sales, market share and position in relation to the main competitor.

Thirdly, a pre-test was conducted with a small sample of respondents that resulted in minor improvements to the final survey. Following this, the finalized version was distributed online to key industry players for dissemination. Common method bias was controlled assuring the anonymity and confidentiality of the study, that there are no right or wrong answers, and that interviewees should answer as honestly as possible, this was communicated to the interviewees at the beginning of the questionnaire. Ambiguous, vague and unfamiliar terms were avoided, and the questionnaire was formulated as concisely as possible (Podsakoff et al. 2003, 887–888), thus avoiding possible conceptual overlap.

5.3. Results

An exploratory factor analysis (EFA) with Varimax rotation and maximum likelihood estimation method was performed to uncover the underlying dimensions of the use of services by pharmacy stores. Three factors were extracted according to optimal coordinates and parallel analysis criterion (Ruscio and Roche 2012) that explain 54% of the variance. A cut-off t of 0.40 was utilized in terms of commonalities to include a variable in the interpretation of a factor. Table 1 provides loadings and communalities. Three variables did not load in any of the factors (advanc23: Accountancy and Management; advanc24: Human Resources and recruiting, and advanc83: Labour risks prevention), so they were excluded from the analysis. The analysis of the obtained factors reveals that these are consistent with the categorization of Ruiz-Alba, Soares, and Morales Mediano (2016) and can be interpreted as base, intermediate and advanced services.

Following this, a confirmatory factor analysis (CFA) was conducted to evaluate the measurement properties of the focal constructs. The specified model had nine latent variables: three service types: (1) base, (2) intermediate, and (3) advanced services; three strategic factors: (4) profitability, (5) competitive advantage, and (6) loyalty; two dimensions of firm performance: (7) financial and (8) market performance; and (9) servitization outcomes. Thus, firm performance was specified as a second order reflective construct.

Since the analyzed variables are not following a multivariate normal distribution ($b1p = 543.75$, $p < 0.05$; $b2p = 2154.03$, $p < 0.05$; $omnibus = 716.61$, $p < 0.05$) (Bollen 1989; 423–424), robust maximum likelihood was used as the estimation process (Finney and DiStefano 2006). The global fit index shows adequate values for the estimated model (normed scaled chi-square = 1.61, CFI = 0.93, RMSEA = 0.05), with the exception of Satorra-Bentler scaled chi-square that is significant ($\chi^2_{SB} = 1022.21$, df = 635, $p < 0.05$) (Hu and Bentler 1995). The reliability and the average variance extracted (AVE) for the nine first order latent variables, and also for the second order latent variable (Performance) are higher or very close to the limits suggested by the literature (Hair et al. 2014, 618–619). However, as in EFA, the analysis of the standardized loadings showed that three items of the advanced services dimension (advanc23: Accountancy and management; advanc24: Human resources and recruitment, and advanc83: Labour risk prevention) and one item from the measurement of competitive advantage (compadv45: Being more efficient that my competitors developing better processes) obtained values below 0.40. For that reason, they were eliminated (Hair et al. 2014, 103–104).

Once these items were eliminated, the model was estimated again and the global indexes obtained were within the recommended limits suggested by the literature (normed scaled chi-square = 1.30, CFI = 0.97, RMSEA = 0.04), although the Satorra-Bentler scaled chi-square was still significant ($\chi^2_{SB} = 646.71$, df = 497, $p < 0.05$). All the unstandardized coefficients were significant, suggesting that the items used were related to their respective latent variables. Reliability of the first order constructs as well as the second order construct was above 0.70, while AVE was in all cases superior to the recommended limit of 0.50. Likewise, all standardized loadings obtained values higher than 0.70, apart from four coefficients that attained values between 0.40 and 0.70. Nevertheless, because the elimination of these items would not contribute towards the improvement of the reliability indicators and the AVE, they were kept to avoid affecting the construct's content validity (Hair et al. 2014,

Table 1. Loadings and communality of EFA.

Item	Variable description	F1	F2	F3	Communality
Base11	Sales and delivery of other health products			0.70	0.63
Base21	Sales and delivery of other not health products			0.82	0.68
Base31	Special and urgent delivery services			0.65	0.50
Base41	Vaccines services			0.63	0.43
Inter12	ERP software	0.79			0.64
Inter22	Software maintenance	0.85			0.74
Inter32	Hardware maintenance	0.80			0.65
Inter42	IT training	0.77			0.62
Inter52	Management training	0.78			0.61
Inter62	Magazines	0.71			0.53
Advanc13	Management consultancy		0.58		0.41
Advanc23	Accountancy management				0.24
Advanc33	HR and recruitment				0.23
Advanc43	Marketing and communication		0.82		0.72
Advanc53	Loyalty programs		0.82		0.73
Advanc63	Financial services		0.79		0.70
Advanc73	Renovation and decoration		0.79		0.64
Advanc83	Occupational risk prevention				0.26
Advanc93	Brand management		0.62		0.40

Table 2. Standardized coefficients, descriptives, reliability, and AVE of measurement model.

Latent variable	Observed variable	Std. coef.	SE	*p*-Value	Mean	SD	Reliability	AVE
Base services	Other health products distribution	0.79	0.04	0.00	4.89	1.37	0.81	0.51
Base services	Other not health products distribution	0.73	0.05	0.00	4.90	1.37		
Base services	Special and urgent deliveries	0.72	0.05	0.00	4.70	1.54		
Base services	Vaccines services	0.62	0.05	0.00	3.90	1.38		
Intermediate services	ERP software	0.80	0.03	0.00	4.18	1.36	0.91	0.63
Intermediate services	Software maintenance	0.86	0.03	0.00	3.87	1.55		
Intermediate services	Hardware maintenance	0.82	0.03	0.00	3.35	1.45		
Intermediate services	Training related to IT	0.79	0.04	0.00	3.60	1.42		
Intermediate services	Management training	0.77	0.04	0.00	3.90	1.38		
Intermediate services	Magazines	0.71	0.05	0.00	3.43	1.47		
Advanced services	Management consultancy	0.43	0.06	0.00	3.07	1.16	0.88	0.56
Advanced services	Management and communication	0.86	0.03	0.00	4.68	1.77		
Advanced services	Loyalty programs	0.87	0.02	0.00	4.31	1.69		
Advanced services	Financial services	0.83	0.03	0.00	4.14	1.70		
Advanced services	Renovation and decoration	0.78	0.03	0.00	3.82	1.52		
Advanced services	Brand management	0.60	0.05	0.00	3.40	1.38		
Profitability goal	Maximize sales	0.96	0.01	0.00	5.02	2.02	0.96	0.86
Profitability goal	Increase market share	0.92	0.01	0.00	5.00	1.63		
Profitability goal	Optimize economic benefits	0.92	0.01	0.00	4.96	1.69		
Profitability goal	Increase profitability of investment	0.90	0.01	0.00	4.95	1.50		
Competitive advantage goal	Improve competitive position	0.91	0.02	0.00	4.74	1.57	0.92	0.80
Competitive advantage goal	Differentiate from competitors offering a more innovative service	0.92	0.01	0.00	4.67	1.57		
Competitive advantage goal	Different image than my competitors	0.85	0.03	0.00	4.58	1.49		
Loyalty goal	Keep a long-term relationship with my customers	0.90	0.02	0.00	4.89	1.40	0.91	0.77
Loyalty goal	Improve customer loyalty offering more value	0.92	0.02	0.00	4.73	1.50		
Loyalty goal	Positive word of mouth from my customers	0.80	0.03	0.00	4.85	1.44		
Servitization outcomes	The use of services provided by my pharmaceutical distributors help me to improve my processes	0.90	0.03	0.00	4.84	1.46	0.85	0.74
Servitization outcomes	The use of services provided by my pharmaceutical distributors help me to improve my capabilities	0.81	0.03	0.00	4.52	1.62		
Financial performance	Profitability of sales	0.82	0.03	0.00	4.42	1.16	0.83	0.61
Financial performance	Profitability of assets	0.77	0.04	0.00	4.08	1.14		
Financial performance	Overall profit	0.76	0.04	0.00	4.08	1.12		
Market performance	Total sales	0.78	0.04	0.00	4.11	1.14	0.78	0.54
Market performance	Market share	0.73	0.04	0.00	3.59	1.04		
Market performance	Competitive position in relation to the main competitor	0.69	0.05	0.00	3.58	1.17		
Firm Performance[a]		0.91	0.04	0.00	–	–	0.89	0.80
Firm Performance		0.89	0.05	0.00	–	–		

[a]Second order construct.

Table 3. Discriminant validity: HTMT ratio.

Latent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Base services (1)	1.00								
Intermediate services (2)	0.17	1.00							
Advanced services (3)	0.44	0.21	1.00						
Profitability goal (4)	0.41	0.31	0.62	1.00					
Competitive Advantage goal (5)	0.35	0.11	0.60	0.71	1.00				
Loyalty goal (6)	0.32	0.10	0.67	0.71	0.69	1.00			
Servitization outcomes (7)	0.36	0.08	0.71	0.68	0.63	0.66	1.00		
Economic indicators (performance) (8)	0.24	0.29	0.48	0.26	0.26	0.33	0.49	1.00	
Market indicators (performance) (9)	0.14	0.45	0.32	0.13	0.19	0.25	0.33	0.80	1.00

103). As a result of all the above, it can be concluded that the scales used to measure each of the latent variables of the proposed model have convergent validity (Table 2).

To test for discriminant validity, the HTMT ratio was used (Voorhees et al. 2016). As shown in Table 3, in all cases the HTMT ratio was lower than 0.85, so it can be concluded that all the scales used in this study have discriminant validity (Table 3).

Additionally, using CFA, there was no evidence of common method bias (according to Harman's single-factor test), as the specified model with a general factor achieved a very poor fit (χ^2_{SB} =2572.67, df = 527, $p < 0.05$, CFI = 0.58, RMSEA = 0.13).

Once the existence of convergent and discriminant validity of the scales used in this study was demonstrated, the next step was the specification of the model shown in Figure 2 that would be used to contrast the proposed hypotheses. Using the covariance-based structural equation models (CB-SEM), the Satorra-Bentler scaled chi-square statistic was significant (χ^2_{SB}= 681.77, df = 506, $p < 0.05$), although all the other indicators were within the accepted limits (normed chi-square = 1.35, GFI = 0.95, AGFI = 0.94, CFI = 0.96, RMSEA = 0.04). Therefore, it can be concluded that the proposed model has a good fit. Additionally, the size of the pharmacy was incorporated into the model as a control variable to analyze whether the relationships obtained were

modified in any way. However, none of the relationships between pharmacy size and the other variables in the model were significant. Furthermore, the comparison with the test of Vuong between the model presented in Figure 2 and the model that adds the size of the pharmacy as a control variable reveals that models are distinguishable ($\omega^2 = 0.88, p = 0.00$) and that the model of Figure 2 is the preferred one ($z = 6.17, p = 0.00$). Additionally, the information criteria (AIC and BIC) also opt for the model of Figure 2 (AIC = 20883.40, BIC = 21182.13), instead of the model that includes the size of the pharmacy store (AIC = 21064.59, BIC = 21383.46). Consequently, the model in Figure 2 is the one that will be interpreted.

Regarding the proposed hypotheses, we expected a positive relationship between setting profitability as a strategic goal and base (H1ia), intermediate (H1ib) and advanced (H1ic) services. Results showed that the estimated coefficient between profitability goal and base services was positive and significant ($\beta = 0.18$, $p < 0.05$). Therefore, H1ia has empirical support. The relationship between profitability goal and intermediate services was also significant but negative unlike what was hypothesized ($\beta = -0.35$, $p < 0.05$). As a result, H1ib should be rejected. Finally, and as it was expected the relationship between profitability goal and advanced services was positive and significant ($\beta = 0.24$, $p < 0.05$), providing full support for H1ic (Table 4).

Secondly, a positive relationship was depicted between having competitive advantage as a strategic goal and base (H1iia), intermediate (H1iib) and advanced (H1iic) services. Results showed that the relationship between the competitive advantage goal and advanced services was positive and significant ($\beta = 0.18$, $p < 0.05$), offering empirical support to H1iic. In turn, the relationship between the competitive advantage goal and intermediate services was also significant ($\beta = 0.14$, $p < 0.05$), which empirically supports H1iib. Conversely, the relationship between the competitive advantage goal and base services is non-significant ($\beta = 0.08$, $p > 0.05$). Hence, H1iia should be rejected (Table 4).

Third, according to H1iii, a positive relationship was also expected between establishing loyalty as a strategic goal and base (H1iiia), intermediate (H1iiib) and advanced (H1iiic) services. Table 4 shows that the relationship between the loyalty goal as an antecedent of the service mix and base services is not significant ($\beta = 0.06, p > 0.05$), while the relationship corresponding to intermediate and advanced services is positive and significant ($\beta = 0.20, p < 0.05$; $\beta = 0.48, p < 0.05$). This means that H1iiia must be rejected, while H1iiib and H1iiic received empirical support.

In relation to the influence of the different types of services used (that is the *service mix*) and their impact on the *servitization outcomes* (measured as improvement of processes and capabilities), as expected, a positive relationship was found between the use of advanced services and servitization outcomes (H2c) ($\beta = 0.64$, $p < 0.05$) but, contrary to our expectation, a non-significant relationship between the use of intermediate services and servitization outcomes (H2b) ($\beta = 0.10$, $p > 0.05$), and a non-significant relationship between the use of base services and servitization outcomes (H2a) ($\beta = 0.09$, $p > 0.05$), was found. Consequently, H2a and H2b do not receive empirical support while H2c receives empirical support (Table 4).

In line with the hypothesized relationships, an improvement of the processes and capabilities (*servitization outcomes*) due to the use of types of services (*service mix*) had a positive impact on firm performance ($\beta = 0.22$, $p < 0.05$), empirically supporting H3. Moreover, the intermediate services had a strong positive and significant influence on firm performance (H4b) ($\beta = 0.34$, $p < 0.05$), whilst the base (H4a) and advanced (H4c) services did not have a significant impact on firm performance ($\beta = -0.03$, $p > 0.05$; $\beta = 0.13$, $p > 0.05$). Therefore, H4b receives empirical support whereas H4a and H4c should be rejected (Table 4). Figure 3 shows the structural model and the obtained standardized coefficients as well as the significance received for each of the proposed relations. Table 4 provides the unstandardized coefficients and the significance test for each of the proposed hypotheses.

Additionally, the analysis of the direct, indirect and total effects derived from the estimated model reveals some interesting results. Firstly, the indirect effect of advanced services on firm performance is positive and statistically significant. ($\beta = 0.64 * 0.22 = 0.14, p < 0.05$), which implies that advanced services contribute to the firm performance through *servitization outcomes*. Secondly, the total effect of intermediate services on firm performance is equal to 0.36 ($\beta = 0.34 + 0.10 * 0.22, p < 0.05$), while the total effect of advanced services is equal to 0.27 ($\beta = 0.13 + 0.64 * 0.22$, $p < 0.05$). It can be concluded that those firms that want to optimize firm performance should use only intermediate services. However, companies are going beyond designing strategies to attract customers and they prefer retaining current customers and build profitable, long-term relationships with them through loyalty. This study reveals that, for this purpose, advanced services are more adequate because the coefficient of advanced services is significantly bigger compared with intermediate services ($\beta_{advanced} = 0.48$ *vs.* $\beta_{intermediate} = 0.20, p < 0.05$) (see Table 4) when firms pursuit loyalty as the main *strategic goal* that guides the selection of *service mix* selected. Moreover, advanced services contribute to the firm performance through *servitization outcomes*. Therefore, those firms that pursue loyalty as a *strategic goal* should only use advanced services to obtain a strong effect on *servitization outcomes* ($\beta = 0.64, p < 0.05$) and a total effect of 0.27 on firm performance.

6. Study 2 (qualitative)

After a thorough analysis of the results of the quantitative study, it was surprising to find that customer/business customer firms were making three main decisions:

1. using base services with the principal intention of pursuing profitability, however results from study 1 show that base services do not have a direct positive relationship with performance.

Table 4. Unstandardized and standardized coefficients of the structural model.

	Estimate	SE	*p*-Value	Std.all	Hypotheses	Supported
Dependent: Base services						
Profitability goal	0.18	0.06	0.00	0.32	H1ia	Yes
Competitive advantage goal	0.08	0.08	0.36	0.10	H1iia	No
Loyalty goal	0.06	0.10	0.51	0.07	H1iiia	No
Dependent: Intermediate services						
Profitability goal	−0.35	0.06	0.00	−0.62	H1ib	No
Competitive advantage goal	0.14	0.07	0.03	0.18	H1iib	Yes
Loyalty goal	0.20	0.10	0.04	0.24	H1iiib	Yes
Dependent: Advanced services						
Profitability goal	0.24	0.09	0.00	0.31	H1ic	Yes
Competitive advantage goal	0.18	0.09	0.04	0.17	H1iic	Yes
Loyalty goal	0.48	0.10	0.00	0.39	H1iiic	Yes
Dependent: Servitization outcomes						
Base services	0.09	0.09	0.29	0.08	H2a	No
Intermediate services	0.10	0.08	0.17	0.09	H2b	No
Advanced services	0.64	0.05	0.00	0.75	H2c	Yes
Dependent: Firm performance						
Servitization outcomes	0.22	0.11	0.04	0.33	H3	Yes
Base services	−0.03	0.08	0.67	−0.04	H4a	No
Intermediate services	0.34	0.07	0.00	0.42	H4b	Yes
Advanced services	0.13	0.10	0.20	0.23	H4c	No

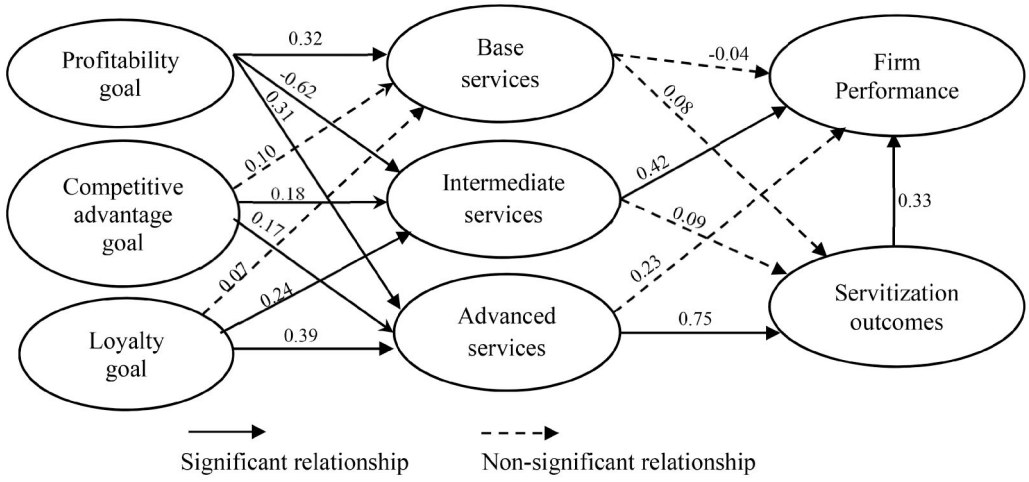


Figure 3. Standardized coefficients for the proposed relationships.

2. using intermediate services assuming this would not lead them to increased profitability, however the results from study 1 show that the use of intermediate services has a direct positive relationship with firm performance.
3. using advanced services with the main intention of increasing their profitability, but the results from study 1 show that there is no direct relationship between the use of advanced services and firm performance, moreover the only way that advanced services have an impact on performance is through the indirect effect of servitization outcomes.

Given these unexpected results in study 1, a decision was made to further investigate these findings following an explanatory sequential approach (Creswell 2013). This decision aimed at addressing these findings with a deeper understanding behind what was being reported (Gibson 2017; Morse and Niehaus 2009). The findings from study 1 were therefore used as a starting point to the conversations with practitioners involved in study 2.

6.1. Sample, measurement instrument and data collection

In this second study, 17 in-depth interviews were conducted with pharmacy store owners, and none of them had participated in study 1 (quantitative) to avoid contamination of results. Contacts were made with these pharmacy store owners based on personal networks and the link to one of the Spanish cooperatives mentioned before. Interviews followed a carefully prepared protocol that was revised by four experts (two academics and two practitioners). The questions in the interviews were focused on the three main surprising findings in study 1 including: (1) the use of base services does not lead to increased profitability or performance, (2) the use of intermediate services does not lead to profitability (3) the use of advanced services helps increase profitability. To facilitate the conversation and identification of different types of services (base, intermediate and advanced), the previously mentioned list of base, intermediate and advanced services for the pharmaceutical industry (adapted from Ruiz-Alba, Soares, and Morales Mediano 2016) was used.

Moreover, you can interpret profitability in different ways so to avoid this during the interviews, we have used the same definition that was considered in study 1 (which included: maximising sales, increasing market share, optimizing economic benefits and increasing profitability of investment). The interviews lasted from 50 to 75 minutes and were conducted by one member of the research team. The interviews were recorded and transcribed according to informed consent and ethics procedures. Nvivo 11 software was used for the coding process and main themes were identified (using '*a priori* codes from service categorizations and emerging codes) and quantified following the coding process.

6.2. Results

The first set of questions was related to study 1finding stating that the use of base services would lead to increased firm performance, however, results showing no effects of base services on firm performance. As shown in Figure 3, the results in study 1 demonstrated that when pharmacy stores were seeking profitability (0.32), understood in this context as increased revenue (maximizing sales, increasing market share, optimizing economic benefits and increasing profitability of investment), they would select using base services. Furthermore, when looking at the impact of these services on firm performance it was clear that in fact these base services were not having an impact on firm performance for pharmacy stores. In addition to being non-significant this relationship was negative.

Participants in the interviews were therefore firstly asked about these paradoxical results and one of the interviewees manifested: 'We are convinced that only using base services we could improve performance because we thought that by keeping good prices in our purchasing strategy, we would beat our competitors'. In this conversation, it was clear that the participant believed that by buying cheaper base services from the manufacturer they would increase their own profit margin. This confirms the results of study 1 and aligns with the mindset of most of the remaining participants.

Another one said: 'I thought that using new modern services was a waste of time because our customer only valued good price and if you want to give good price you need to buy cheap'. This reinforces the message that they just want to focus on base services, that are procured at a lower cost, to get profit and they do not want to invest in advanced services that might be more fashionable but that do to provide them any additional benefits, from their point of view. This assumption regarding base and advanced services is misleading because naturally this will not be helping them achieve what they want, and this incorrect premise will perpetuate biased decisions and investment in the type of services that do not lead to expected results.

Furthermore, when confronted with results from study 1 and why they selected base services to generate profitability (as a strategic goal), but not advanced services, another interviewee expressed that 'using this type of services (base) is what I learned from my father and from my grandfather as the main priority. Don't forget that our firms are very traditional and that in our sector most of the pharmacy stores are inherited. We also inherit the mentality and some assumptions, and this is difficult to change'. This is also aligning with the previous participant quote, supporting the role of base services, but adds the role of culture and inherited assumptions in family businesses (typical in Spanish pharmacy stores). This supports previous studies focusing on family-owned businesses (Adrodegari and Saccani 2020; Guedes et al. 2022; Queiroz et al. 2020; Rondi, De Massis, and Kraus 2021) and the impact of organisational culture as enablers or barriers towards servitization and service strategies implementation (Ambroise, Prim-Allaz, and Teyssier 2018; Yan, Li, and Cheng 2020; Zighan and Abualqumboz 2022). This is very important because it reveals that this mindset is a more permanent assumption (instead of something temporary) that is part of their decision-making patterns something that they do not refute because it was learned behaviour and they have always seen present in their family business. Still, as evidenced by study 1 that does not mean that those assumptions are still correct in current markets. Moreover, this aligns with the idea explored by Rondi, De Massis, and Kraus (2021) regarding the 'ability-willingness' paradox (i.e. why family firms have higher ability yet lower willingness to innovate).

After completing the interviews, and explaining the results from study 1, it was clear that for 75% of the participants, the use of base services was like the concept of hygienic factors or order-qualifiers, in the sense that once you have them, they do not generate special profit revenue, but you must have them to compete.

The second set of questions were related to the finding that the use of intermediate services would not lead to firm performance benefits. As shown in Figure 3, study 1 found that pharmacy stores chose intermediate services when they are seeking loyalty (0.24) as a *strategic goal* followed by competitive advantage (0.18) and they expect less profitably (−0.62) the more they use intermediate services. However, what they really want as a strategic goal is loyalty and competitive advantage when adopting these intermediate services. Although base and advanced services do not have a direct impact on firm performance, the intermediate services in study 1 did have a direct impact on firm performance (0.42). Hence, this provides some aligning between expected strategic goals of loyalty and competitive advantage (both precursors of strong market share and competitive advantage) when selecting intermediate services and their impact, given that firm performance included maximizing sales and increasing market share (and not only optimizing economic benefits and increasing profitability of investment).

Aligned with these findings, interviewees' comments about intermediate services confirmed that 80% of participants perceived intermediate services as just additional cost, that do not add value. From those 80%, half of them thought that these services distracted them from higher value alternatives. This is supported by one of the participants that indicated: 'Nowadays these services (intermediate services) can be considered a commodity that expand the value of other services (meant base services). But the amount

of energy needed to use these services, does not compensate and will not make a difference neither in the short nor in the mid or long range'. This goes against findings in study 1 and confirms that although this is the only type of services that has a direct impact on performance, they believe that intermediate services are deviating them from superior performance. This seems to suggest that they see intermediate services almost as qualifiers that are not worth investing in for profitability goals, but this is however an incorrect assumption if we consider the findings from the larger sample in study 1 where they impact firm performance (dependent variable).

Moreover, only 20% of participants indicated that they were open to using more intermediate services in the pursuit of profitability in the long-term: 'Since last year, I have started to see clearly that intermediate services are an essential complement to advanced services. This is like a complement to the diet'. Aligned with this another participant noted that: 'I am becoming more aware about the fact that the rules of the game are changing. You need to (…) start using more sophisticated services to keep the growth of your business'. Although representing only 20% of participants, this is a positive indication in the sector, that some pharmacy store owners are finally considering adopting intermediate services to achieve long term profitability, and not only for loyalty and/or competitive advantage as strategic goals.

The third set of questions in the interviews was focused on the assumption that using advanced services would help increase performance and about the impact of servitization outcomes on firm performance. Study 1 demonstrated that when pharmacy stores use advanced services, they seek loyalty (0.39), then profitability (0.30) and finally competitive advantage (0.17) as strategic goals. That is, these are the reasons why they would select to use advanced services and in that order of importance. It is coherent that they are seeking loyalty first because study 1 shows that advanced services do not have a direct impact on performance, only an indirect impact through servitization outcomes. However, most interviewees (85%) in study 2 thought that the use of advanced services would lead to increased firm performance in the short-term. Nonetheless, this is not certain particularly if we are discussing (in study 1) an indirect effect of servitization outcomes on firm performance, which means at least an effect in the mid to long-term because you need to wait for those servitization outcomes to be developed in the form of improved processes and capabilities.

This was one of the main findings as pharmacy store owners were not aware that advanced services would have an impact on the longer-term. One participant manifested 'Since the last 5 years we have been receiving the message from our service providers that we should adopt quickly this new type of services (meant advanced). I assumed that I would see the results in the short term. This was my great mistake'. Another participant said: 'I started using advanced services 4 years ago, during the first 2 years I didn't see any impact on performance, to be honest. However, as most of my competitors kept using them, I also did the same. After the third year, I started to see results on performance and now I have no doubt about it'. The fact that industry providers are pushing towards the use of advanced services (aligned with the servitization journey of the Spanish pharmaceutical industry explained before), means that some of the pharmacy stores were doing it just to copy the competitors. These were not very rational or strategic decisions, but in the end, they realized that those were the type of services that end up in fact adding to enhanced firm performance outcomes.

In Study 2, even though this is a different sample of participants completely independent of study 1, once again we find that participants (pharmacy store owners) believe in their established mindset perpetuating assumptions that are contradicted by the data in study 1. In study 1 these findings were extrapolated from the data and in study 2 these findings were confirmed in the participants own views and words.

Another question was focused on understanding how advanced services improve servitization outcomes and about its effect on firm performance. 60% of participants said that they were not informed by their service providers about the improvement that advanced services would have on their processes and capabilities. One participant said: 'When our service providers started to try to sell us advanced services, they clearly failed to explain us that this would be a long-term strategy and that we needed to be patient before we could see any impact on performance. Honestly, I don't think they were trying to deceive us, my guess is that they didn't even know it: this was also new for them. So, we are heroes by accident as we now see the benefits of these services on the long-term, but it could have been anything'. This aligns with the previous participant, but also raises a different question referring to how services and the value offering is communicated to business customers, aligning with what Vaittinen, Nenonen, and Story (2019) previously found regarding manufacturers' support as a moderator between retailers' ease of use and acceptance of service mix. If this is not well communicated then customers will not buy into these more advanced service types; alternatively, if pharmacy stores invest in advanced services but they do not provide immediate results in the short-term, then pharmacy stores will not be satisfied and will disengage with the offering (unless they stick with it just to copy competitors as some of the interview participants mentioned before) (Chakkol et al. 2018; Morgan, Anokhin, and Wincent 2019; Vaittinen and Martinsuo 2019),

To conclude, it can be said that the results from Study 1 allowed us to reflect on how pharmacy stores perceive and select their service mix, whilst Study 2 confirmed this further demonstrating that founded on their inherited beliefs about service types, incorrect service bundles might be prioritized even when they were not producing the expected results in the short term.

7. Discussion and implications

The main findings in this study demonstrate that the same goals driving the *service mix* that are usually considered by

manufacturers to adopt servitization (looking for profitability, competitive advantage and loyalty), are also the same goals used by business customers to select the *service mix* they wish to use. Moreover, these findings demonstrate that from a customers' perspective, the different types of services selected (that is, the *service mix*) impact them differently in terms of *servitization outcomes* and *firm performance*. These findings suggest different approaches depending on the type of service considered which aligns to a certain extent with previous literature, for example, the lifecycle approach in Cusumano, Kahl, and Suarez (2015). But instead of arguing for a need for different services at different stages (Baines et al. 2020; Calabrese et al. 2019; Cusumano, Kahl, and Suarez 2015), we propose that a combination of a mix of different types of services is needed as well in all these different stages from a customer's viewpoint (which is supported by our findings in study 1 and 2).

These findings can be summarized as follows:

1. Base services are selected by pharmacy stores seeking profitability (as demonstrated by study 1 and 2) but have no relationship with firm performance (as concluded from study 1 analysis). This seems to be both ironic and contradictory suggesting that base services are much more like order-qualifiers or hygiene factors. This is confirmed in the interview discussions in study 2, where participants acknowledged that even though these might not generate profit, they still need to have them to remain competitive. They also explained these beliefs referring to learned inherited knowledge regarding the types of services commonly adopted by their predecessors (Adrodegari and Saccani 2020; Ambroise, Prim-Allaz, and Teyssier 2018; Guedes et al. 2022; Queiroz et al. 2020; Rondi, De Massis, and Kraus 2021; Yan, Li, and Cheng 2020; Zighan and Abualqumboz 2022). Finally, this also suggests looking at service provision in the future beyond financial impacts given the need to maintain base services even though they do not demonstrate direct performance impact.
2. Intermediate services are selected by pharmacy stores pursuing loyalty and demonstrated a direct impact on firm performance (in study 1). Results in study 1 also showed that the relationship between seeking profitability and intermediate services was negative, which means that the more pharmacy stores pursue profitability the less they will use intermediate services. Although unexpected, this seems to suggest that intermediate services are possibly seen as an adding cost element and therefore not associated by pharmacies with pursuing profitability goals (as highlighted in study 2). But they will select intermediate services when seeking competitive advantage and loyalty as strategic goals. Once again, this links to inherited mindsets exhibiting the 'ability-willingness' paradox discussed by Rondi, De Massis, and Kraus (2021).
3. Advanced services are selected by pharmacy stores firstly to promote the loyalty of their customers, secondly to pursue profitability and thirdly to create competitive advantage (study 1). These services had no direct impact on firm performance indicators in study 1, instead an indirect impact was observed through servitization outcomes. This suggests that the more pharmacy stores develop their processes and capabilities, the more firm performance returns they will attain. This aligns with the servitization literature suggesting a link between advanced services and performance (Baines and Shi 2015; Bustinza et al. 2019; Li et al. 2021; Raddats et al. 2019; Sjödin, Parida, and Kohtamäki 2019). However, in study 2, participants elaborated on their views regarding advanced services many of them unaware of their long-term importance to achieving increased firm performance, acknowledging some disdain and uncertain of how to prioritize them. This supports previous literature particularly Vaittinen, Nenonen, and Story (2019) research on retailers' acceptance of services and Vaittinen and Martinsuo (2019) advanced services readiness framework to support manufacturers when promoting new advanced services to their industrial customers.

7.1. Theoretical implications

Based on the presented results, three theoretical implications and contributions can be identified. Firstly, this study responds to calls for empirical research beyond exploratory and qualitative methods (Brax and Visintin 2017; Kamal et al. 2020; Rabetino et al. 2021b; Raddats et al. 2019; Wang, Lai, and Shou 2018; Zhang and Banerji 2017). It uses mixed methods to advance research on servitization in the pharmaceutical context (Cobelli and Chiarini 2020; Gáspár and Szász 2014; Negash et al. 2021; Ruiz-Alba, Soares, and Morales Mediano 2016, Ruiz-Alba et al. 2019; Salwin, Andrzejewski, and Kraslawski 2021; Xing, Rapaccini, and Visintin 2017). This empirically established the list of services adopted in the Spanish pharmaceutical sector from a customer's perspective highlighting the role of service mix in customers' servitization outcomes and performance, instead of focusing on their satisfaction or relationships with manufacturers.

Secondly, this research addresses gaps in servitization from a customer's perspective (Alghisi and Saccani 2015; Baines et al. 2020; Baines and Shi 2015; Khanra et al. 2021; Rabetino et al. 2021a; Raddats et al. 2019; Vendrell-Herrero et al. 2023), focusing on why business customers select servitized offers and the mix of services they choose. It highlights that the same strategic, financial, and market reasons attributed to manufacturers (e.g. Baines et al. 2009; Baines and Shi 2015; Garcia Martin, Schroeder, and Ziaee Bigdeli 2019; Junior, Scur, and Nunes 2021; Khan et al. 2022; Ruiz-Alba, Soares, and Morales Mediano 2016) can also categorize customers' adoption of servitization offerings.

Finally, this paper reinforces the role of advanced services in improving business customers' processes and capabilities. Thus, as suggested by previous literature (Benedettini, Swink, and Neely 2017; Bustinza et al. 2019; Cusumano, Kahl, and Suarez 2015; Li et al. 2021; Sjödin, Parida, and Kohtamäki 2019), this further supports using a balanced portfolio of

services to implement servitization strategies effectively. This study contributes therefore to the theoretical debate on firm-level servitization, addressing its dimensions as 'extension' (number of service types and services within each type), 'infusion' (service revenue), and 'orientation' (emphasis on service strategies and revenue) (Calabrese et al. 2019). It also explores servitization as a 'transition' or 'transformation' (Baines et al. 2020; Brax and Visintin 2017). The concept of transitioning or transforming towards servitization is viewed as a linear and gradual progression along a product continuum, from less to more sophisticated services, assessed by the number of service offerings (Baines et al. 2020; Brax and Visintin 2017).

7.2. Repercussions for practitioners

Following the lack of impact of base services on servitization outcomes and firm performance, pharmaceutical/healthcare industry practitioners should be cautious in their approaches and claims towards the use of base services in their strategies. This is to avoid the common misconceptions that base services provide better performance, when they are qualifiers in the industry, hence providing limited value added. However, this does not mean that companies should stop using this type of services, but instead that both manufacturers/wholesalers and business customers are aware of their limited role and their place in their servitization strategies.

Moreover, results have shown that business customers in this sector can improve their firm performance either using advanced services (long-term) or using intermediate services (short-term). These findings emphasize that service providers (suppliers/manufacturers) should put more effort into explaining the benefits of using intermediate services. They should provide guidance to their key account managers, so they can customize their service offer in benefit of their business customers to help them optimize their service-mix and their operations and have a positive direct impact on firm performance in the short-term (Vaittinen, Nenonen, and Story 2019; Vaittinen and Martinsuo 2019).

8. Conclusion, limitations and future research

This research addresses the lack of empirical research on servitization from a customers' perspective (Alghisi and Saccani 2015; Baines et al. 2020; Baines and Shi 2015; Khanra et al. 2021; Rabetino et al. 2021a) in an equally under researched sector (Cobelli and Chiarini 2020; Gáspár and Szász 2014; Negash et al. 2021; Ruiz-Alba, Soares, and Morales Mediano 2016, Ruiz-Alba et al. 2019; Salwin, Andrzejewski, and Kraslawski 2021; Xing, Rapaccini, and Visintin 2017). A mixed methods study was conducted and main findings facilitate the implementation of servitization strategies helping both servitizing (the manufacturers) and servitized firms (the customers) understand how to maximize servitization outcomes and firm performance through the combination of intermediate and advanced services.

While this paper has made relevant contributions to theory and practice, three limitations should be mentioned pertaining to the fact that this model has only been tested: 1) in the pharmaceutical sector, 2) in one geographical area (Spain), and 3) considering only firm-level performance (that is pharmacy stores perspective).

Given that servitization outcomes seem to be industry specific (as argued by Fang, Palmatier, and Steenkamp 2008; Turunen and Finne 2014; Vendrell-Herrero et al. 2014; van der Valk and Axelsson 2015; Benedettini, Swink, and Neely 2017; Annarelli et al. 2018), this model would benefit from further studies conducted in other business sectors. Future studies should include other sectors, other countries and an analysis at different stages of the supply chain. In doing so, future research in other sectors could consider the findings from Ruiz-Alba, Soares, and Morales Mediano (2016) as it might be useful to start with an identification of services as the authors did as a steppingstone towards the implementation of Baines and Lightfoot (2013a) categorization (or any other selected for that sector).

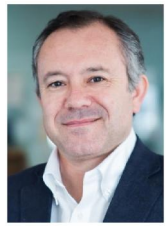
In addition to this, researchers should consider consistently the same set of performance indicators to allow comparison between studies and where possible address supply chain performance looking at the impact of servitization throughout the chain (Maull, Smart, and Liang 2014) and simultaneously consider multi-actor perspectives (Baines et al. 2020; Khanra et al. 2021; Kreye and van Donk 2021; Rabetino et al. 2021a; Raddats et al. 2019; Vaittinen and Martinsuo 2019; Vendrell-Herrero et al. 2023). Furthermore, future research should consider different impacts of services (not just performance) to better understand the service mix from a customer perspective in different industries.

Finally, future research should also consider the particularities of servitization business models, clarifying dimensions, theoretical lens, measurement instruments and implementation routes as highlighted by the reviews of current servitization research (Brax and Visintin 2017; Calabrese et al. 2019; Kamal et al. 2020; Rabetino et al. 2021b; Raddats et al. 2019; Wang, Lai, and Shou 2018; Zhang and Banerji 2017). Moreover, there's a need for an updated systematic literature review further exploring the different service type categorizations and the individual impact of different types of services distinguishing empirical and conceptual effects.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors



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