Full Title: Creating isolating mechanisms through digital servitization:

The case of Covirán[1]

Short Title: Creating isolating mechanisms through digital servitization

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Main conclusion:

Digital servitization allows companies to establish specific entry barriers and create isolating mechanisms to maintain their products' competitive advantage.

Key points:

Rapid linking of technologies with products has introduced new mechanisms to deliver services that complement product offerings.

This business environment has significantly affected food companies in the retail sector, where companies have begun to implement and rely on digital solutions to support business operations to fulfill changing market conditions.

The study demonstrates how the Covirán cooperative is improving service provision through digital capabilities to generate isolating mechanisms that enable the company to achieve a superior competitive position.

Introduction

Digitalization has proven to be much more than mere accumulation and transfer of data throughout the firm. The effects of digitalization go beyond use of digital platforms and exploitation of the specific benefits they afford; these effects reflect the way that digital media and platforms influence the restructuring of the many and diverse domains of the economy, society, and culture (El Sawy *et al.*, 2015). Digitalization is having a particularly strong impact on food retail sector, where new digital technologies have increased the mechanisms for buyers to consume, and consequently the retailer's bottom line (Willems *et al.*, 2016). All of these changes have highlighted the benefits of adopting digitalization as an enabler of product-service innovation, or servitization (Bustinza *et al.*, 2017a), a useful tool for boosting the potential of product offerings by adding digitally-enabled services (Vendrell-Herrero *et al.*, 2017).

Digitalization strategy is potentially important for companies in the food retail sector that are configured as cooperatives (Carter, 2013), the case studied in this paper. In general terms, a cooperative configuration allows members to pool larger amounts of resources to achieve greater volume and economies of scale, which in turn permit members to satisfy the needs of a wide and diverse range of buyers (Tregear and Cooper, 2016). In essence, cooperatives meet the needs of two different customers: end consumers and retail partners. In these contexts, *digital servitization* (Vendrell-Herrero *et al.*, 2017) provides a better understanding of customer needs while enhancing the entire delivery process.

By embracing digital technologies, firms are more easily able to deliver products, and also to provide services to add value to their business operations (Cusumano *et al.*, 2015, Bustinza *et al*., 2017b). Through a servitization strategy, firms can offer products,

while including more and more services in their total offerings as they gain experience in service business (Oliva and Kallenberg, 2003). Accordingly, digital technologies strengthen the development, design, and redesign of services (Opazo-Basaez *et al.*, 2017), increasing differentiation and generating competitive advantage (Bustinza *et al.*, 2015). Although the literature shows that differentiation through products generates entry barriers to competitors, no evidence indicates that digitally-enabled services permit erection of specific entry barriers or create isolating mechanisms to maintain the competitive advantage that products achieve.

While the literature shows increasing interest in digitally-enabled servitization, (Baines *et al.*, 2017), only a few studies analyze the impact of digitalization as enabler of servitization on the operations of retail food cooperatives. To address this knowledge gap, this study uses a single-case study method to analyze a large cooperative in Spain. The research goal is to increase understanding of the paradigm shift occurring in the food retailer sector. We review the role of digital servitization in the food retail sector to determine how it could pave the way to generation of isolating mechanisms.

The paper is organized as follows. The next section presents literature on business model innovation (BMI), followed by literature on digital business strategy (DBS), digital servitization, and isolating mechanisms. The third section explains the research methodology and data collection instrument. The fourth section presents the study findings, and the fifth section provides the conclusions. Finally, the paper discusses managerial implications, study limitations, and future research lines.

Theoretical foundations

Business model innovation

The accelerating need to identify new pathways for innovation has drawn increasing attention to BMI, attention fueled by the opportunities for business model configurations enabled by technological advancements (Casadesus-Masanell and Zhu, 2013). While traditional business models provide a framework to understand how firms create and capture value through interaction with their environment (Zott *et al.*, 2011), BMI adds questions about novelty in customer value proposition and structural reconfigurations of firms (Spieth *et al.*, 2014).

Essentially, BMI attempts to provide the rationale for a firm to create and capture value from an innovative idea or technological development. Such is the case when emerging technologies disrupt mature industries (Chesbrough, 2010; Trimi and Berbegal-Mirabent, 2012), revealing new ways to generate and capture value, and new paths to generate revenue, determine value propositions, and meet customer, supplier, and partner demands (Teece, 2010). BMI redefines the nature of existing products or services and how they should be delivered to the customer (Baden-Fuller and Haefliger, 2013), providing an opportunity to generate sustainable business success and differentiation from competitors (Amit and Zott, 2012).

Despite its potential benefits, BMI can be disruptive, as the firm must tailor its activities into novel and demanding combinations that can create conflicts throughout the organization (França *et al.*, 2017). According to Chesbrough (2010), these conflicts emerge principally from the firm's inability to adapt existing resources to complex changes, and from the constraining effect of the current business model on potential new ideas. Although BMI is viewed as constant reaction to external changes (Demil and Lecocq, 2010) or a continuous learning process (McGrath, 2010), shifting from an existing business model to a new one requires extensive efforts to identify new

pathways for innovation, including comprehensive organizational transformation and a particular set of management skills (Demil and Lecocq, 2010).

Digital business strategy

Recent advances in Information and Communication Technologies (ICT) have expanded functions and potential applications of digitalization in business settings, pressuring firms to adjust their current business infrastructure to the new digital era (Bharadwaj *et al.*, 2013). Increasing digitalization of business has given rise to new interaction mechanisms, reshaping the traditional business strategy and restructuring social relationships involving both the consumer and the enterprise (Parry *et al.*, 2012). Such business transformation increases the need to implement business strategies that take advantage of digital economies (Vendrell-Herrero *et al.*, 2013).

A Digital Business Strategy (DBS) can be described as the pathway of competitive actions carried out by a firm as it competes by offering digitally-enabled products or services (Woodard *et al.*, 2012). In a broad sense, DBS refers to an organization's operational capacity and capability to respond quickly and effectively to the demands of a growing number of digitally empowered partners (Abrell *et al.*, 2016), principally through digitalization of products, services and customer relationships (Sia *et al.*, 2016). Its implementation requires an appropriate technological platform on which products and services can be seamlessly delivered, enabling flexible product and service provision (Markus and Loebbecke, 2013).

DBS involves the capacity to enable fluent information exchange both inside and outside firm boundaries, facilitating tight interconnection of multifunctional initiatives and processes with the support of the firm’s ICT capabilities (Rai *et al.*, 2012). To

achieve these goals, firms must have multiple digital supply chain solutions, such as CRM (customer relationship management), SRM (supplier relationship management), EDI (electronic data interchange), CPFR (collaborative planning, forecasting, and replenishment), and VMI (vendor-managed inventory), solutions that allow business partners to exchange information easily and align their business processes (Opazo-Basaez *et al.*, 2014).

Organizations can benefit from deeper information sharing and exploit new value propositions for customers in the digital context, generating greater accessibility, higher affordability, and wider connectivity (Srivastava and Shainesh, 2015), while taking advantage of a wide range of opportunities for new functionality, higher reliability, greater efficiency, and optimization possibilities that exponentially increase the value they deliver to customers (Porter and Heppelmann, 2014).

Over time, firms will increase their understanding of the capacity of digital solutions to create new IT capabilities and design new strategies around new products and services (Rai *et al.*, 2012; Vendrell-Herrero *et al.*, 2017). Benefiting from digital strategies goes beyond IT infrastructure's potential, however; it requires deep understanding of how to develop the proper organizational capabilities to take advantage of the information and knowledge generated on an ongoing basis (Bharadwaj *et al.*, 2013).

Digital servitization

Servitization has been widely recognized as a mechanism to add new value to products by adding services (Neely, 2008; Vandermerwe and Rada, 1988), where the importance of services over products in the value proposition increases continuously over time

(Oliva and Kallenberg 2003; Raja *et al.*, 2013). The main rationale behind (also a competitive advantage of) the servitization strategy is that services are difficult to replicate due to their invisible and labor-dependent nature (Oliva and Kallenberg, 2003). Through servitization, firms can differentiate their offerings (Vandermerwe and Rada, 1988), achieving revenue growth and increased profits (Baines *et al.*, 2009). Recent studies suggest that servitization strategies increase the firm's performance and competitiveness (Lee *et al.*, 2016), while simultaneously building barriers against competition (Bustinza *et al.*, 2015; Vendrell-Herrero *et al.*, 2014). As recent advances in information technologies and their rapid fusion with products and services introduce new channels through which customers can request and receive services (Parry *et al.*, 2012), service provision relies increasingly on digital technologies (Lerch and Gotsch, 2015).

In response to this context, a growing number of firms has begun to introduce digital technologies to increase efficiency of service delivery (Vendrell-Herrero *et al.*, 2017) and the value of their offerings as a direct consequence of technology-enabled integration of product and services (Geum *et al.*, 2011), while simultaneously differentiating the company’s service offerings (Kindström and Kowalkowski, 2009). Digital capabilities also enable firms to adopt, design, and deliver new products that change the way they compete (Porter and Heppelmann, 2014).

Digitalization is considered as one of the most significant on-going technological trends globally (Hagberg *et al.*, 2016). In essence, it refers to use of technological advancements (social media, mobile analytics, embedded devices) to achieve business improvements such as superior customer experience, better-coordinated operations, and new business models (Fitzgerald *et al.*, 2014). These goals are achieved primarily

through integration of people, systems companies, products, and services (Hsu, 2007). Digitalizing enables transformation of the business process from analogue to digital (e.g., a shift from cash to electronic payments) and facilitates new forms of value creation (e.g., accessibility, availability, transparency) (Amit and Zott, 2001). Through digitalization, companies can obtain better visibility for their operations (Yamamoto, 1988), enabling companies to manage their operations to achieve economies of scale, coordinate inventory pooling, and optimize deliveries in a more feasible manner. Further, increased visibility enables companies to reduce demand distortion, allowing them to operate more efficiently without compromising customer service objectives (Chengalur-Smith *et al.*, 2012). Nevertheless, digitalization means significantly more than just conversion from analog to digital data; it involves stronger networking between business processes, efficient interfaces, and integrated data exchange and management (Bogner *et al.*, 2016).

Ultimately, the expanding adoption of digital solutions has increased the significance of managing connections among supply chain partners, making information crucial in servitized contexts (Eloranta and Turunen, 2016) and heightening the importance of information as a source of value. Recent studies suggest that information may even be a third dimension, alongside service and product, for value generation in servitization (Opresnik and Taisch, 2015). To take advantage of the many benefits that information offers, firms tend increasingly to adopt Knowledge-intensive Business Services (KIBS) organizations that provide them with intermediary services based on knowledge and related to specific technical areas (e.g., ICT services, digital information, big data) (Lafuente *et al.*, 2016; Miles, 2005). The main goal of KIBS is to provide the knowledge and capabilities necessary to implement service business models

(Vendrell-Herrero and Wilson, 2017), enabling firms to focus on their core competences by delegating all technical aspects.

Isolating mechanisms

To achieve sustained competitive advantage and capture the value created over time, firms must prevent imitation of their products and services by shielding the latter's fundamental characteristics (Naqshbandi and Kaur, 2015). Often depicted in the literature as barriers to imitation, isolating mechanisms are the processes by which individual firms protect themselves, preventing other firms from replicating their resources (Sminia, 2009). Isolating mechanisms can therefore be described as a distinctive strategic capability or core competence fundamental to providing superior performance and enabling sustainable competitive advantage (Grant, 1996; Lippman and Rumelt, 1982). Lawson *et al.* (2012) group isolating mechanisms into four categories: (1) knowledge protection, (2) technological capabilities, (3) market-based assets, and (4) first-mover advantages.

Several authors claim that technological capabilities have, over the years, become related to competitive advantage (Hart, 1995). Grounded in the resource-based view of the firm, this perspective states that firms with resources that are valuable, rare, non-substitutable, and difficult to imitate are able not only to obtain a position of advantage over competitors but also to sustain that advantage over time (Barney, 1991). Firms with advanced technological capabilities (i.e., development and improvement of products, services, and processes) tend to be more innovative and more difficult for competitors to imitate (González-Alvarez *et al.*, 2005), principally due to customization

and/or expertise differentiation or unique configuration of technological capabilities to support appropriation of value from customers (Hooley and Greenley, 2005).

Research context and methodology

This research follows a case study design (Gomes, 2011; Yin, 1994), a qualitative methodology appropriate to analyzing ICT development, implementation, and use within organizations (Shanks, 1997). The case study approach is suitable because it allows us to consider the company's history, institutional setting, and organizational mechanisms (Klein and Myers, 1999). This method is recognized as a valid path of empirical inquiry when the phenomena to be studied cannot easily be separated from their organizational context (Langley, 1999), as it enables researchers to get closer to the research phenomena (Dyer and Wilkins, 1991).

The unit of analysis is Covirán supermarkets, a food retail cooperative born in Granada in 1961. The cooperative currently runs over 3000 supermarkets in Spain, a figure that places it among the top ten national distributors by turnover. Covirán operates in a competitive market widely dominated by large companies that compete primarily in a non-cooperative configuration. In contrast, all Covirán owners maintain partnership status, a condition permitting Covirán to pool a large quantity of resources to provide economies of scale to all cooperative partners. These partners are mostly small family businesses of about 100 square meters that operate as local supermarkets in urban and rural areas. Covirán's configuration has gained the cooperative locations in more than 1,300 municipalities, over 75 percent of them rural.

Covirán has a presence in Andalusia, Aragon, Castile and Leon, Castile La Mancha, the Community of Valencia, the Canaries, Catalonia, Extremadura, Galicia, Madrid,

Murcia, Navarre, Asturias, the Basque Country and La Rioja, and the autonomous cities of Ceuta and Melilla. It also operates outside national borders, in Gibraltar and Portugal. Today, Covirán ranks second in number of supermarkets among companies of the sector and continues to expand nationally and internationally, covering the needs of the small and medium-sized independent food distribution companies.

A semi-structured interview was used for qualitative data collection. A sole in-depth interview with the company's chief executive officer (CEO) during Covirán's 2016 annual strategic planning session. This interview focused on features and functionalities of recent strategic initiatives followed by the Covirán cooperative, including BMI, DBS, digital servitization, digitally-enabled integrated solutions, cooperation, and information sharing. The interview lasted for two-and-a-half hours and was recorded in full, and notes were taken, providing useful insights for the study.

Findings

In recent years, Covirán has shifted from being a central purchasing body to a B2B service center for its over 3000 partners. This reconfiguration emerged from the need to identify new pathways to satisfy a wide range of retail partners in many locations (Teece, 2010). To address this need, Covirán's strategy starts by assuming that its competitors probably provide some of the same products to small retail partners but that the cooperative may be able to build barriers from the competition by focusing on specific services (Bustinza *et al.*, 2015; Vendrell-Herrero *et al.*, 2014), and hence achieve competitive advantage (Grant, 1996).

Covirán embarked on a large-scale organizational transformation (Demil and Lecocq, 2010) designed to differentiate the company from its competitors by offering

customized delivery services supported by new and innovative digital capabilities (Trimi and Berbegal-Mirabent, 2012). Yet this transformation is not a once-and-done project; it requires continuous reaction to external changes and therefore a long learning process, flexibility, and specific management skills to adjust to complex changes (Chesbrough, 2010).

To accomplish its objective, Covirán implemented a tailor-developed technological platform infrastructure capable of providing the necessary interconnection between partners to facilitate multifunctional strategies and processes (Rai *et al.*, 2012). More specifically, Covirán's platform is structured to manage the vast information received on a daily basis and provide quick, flexible response to retail partners' demands (Markus and Loebbecke, 2013). This platform contains multiple digital solutions, such as CRM, SRM, EDI, CPFR, and VMI to support operations and facilitate fluent information exchange and interconnection of Covirán's partners (Basaez *et al.*, 2014). To obtain maximum benefit from digital solutions, however, particular emphasis must be placed on developing the right organizational capabilities (Bharadwaj *et al.*, 2013).

The digital solutions addressed in this study enable Covirán to provide highly customized services tailored to each customer's demands, differentiating Covirán's product offering from that of competitors (Neely, 2008; Vandermerwe and Rada, 1988). The cooperative's services facilitate timely inventory replenishment and optimize deliveries in a more feasible manner, reducing demand distortion and allowing partners to run more efficiently (Chengalur-Smith *et al.*, 2012). Our findings confirm the increased value that companies deliver to customers through digital solutions (Porter and Heppelmann, 2014).

Digital capabilities are a substantial pillar in Covirán's business strategy. Timely service provision to all cooperative partners has become the cornerstone of Covirán's new reconfiguration. To provide this service, the cooperative relies on support from a technology company, a key strategic partner responsible for supplying all technological capabilities and technical support of partners in Covirán's network. The evidence confirms the increasing tendency to adopt KIBS to support specific technical areas (Lafuente *et al.*, 2016) and manage partner information in servitized contexts (Eloranta and Turunen, 2016).

This strategic KIBS partner gives Covirán the support needed to obtain the maximum benefit from information and digital capabilities for service provision (Vendrell-Herrero and Wilson, 2017). The alliance has provided Covirán with a unique configuration of digital solutions and thus a position of advantage over competitors due to superior technological capabilities (Barney, 1991). Covirán partners benefit from economies of scale derived from products and economies of scope achieved through digitally-enabled services. Covirán's integration of products and digitally-enabled services across all locations permits it to deploy "isolating mechanisms" (Lippman and Rumelt, 1982), building entry barriers through which it sustains competitive advantage. This finding supports previous research that demonstrates how digital capabilities enable superior service provision to facilitate sustainable competitive advantage (Lerch and Gotsch, 2015). Figure 1 depicts Covirán's transition to generation of isolating mechanisms through digital capabilities.

[Insert Figure 1]

Conclusions

This paper analyzes how digital servitization enables deployment of isolating mechanisms and thus achievement of competitive advantage in the food retail sector. The research was conducted in response to the limited studies linking digital servitization to the creation of isolating mechanisms.

The research demonstrates the importance of BMI in redefining the way products and services are delivered to customers (Baden-Fuller and Haefliger, 2013), and consequently in finding new mechanisms to create and capture value (Teece, 2010). The results stress the relevance of a DBS in enabling organizations to benefit from deeper information sharing and exploit new value propositions for customers in the digital context (Srivastava and Shainesh, 2015). The findings show that a company can achieve this goal by relying on multiple digital solutions such as CRM, SRM, EDI, CPFR, and VMI, which allow them to respond quickly and effectively to the demands of a growing number of digitally empowered partners (Abrell *et al.*, 2016). Such digital capabilities facilitate the development, design, and redesign of services (Opazo-Basaez *et al.*, 2017), while enabling provision of digitally-enabled services specifically designed to meet partners' needs. These services enable companies to differentiate product offerings from those of competitors (Vandermerwe and Rada, 1988), to erect isolating mechanisms obtained from unique/superior configuration of digital capabilities and digitally-enabled service provision, and ultimately to achieve competitive advantages (Bustinza *et al.*, 2015).

Key findings obtained in this study reinforce the importance of partner information in service generation and of the proper technological infrastructure to ensure rapid response to retail partners' demands. They also confirm the importance of embracing

digital capabilities to enhance service provision, and of breaking with traditional product offerings by adding deployment of digitally-enabled services.

Managerial implications

This paper analyzes the importance of digital capabilities in service provision to show how a unique configuration of these capabilities permits generation of digitally-enabled services, in turn facilitating generation of barriers against competitors or isolating mechanisms. The analysis is based on a single case study of Covirán, a large food cooperative in Spain. In recent years, this cooperative has moved from being a central purchasing body to become a service center to all its partners, a transition that pushed the company to adopt digital capabilities to satisfy demanding partners' needs.

For Covirán, adoption of digital capabilities has been crucial in (1) enabling seamless transfer of reliable information, (2) understanding and forecasting partners' demands, (3) meeting the extensive size and content of product categories, and (4) ensuring better service provision (allocation of inventory). Digitalization has introduced new and agile interaction mechanisms between Covirán and its retail partners, facilitating and speeding up communication of relevant business information (buying and selling rates, sales figures, balance sheets, customer database, etc.) (Parry *et al.*, 2012). Adoption of digital capabilities has permitted Covirán to interact regularly with retail partners in real time, acquiring accurate information—information relevant to foreseeing demand and providing timely digitally-enabled delivery services—thereby enhancing product supply and achieving excellence in meeting customer demands (Abrell *et al.*, 2016; Sia *et al.*, 2016). Through implementation of digitally-enabled services, Covirán has benefitted its partners with economies of both scale and scope,

increasing the value of its offerings (Porter and Heppelmann, 2014) and generating sustainable business success and differentiation from competitors (Amit and Zott, 2012).

Limitations and future research lines

From a theoretical perspective, this study attempts to contribute to the digital servitization literature by highlighting the impact of digital capabilities in generating digitally-enabled services, showcasing their role in the development of isolating mechanisms and thus in the generation of competitive advantage. The main rationale for the study was to fill the gap in research on this topic. We expect the study's results to open scholarly debate on the use of digital servitization in the food retail sector.

The main limitation of this study is its single-case study method, which prevents generalization or inference of its results to other studies. Another limitation is possible researcher bias in interpretation of findings. Nevertheless, the findings obtained should be perceived as incipient evidence of the benefits of digital servitization in the food retail sector. Future research in this area should focus on the specific management skills and organizational capabilities required to benefit from digital servitization to create isolating mechanisms and generate competitive advantage.

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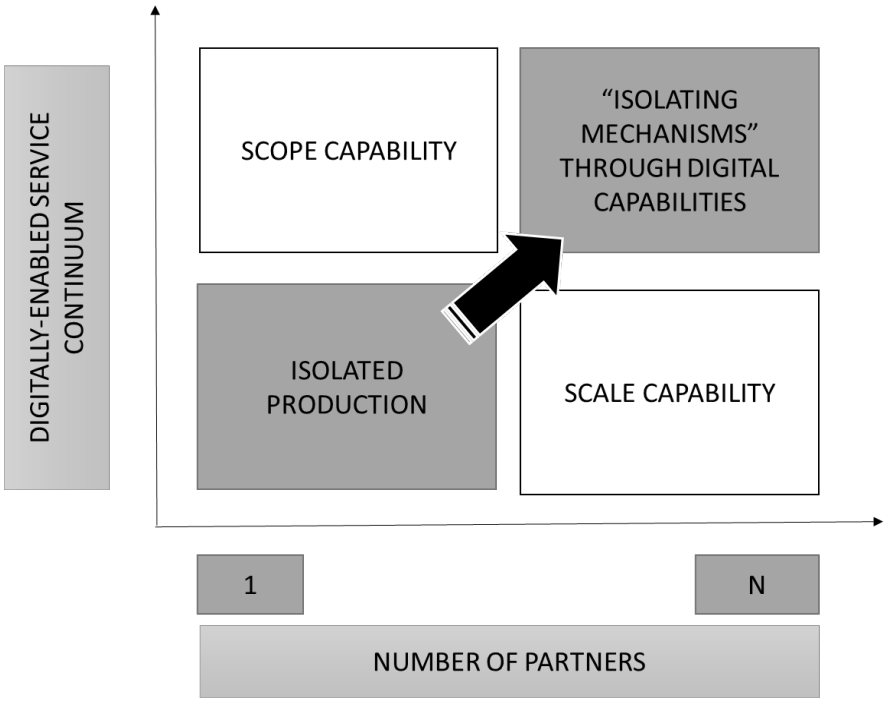

Figure 1. Covirán's isolating mechanisms through digital capabilities