

Servitization meets sustainability

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ABSTRACT

Companies that have traditionally sold physical products have begun to increase “services” offered alongside the product. Sometimes businesses have even gone to the extreme of selling only the “benefit” of the physical good as a service, while retaining ownership of the service-supporting good, such as the Xerox copier in your office. This movement is frequently referred to as “servitization” (Baines et al. 2009), which is sometimes illustrated by the popular saying: “people don't want to buy a quarter-inch drill. They want a quarter-inch hole.” We argue that, with servitization, because the supplying company retain ownership of the physical good supporting the service provided, the company is incentivized to put increased efforts, from design to disposal of the physical good, into designing in processes that will maximize the value that can be recouped from the good after the end of its economic life. This would be consistent with efforts toward increased sustainability in supply chains. In the traditional transactional sale of physical goods companies does not have an incentive to make decisions aimed at keeping the value of the product throughout its economic life. Companies would not be interested in extending its economic life either, or even being concerned about how reusable, remanufacture-able, refurbish-able or recyclable the product is. This has implications for the level of environmental sustainability achieved.

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Introduction

For several decades, operations and marketing texts have differentiated services and goods along four characteristics: intangibility, heterogeneity, inseparability, and perishability. Recently, this distinction has been assailed by several authors as not useful for managing the production and delivery of services and goods, not to mention products that combine services and goods into a value package offered to customers. The forces driving the “New Economy” have intensified discussions about services and goods. The so called “new economy” is defined by *Investopedia.com* as “a buzzword describing new, high-growth industries that are on the cutting edge of technology and are the driving force of economic growth. The new economy is commonly believed to have started in the late 1990s, as high-tech tools, particularly the internet and increasingly powerful computers, made their way into the consumer and business marketplace. The new economy was seen as a shift from a manufacturing and commodity-based economy to one that used technology to create new products and services at a rate that the traditional manufacturing economy could not match.”

These forces include globalization and high technology, where the key outputs and productive assets are more intellectual (information and knowledge) than physical and are fundamentally reshaping operations management. Globally, the increased economic impact of the service sector is integral to the New Economy. The boundaries between services and goods are blurring, and products today are often characterized by bundled services and goods (Corrêa and Corrêa, 2017). Services and goods are frequently sold together in one single “value package,” so it is important to look at the combination of these services and goods as a unit both for practice and research. Thus, rather than attempt to better establish the differences between services and goods, academics (and practitioners who they try to support) should seek better ways to understand the management issues associated with bundled services and goods, or value packages.²

For example, traditional manufacturers of goods (such as car makers) are looking for ways to sell the benefit of their goods rather than the goods themselves. With the full development of autonomous self-driving cars, car

² See Corrêa et al. (2007) for further discussions about this topic.

manufacturers are already developing new business models where they would sell subscriptions for “transportation services.” Customers, thus, would not need to own their own vehicles, which would remain property of the manufacturers. Instead, they would buy a service “subscription” that would make transportation available to them whenever needed, provided by driverless vehicles. Xerox went this route decades ago with their copiers. Initially, Xerox offered to lease their copiers rather than to sell them. The natural follow up to that initial step was for Xerox to start selling the service of copying documents, where customers paid only for the copies made, through printing islands owned and operated by Xerox in large offices where Xerox and other companies offer services of copying documents to companies. GE’s jet engine division is another high visibility example. Around 15 years ago, GE moved from only selling their jet engines to aircraft manufacturers to offering airlines the service of “availability of thrust,” with GE maintaining the upkeep and ownership of the engines throughout their life cycle.

Thus, the ownership of the physical goods involved with servitization was not transferred from supplier to customer. Servitization has the potential of drastically affecting the decision-making of manufacturers throughout the whole life cycle of a product, from design through to disposal.

Financial incentives to “servitize”

From the viewpoint of the supplier, selling the benefit of the physical good (in the form of services) rather than the good itself has advantages: first, services are more difficult to copy and “reverse engineer” than actual products, thereby, having greater potential for sustainable competitive advantage (Prahalad and Hamel, 1990). Second, in contrast with the transactional nature of supplying goods, services are frequently offered under service-level agreements or contracts that have a duration or a term, which guarantees customer retention at least for that duration and therefore, higher profitability (according to Heskett et al., 1997, customer retention is an important driver of profitability). Third, services are usually less commoditized than goods (because of customer presence and contact), which can also lead to competitive differentiation and higher supplier profits.

Buying the benefits of a physical good rather than the good itself also has advantages for the customer buying the service: first, fixed costs of keeping physical assets turn into variable costs, since the customer just pays as the services are used. Second, customers can benefit from the expertise of the supplier (e.g. GE managing and upkeeping the jet engines they manufacture rather than the airlines doing it). Third, customers can focus on their core activities and nurture their core competencies (Prahalad and Hamel, 1990) without spreading themselves thin by managing a wide range of activities that are now performed by a servitized supplier.

Not surprisingly, many companies have begun to implement or are planning to “servitize” themselves.

However, the competitive and profitability-related benefits of servitization refer only to one aspect – profit – of the so-called “Triple Bottom Line, 3BL” (Profit-Planet-People) that companies pursuing sustainability are increasingly seeking to achieve (Elkington 1994, 1998). What has not been sufficiently analyzed in the literature and by practitioners alike is that servitization can also have a profound impact in making supply chains and companies more environmentally sustainable, therefore contributing to the second aspect – Planet – of the 3BL.

Servitization meets sustainability

Servitization provides a financial incentive for manufacturers to make more sustainable decisions, since there is typically no transfer of property of physical assets in transactions between companies, in relation to the design, operations and disposal of the service-supporting physical goods at the end of their lifecycle.

If a manufacturer merely sells physical goods to customers, the designers of the goods only have an incentive to minimize the cost of the components, raw materials, and production processes even if the products substantially lose value during their lifecycle. However, if the actual product remains the property of the manufacturer as with GE’s jet engines, the incentives change. Product and process designers, for instance, will seek to maximize the value that can be recouped from the good throughout and after its lifecycle. This involves designing a physical product and maintaining it

during operation in order to protect the viability of the product after its original lifecycle can be extended through reusing, refurbishing, remanufacturing and, recycling among other sustainable activities. Xerox, for instance, incorporates a number of “cradle-to-cradle” (Braungart and McDonough 2002) principles in the design of their copiers and processes to maximize the value recouped after copiers come back from customers for reuse/remanufacturing/ refurbishing/ recycling. They have used, for example, a more parsimonious palette of materials by reducing the number of different types of plastic used in their products from 500 to 50. They have designed their products to be upgraded, not just disposed of. They have used common platforms across products and principles of design-for-disassembly, design-for-maintainability, design-for-remanufacturing and design-for upcycling when planning and designing their products.

Upcycling (Braungart and McDonough 2002) goes one step farther than recycling in that sometimes when one recycles (for instance, by turning old PET (plastic) bottles into t-shirts) one may only be delaying the trip to the landfill (after all what to do when a PET t-shirt is totally worn-out?). Upcycling is recycling into the original material as when a new PET bottle is made out of 100 percent old PET bottles or new soda aluminum cans are made completely out of soda aluminum cans. Upcycling is therefore much more in tune with the needed transition into a “circular economy” (Murray et al. 2017) to achieve more sustainable practices. With upcycling and a circular economy, the extraction of virgin non-renewable raw materials from the environment is dramatically reduced as is the damaging practice of putting away used products into landfills.

Upcycling, furthermore, does not jeopardize the creation of new products, because materials can circulate indefinitely to support supply chains’ needs.

Discussion and conclusion

If actors in the supply chain (designers, manufacturers, distributors, users, among others) do not have the financial incentives to incorporate sustainability issues in their production plan, society will continue to be dependent on laws and regulations to force producers to focus on the extra

“P’s”: People and Planet of the triple bottom line. Unfortunately, given the slow pace (and sometimes pure inaction) of legislators and governments, legislatively-driven action will be slow, maybe slower than what is necessary to make sure that society’s use of natural resources today does not jeopardize future generations ability to fulfill their own needs (Brundtland Report, 1987).

Efforts of companies to reinvent themselves toward servitization have been discussed (Wandermerwe, Rada, 1998, Baines and Lightfoot, 2009), showing that there are competitive and financial advantages associated with servitization from the perspective of both the suppliers and customers. What needs to be better established, however, is the relationship between servitization and sustainability. Based on the examples of companies who have gone the route of servitization, there seems to be a worthy relationship between servitization and sustainability, because the relationship offers for decision makers to pursue sustainability AND financial benefits simultaneously. Further research is needed on the operational and strategic intricacies of the relationship between profits and sustainability in supply chains.

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