

Product-Service Systems across Life Cycle

Successful product-service strategies and managerial practices: a case study research of the Italian heavy truck assistance networks

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Abstract

Still very little is known about the adoption of servitization of heavy truck assistance network since, up to now, literature has been focusing on focal companies. The withstanding aim of this article is to understand, through a case study analysis, the peculiarities of successful heavy truck workshops, investigating the main elements of their business model (BM) strategies, management practices and manoeuvres that allowed them to achieve noteworthy valuable results. 19 workshops operating in the Italian heavy truck industry have been interviewed and managerial implications discussed according to the four main pillars of the BM Canvas proposed by Osterwalder.

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1. Introduction

The evolution towards product-service (PS) solutions is now considered to be the natural response of the modern industrial systems to market changes [1]. In the last decades this phenomenon, acknowledged as servitization of manufacturing, has been considered a powerful source of competitive advantage, particularly for manufacturing companies in developed economies [2]. However, if servitization emerged as necessary for the competitiveness of modern enterprises, it is not enough for the sustainability of the business anymore [3]. Many examples have shown that to achieve successful servitization strategies it is necessary to rethink the whole organization. In particular, literature underlines that such a transformation requires the involvement of the whole service network [4], since the sole use of company internal capabilities is not sufficient to offer comprehensive service solutions. Companies, hence, need to reorganize towards integrated structures in which all actors cooperate in an extended network [5], which consists of a

collection of upstream suppliers, downstream channels to markets and ancillary service providers.

The majority of studies in servitization has analysed how to design, manage, and coordinate PS offerings with the point of view of the focal firm, often neglecting the service ancillary firms perspective. On the contrary, in many industries, service activities are run by independent third-party providers, namely authorized repair workshops, spare parts wholesalers and retailers and customer centres, that act as suppliers of services in place of the focal company [6]. These players are generally Small and Medium Enterprises (SMEs), whose approach toward servitization has not been deeply investigated in literature. Indeed, the main researches refer to the servitization phenomenon limiting their analysis on large enterprises, characterized by suitable organizational structures, grounded skills and strong top management commitment [3]. Still very little is known about the adoption of servitization strategies in SMEs, as well as about the benefits and the challenges that such companies have to face while moving toward service-based business models (BMs).

Heavy truck industry has been experiencing a gradual transformation, shifting from a product-centric vision to a PS perspective. Moreover, this sector is undergoing years of deep crisis that has caused the failure of many service assistance workshops, usually SMEs characterized by lower availability of funds to afford such a heavy period. Nevertheless, data on the industry macro-dynamics pointed out that some of those service assistance workshops, contrary to the general trend, grasping the opportunities offered by the market, consolidated their leadership position and achieved successful financial performances, even far better than competitors' results.

This study aims at understanding the peculiarities of these successful heavy truck assistance workshops, investigating strategies and management practices that have allowed them to successfully embark the servitization journey, achieving noteworthy valuable results with respect to competition. To achieve this goal, best practices have been deeply investigated, according to the four main pillars of BM Canvas proposed by [7]. In particular, we firstly give an overview of the related literature of BM concept in section 2. Then, the followed methodology and data collected from the analysis of 19 case studies are presented in section 3, while a brief depiction of the heavy truck industry is described in section 4. Findings concerning strategies and managerial implications are presented in section 5. Finally, section 6 reports the conclusions together with the identification of limitations and possible further developments of the work.

2. Theoretical background

Literature underlined that “organisations have been servitizing in a gradual, organic and unstructured fashion” [8]. This evolution has forced companies to change their traditional perspective from a product-oriented business strategy to a customer oriented one, characterised by a strong connection, or better a continuum, between products and services [9]. This transformation has pushed manufacturers to conceive new customer value propositions, and consequently to revise their traditional BMs [10], re-designing their organisational principles, structures and processes [1], capabilities [11], metrics and incentives, to support the transition towards a PS business model.

Despite literature definitions about BM concept are various and heterogeneous and existing definitions diverge in terms of content, structure and perspective [12,13], basically a BM can be described as the method of doing business by which a company can generate revenue. Namely, it describes the rationale of how an organisation creates, delivers, distributes and captures value. [7] asserted that “a business model is a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams” [7].

Several frameworks, classifications, topologies and taxonomies have been proposed in literature in order to

provide a general reference on this concept [14]. Nevertheless, although PS business models have different descriptions in literature [15,16], several authors agree that a PS business model encompasses four main elements [17,18,19]:

1. The value proposition of the firm, also referred to as PS offering, indicates the bundle of products and services offered and represents the benefit for which the customer is willing to pay;
2. The infrastructure and network, such as the internal and external organisational structures, resources and capabilities, indicates how products and services can be produced and delivered to customers;
3. The relationship capital the firm creates and maintains with the customer, to generate sustainable revenues. It defines the target customers and distribution channels, determining how their products and services will be delivered and how to build strong relationships with the customers;
4. The financial aspects, which are transversal and can be found throughout three components, namely the cost structure and the revenue streams.

Basing on the former considerations, companies, such as heavy truck assistance workshops aiming at revising the BM towards a PS perspective, while maintaining sustainable and successful performances, need to reconfigure their organizations completely.

3. Selected industry

In recent years the economic crisis has devastated the entire chain of the heavy truck industry. For instance, between 2007 and 2013 Italy lost about 40% of goods moved by road [20]. Many logistics also moved their activities to countries with less taxes impact and lower cost of personnel.

These dynamics drove the vehicle registrations trend that, after a two-year stable period succeeding the 2009 breakdown, have showed a frightening negative trend in last years. Despite the weak signs of recovery in the first quarter of 2015, compared to the same period of 2014 [20], the registration level achieved last year (just a little more than 12,000 units) well reflects the seriousness of the crisis in the sector. Moreover, the registrations drop, and the related decrease of the national fleet, has affected the strategies of sales and after-sales networks, leading to a collapse of the mandates (-43%) and retails (-39%), between 2009 and 2015 [21]. As a result, there has been a progressive reduction of the after-sales service activities, which affected all major heavy truck brands.

In addition, the economic crisis has changed the attitude of many customers towards service activities. In particular, vehicle maintenance, now considered more expensive and less accessible, tends to be postponed or replaced with "do-it-yourself" arrangements. Indeed, customers reach the workshop only in case of huge failures and necessary repairs. This obviously reflects in extremely negative consequences on revenues and margins of the assistance workshops.

Nevertheless, some companies have consolidated their

leadership position, maintaining or even improving their competitiveness. These companies have been able to generate sustainable sales revenues over time, above the industry average and high profitability due to cost-containment policies.

4. Data analysis and methodology

Case studies methods are required to provide detailed descriptions of a phenomenon, to test the reliability of a theory and for theory generation [22,23]. In this research, the case study methodology has been followed to analyse the best Italian assistance operators in the heavy truck industry, investigating their characteristics and managerial tools.

A kick-off meeting with top senior service managers of the 7 heavy truck most important focal companies operating in the Italian market was held at the beginning of the research project to identify the best performer assistance workshops and to develop the case study research path. In particular:

- A preliminary sample of about 70 workshops (10 for each focal company) was created based on suggestions given by each manager involved;
- A list of strategic, organizational and financial KPIs was identified;
- A case study protocol was developed in order to increase the reliability of the research and to lead the collection of the data for all the duration of the study [23].

The preliminary sample was then evaluated according to KPIs identified previously. The best 3 workshops, in terms of competitive position, financial performances, customer satisfaction and process efficiency, belonging to each focal company were contacted and asked to join the research. 19 companies, out of 21, agreed to be interviewed. The interviews were conducted by three researchers between May 2015 and July 2015 and lasted from a minimum of 1 hour to a maximum of 3 hours. A total of 29 people were interviewed: 10 CEOs, 5 general directors of the company, 5 after-sales service managers, 5 selling managers and 4 administrative managers. 17 out of 29 were company holders or associates.

The interviews were both semi-structured and open-ended to let interviewees talk freely regarding their company, so that additional relevant factors that researchers had not being considered by the research team could emerge. Questions were carried out in six main groups, concerning:

- Company strategy;
- Process organization;
- Product and service portfolio configuration;
- Customer relationship management;
- After-sales service strategies;
- Performance measurement and control.

All interviews took place face-to-face and 27 out of 29 were recorded. Then, the conversations were transcribed and the responses were grouped into themes and sub-themes in order to generate a “thematic map”, which was used to develop a coding frame. In particular, each of the three researchers independently performed the coding and the

results were then matched together. Coded responses are available upon request.

According to the industry trend, all the interviewed companies are SMEs. In particular, 32% of the sample consists of medium-size companies, 58% of small-size and 11% of micro-size companies operating throughout the Italian territory: 14 in the North, 3 in the Centre and 2 in the South of Italy. Moreover, most of the interviewed are family-owned business.

5. Findings

From the survey it emerged that top performers’ activities present several commonalities, which can be summed up in six main topics: 1) growth and development supported by a solid financial structure, 2) diversification of the offering, 3) trustful relationships, 4) people, processes and partnerships handled in a managerial way, 5) clear management, shared and coordinated through the delegation principle, 6) integrated measuring systems.

5.1. Growth and development supported by a solid financial structure

“Our group owes its success both to the territorial expansion and to the internal change pursued over years. First, it is necessary to strengthen the internal structures of the company [...] however, consolidating is not sufficient anymore. Today we have to look forward towards the progress”.

“The network has been fundamental for the growth of our business [...] we rely on insurance companies and leasing, on tire specialists and spare parts retailers”.

The development is based both on the internal growth, by offering new services and increasing competencies and scope economies, as well as on the external growth, through mergers and acquisition of outer actors, rather than strengthening the network of alliances.

“The market is mature and no new entrepreneurs enter the industry. Resists who has been consolidated over time, who have a stable capital and financial structure”.

In an industry where firms’ debt/equity ratio is generally high, top performer financial structure, on the contrary, mainly leverages on equity. Indeed, top performers grow in terms of investments and revenues thanks to a solid financial structure. A sustainable financial position, indeed, emerged as crucial, since it grants the necessary resources to implement manoeuvres that increase the efficiency and the effectiveness of existing activities. Moreover, a solid financial position enables companies to invest in innovation as well as to strengthen the existing organizational structure. In particular, growth occurs maintaining the level of debt constant and restrained, thanks to an adequate supply of equity.

5.2. Diversification of the offering

“Diversification revealed to be a winning strategy to saturate the workshop activities”.

In mature markets as heavy trucks, characterized by fragmented demand and diversified customers' needs, it is necessary to think up new ways to increase the critical mass of the business. It is therefore appropriate to adopt diversification strategies of both products and the services. Comprehensive service solutions, tailored according to the vehicle characteristics and to customers' needs, and designed to build long-time relationships emerged as winning solutions.

“The secret is to offer a complete service in one act to reduce the vehicle downtime [...] tailored solutions according to the vehicle characteristics and to the needs of our customers”.

Best performers not only propose solutions for product support, but also for the guide and the driver, to enhance more stable relationships with the customer. Diversification strategies not only concern the truck industry, but they are also addressed to complementary or even new businesses.

“Diversification on parallel business can be considered a further chance to deal with the crisis”.

Indeed, best performers exploit the potential offered by the territory operating also in sectors that are different by the automotive, but which require similar technical skills and equipment, as in the case of the sectors of naval engines or cogeneration. In this way it is possible to increase the critical mass and to fill the production capacity by exploiting resources and expertise that already exist in the company.

5.3. Trustful relationships

Successful companies are able to exploit information taken from the field and then develop customized pricing policies according to the different components of value for customers.

“Among the different market analyses, we leverage also on geo-marketing, which is very important for understanding both manned and unmanned areas”.

Best performers also implement communication and promotion policies tailored for the selected targets and the channels.

“We use different communication channels in order to reach different customers' categories [...] prices are different according to the type of customer served”.

All service strategies are supported by win-win relationships with customers because *“only by establishing mutual trust relationships based on transparency of both the service provider and the customer we can both get winning results!”*

To increase customer loyalty, best performers adopt technological arrangements that make working processes more visible and controllable, for example the use of cameras positioned inside the workshop, or rethinking the acceptance and diagnosis process to avoid untrue estimates. The customer, on the other hand, is required to severely respect contract terms and conditions (such as payment deadlines), otherwise the entire network will be advised and the transgressor excluded from the coterie of virtuous customers.

5.4. People, processes and partnerships handled in a managerial way

“The decision-making process is short, the structure is lean, centralized, with few unproductive units”.

Task flexibility and method standardization are two key elements for increasing process efficiency. Through long and short-term decisions best performers aim at increasing the production capacity as well as simplifying the organizational structure, in which roles and responsibilities are defined and objectives are clear and shared among all workers.

“To have a sustainable business we had to merge some back-office activities, while the interface with customers requires decentralization. In this way, we lost efficiency but we gained more in efficacy!”

Internal synergies and collaborations with the other network players is a key element of success. In particular, the best performing companies adapt their internal and networking structure to achieve processes efficiency, centralizing coordination and back-office activities, and service effectiveness, decentralizing front-office key processes. The latter are sometimes delegated to strategic partners, so that each customer can be “hooked” on several fronts simultaneously. Moreover, synergies are supported by the use of appropriate managerial tools for the internal coordination and for the integrated control of the whole network. Indeed, best performer affirmed that:

“It is important to have sophisticated computer systems, software for business analysis and CRM for customer profiling and product configuration. We are also integrated with the operating system of some partners to facilitate our planning and the integrate control of the process”.

5.5. Clear management, shared and coordinated through the delegation principle

“Each one has its role within the organization [...] roles, tasks and responsibilities are well defined”. “Objectives are formalized to involve all employees and create a sense of group identity”.

The research deeply highlights the importance of having clearly defined roles and responsibilities within the organization, as well as shared goals supported by

management systems and appropriate incentive policies. Objectives are shared and formalized also to increase affinity and group identity. In best performing companies, indeed, all employees are involved with very different methods to encourage the right motivation. Internal and external resources work in a coordinated way, by sharing expertise and establishing mutual trust relationship between the parties.

“We have to collaborate with workshops and, if necessary, also with competitors”.

Thus, sometimes even competitors are involved in a competition perspective, exploiting their excellence in specific areas and delegating more operational tasks, to focus on a more strategic and coordination role. Therefore, extended highly collaborative networks emerged, where technical skills are important and organizational and strategic capabilities are fundamental.

“We mainly look for people with relational and management skills. Technical competencies developed while working!” and “The constant personnel training has always been one of the reasons of our success. It is essential to offer quality services”.

5.6. Integrated measuring systems

A fundamental element for competitiveness is the construction of an integrated system for measuring business performances.

“It is essential to monitor company performances. We measure them at least weekly”.

Top performers implement formal systems for planning and control their internal results and to monitor the performances of the downstream and upstream service chains. To ensure a consistent performance monitoring, integrated IT devices are adopted to support these systems. Moreover, best assistant workshops not only draft a business plan or an annual report, but periodically draw up various types of analysis and accurate forecasts *“(…) including budget analysis, monitoring of economic and financial ratios as well as several different KPIs that are easy to control and communicate”.*

In particular, the main areas of analysis and assessment concern revenue and gross sales, customers' satisfaction and loyalty, production capacity saturation, operational efficiency, service quality level, internal and response time, innovation and human resources skills. In addition, results are systematically measured on several levels, from strategic to operational, and are constantly monitored monthly, weekly and sometimes even every day.

5.7. Final considerations

The presented considerations highlights that, apart from the specific peculiarities of each single operator, best performers in the heavy truck industry are characterized by some

common characteristics concerning their PS business models, which can be summarized in ten lessons learnt:

1. Consolidating and (re)structuring of the company, strengthening the financial structure for a continuous improvement of the existing business;
2. Growing both internally and externally, innovating the business model to create, maintain and develop the competitive advantage;
3. Diversifying the offer by extending activities into complementary or new businesses;
4. Offering integrated product-service solutions, which should be “all inclusive”, customized and continuous to create long-term relationships with customers;
5. Gaining customers' trust by adopting responsible marketing and communication strategies, which should be transparent and designed based on customers' peculiarities;
6. Understanding the real customers needs using appropriate market analysis and then adopting customized trade and pricing policies;
7. Simplifying processes and organization to increase efficiency by exploiting synergies within the company and outside the network;
8. Creating cross-functional working groups empowered on common goals;
9. Building extended networks managed by adequate information systems and managerial support to ensure integrated and quality solutions;
10. Constantly monitoring performances using specific indicators for each area and sharing business performances with all the players involved.

6. Conclusions

Heavy truck assistance network, that generally consists of SMEs with low funding capacity and limited organizational structures and managerial principles, is undergoing a gradual transformation, shifting from a product-centric vision towards a product-service BM perspective. Despite the widespread economic crisis that has highly damaged the industry, some operators not only endured, but also increased their profit, achieving economic and financial results far better than their competitors. According to these considerations, this paper investigated the best practices behind Italian best performer assistance workshops of the heavy truck industry. Results derived by a research that involved 19 workshops underlined that, differently by the typical peculiarities of SMEs, the best performers are characterized by funding capacity, suitable organizational structures, grounded skills and strong top management commitment. Moreover, such successful companies demonstrate the ability of combining entrepreneurial and managerial skills. Beside the typical ability of the entrepreneur to anticipate the behaviour of the market, it is appropriate to have proper management, organizational and financial competences. In particular, the top management that leads the company shows entrepreneurship, managerial and leadership qualities at the

same time. Entrepreneurial and managerial practices could be an interesting starting point to deepen best performer analysis, as well as extend the discussion concerning family-owned firm characteristics. Indeed, the research highlighted that the interviewed companies are almost all family business of first, second or even third generation. Consequently, they all show the typical advantages of family firms, as well as the traditional disadvantages. However, from the survey it emerged that successful workshops are able to limit weaknesses and empower strengths. Indeed, some of the most benefits found in the interviewed companies are: clarity in the direction to follow, long-term orientation, strong brand identity. The winning feature of these companies has to be found in the strong identification of the owner with the firm and in their typical organizational culture. Moreover, trustful relationships, the loyalty and the motivation of human resources sustain the performances of the company, ensured over time thanks to the personal relationship that the entrepreneur is able to establish with customers and with all other stakeholders. It also emerged that the following generations, although they recognize and strongly support the past company values, are able to reinterpret and adapt them according to future perspectives, considering the present context and the current dynamics. In this way, top performers can ensure a sustainable development of the entire business.

Finally, being the lessons learnt related to the business model components, it emerged they are interdependent, meaning that the effectiveness of the whole is likely to be conditioned to the effectiveness of the single one. Hence, further developments may be related to the investigation of their cause-effect relationships.

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