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### Consumer goods

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## **Consumer goods: from mass consumption to servitization**

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### **Abstract**

This chapter draws on price discrimination and historical production models to build price and operations strategy typologies in manufacturing. Historically, manufacturing firms have been unable to find production models that achieve optimal price and operations strategies. For instance, craft production could possibly achieve optimal price discrimination (first-degree discrimination) but lower operational performance. In contrast, mass production dramatically improved operational performance simply by offering volume discounts to attract demand (second-degree discrimination) or segmentation (mass customization), which could only achieve third-degree price discrimination. However, this research presents a relatively new production model that can offer price and operational optimality jointly, i.e., the servitization of manufacturing. In servitization, manufacturing firms add services to foster closer and richer relationships with customers (front-end), and digital technologies to improve logistics and inventory management (back-end). Here it is argued that, by doing so, servitization enables first-degree price discrimination to be established via product customization, and production efficiency via built-in digital production facility and product capabilities.

**Keywords:** *servitization, consumer goods, price discrimination, operations strategies, industrial development, industrial policies.*

### **1. Introduction**

The transition from consuming goods to consuming services is a subject of great interest to academics and has been examined from various perspectives. The vast majority of management research traditionally adopts a manufacturing, and therefore goods-based, perspective (Lee et al., 2016). However, economies around the world have long reached the

age of service-driven economic growth. Services are now indisputably significant to economies, determine corporate and personal well-being, and are increasingly edging toward traditional goods consumption domains (Garcia Martin et al., 2019). As a result, consumption is increasingly shifting from mere goods-related transactions toward service-related transactions (Spring & Araujo, 2013). This development has recently been boosted by technological advancements and innovative production models enabling consumers to use material products via services without the need for ownership (Frank et al., 2019). The growing industrial concern about sustainability and the development of better practices of manufacturers has increased the servitization to compete by integrating technology and services to the firm's productivity, contributing to a needed development of the industry ecosystem (Opazo-Basaez et al., 2018).

Understanding how production has evolved so as to contribute to this transition is imperative. Its impact on modern history has been enormous, since it has given rise to the spread of goods and products across societies, countries and regions (Grundy, 2006). These models can be encapsulated by craft production, mass production, segmentation and servitization. Understanding their connections, strengths and weaknesses in historical and present-day contexts allows each model's significance to be interpreted in business scenarios (Argyres et al., 2020; Gomes et al., 2021). However, the integration of operations and price strategies, a model first introduced by Porter (1997), is not widely explored, and normally seen as separate. There are calls for the convergence of different strategic viewpoints or levels (Bailey et al., 2020). So, can industry combine these strategies with the transition from products to services in new production models?

The following chapter presents a review of operations and price strategies and their impact on business growth. The objective is to put forward a proposal for a framework that allows Porter's price strategies and production models to be integrated via operations strategies by using the servitization product model, which successfully combines operations (cost-efficiency) and pricing. This analysis will lead to conceptual discussions on how the evolution of different production models relates to demand, the market and therefore the consumer, and will raise questions that help to better understand the significance and relevance of such models at strategic historical points in the industrial development of firms. The research will also raise questions that will allow industry to expand its horizons, entailing important implications for practitioners and policymakers.

## **2. Theoretical Background**

### *2.1 Porter's competitive strategies*

Competition has driven industry to advance and innovate in different scenarios, and is caused, according to Porter, by two competencies: operations and price strategies (Grundy, 2006; Porter, 2008), which can build an ecosystem still under discussion in the academic community. Porter simplifies the description of strategic orientations by limiting it to cost leadership, differentiation, and market segmentation (or focus). Market segmentation is narrow in scope, while both cost leadership and differentiation are relatively broad in market scope, and increase the profit impact of strategies (Lavoie & Liu, 2007). Empirical research on profit impact indicates that firms with high market share are often profitable, but many firms with low market share have the same advantage (Hefley & Murphy, 2008). The least profitable firms are those with moderate market share.

This is sometimes referred to as the 'hole-in-the-middle' problem. Porter explains that firms with high market share are successful. Nevertheless, they have to pursue a pricing strategy. According to Porter, firms in-the-middle are less profitable because they do not have a viable generic strategy that is to combine the firm's product and cost (supply) with the characteristics of target market segments (demand) (Porter, 2008). However, different pricing strategy combinations, such as market segmentation with product differentiation, cannot be performed due to the potential conflict between cost minimization and the additional cost of value-added differentiation (Björkdahl & Holmén, 2013). According to Porter, an operations strategy is crucial so as to differentiate by placing emphasis on the efficient production of high volumes of standardized products so that the firm can possibly take advantage of economies of scale, and experience curve effects (Porter, 1997). The product is often essentially a no-frills product produced at relatively low cost and made available to extensive broad customer base (Grundy, 2006).

### *2.2 Price strategies as a way of competing*

Understanding and defining the main price strategies as a whole is an approach that academics have developed in recent research (Stole, 2007). Moreover, the studies show that most academics agree on defining price discrimination as one of the most common, effective and traditional actions that companies take when implementing market strategies for business growth (Grundey & Griesiene, 2011). Discrimination strategies have been developed in different dimensions of study, including; the financial dimension, whose main component is profit maximization; economic dimension, focusing on the market and its properties; and marketing dimension, where price discrimination definitions reside in the ability that

companies acquire to compete by means of price strategies in different markets with high or low segmentation (Ekelund, 1970). Table 1 shows the definitions accepted by the literature according to the above dimensions.

<INSERT TABLE 1>

Although these dimensions help to clarify the definition objectives set by different academics, their strategic implementation has led to a historical breakdown that enabling them to be shared and applied, cutting across different levels. The first level is first-degree price discrimination, whose aim is to differentiate price according to perceived value in a limited market, such as highly personalized luxury products with limited demand. Second-degree price discrimination strategies can lead to exponential business growth in global markets, with standardized products primarily aimed at mass purchase volume. They employ strategies such as discounts, enabling quicker inventory turnover. However, this sacrifices personalization for the sake of a wider market. Furthermore, these dimensions' third cross-cutting level is third-degree price discrimination, whose aim is business growth in markets with widespread segmentation. Table 2 summarizes first, second and third-degree price discrimination strategies in their academic dimensions.

<INSERT TABLE 2>

### *2.3 Operations strategies.*

Primarily studied by academics and industry itself, numerous production paradigms have emerged throughout history that have proven to be key in society's economic and industrial progress, However, four models have merged so as to lead product innovation and deliver to a market in need, namely craft production, mass production, segmentation and servitization. Their operations strategies can be broken down into three ecosystems: manufacturing, services, and product service-systems (PSS). The first model was craft production, the standard approach to manufacturing in the pre-industrialized world, centered around high quality, personalization and exclusiveness based on skilled manual labor (Solomon & Mathias, 2020). It does, however, entail a collateral effect. While the product may be of extremely high quality, exclusivity can be detrimental to a wider market.

A second model, called mass production, was therefore developed to create standard goods for a mass market, transforming businesses throughout the 20th century by concentrating their efforts on the undisputed emblem of industry, namely industrial efficiency (Hara et al., 2016; Hu, 2013). The fact that technological development focused on heavy

machinery and increasing the capacity of large firms to switch production rapidly from product to product (Meier et al., 2010; Zabihi et al., 2013) was one of the most discordant aspects of the mass production model. Hence, in the late 1970's segmentation emerged as a solution to mass production. The third model, mass customization, centers on growing consumer demands, whilst benefiting from global production by using the latest technology. It was brought about by several essential concepts and technologies, which include product-family architecture, reconfigurable manufacturing systems and delayed differentiation (Tomlinson, 2010).

While the goals of mass production and mass customization can be described as economies of scale and economies of scope, the consumer's role changes from that of "buyer" to "chooser," which calls for different approaches capable of yielding more responsive manufacturing systems (Stole, 2007). It is in this scenario that the four production models emerge. Servitization is determined by how the increased offering of more comprehensive market packages or 'bundles' of customer-focused combinations of goods, services, support, self-service and knowledge can add value to core product offerings (Vandermerwe & Rada, 1988). The literature has identified three general reasons for servitization: economic reasons, user needs and competitive reasons (Rabetino et al., 2021). The economic reasons include the pursuit of higher profit margins and income stability due to the services' resilience to economic cycles (Opazo- Basáez et al., 2019). Changes in user needs relates to the fact that consumers increasingly demand a variety of different services. In the B2B context, this involves focusing on core competencies, and is an additional reason for external services (Vendrell-Herrero & Wilson, 2017).

Servitization makes it economically advantageous for firms to extend the product's useful life, enabling constant revenue to be gained throughout the product life cycle, not simply from the specific transaction (Vendrell-Herrero et al., 2021a). The differences between manufacturing and service firms arise in relation to perishable, complex and multifunctional service activities. Becoming an industrial service provider is not, therefore, simply a question of offering adjustments, but rather an entire organizational change in focus of attention and managerial approach (Brax, 2005; Rajala et al., 2019). Vandermerwe and Rada describe the progression of how companies understand the servitization in industrial development by first considering the differentiation in goods or services, and then moving to offer goods combined with closely related services, and finally to a position where firms focused on the combinations of goods, services, support, self-service and knowledge.(Vandermerwe & Rada, 1988). Servitization offering calls for a new way of

thinking in relation to business strategy, business model and manufacturing model. Moreover, the company needs to broaden its definition of the value chain, shifting its focus from operational excellence to alliances with consumers (Kowalkowski et al., 2015). Table 3 shows the main operations strategies according to production model.

<INSERT TABLE 3>

### **3. Integrative Framework**

#### *3.1 Operations and price strategies*

Understanding how these dimensions are implicit in production model strategies is essential in order to understand the rise of servitization into the industrial development (Vandermerwe & Rada, 1988). Craft production possessed limited customer reach, as sales were mainly restricted to customers who discovered craft products at small local shops, and through a few other channels. Growth thus involved activities such as building more storefronts (Solomon & Mathias, 2020). However, two critical convening factors altered this landscape. First, technology dramatically changed the growth opportunities available to artisan entrepreneurs. The rise of online marketplaces and social media marketing provided artisan entrepreneurs with new channels to display their products to a wider market (Solomon & Mathias, 2020). Second, social movements fostered increased demand for handmade goods. The 21st century has ushered in a shift in consumer values, paving the way for the rise of an artisanal movement (i.e., makers). Hence, it is common to find first-degree price discrimination strategies based on personalization and high segmentation in craft production.

Companies expect exponential growth in this scenario, where mass production has historically had its greatest strengths, competing in small production and customization strategies in markets with homogeneous characteristics (Hu, 2013). Recent research shows that the mass production model has provided abundant access to mass consumer goods, without discriminating markets, needs, geographies or publics. Nevertheless, it has triggered heavy consumption and given rise to concepts such as fast fashion, planned obsolescence and other strategies to the detriment of product quality while, at the same, has increased production (Duguay et al., 1997; Raddats et al., 2016; Sabel & Zeitlin, 1985).

Be that as it may, today's world, and industrial firms' development is difficult to understand without the benefits of mass production related to its strategies for volume and availability and resulting accessibility to different markets. Many academic communities have spoken of concepts such as the democratization of consumption (Küçük, 2020), mass

consumer goods, and the rise of the global market (Bianchi & Labory, 2006; Coveri et al., 2020; Matyushok et al., 2021), recognizing that there would be no simplification of the supply chain and availability in different markets without mass production. However, it would always need strategies based on broader price ranges than those offered by craft-type models and would no longer rely on the product and its components for value. Thus, second-degree price discrimination emerged as a strategic complement to this mode of production (Cortiñas et al., 2019), whose main difference with the first degree was that it introduced volume, discount and promotion strategies. Hence, the connection between price, product and market entered into a previously unseen definition, namely the price war, where the value is not perceived in relation to the product but rather to the end price associated with the market (X. Wang et al., 2020). In this scenario, mass production reaches a zenith in terms of availability, production, and simplification.

By the time most companies fulfill their main objective of delivering mass consumer products to the global mass market, and the strategies associated with second-degree price discrimination contemplate new products within a standardized view of consumption, mass scale stagnation will not allow the firm to grow any further (Wang et al., 2020). Mass customization as a production model begins with clear product, price, and market differentiation. It is thus transmuted into what has subsequently been called mass customization, which develops product personalization within mass production (Hu, 2013). Traditionally, segmentation or customization production models use strategies that cover more markets with fewer products whilst maintaining its characteristics adapted to consumption, among other variables. Third-degree price discrimination then becomes the basis of many segmentation strategies. An example of the use of this price strategy in segmentation can be observed in technology firms, where companies such as Apple, Microsoft and Dell satisfy the needs of different markets and segments via a portfolio of limited, differentiated products which, to a lesser or greater extent, adapt to geographies and consumption trends accordingly. As mass production grows and more products are included in the portfolio, mass customization must not take over. There must also be noticeable market and consumer differentiation that enabling price discrimination based on outstanding value (Wang et al., 2017).

Recent investigations on the degree of price discrimination have revealed remarkable variations, due mainly to the entry of technologies enabling connections between individual or segmented markets at global level, such as social media, digital shopping channels, and digital banking (Cortiñas et al., 2019; Jenkinson, 2009; Stole, 2007; Vendrell-Herrero et al.,



2018). In addition, traditional production models are increasingly exposed to these technologies, giving rise to mixed models that challenge theoretical concepts and encourage the development of new strategies yet to be defined and appropriated. An example can be seen in Table 3, highlighting the most widely used price discrimination strategies in the past decade.

Nonetheless, the inclusion of new media and technologies evidenced the need for a new production model offering a broader spectrum of product and market competition (Gomes et al., 2021; Qi et al., 2020; Y. Wang et al., 2017). The paradigm of service as a product or as part of its portfolio has been worked separately in industrial development history. However, and for the advance of new business and production strategies, it requires a model whose center is not simply the beneficial relationship between the tangible and the consumer.

### *3.2 The value of servitization: the benefit of connected working*

Over the past two decades, academic and industry interest in services accompanying different manufacturing industries is growing and gathering constant momentum in the development and growth of different theories and fields (Qi et al., 2020; Sousa & da Silveira, 2019). As a theoretical concept, servitization has enabled industry and business portfolios to be increased, providing knowledge in business models and research that industry has yet to explore (Rabetino et al., 2017; Raddats et al., 2019; Vandermerwe & Rada, 1988). Some servitization experiences at global and local level have highlighted its potential, disentangling the elements shaping a product. These range from the different models involved in the product and its potential value to expertise gained by the roles and individuals developing the process into an industry focused on the pooling of experience, seen, for example, in knowledge-based business theory (Pistoni & Songini, 2017; Raddats et al., 2016). Servitization has created bridges between product, production and different roles, knowledge and experiences (Bustinza et al., 2018; Valtakoski, 2017).

In order to appreciate and comprehend how the servitization production model has evolved, it is essential to understand the role of service-dominant orientation (Valtakoski, 2017; Visnjic Kastalli & Van Looy, 2013). Nevertheless, whilst focusing on services, instead of integrating products and services, service-dominant orientation tends to ignore aspects relating to product development, competence, and pricing. Servitization overcomes this problem of integrating products and services via product servitization or service productization according to the situation (Bustinza et al., 2018; Opazo-Basaez et al., 2020).

For several academic researchers, understanding this competitive scenario proves key to understanding the rise of servitization as a production model (Luoto et al., 2017; Rabetino et al., 2021). Servitization adds value from the moment the service or product design is conceptualized and is engulfed in consumption by consumers and their context (Opazo-Basáez et al., 2021). Price differentiation and price discrimination degrees possess a dynamism in servitization that has been little used in other production models and, in some cases, is unthinkable (Vendrell-Herrero & Wilson, 2017). Thanks to its flexibility, enabling the integration of services with products and value, competition between firms has been transformed, to the extent, for example, of alliances being formed in specific processes requiring knowledge in order to gain track position in differentiation strategies. An example of this is how Spotify, a music streaming service, connects with other firms such as Facebook, Google, and Amazon to identify variables exogenous to its platform in order to build omnichannel profiles aimed at multimedia, virtual and face-to-face consumption of content. This would have previously been unthinkable in the music industry, whose segmentation was more limited to audio products (Jovanovic et al., 2021; Tian et al., 2021).

Servitization can therefore be a mechanism enabling firms to simultaneously deploy first-degree price and operations strategies based on the personalization and high segmentation of services and market-oriented products. Servitization prioritizes the consumer, adjusting production to more perceptive degrees of personalization than those used in the mass segmentation model. In this scenario, when first-degree price discrimination better exploits the benefits of flexible and personalized price strategies, servitization can be a bridge connecting dynamic technology and strategy upgrades with lower costs. Figure 1 presents the proposed framework, showing an evolution of the strategies in industrial development and how operations strategy can be connected with price strategies.

<INSERT FIGURE 1>

#### **4. Propositions**

The aim of this section is to further elaborate on our model by comparing historical production models and analyzing their dominance according to their degree of knowledge and integration in relation to demand. Initially, mass production and mass customization are compared, followed by mass customization and servitization.

Since its inception, mass production has been the model used by business and industry for constant growth (Y. Wang et al., 2017). The emergence of this model has led to a model

responding to the wider market needs of globalized demand. It has evolved with technological advances focusing on an infrastructure that is capable of maximizing profits whilst simplifying the value chain, and those forming part of it, throughout its performance (Qi et al., 2020; Sabel & Zeitlin, 1985). However, this model leads to sacrifices in quality and the perception of a homogeneous market, where competition between actors is reconciled in order to find differential value in second-degree price discrimination, which is based on volume and availability. Such competition in challenging scenarios lead to price wars whose differentiating value lies in discounts and its relationship with volume (X. Wang et al., 2020).

Historically, mass production has given rise to a revolution in how different products and materials associated with a portfolio are produced and distributed, and is always directed towards a single objective: responding to market demand (Sabel & Zeitlin, 1985). However, when advances in technology and the growing information and intelligence capabilities of firms are analyzed, substantial differences between mass production and the benefits of segmentation and personalization become evident in wider markets thanks to diversity and a differentiated product portfolio (Jenkinson, 2009; Stole, 2007). Additionally, production in the segmentation model produces smaller business portfolios since it is more efficient due to frequent trading with fewer demands.

An example can be seen in technology firms such as Apple, whose 1997 portfolio consisted of approximately 350 products, which later adopted a production model based on demand segmentation according to geo-referencing demographic and behavioral variables. This enabled regular consumers to be separated from expert consumers in more detailed market niches, resulting in just ten products in its portfolio in the same year. This led to a significant increase in revenue thanks to a better understanding of demand and an approach that brings about supply simplification by means of segmentation-based production models. In addition, the chance to innovate and develop products for new markets increases due to the fact that strategic efforts have focused on product innovation on a wider scale, unlike mass production. In relation to this behavior, the following proposition is put forward.

*P1. In a system where mass production and segmentation coexist, segmentation will, on average, outperform mass production if the firm understands demand.*

The mass customization production model enables specific market needs to be understood beyond the information provided by demand. This allows strategies associated with third-degree price discrimination to benefit from segmentation, such as pricing

according to recurrence, geographic location, demography, as well as other strategies (Fogliatto et al., 2012). Its strength lies in its high degree of differentiation between consumers in the same market. Today, there are various definitions of customization depending on angle marketing tool focus, cost efficiency and design solutions.

One of the mass customization model's many characteristics is that it is a marketing and manufacturing technique combining the flexibility and personalization of custom-made products with low unit costs associated with mass production (Jenkinson, 2009; Qi et al., 2020; Stole, 2007). Segmentation and customization-based products and strategies can be broken down into three categories: 1) mass personification where products are mass-produced but can be modified by the business to meet the consumer preferences identified via existing data on an individual; 2) mass customization or products that are mass-produced where consumers are offered limited customization options; and 3) customer requests are tailored from beginning to end in the creation of a unique product.

Recent studies show a relationship between the segmentation and servitization production models, fueled by strategies such as customization and personalization (Benedettini et al., 2015; Cortiñas et al., 2019; Donio et al., 2006; Stole, 2007). However, the results show that product innovation capability directly improves servitization. Although the direct effect of mass customization capability on servitization is not significant, it improves servitization indirectly by means of product innovation capability (Sousa & da Silveira, 2019). Segmentation models still focus on the product only according to personalization offerings and highly segmented market demands, thereby developing a specialized competitive offering.

Although third-degree price discrimination strategies lead to effective segmentation, industry's intense focus on making the product's business models profitable creates barriers and limits such strategies. Hence, servitization of the production model is required, where the focus is on the product-service relationship (Rabetino et al., 2021; Vandermerwe & Rada, 1988). Manufacturers face intense competition in global markets due to product commoditization, and modern manufacturing extends beyond tangible goods production (Opazo-Basaez et al., 2020; Sousa & da Silveira, 2019).

Service-oriented business models are currently seen as essential to industrial success. Therefore, integrating intangible services and tangible products has become a popular strategy for manufacturers to differentiate and gain a competitive edge. The fact that the servitization model benefits from digital technologies is an essential factor which can lead to improvement in operational efficiency due to customization associated with the product-

service relationship (Vendrell-Herrero et al., 2021b). Business models, known as platforms, offer different personalized or highly segmented products or services in order to engage consumers. Cases such as Uber and BlablaCar provide an example of operational effectiveness segmented by consumer needs, which may be the same consumer that has different needs associated with an equivalent service (Ranjbari et al., 2018).

Therefore, one of the main advantages identified in servitization is its ability to integrate not only product and service innovation, but also business growth strategies. Servitization combines operations strategies with price strategies, paving the way for growth in line with market and consumer demands. Previous research separated these strategic theories, however, the context in which servitization has been implemented has shown that both strategic models can be developed simultaneously. This context gives rise to the second proposition.

*P2. In a system where segmentation and servitization coexist, servitization will, on average, outperform segmentation if the firm jointly deploys operations and price strategies.*

## **5. Discussions and conclusions**

### *5.1 Academic implications*

This chapter puts forward a proposal to merge strategy and production management in the streams of literature by using a historical approach. To this end, the framework proposed combines dominant production models (e.g., craft, mass, segmentation and servitization) with price discrimination strategies (e.g., from first-degree to third-degree price discrimination). Moreover, servitization has in itself become a theory, a concept within the historical context of consumer goods, and now services, production (Rabetino et al., 2021). This research reveals that servitization is proving to be a return to craft/customized production, enabling first-degree price discrimination with cost-efficient production models. Mass production and segmentation use different forms of price discrimination to interact with demand, and achieve considerable cost reduction but lose consumer-based viewpoints in their decision-making (Stole, 2007).

The path has now been cleared for its theoretical development and has aroused the academic community's interest in production and its different models. It has allowed new theoretical grounds to be posited that broaden its horizons. The discussion surrounding servitization and other production models has given rise to constant debates on service monetization strategies, increasingly dynamic segmentation and hybrid business models, and has led to a re-examination of what is considered traditional mass consumption. Although

many of these models persist due to the development of strategies in digital, technological and global ecosystems, it is essential to recognize that the inclusion of services has brought about an increase and merging of flows that were previously seen in parallel rather than intertwined. The vision of mass consumption and how it is to be transformed into consumer demand for services has driven the ecosystem, industry and companies to seek new strategies that stand out in an increasingly segmented and global market.

### *5.2 Managerial implications*

Although production models and price discrimination strategies have been widely studied, the acceptance of new models has proven difficult over the years. The framework lends itself to both theories being merged. Moreover, the observation of servitization and its implication in industry as a model to produce products and services can be approached from different strategic fronts, not simply from the supply viewpoint. Servitization and how it benefits industry in a globalized and dynamic market enables new competitive strategies that add explicit value and encourage business growth in traditional markets in ways not previously approached from a holistic, consumer market point of view (Raddats et al., 2019).

Furthermore, the research community's vision could be broadened to include other dimensions, providing insights into current phenomena and historical events, such as the impact of new technologies, increasingly digitalized markets and supply chains that are mindful of sustainability and accessibility challenges facing local and global consumption.

### *5.3 Industrial policy implications*

Servitization has opened up a relationship between increasingly personalized, flexible and dynamic services and products combining high innovation, technology and digitalization. However, recent research has revealed certain sluggishness in the advancement of policies that contribute to business growth in highly industrialized regions (Labory & Bianchi, 2021). This chapter provides insight into the evolution of both the production models and growth strategies facing the market and demand. Industrial policy can benefit since servitization, by strengthening highly industrialized regions, facilitates the study of industry-oriented public policy and its relationship with the consumer in a dynamic context permeated by technology and digitalization (Vendrell-Herrero & Wilson, 2017). Industrial policymakers should stimulate regional servitization capacities so as to develop and transform industrial areas into highly competitive industries in dynamic markets (Bianchi & Labory, 2006).

By addressing this implication, the framework herein can benefit the current discussion on industrial policy by acknowledging the challenges and risks identified as external elements that make manufacturing growth difficult (Buckley et al., 2020). This study also contributes to the discussion on market regulation of industrial policy that provides protection when implementing servitized business models seeking practical orientation towards the market (Lafuente et al., 2019). Such regulation, which includes operations and price strategies, business models, competition, and market, will broaden current discussion in the academic community.

Servitization is at the centre of policymakers (Hojnik, 2016), and the creation of new regulations can benefit the industrial development of firms that already had chosen the servitization production model. Nevertheless, industries must be accompanied by a vision that recognizes its historical value, reviewing lessons learned and documenting the industrial history through the servitization lenses (Brax, 2005). While some sectors may fear and attempt to disregard servitization, it is unlikely that such attempts will yield substantial results (Bailey et al., 2019; Labory & Bianchi, 2021). It seems more constructive to embrace it as a developer working to the benefit of industrial development and economics in society.

#### *5.4 Avenues for further research.*

Although the study presents a summarized and accepted vision of widely investigated concepts, a detailed study of current dynamic phenomena in medium-sized and small production enterprises is required. Additionally, it is essential to note that service monetization is still a subject of debate by academics and business. Phenomena such as deservitization or the study of the impact of price-oriented strategies on business value chains are overwhelmed by the use of data unassociated with business growth. Data should relate to market evolution, as seen from the viewpoint of disciplines that have a substantial impact on the design and development of new strategies, and solid connections with product and service consumption. The framework proposed is a starting point to understanding the consumer impact and analyze the significance of production models and strategies in industrial development. A review of price discrimination strategies using market behavior variables would provide a predictive approach to demand, enabling businesses to concentrate their efforts on innovation.

It is hoped that this study facilitates linkages between seemingly distinct perspectives and sources of knowledge. Future researchers are urged to join forces across disciplines so as to

shed light on the nature of the transitional processes that guide goods consumption increasingly toward service consumption.

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## Tables and figures

*Table 1. Description of price discrimination strategies (a selection of dimensions)*

<i>Source</i>	<i>Description of price discrimination strategies</i>	<i>Dimension</i>
Philips (1985, p.5)	Price discrimination occurs when the same commodity is sold at different prices to different consumers.	Economic
Bishop and Colwell (1989)	One kind of behavior that is consistent with profit maximization is called price discrimination. Price discrimination is the practice of charging different buyers' different prices according to how responsive consumers of the particular good or service are to a change in its price.	Financial
OECD (2003)	Price discrimination occurs when customers in different market segments are charged different prices for the same good or service for reasons unrelated to costs. Price discrimination is effective only if customers cannot profitably re-sell the goods or services to other customers.	Financial
Dibb and Simkin (2004, p.159)	Price discrimination; a policy whereby different prices are charged in order to give a particular group of buyers a competitive edge. It is important that a marketer ascertains that such discrimination does not break any laws.	Marketing
Drake (2005, p.4)	Price discrimination is the practice of charging different consumers different (marginal) prices for the same economic good. These price differences cannot be explained by the difference in marginal cost of making the goods available for the various consumers.	Economic
Lancaster and Withey (2006, p. 153)	Segmented/differential pricing (price discrimination) – companies will often adjust their basic prices to allow for differences in customers, products, location, time/season and so on. Essentially, the company sells its products via two or more processes, even though price difference is not always based on cost differences. Often known as price discrimination, this approach to price adjustments can be very effective at maximizing demand and company revenue.	Marketing
Armstrong (2006, p.1)	In broad terms, it can be said that price discrimination exists when two “similar” products which have the same marginal cost to produce are sold by a firm at different prices	Financial
Farrell and Hartline (2008, p.247)	Price discrimination occurs when firms charge different customers different prices. Price discrimination is very common in business markets, where it typically occurs between different intermediaries in a supply chain. In general, price discrimination is illegal unless the price differential is based on the actual cost differences of selling products to one customer in relation to another.	Marketing
Mankiw (2009, p.326)	It has been assumed that monopolies charge all customers the same price. Yet, in many cases, firms sell the same good to different customers at different prices, even though the production costs for all customers are the same. This practice is called price discrimination.	Economic

*Source: Grundey, Griesiene (2011)*

*Table 2. Defining degrees of price discrimination according to dimension*

<b><i>Price discrimination degree</i></b>	<b><i>Financial definition</i></b>	<b><i>Marketing definition</i></b>	<b><i>Economic definition</i></b>
First-degree price discrimination	A different price for each customer depending on demand intensity.	Separating the entire market into each individual consumer and charges the price they are willing and able to pay.	Identical goods are sold at different prices to each individual consumer.
Second-degree price discrimination	The seller charges bulk buyers less.	Selling off product packages considered better value for money than previously published/advertised prices.	Charging lower prices for larger quantities. This degree also includes early-bird discounts.
Third-degree price discrimination	The seller charges different types of buyer's different amounts.	Charging different prices for the same product in different market segments. The market is usually divided in two ways: according to time or geography.	Results in the most sales in each segmented consumer "group".

*Source: Grundey, Griesiene (2011)*

Table 3. Operations strategies, benefits and challenges

<b>Benefits</b>			
<b>Operations strategies in craft production</b>	<b>Operations strategies in mass production models</b>	<b>Operations strategies in segmentation</b>	<b>Operations strategies in servitization</b>
<ul style="list-style-type: none"> <li>- Alignment of strategy and target market.</li> <li>- Clear definition of competitive priorities.</li> <li>- Focus on quality.</li> <li>- Service adaptation to market segments.</li> <li>- Hard to measure performance.</li> </ul>	<ul style="list-style-type: none"> <li>- Alignment of strategy and target market.</li> <li>- Clear definition of competitive priorities.</li> <li>- Focus on sets of competitive priorities.</li> <li>- Technology.</li> <li>- Environmental and social issues.</li> </ul>	<ul style="list-style-type: none"> <li>- Alignment of strategy and target market.</li> <li>- Focus on sets of competitive priorities.</li> <li>- Technology.</li> <li>- Good alignment with suppliers.</li> </ul>	<ul style="list-style-type: none"> <li>- Merging of operations strategies in manufacturing and services.</li> <li>- Intense focus on customer and human resources.</li> <li>- Good alignment with suppliers.</li> <li>- Cost efficiency.</li> </ul>
<b>Challenges</b>			
<ul style="list-style-type: none"> <li>– Appropriate technological choices.</li> <li>– Good alignment of competitive priorities, business strategies and operations strategies.</li> <li>– Strategic alignment with the target market.</li> <li>– Good alignment with suppliers.</li> <li>– Balancing the roles of manufacturing and services.</li> <li>– Financial risk</li> </ul>			



Figure 1. Framework for integrating operations and price strategies

