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Enablers and inhibitors of servitisation: a case study in the Brazilian road transport

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Abstract

Servitisation is a strategy for creating value through services in industrial business. This study investigates factors which either enable or inhibit service adoption in the Brazilian road transport. It analyses a case of servitisation embracing two companies (provider and customer), following a qualitative approach and collecting data through interviews from both perspectives. The TOE (Technology, Organisation and Environment) framework was employed to support data analysis. In conclusion, it can be stated that the technological factors are more relevant to providers than customers. Concerning the organisational factors, both sides reported challenges for setting the servitisation culture. For the environmental factors, it was noted that the status of the national economy affects the introduction of servitisation.

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Keywords: Servitisation; Advanced Services; PSS; Road Transport

1. Introduction

After the 80's, industrial companies have started to use services to improve value offered to customers and competitiveness [1]. This transition from an approach centred on physical goods to services is called servitisation [2]. Vandermerwe e Rada [3] define servitisation as an offer of a bundle of products, services, knowledge and assistance; which adds value to the core business. However, more recently, servitisation can be understood as a transition path that a manufacturing company needs to follow towards service-oriented business models [4,5].

The implementation of servitisation means a shift from products to product-service systems (PSS). According to Goedkoop et al. [6], PSS is a system that combines products and services to provide functionalities to customers and that can contribute to the reduction of environmental impacts [7,8]. The introduction of PSS involves the development of a business model that changes the company's focus from designing and selling physical products to creating a system capable of meeting specific customer needs through the combination of products and services. The adoption of this model is complex and can lead to changes in organisational structure, processes and culture [9].

There are examples of companies that have succeeded in servitisation, such as vehicle sharing [10,11], aircraft turbines [12] and photocopiers [13]. Nevertheless, there are other sectors with potential for servitisation. One example is the road transport sector, which involves changing the traditional truck sale for the transport service sale.

In the road cargo haulage, customers are moving from a concept of buying vehicles to a concept of buying the capability to perform operations. Indeed, they are demanding more sophisticated services and the benefits of vehicle usage, forcing truck manufacturers to offer product-services solutions rather than selling trucks. Therefore, this industry has been facing new challenges.

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The service business model related to transport already exists. In the British road transport, many vehicle producers have adopted service offers to achieve financial and operational goals [2]. In Brazil, there is a lack of information concerning service offers in road transport, although it represents 60% of the Brazilian transport [14]. It is evident that servitisation, especially when advanced services are involved, has been adopted contingently, which means that organisational, technological and contextual factors may influence its diffusion. Thus, it is important to study servitisation in specific contexts.

This paper addresses the Brazilian road transport, focusing on factors which can either enable or inhibit the introduction of servitisation in this sector. For this purpose, two leading companies involved in the same servitisation contract, but playing different roles (provider and customer), were investigated by semi-structured interviews. The goal was to capture different perspectives of the phenomenon.

The TOE (Technology, Organisation and Environment) framework was used to support data analysis. TOE presents a useful approach for investigating organisational innovations, therefore it can be used for analysing the introduction of a new business model like PSS, serving as a guideline for understanding changes, enablers and inhibitors.

2. Literature Review

2.1. Servitisation

Great attention has been given to the drivers of servitisation once its implementation can bring benefits for manufacturing companies and their customers. In general, some of the benefits for customers are improvements in financial, risk and asset management conditions, such as initial cost savings, transfers of fixed costs into predictable variable costs, and improvements in asset security and reliability. Other benefits for customers include the focus on their core competences, advanced technology adoption, access to associated skills and higher capital investment [12,15,16]. For providers, servitisation can promote economic benefits such as the facilitation of product sales, contribution to customer loyalty, creation of new revenue sources, smooth revenue streams, competitor lockout, product life-cycle extension and maximization of profit margins [17]. Moreover, servitisation can promote greater customer intimacy and access to new clients and markets [12,15,16,18]. At last, there is also the argument that, in some cases, PSS can reduce environmental impacts, once it leads to a less material-intensive value chain [19].

Furthermore, servitisation implies cultural, corporate and financial challenges. The definition of service strategies [20,21] and managerial implications in culture [22,23], organisational structure [24,25] and capabilities [17,26,27] are some examples of changes that a manufacturing company needs to make when adopting servitisation. Companies that invest in servitisation can incur in higher costs, but often do not yield the expected higher returns, which as known as Service Paradox [28].

Servitisation has resulted in organisations that offer complex packages of both product and service. In the PSS literature, Tukker [7]'s typology is one the most accepted and describes the main types of PSS that can be also seen as types of PSS business models [29,30]. In the product-oriented services (POS), the main component of the sale offering is the product complemented by services to ensure product functionality and durability. In the use-oriented services (UOS) business model, PSS provider keeps the product ownership and sells its function or use to the customer. At last, in the result-oriented services (ROS) business model, PSS provider delivers a solution, result or competence combining products, services and infrastructure rather than offering pure products or services. In ROS, the product ownership remains with PSS provider.

Another typology is proposed by Baines and Lightfoot [2]. It describes three main levels of service offer. In the first level (base services), the producer ensures product supply and the customer assistance. In the intermediary level, the focus lays on the appropriate product usage, maintenance and availability. Then, in the advanced services, the delivered product performance become the core business, leaving the physical good. Some features of the advanced services are: long term contracts, pay-per-use charging models, increase of producer's risks and responsibilities to ensure product availability, and close relationship between producer and customer. The offer of advanced services is implemented through result-oriented PSS. In this model, service maintenance, contract revisions and other customer services are linked to availability, reliability and performance of the assets involved [2].

2.2. TOE framework (Technology, Organisation and Environment)

Enablers and inhibitors of servitisation for manufacturers and their customers have been widely discussed in the literature [31]. Generally, they fall into three main categories: competitive issues, demand-based motivations and risks and economic conditions. Similarly, Baines et al. [17] propose a typology based on: strategic (competitive), marketing (demand-based) and financial (economic) enablers and inhibitors [32].

Considering that servitisation is an organisational innovation, it is possible to understand its enablers (drivers) and inhibitors (risks) using the TOE (Technology, Organisation, Environment) framework, proposed by Tornatzky and Fleischer [33]. Although, TOE was initially developed for technological innovations, it has a comprehensive approach for identifying factors shaping innovation adoption, and, therefore, can serve as a conceptual guideline to analysing organisational innovations.

In the original TOE framework, the technological context describes both the internal and external technologies relevant to a firm. The organisational context is related to several organisational characteristics: firm size and scope; centralisation, formalisation and complexity of managerial structure; quality of human resources; and the amount of slack resources available internally. The environmental context is the arena in which a company conducts its business [33]. In this paper, the technological factors deal with benefits and costs of technologies. The organizational factors are internal and can be managed by the company administration, such as: culture, strategy, capability, etc. The environmental factors cannot be