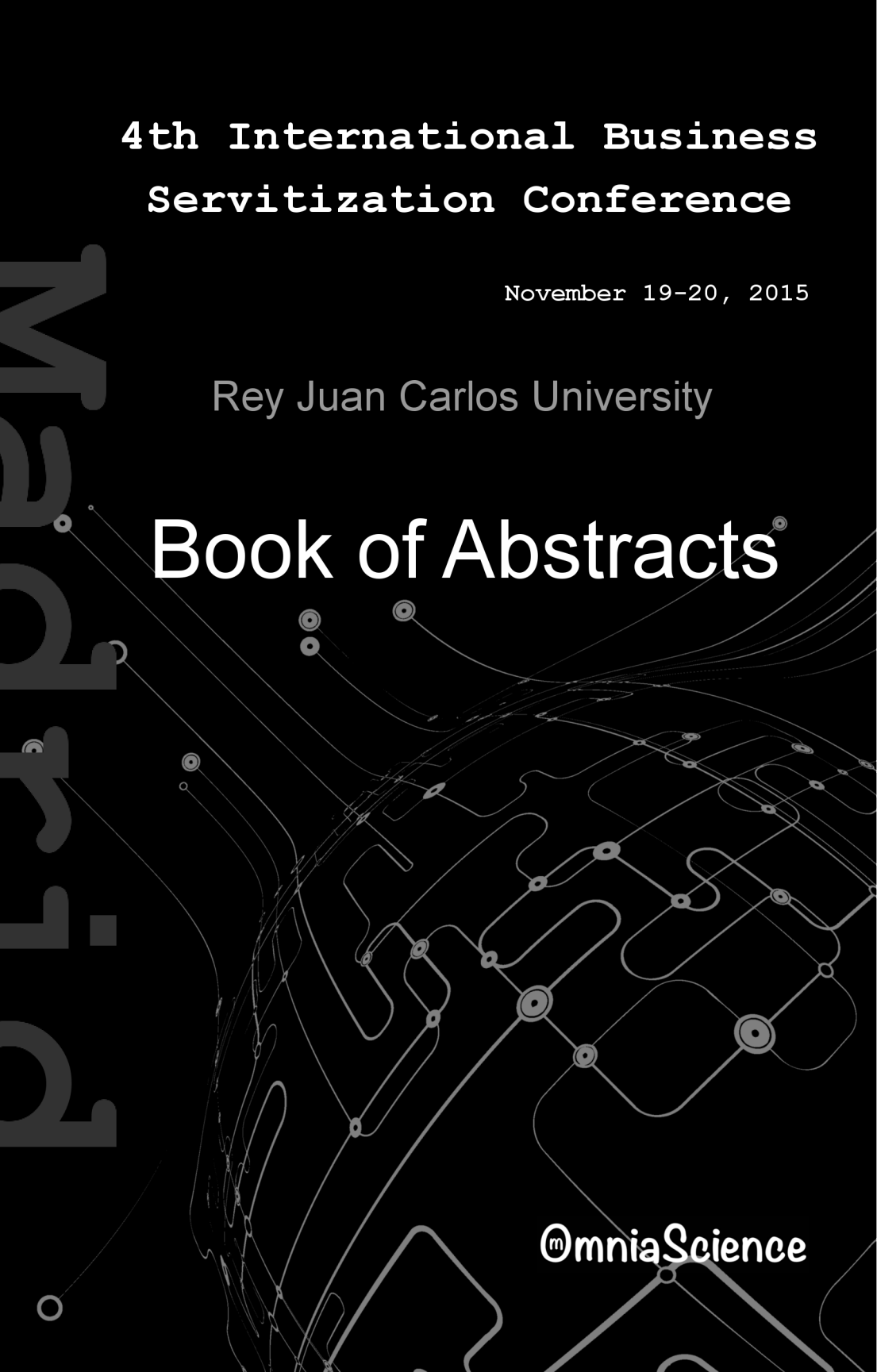
4th International Business Servitization Conference

November 19-20, 2015

Rey Juan Carlos University

Book of Abstracts



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Foreword

4th International Business Servitization Conference

The 4th International Conference on Business Servitization (ICBS) celebrated on 19-20 November 2015 at Rey Juan Carlos University (Madrid, Spain).

In this fourth edition of the conference, following the success of previous editions, we have been happy to provide the scientific community related to the topic of servitization, with a meeting place to share advances in research. The 4th edition had as overarching theme: "***Servitization: strategy, innovation and impact***", and the day-and-a-half programme attracted different participants. It was presented 35 papers by 78 authors from 9 different countries.

As keynotes, the conference counted with the presence of, Professor Gebauer, who is a recognized author in the field of servitization; Leopoldo Maestu (from ALSTOM group), with broad experience in processes of servitization, and Elisa Martin (from IBM), as example of a company which has developed servitization and provides services to other companies.

We also counted with the presence of a number of managers, who I´m sure found the subject very interesting and useful for their organizations. It is very positive to share our research with them.

There were two special issues linked to the conference, in the form of open call in recognized journals, International Journal of Production Economics and Universia Business Review. The guest

editors of the special issues were present in the conference, and the authors could to discuss with them and seek guidance to improve their papers.

We are confident this book of abstract will be very interesting for all researchers interested in the topic of servitization. The conference inherits the current research of international academic community on the emerging field of servitization, which not only focus on the theoretic developments, but also pay attention to practical applications of the methods and techniques. Through this conference, participants shared the latest research findings and practical experiences and exchanged their innovative ideas.

The 4 th edition of the International Conference on Business Servitization has allowed to bring together the scientific community of servitization and has provided important contributions that will be published in soon in prestigious journals.

I would like to thank the excellent work of the organizing committee to helping make the 4 th ICBS such a success.

María Luz Martín Peña

Conference Chair

Organizing Committee

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ABSTRACT INDEX

ABSTRACTS OF PAPERS

PRESENTED AT

4TH INTERNATIONAL BUSINESS SERVITIZATION CONFERENCE

Servitization for enterpreneurs: Exploring the synergies between new KIBS and new manufactureres in Spanish regions

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Abstract

In addition to product offering, the provision of advanced services is of growing importance for manufacturing businesses to maintain competitive advantage, a phenomenon best known as servitization. Mainstream literature on servitization follows qualitative approaches and describes the success of manufacturing companies in integrating services with their corporate clients. However, literature is still silent on when and how new manufacturing companies, those that cannot internalize service offering, generate these services through Knowledge Intensive Business Service firms (KIBS). This research contributes to this literature stream by exploring how policy instruments mediate the relationship between KIBS and employment creation in new manufacturing businesses. The study uses multiple data sources to enhance estimation accuracy. First, the knowledge-intensive orientation of territories and the average employment of new manufacturing firms at the regional level were obtained from the Global Entrepreneurship Monitor (GEM) datasets, which comprises information for more than 176,000 observations between 2006 and 2012. Second, data on industry characteristics—in our case, stock of manufacturing firms and total number of freights transported—were obtained from Eurostat databases. Third, macroeconomic variables were obtained

from the Spanish Institute of Statistics. Our results strongly suggest that building a rich and diverse manufacturing business environment and appropriate infrastructures originate a regional virtuous circle, fueling the creation of KIBS and employment in new manufacturing firms. The work offers implications for academics, policy makers and practitioners.

Keywords: Servitization, KIBS, new manufacturing businesses, industry configuration.

JEL classification: L26, L8, M2

Challenges and opportunities for servitization in the machine tool industry in the era of industry 4.0

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Abstract

The machine tool industry is a knowledge- and technology-intensive sector, which relies on substantial R&D activity. The sector has a direct impact on and relevance for multiple sectors, as its output forms an enabler for myriad downstream industrial activities to take place, while also contributing to the latter's productivity levels and competitiveness. In the last decade, the machine-building industry has become exposed to increasing demands to go along with the paradigm shift from mass-production to mass-customization.

While global players from emerging countries competed largely on the basis of cost in the past, many of them have meanwhile reached high levels of technological capabilities. Against this backdrop, the Chinese government has announced an action plan called Made in China 2025 to transform and upgrade the country's manufacturing industry and become the world's leading industrial power. Mature economies have also launched strategic programs to (re)vitalize their industries, such as Industrie 4.0 in Germany and Industrial Internet in United States, to lead the transformation towards the smart factory of the future. Within this context, information and communication technologies, such as cloud computing, big data and visual analytics, are seen as value drivers for sustainable innovations in industry. Increasingly, innovations based on traditional product enhancements are not sufficiently attractive to differentiate from competitors or to increase customer loyalty. Instead, machine tool manufacturers have to find additional solutions to take advantage of their huge technical know-how and human capabilities in order to survive in a globalised economy.

Providing high added value services related to smart products is a way to achieve this, and proponents of an industrial renaissance for Europe insist frequently on the need for European manufacturers to take this into their stride. Consequently, there is a growing movement that advocates in favour of a shift of a product-dominant to a service-dominant logic within industrial firms. This shift is often referred to as "servitization". Also in the machine tool industry, servitization is a concept that is seen as a strategic approach to create value through a smart product-service offering.

The aim of this research is to explain how knowledge engineering systems, based on information with regard to processes in which machine tools are deployed, can add value to the product-service offering of a machine tool manufacturer amidst an increasing global competitive pressure in the marketplace.

Based on action research techniques within the context of the company Etxe-Tar (machine building enterprise from Elgoibar, Spain, whose machines are installed a.o. in final assembly plants of automotive OEMs), findings show that first, there are important technological challenges regarding the type of data needed to correctly and efficiently describe the machining process, which directly affects the design and configuration of the data capture system to be developed. Additionally, to correctly describe the machining process, it is a key aspect to understand not only the tool-tip behaviour i.e. vibration, forces, speed, jerk, etc., but also its relation with context variables like lubricant viscosity and temperature, shop floor temperature, operator inputs, etc. In order to apply data analytics to give valuable information to the user, the first step is to develop robust data acquisition systems with high integration capabilities with new and legacy machine architectures. Second, human resources in operational functions need to take on new roles as manufacturing knowledge managers and decision-makers supporting customers in their operations and helping them to achieve better performances. Third, machine tool manufacturers have to take on a more pro-active attitude towards smart service development and involve the whole company to ensure that a corresponding value proposition can be created and delivered to the client. This also implies that mechanical, electrical or hydraulic engineers have to follow suit and start designing for services instead

of delivering over-engineered machines. Network infrastructure, service engineering, and effective communication channels are thus required to ensure an appropriate information flow and knowledge exchange between agents at different levels of the organization. Moreover, manufacturers have to find ways to improve the perception of the added value provided to the customer and give visibility to the profitability of the services to be marketed.

Opportunities appear related to the deep knowledge of product performance and manufacturing conditions. Machining information gathered at the client's work floor can be used to enhance the design and performance of its machine tools and their components. Similarly, monitoring activity allows machine manufacturers to produce optimized spare parts, upgrade existing components and provide ad hoc predictive maintenance solutions for each installed machine in order to increase machine availability, reduce unexpected down times and save maintenance costs. User experience and interactions with the machine can be monitored and analysed for a deeper understanding of the usage of the machine in customer's shop floor. Moreover, with the insights from monitoring client operations; machine manufacturers can give advice on best operational practices and provide adaptive training based on identified skills gaps. Furthermore, machine manufacturers can capture data from similar machines operating word-wide under different conditions and homogenised customer's machine performances in its production sites. Having information about machining performance, human interactions and maintenance interventions during the whole lifecycle they can provide comparisons across the entire fleet and support customers to achieve optimal production results.

Our findings allow us to postulate that machine manufacturers who are able to exploit manufacturing knowledge have a significant advantage to adapt to customer needs and can co-create value for them more effectively and more rapidly than players who do not servitize or focus solely on cost of product/machine. Consequently, machine builders that transit towards smart services stand a better chance to transform into an agile partner rather than being a mere equipment supplier. Consequently, we conclude that servitization in

the era of Industry 4.0 can function as a lever for competitiveness and positioning in value chains on behalf of machine building firms.

Keywords: machine tool; Industry 4.0; servitization; machine knowledge as a service; manufacturing.

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The dematerialization of information in today's companies and servitization impact on the office printing industry

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Abstract

Introduction: The transformations in the office printing industry (also known as the photocopier industry) have been occurring at a galloping pace, it is a fact that since the Second World War to the present day the evolution was remarkably greater than in the five centuries that preceded Gutenberg's invention.

The emergence of new digital technologies and its accessibility to the business and society in general commoditize products that once were premium. On the other hand, the de-materialization of information became more and more a standard process in today's companies, this is mainly due to cost reduction, environmental reasons, document size, archive, retrieval and others. This change of behaviour had a strong impact in this industry, as a result there has been a paradigm shift from goods centric to service centric.

These changes heavily impacted manufacturing companies of office printing equipment that dominated the market and posed a threat to their revenue streams, market share and profits. In this new environment and in order to retain customers and markets, the strategy followed by such companies is to gradually change their portfolio and offer services instead of products, this will reveal in the medium long term new business characteristics to the office printing industry.

This paper is focused on office printing market evolution and the changes in organizations behaviour that led to the change of paradigm from product to service in the office printing industry.

Ulaga and Loveland (2013) believe that although service is becoming a strategic value in competitive and commoditized markets, companies often encounter problems when orienting their industrial sales forces toward these new organizational objectives.

The evolution to services brought to the literature new nomenclatures. Servitization, the terminology advanced by Spring and Araujo (2009) to characterize the transition from a production base to the introduction of integrated solutions and the proposal of new services (Vandermerwe & Rada; Neel, Spring & Araujo, 2009). Servitization is now widely recognized as the innovation of a manufacturer's capabilities and processes to move from selling products to selling integrated products-service offerings that deliver value in use (Baines et al., 2009).

When looking to the office printing industry in particular, McCormack (2011) shares the testimony of Andy Jones, director of Xerox Global Services, where he declares that on the last thirty years, there has been a significant change on how people use printers and paper, as a result new behaviours occurred in people, resulting, as well in new trends within companies. For Visitin (2014) the photocopier industry is for sure one the most active in terms of servitization.

Methodology: Being the subject novice to the academia, the authors started with a series of in depth interviews to some of the major players in the market. At customer side the target companies are references in terms of dematerialization processes, they were also ranked by different types sector of activity, for this case they are: Industry, Services, Trade, Health, Government and Education. Two objectives followed these interviews:

1- Test the following variables:

a) Motivational / Drivers that leveraged the dematerialization process;

b) Position towards the competition;

c) Projected imaged to the market;

d) Economic / Financial gains;

e) Impact on Human Resources;

2- Design the questionnaire to be sent to a sample of customers in diverse sectors of activity.

As for the industry, one in depth interview was carried out with a larger manufacturer in the photocopier industry, again with the same objectives for the interview:

1. Test the following variables:

a) Drivers that leveraged the change of paradigm (Product to Service);

b) Position towards the competition;

c) Projected image to the market;

d) Customer / Market retention;

e) Economic / Financial gains;

f) Impact on Human Resources;

2. Design the questionnaire / interview to be carried out with the rest of the industry (universe).

Respondents to the questionnaires and interviews:

1. Customers: For this purpose, we have used a sample of 750 companies from the six most important sectors of activity that operate in Portugal (Industry, Services, Trade, Health, Government and Education) in accordance to Dun & Bradstreet information

Method: On line questionnaire, plus telephone interview to one of the responsible staff in the organization (MD, CFO, CISO).

2. Industry

The universe of manufacturers, according to Infosource in 2015 the totality of manufacturers in the office printing industry (photocopier industry) is composed by 18 manufacturers.

Method: On line questionnaires, plus face-to-face interview with a high rank staff in the European Head offices (CEO, CFO or a designated one).

Implications/Conclusions: Dematerialization seems as a positive achievement for the society and companies in general, the result for the industry is totally opposed, as the demand for printing has been dropping substantially. To maintain the installed based and revenues, this sector has been focused on the transition to services. Since production businesses is running in a more hostile and competitive market, nowadays in a global scale whereby goods are easily commoditized, the innovation by adding services to their core portfolio is becoming the strategy to be followed (Kastalli & Looy, 2013).

Given the above mentioned, the findings of our paper aim to:

1. Explain the behavioural change in the offices with the avenue of new technologies;
2. Clarify the impact that such technologies had on paper based document and documents in general and assess new trends and customer needs;
3. Monitor on how the downtrend on demand affected the industry;
4. Verify how the industry has reacted to overcome the loss on demand of products;
5. Identify the relevant corporate factors that significantly influenced this transition: HR, Technical Skills, Global presence;
6. Discuss the role of servitization in the photocopier industry;
7. Influence of external factors: Resources, Legislation, Eco Friendly Policies.

Due to the disperse location of some of the interviewees the work is still in progress.

Keywords: Dematerialization, product, service, servitization.

Simulación de estrategias para la optimización del servicio de mantenimiento en parques de aerogeneradores offshore

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Abstract

La mejora de los procesos de mantenimiento, y la modernización de los parques de equipos distribuidos por el mundo, es un área de mejora clave para muchas empresas que hasta ahora centraban todo su esfuerzo en la fabricación y venta de equipos. En este artículo se analizado y evalúan diferentes estrategias de mejora del servicio de mantenimiento de los parques de aerogeneradores *offshore*, para lo cual se ha desarrollado un simulador.

Según el estudio de la literatura realizado, los problemas principales que hay hoy en día a la hora de programar el mantenimiento de los parques de aerogeneradores *offshore* son la definición de un mix del mantenimiento óptimo, la definición de una estrategia óptima para programar el mantenimiento y el cálculo/optimización del dimensionamiento de los recursos.

El objetivo del trabajo realizado es optimizar el proceso de mantenimiento (equilibrando disponibilidad y costes) de un parque de aerogeneradores *offshore* utilizando técnicas de modelado basados en agentes. Para ello, se ha desarrollado una herramienta de simulación que ayuda a tomar decisiones estratégicas sobre el mantenimiento. En este simulador se ha modelado un entorno real compuesto por agentes que simulan los recursos necesarios para desarrollar las tareas de mantenimiento y centros de operación y componentes que ejecutan diferentes estrategias. Se han modelado las siguientes estrategias: (1) Estrategia base - las tareas de mantenimiento se realizan a medida que ocurren las necesidades;

(2) Prioridades - las tareas de mantenimiento correctivo tienen prioridad ante las tareas de mantenimiento preventivo; (3) Agrupación de tareas de una misma turbina - cuando un servicio va a una turbina se realizan todas las tareas de mantenimiento de la turbina, y; (4) Agrupación del *jack-up vessel* - cuando un transporte especial sale al parque realiza las tareas de todas las turbinas posibles.

A la hora de realizar los modelos de simulación se ha visto que existen algunos parámetros no controlables que son necesarios tener en cuenta para programar el servicio (e.g. condiciones meteorológicas, plazos de aprovisionamiento, etc.), así como la necesidad de medir el impacto de cada parámetro controlable mediante análisis de sensibilidad. Tras identificar los parámetros críticos, el entorno de simulación desarrollado ha ayudado a medir el impacto de cada una de las estrategias en un escenario definido. Así, se ha probado que la estrategia de priorización no consigue mejorar la disponibilidad de las turbinas, que una gestión óptima de los recursos críticos necesarios en las paradas más graves mejoran significativamente la disponibilidad, así como que el mantenimiento predictivo es una estrategia que ayuda a sincronizar los recursos críticos si se consigue detectar/predecir con el plazo de tiempo suficiente. De este modo, los experimentos realizados han ayudado a optimizar el dimensionamiento de los recursos necesarios para atender el mantenimiento del parque de aerogeneradores así como comprobar los riesgos de no disponibilidad ante una variación de necesidades.

Keywords: Servicios post-venta; Gestión de parques eólicos, Proceso de mantenimiento, Dimensionamiento de recursos, Simulación.

Mapping the intangible: Service design tools for understanding customer value in business model innovation for servitization

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Abstract

In business model innovation (BMI) for servitization, it is essential for manufacturer to identify a set of specific (non) monetary and (in) tangible value attributes (Prior, 2013), that specify the valuable features of product, service, parts of delivery process and even business relationship. Such understanding of customer value serves as the basis for further design of the new product-service system and how it can be created and delivered (Frankenberger et al., 2013). However, developing understanding about customer value becomes one of the main challenges for manufacturers trying to servitize (Martinez et al., 2010; Mathieu, 2001) due to several reasons. Firstly, manufacturers and their customers perceive what is valuable differently (Lindgreen et al., 2012). Secondly, intangible nature of servitized value propositions makes it difficult for manufacturers to change their traditionally product-focused transactional models into the ones providing long-term relationship-based product-service offerings (Vladimirova et al., 2011). Finally, there is lack of tools and procedure guidance on how manufacturers can approach customer value identification in B2B context in practice, especially its intangible part (Keränen & Jalkala, 2013) that goes beyond straightforward financial value.

Service design has already been suggested as a potential enabler to support manufactures in "how" to practically approach servitization transformation (e.g., Sangiorgi et al., 2012; Thurston & Cawood, 2011) due to its human-centred, creative, iterative approach to the creation of new services (Blomkvist, Holmlid, & Segelström 2010). In this paper we study how service design tools can facilitate understanding customer value in BMI for servitization. We use several empirical cases with manufacturers that are in the initial phase of BMI for servitization (Simonchik et al., 2015; Val et al., 2013). In these cases, we study how the use of selected service design visualization tools (Maps, Narratives, Images & Flows) through co-creation workshops helps manufacturers to (i) identify tangible and intangible value attributes (e.g. product quality, service flexibility etc. and (ii) use them further in designing new product-service systems.

Preliminary case analysis shows that service design tools help participants think beyond their products, providing a broader perspective of the complete value proposition throughout the whole customer experience including products, services, processes of delivery and relationships. The understanding of how the customer will potentially interact with the future value proposition lays the groundwork for the design of new product-service systems. The cases also show that service design visualization tools provide the ability to experiment with how to create and deliver specific tangible and intangible value attributes in a quick and easy way through mapping and prototyping. With this paper we hope to contribute to manufacturer's efforts in increasing their service orientation in BMI for servitization. Results of this study have implications for managers at manufacturer's side putting effort to overcome among others such challenges of servitization as changing the product-centred perspective of own employees (Löfberg, 2014).

Keywords: Service Design Tools, Customer Value, Business Model Innovation, Servitization.

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Customer value perception in advanced service delivery

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Abstract

The past decades have driven industrial manufacturing-based businesses to innovate and seek additional value in their offerings through servitization (Vandermerwe & Rada, 1988), which is a widely recognized term for the phenomenon of creating value by adding services to products, with increased customer centricity. In line with service marketing and management scholars (Lusch, Vargo & Malter, 2006) we think, that it is of uttermost importance that supplier companies learn, adapt and coevolve (Lewin & Volberda, 1999) together with customers, in order to develop the needed capabilities to market and sell value to a customer by offering services that increase the customer's income. Thus, value creation involves the process of learning about the customer's business logic, which occurs by understanding the customer's organizational schemas and industrial recipes of the surrounding business network and ecosystem. Santala and Parvinen (2007) further notes that 'customer fit' is needed, which can be reached by adapting and integrating with the customer on the basis of obtained knowledge about customer's business logic.

Profit increasing services that offer to reduce costs for the customer seem to be more common than services that offer to increase income. As a result of a short desktop study of the websites of 44 industrial services supplier companies we have found that firms delivering services to increase profits seem to be focusing on

increasing profits by reducing costs. We think, that this may be by cause of that there is a challenge for customers in seeing the possibilities of increased profits, by increasing income (e.g. production or capacity increase) - and not decreasing expenses (e.g. lowering fuel consumption). Or then, the potential is acknowledged, but investing in income increasing services is considered to be too risky and difficult.

Our research calls for an in-depth understanding of service-led growth in industrial companies that serve customer segments with various maturity levels and business goals, including advanced service offerings (Mathieu, 2001) that increase a customer's income. The paper explores how suppliers learn and understand various customer value perceptions and earning logics by collecting, analyzing, and utilizing multiple sources of information and how the suppliers find 'customer fit'. We address the following research question: How do providers of advanced 'income increasing' services learn about, and adapt, to their customers' varying business logics? More specifically, we seek to understand which contextually-specific schemas (Welch & Wilkinson, 2002) there are in a customer's business logic that enhance the value creation for a service supplier.

We have chosen to engage in an in-depth analysis of a division of a global engineering company, Alfa. Therefore, we adopt a clinical research approach (Schein, 2001). Alfa already had a range of several basic and intermediate services, but when turning into high-valued advanced services, extended customer knowledge appeared to be vital. In the study that has been ongoing since the beginning of 2014 we explore how Alfa develops extended customer knowledge by engaging into their customers' business logics, by integrating cross-disciplinary knowledge from the markets that the customers operate their assets in, in order to learn about diverse customer business models and value perception logics.

During the current development of Alfa's service portfolio, in which the usability of installed bases are addressed, Alfa's understanding of customers' business models and business logics have grown from understanding the operations of a customer's asset, to

understanding the network a customer operates the asset in, to the ecosystem-view of a customer's asset (Figure 1).

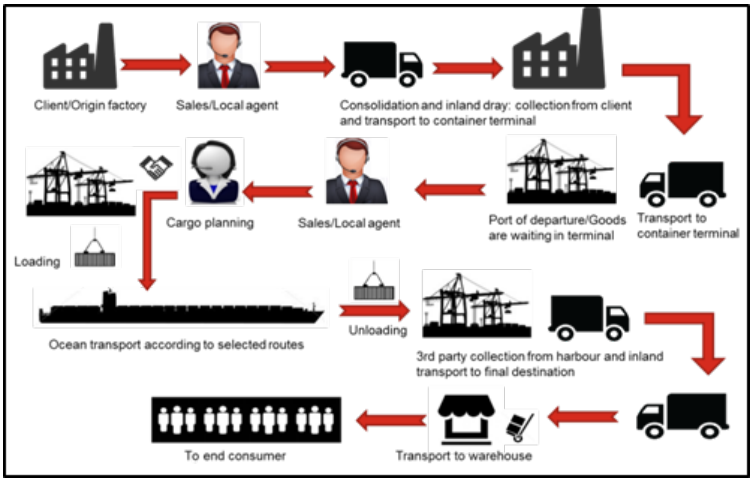

Figure 1. An example of a customer's business environment on high-level.

Based on our findings we propose that effective service-led growth towards providing income increasing services can only advance by generating deep knowledge and understanding about a customer's business logic and related organizational schemas. In addition, the service provider should link the obtained knowledge of a specific customer to the network- and industry levels that surrounds the customer's organization and business, by enhancing its insight and understanding towards the industry-logic (Matthyssens et al., 2006).

Our research contributes to the perspectives of managing various strategies and in servitized manufacturing- and technology-based business by customer fit, adaptation and integration. As the data is from an ongoing study, we can present results that are conditional on this particular stage of the research process only. However, already at this stage we can argue that the importance of customer integration grows when a supplier advances its service offering into "income increasing service"-deliveries. Further conceptual and empirical research is necessary on the topic, for instance by studying

the phenomena in various industrial contexts and networks, and among customers in different segments.

Keywords: Servitization; Income increasing service; Earning logic; Contextually-specific schemas

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Solution sales process blueprinting

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Abstract

Objectives: Competition has forced manufacturers to transform their selling orientation from purely product-oriented to solution selling (LaForge et al., 2009; Shepherd & Ahmed, 2000; Ingram, 2004). This change requires a transition in the sales process and relationship management approach (Storbacka et al., 2009; Vargo & Lusch, 2004; Moncrief & Marshall, 2005). Solution selling requires a strategic engagement with customers in pre-sales discussion to identify mutually customers' problems and needs (Brady et al., 2005). Likewise, the requisite for post sales customer support (Tuli et al., 2007) demands strong interrelationship between different actors in suppliers' organizations (Storbacka et al., 2011) and the reorientation of selling orientation from merely closing sales deals to winning customers' long-term commitment (LaForge et al., 2009). Thus, the entire selling philosophy shifts (Galbraith, 2002; Moncrief & Marshall, 2005); which involves a revisit of the traditional depiction of the sales process (Sheth & Sharma, 2008).

New selling models have been recommended such as problem-solving, needs satisfaction, consultative selling, relationship selling, and value-based selling (Ingram et al., 2006; Storbacka, 2011; Töytäri et al., 2011; Moncrief & Marshall, 2005). Despite these pools of research, most of the studies depicting the sales process (Brady et al., 2005; Töytäri et al., 2011; Moncrief & Marshall, 2005) have mainly concentrated on the different selling activities without integrating the actors that are involved in the process, or visualizing

the different customer touch-points, which are important in order to develop broader understanding of the firm selling practices and for identifying sources of opportunities and innovations (Bitner et al., 2008).

By utilizing the blueprinting process mapping technique (Bitner, Ostrom & Morgan, 2008; Biege et al., 2012), this study develops a sales process framework that visualizes different activities and customer touch-points in the sales process as well as actors carrying out those activities. Through 18 face-to-face interviews with sales directors of 8 Finnish solution providers, this study aims at answering two research questions; what activities are considered valuable in the industrial sales process and which actors are performing the activities? What are the different customer touch points in the sales process and what are the value drivers during each customer engagement?

Methods: Multiple-case method was utilized for collecting data from 8 Finnish manufacturing firms that are currently undergoing transitions to solution providers. This study draws on diverse data, including information from websites and face-to-face interviews with 18 company representatives. The empirical study was designed to identify and compare important activities within the solution sales processes of the firms and to recognize different customer touch points in the sales process.

Results/Findings: Our results show that firms interact with customers not only during the sales phase, but also during manufacturing and post-sales delivery to acquire and disseminate new information. The main actors carrying out major activities and having direct encounter with customers are the sales people, but managers claim that early engagement of other divisions, most importantly, the project and design divisions help them serve and understand customers better. However, the process blueprint that was developed in the research reveals the need for improvements in the firms' sales process design, in order to better integrate the service function into the selling phase and to enhance the opportunities for post-sales customer support.

Implications/Conclusions: This study contributes to existing literature in three dimensions. Firstly, the identified managerial practices indicate that the entire sales process revolves around early engagement of solution providers to participate in the technical negotiation and design with the customer before needs are realized, or investment decisions are made. Hence, our findings call for a shift of focus to the utilization of "technical design as the unit of analysis. Secondly, this study develops a sales process blueprint that visualizes important activities in the sales process implementation and displays the different customer touch-points and how various actors in provider's organization interact to deliver value for customers. Hence, visualizing the interplay between different actors in customer value creation presents an opportunity to gain better understanding of the sales process and sets a good basis for providing clear guidance for practical applications. Lastly, due to the scarcity of studies utilizing blueprinting within industrial organization context, this study represents an opportunity for knowledge development.

From a managerial perspective, the proposed blueprinting framework offers a useful guide to managers to re-orientate their organization and sales process around those activities identified as the fundamental practices for long-term customer relationship development. Also, our findings indicate that organizations are utilizing two different types of offering structures. One is a rigid structure in which firms exclusively propose own technologies in technical propositions as a means to guarantee post sales purchases and impede market competition, while the other is a flexible structure that offers customers options from a variety of sources – even from competitors' product. Alternating between both methods can help managers develop better understanding of their customers' needs and possibly channel their organizations towards higher profitability. Lastly, the early engagement of service and project organization enhances cross-functional interaction in suppliers' organizations and even fosters the integration of post sales services into the project sales. Managers can utilize this finding as a learning curve to reorganize their organization and sales processes.

Keywords: Solution Selling, Sales Process, Blueprinting, Relationship Selling.

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Barriers to shift to a servicized model of crop protection in viticulture

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Abstract

Objectives/rationale: This paper explores the barriers to adopt a servicized model of crop protection in viticulture, basing on grape wine growing in the Designation of Origin Rías Baixas (Galicia, Spain). Servicizing in the agricultural sector has rarely being studied although some existent works indicate the potential to reduce the environmental impact of pest management through services (Devisscher & Mont, 2008; Goedkoop, van Halen, te Riele & Rommens, 1999). The objective of the paper is to define the servicizing approach in crop protection and to explore the main barriers to its diffusion in viticulture.

Methods: The paper is based on a broad literature review and desk research about the concept and scope of servitization in agriculture. In addition, a case study was carried out in Rías Baixas viticulture (Galicia, Spain) in order to identify the necessary characteristics of a servicized model of crop protection, together with the barriers to adopt such a system from the supply and demand sides. For that, interviews based on semi-structured questionnaires were conducted with technical staff from agricultural cooperatives, service companies and pesticides retailers, as well as other important agents in the market. The potential for hiring a servicized model of crop protection was studied through a questionnaire-based survey to 45 wine growers.

Results/Findings: Servicizing has been defined in SPREE project as "a transaction where value is provided through combination of products and services and where satisfaction of customer needs is achieved by selling function of the product rather than product per se and/or by increasing the service component of the offer. Thus, each offer represents a continuum of products and services, which can be further servicized"(Mont & Plepys, 2012)**.**

Building upon that definition, Crop Protection Management Solutions are defined in this paper as a servicized model of crop protection linked to the implementation of Integrated Pest Management (IPM) schemes. IPM is an eco-innovation that allows companies providing services with a fewer use of resources. The model may consist of just providing advice by an expert on IPM strategies with the farmer acquiring and using machinery and products or it may mean going further to a smart service provided by a company which uses the last technological advances to protect the crop of the client.

The case study developed in viticulture in Rías Baixas shows that there are several barriers that obstacle this type of services starting naturally in the market. On the supply side, companies must adapt their organization to provide a service that is information-intensive and that requires a large staff to be able to provide an effective answer in a limited timeframe. Moreover, the IPM technology is not fully developed yet. On the demand side, there is first lack of knowledge regarding IPM and environmental issues. In addition, grape wine growing in Rías Baixas keeps yet many features of a part-time farming activity, with many farmers devoted to this activity just for the weekends, owning proper machinery and receiving help from their relatives to work.

In addition, there are institutional barriers, such as the broad definition of IPM according to legislation and the strong competition in the market, with many agronomists providing advice for free in relation to crop protection. The features of farms and weather in Rías Baixas add to the complexities.

Implications/Conclusions: This paper offers two main contributions: firstly, a theoretical definition for a servicized model of crop protection linked to IPM. Secondly, the main barriers to the adoption of such a servicized system in viticulture are identified. These results are relevant for farmers and policy makers interested in contributing to the improvement of the environmental performance of viticulture through services.

Keywords: crop protection, viticulture, servicizing, barriers.

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Service business model and performance: Unpacking the complex relationship

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Abstract

Servitization is a complex process for capturing value and hence the link between the implementation of services and firm performance is blurred (Cusumano, Kahl & Suarez, 2014; Baines, Bustinza & Vendrell-Herrero, 2015). There have been different attempts to clarify the servitization-performance link quantitatively. Suarez, Cusumano and Kahl (2013) designed a longitudinal analysis of 464 firms from the US Software industry for the period 1990-2006. Their model takes the percentage of service revenue as a measure of the service business model which is related to profit margin as a measure of firm performance. They found a U-shaped relationship, in which the point of minimum profit occurs when service revenues are 56% of total revenue. Kastalli and Van Looy (2013) designed an intra-firm analysis, constructing a panel dataset comprising the operations of the 44 subsidiaries of Atlas Copco for the period 2001-2007. Their measures of firm performance and service implementation are the ratio subsidiary profits over subsidiary sales and total subsidiary sales in service respectively. They found a cubic relationship; whilst initial increments of service sales have a positive impact on subsidiary performance, this effect gradually diminishes with the growth of service sales. When service sales are relatively large the positive effect gradually increases again. Kohtamäki,

Partanen, Parida and Wincent (2013) designed a cross-country survey with 91 Finish machine equipment manufacturing firms. Survey data allowed for the construction of a scale for the degree of service within the business model, and performance is captured in data on sales growth between 2008 and 2011. Consistent with the work of Suarez et al. (2013) they also found a U-shaped relationship.

The identification of non-linear relationship between the adoption of service business model and performance is academically sound but difficult for practitioners to use or apply in their businesses. In seeking to address this recent literature has introduced moderator variables to better assess this complex relationship. Kastalli, Wiengarten and Neely (2014) proposes coupling servitization with product innovation processes to enhance long-term profitability. Benedetti, Neely and Swink (2015) posit that servitization is associated with a high risk of bankruptcy and therefore firms deciding to servitize can expect supra-returns in exchange of internalizing risk.

However, to the best of our knowledge there are no theoretical explanation of why the relationship between service implementation and firm performance is not linear. The present research contributes to this debate by exploring the differences between business model and strategy. According to DaSilva and Trkman (2014) whereas a business model is a description of the current (short-term) resource base, strategy is the enhancement of current resources to sustain long-term competitive advantage. It is hypothesized that the misalignment between the service business model and service strategy can explain part of the complex relationship between servitization and performance observed.

The hypothesis is tested through an extensive survey of 350 senior executives from large manufacturers' in Europe, North America and Asia. Large companies are here classified as those with minimum annual revenue of $1 billion. Parametric Technology Corporation (PTC), in partnership with Oxford Economics, conducted the survey by the beginning of 2014. "Service" was defined "to mean all processes and services that surround a product after the initial sale

until the conclusion of the customer's use"[1]. To frame the servitization business model, a second order construct was developed which is composed of two dimensions: product-service configuration, and product-service alignment. These dimensions are consistent with the DaSilva and Trkman (2014) business model framework and cover the combination of resources and associated transactions, in this particular case, to configure a product-service system. The construct is linked to standard performance measures such as profit margin and profit change. Structural Equation Modelling (SEM) was used to allow analysis of several hypothesized relationships simultaneously; an approach which is methodology usual in servitization studies (Bustinza, Parry & Vendrell-Herrero, 2013; Parry, Bustinza & Vendrell-Herrero, 2012). Furthermore, the role of sector and size as moderators of the relationship between servitization business model, servitization strategy and performance is explored.

Scales analysing the new construct "servitization business model" and "servitization strategy" are validated through confirmatory analysis. Results support the hypothesis tested. Conclusions shed light onto the importance of the alignment between service business model and service strategy as a catalyst of the effect of servitization on performance. The work discusses academic and managerial implications.

Keywords: Service Design, Servitization, Industrial Product Service Systems, Service Logic.

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Servitization in the pharmaceutical industry

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Abstract

The concept of servitization was put forward by Vandermerwe and Rada (1988) and is used to refer to the competitive advantage produced through the "process of creating value by adding services to products" (Baines, et al., 2009:547). Servitization has also been described as the provision of service as a complement to manufacturing and also commercialization of products generating higher economic margins (Vendrell-Herrero, Bustinza & Arias, 2014).

Since it first emerged, servitization has been analysed in different case studies and within different industries. Nonetheless, there was a need to focus on the pharmaceutical industry. Servitization implementation levels and categorization were analysed in the pharmaceutical industry in a comparative study between Portugal and Spain (Ruizalba, Soares & Morales, 2015). In this first comparative study, main distributors were analysed in terms of service provision and main strategic factors underlying servitization decisions: loyalty, competitive advantage and profitability. The data was collected through the development of a questionnaire and respondents encompassed 46% of total market share of both countries. Main findings of this study showed that distributors in both countries presented a tendency to focus on Base Services as a source of competitive advantage and loyalty. In turn this raised concerns regarding the competitiveness of distributors in the long term and regarding customer expectations (pharmacy stores and final consumers). In an increasingly competitive market, customers expect more than basic offerings and whatever was considered previously an order-winner quickly becomes a qualifier affecting the whole industry (for example the case of quality - Lee, Zuckweiler & Trimi, 2006).

The main contributions resulting from that study were: (1) the identification of five different types of services provided by distributors in the pharmaceutical industry, (2) a classification of these services using Baines et al. (2013) categorization into base, intermediate and advanced, (3) the impact of the strategic factors (loyalty, competitive advantage and profitability) on the level of implementation of services in both countries,

(4) the role of the financial crisis, (5) the intention of further development services, (6) levels of industry co-opetition.

In order to provide a more comprehensive analysis of the whole industry it is important to focus on the different levels of the supply chain and to look downstream into the supply chain to understand the existent gaps and different expectations between providers and users (pharmacy stores) of the identified list services. This is therefore the focus of the current study.

A clear move towards a "service-centred dominant logic" (Vargo & Lusch, 2004:12) and "service-driven global supply chains" (Youngdahl & Loomba, 2000) has occurred in which customers are seen as "co-producers/co-creators" in the service production process (Grönroos, 1978; Gummesson, 1979). As a result, the underlying reason to conduct the present study lies in the fact that the servitization is pointless if companies do not focus on what customers actually consider added value services and attributes.

Given this, in order to understand the extent to which providers are "customer focused" (Zeithmal et al., 2006), in the present research we have adapted the questionnaire used previously only with pharmaceutical distributors (Ruizalba, Soares & Morales, 2015). Following Grönroos (2006) idea of consumption defined from a value-in-use notion, the existing survey has been further developed and adjusted to target pharmaceutical stores (the direct customers of these distributors). Since pharmacy stores play an important role in the servitization process, we will also focus more specifically on their satisfaction with the provided services and additional factors that can have an impact on the servitization process such as: number of employees, turnover, financial profits, and location.

Subsequently, this empirical paper is relevant not only for pharmaceutical distributors, but also for the whole pharmaceutical supply chain.

This study reflects therefore the results from an ongoing research project that is currently being conducted in different countries. The strategic vision of the pharmaceutical service providers (distributors) should be clearly improved with the findings from this research which addresses the expectations of the customer.

The main goals of this project are: (1) to identify the degree of customer use of the different service levels (Baines et al., 2013) and types previously identified by their suppliers, (2) to analyse how customers evaluate the servitization process regarding the same strategic factors measured in the first study.

In addition to this, some performance indicators were also analysed in order to associate service usage with profitability and customer satisfaction. By inquiring respondents on these services and indicators as per "before, during and after 2008", this research also gives an insight into the services that have helped pharmacy stores to recover from the crisis and that contributed towards enhanced profitability and competitiveness.

Keywords: servitization, pharmaceutical industry, competitiveness, performance.

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Servitization of the home: IoT development of use-visibility measures

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Abstract

Introduction: Visibility refers to the ability of firms to access data which allows them to 'see' into their supply chains (Bradley, 2002). Research has shown that increase in Supply Chain Visibility (SCV) enhances performance through improved inventory management, higher sales, and better understanding of demand (Gavirneni et al., 1999; Lee & Whang, 2000; Yu et al., 2001; Kulp, 2002; Kaipia & Hartiala, 2006). We propose that The Internet of Things [IoT] will drive transformations as the physical world goes online, creating visibility of consumer use of goods and services (Brody and Pureswaran, 2014). We view IoT as an opportunity to provide rich data on the relationship between everyday objects and individuals (Santucci, 2011).

Whilst the IoT gives firms the opportunity for more data, we argue that current approaches where they collect data only in their 'vertical' supply chain, limits what the firm can know about the use of the product to rate of consumption over time. By combining multiple 'verticals' at a point in time to create a 'horizontal' view of data from across a number of data streams it is possible to gain visibility of contexts of use and begin to answer the 'why?' questions of consumer action and rates of consumption.

We view the home as a context which is poorly served due to the privacy of the functions that occur there and hence the lack of

market data available to firms. To understand relationships between objects and individuals use four different consumer measures are created that provide information on a supplier's products through IoT instrumentation. We operationalise the measures by instrumenting six volunteer households in the UK with sensors. Graphs show the data from the IoT sensors and analysis explains how the measures provide visibility of consumer context of consumption for use in forward and reverse supply chains (Dutton, 2014). We then discuss how context-specific information about domestic use process gives visibility of previously hidden activity of actual use, consumption and waste for forward and reverse supply chain activities (Holmström, Brax & Ala-Risku, 2010; Ghiassi & Spera, 2003).

Methodology: Data was collected for the study from six anonymous sites, labelled as Digital Person Zeroes (DP0s). The homes and personal lives of each DPO were instrumented with IoT devices to collect data over a six-month period. Data is collected in two forms: quantitative data is logged from IoT sensors connected to and monitoring consumables and utilities; qualitative data is captured from online diaries (Outlook and Google Calendar), ethnographic studies, interviews with inhabitants, and blog posts. We sought to understand what information is needed when, and how creating value with objects in day-to-day lives gave us the understanding of the 'mundane' life (Kleine et. al., 1993). The focus of the examples for this paper is on data collected during showering.

Experimental Results: Following examination of the data produced from the six different households which undertook both ethnography and have in excess of 200 sensors we propose four forms of data measurement which we describe from a consumer perspective. Depletion measures relate to products which reduce in quantity in local stock holdings when used, which in the examples given would relate to the shampoo; Consumption measures relate to resources which are replenished at the rate of consumption, which in the example given relates to water. Experience measures relate to products which are diminished but not depleted by a single action of a function, but are diminished by multiple functions. Interaction measures record the use and environment of a

mechanism. In our example this is the shower itself. We argue that the four measures form part of the data requirement in understanding consumer use processes for supply chain visibility, we term this as Use-Visibility Measures (UVMs). To empirically illustrate the operationalisation, we now present the IoT instrumentation of households.

Figure 1 gives two weeks of illustrative shower data and water volume consumed. Measures were made using water flood sensors which activate when the shower is in use. It can be seen that showers average 19 minutes, with a standard deviation of 5.3 min. An average shower uses 149 litres of water. Currently home owners have no visibility of shower duration and nearly always state the take “less than 5 minutes”.

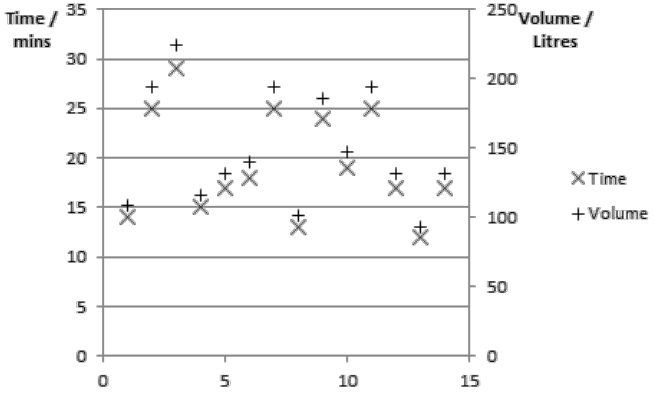

Figure 1. Example data for shower time and volume of water

We provide data of depletion of a single bottle of shower gel over two weeks, Figure 2. The data was collected using a digital scale which identified items and recorded their weight (Oliver, 2015). The bottle of shower gel is shared between two people who both use it daily. Depletion approximately doubles if one of the home owners has been running, and shower time increases. The trendline suggests that 20 g of shower gel is used daily, but despite the R2 ≈0.9 this is erroneous. Sensor data is supplemented with information from diaries which explains the changes in values

observed. The average data is affected by an incident where the couple's dog knocked over the bottle of shower gel causing wastage of ~84 g. Removing the spillage from the data the new depletion calculated reduces the average to ~4 g per shower.

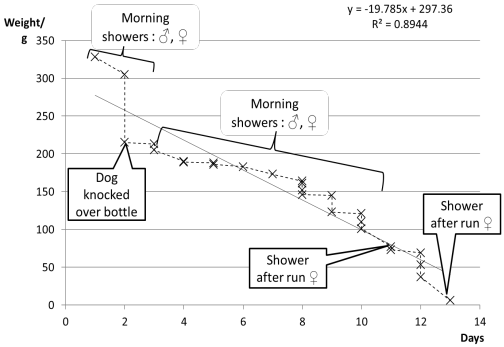

Figure 2. Shower gel use

Discussion/Conclusion: The results present the resources employed and some insight into the reason why an individual undertakes an activity, which in the case example is a shower. The horizontal data reveals the set of resources from the larger set of resources within the home that are employed to undertaken the given activity as well as some of the antecedents. The specific types of resources, in this case the shower, electricity, towels, water, soaps and shampoo's which are used in combination during showering and the quantities and times for which they were used. Whilst the data collected gives sufficient visibility to understand what resource was employed by a specific individual to complete the process it also gives context as to why. The HAT system allows the user to annotate their data. Additional data from calendars and annotation shows that running results in longer showers and increased use of shower gel. We can also see that a spillage accelerated the measured consumption rate. The work is in its early stages and the authors are currently

examining the data to further understand what can be known about context and use.

Keywords: Internet of Things, Visibility, servitization, Use-Visibility Measures (UVM).

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Set of initiatives for a business unit of a global manufacturing company in order to embrace servitization within renewable energy market

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Abstract

Purpose: Servitization has become wide spread within global manufacturing enterprises. Nevertheless, the decision to adopt servitization brings a high level of uncertainty. Service activities result in changes to strategies and approaches to deliver measurable and detectable results. This paper reports on the design of a group of activities for a business unit of a global energy management manufacturer in a pre-transformation status. The business unit is involved in business-to-business sales for renewable markets serving Europe, the Middle East and Africa (EMEA) region. In this business context the roadmap of servitization is at its initial phases and the company has not yet fully explored the potential benefits of service initiatives

Design/Methodology/Approach: This paper is based on interviews with senior managers in the case company.

Findings: The paper provides insights and details of the actions taken in developing customer solutions for a single product line. These are used to identify the main drivers and barriers for the implementation of a servitization strategy.

Originality/Value: The paper contributes recommendations based on the experience of one company that seeks to develop its products into a customer solution based service offering. The paper presents possible strategies for servitization that are currently

reviewed and evaluated by senior management of the organization exanimated.

Keywords: Servitization of manufacturers, Servitization, Product-service systems, Renewable energy.

Internet of things-enabled servitization for UK SMEs

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Abstract

The growing infrastructure of information allows for an increasing awareness of available technologies and business models which can lead to innovation for businesses (Henderson, 1994). Some of these technologies and business models have shown great potential for some businesses and industries, particularly Servitization (Baines, Lightfoot, Kay & Benedettini, 2009; Toivonen & Tuominen, 2009; Vandermerwe & Rada, 1988) and The Internet of Things (Porter & Heppelmann, 2014; Skipper, 2014), two unique and currently relevant concepts. Today, 75% of the world's population accesses the internet and there are six billion connected devices globally. This presents many opportunities and challenges. In particular, the aspect of adding service to existing products for many large companies, such as the Daimler group, GE, LG and Bosch, has gained momentum (Ferber, 2013). How opportunities can further be explored by Small to Medium Sized Enterprises (SMEs) is still a challenge.

Since Servitization was first recognized, it has become a key business strategy for various sectors, particularly manufacturing (Lightfoot, Baines & Smart, 2013; Vandermerwe & Rada, 1988). Equally of interest for business recently is the "Internet of Things (IoT)" (Ashton, 2009; Ning, 2013). The IoT has also been described as ubiquitous, embedded or pervasive computing because it has the potential to affect nearly every aspect of human life (Kellmereit & Obodovski, 2013). Utilizing the opportunities available from the IoT could potentially enhance or enable new opportunities for Servitization, especially for SMEs.

Implementing new technologies and ideas can be a challenge for any organization, no matter the size, and often requires a great deal of

expertise, planning and road-mapping to be successful (Phaal, Farrukh & Probert, 2010). This challenge can be even more difficult for Small to Medium sized Enterprises (SMEs) due to limited resources of people, time, expertise and money (Garengo, et al., 2005; Morabito, Pace & Previtali, 2005). However, the ability to implement new ideas and technologies allows companies to remain innovative and competitive (Parrilli & Elola, 2011). SMEs accounted for nearly half of all employment and approximately a third of all private sector turnover for the UK in 2014 (BIS, 2014). It is therefore critical to find practical methods to enable SMEs to successfully innovative as technology evolves.

Many SMEs share common traits, such as lack of human resource and limited capital resource, which can inhibit an SME's ability to grow, measure their performance or plan (Garengo et al., 2005). These traits present a variety of challenges to SMEs and their ability to translate technologies and business models that have shown success in larger counterparts.

Nevertheless, there are also many SME traits that positively affect the business. The managers often have a strong commitment to innovation, decision making is quicker, they can focus on small market niches and communication is less formal (Storey & Greene, 2010).

SMEs in newly formed industries also face the challenge of entering a new and potentially risky market (Gudlavalleti, Gupta & Narayanan, 2013). The developing fuel cell technology industry in the UK is an example. This industry is mostly comprised of SMEs. While fuel cells face technical challenges, an equally difficult challenge is the ability for businesses to have success in a competitive energy market. Utilizing complementary technologies and business models can help fuel cell suppliers cut costs (Skipper, 2014), be competitive (Porter & Heppelmann, 2014) and reach new markets (Gudlavalleti et al., 2013).

This work showcases the initial literature review conducted for a case study with a London-based fuel cell technology SME, attempting to implement both IoT technologies and Servitization strategies into their business model. The research presents key

learnings and the first iteration of conceptual framework around developing IoT-enabled Servitization for SMEs.

Keywords: Servitization, SMEs, Internet-of-Things.

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Can machine-to-machine communications be used to improve customer experience in a service environment?

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Abstract

Purpose: The purpose of this paper is to identify ways in which Machine-to-Machine (M2M) communication can be used by product-based manufacturing firms to deepen and broaden the service aspects of their customer value proposition. The expectation is that an improved customer value proposition leads to improved customer experience, and through this to improved customer retention.

Design/Methodology/Approach: The approach taken has been two-fold:

1. A literature review to understand what is available in a B2B environment;
2. Obtaining initial feedback from surveys and interview with equipment owners and operators, suppliers of condition monitoring systems and other stakeholders to understand the different value propositions.

It was considered important to widen the horizon of 'condition monitoring' to provide as many different ways to improve the customer experience as possible. The literature review was undertaken based on the broader definition of condition monitoring. The review was not limited to the academic press but

expanded to include trade journals and websites. The M2M impact on human-to-human interactions was also considered.

Over 15 interviews with stakeholders were undertaken so that their perception of the value proposition could be understood. All were from the B2B environment and with interests, of some form, in high-value equipment. This required detailed segmentation based on how data was consumed – each segment had different outcomes that concerned them.

Findings: M2M can be used within the internet of things to improve the customer experience. However there are many risks and negative aspects that limit the possible gains:

- the 'customer' may not understand what they actually need;
- loss of personal interactions can lead to a perception of a lower level of value;
- clear customer/use segmentation must be undertaken;
- each customer persona must have a clear value proposition;
- there must be transparency in the data collection;
- the data collected must be used openly for root-cause-analysis rather than defensively to protect warranty positions;
- the data can be used to support new product and service development.

Originality/value: This remains a new area for development for many manufacturing firms in the B2B space. The technology is proven yet there are numerous firms that are unable to monetise the monitoring they undertake for their customers. The value of this paper is that it develops a process to support the application of M2M monitoring by identifying key tasks to help firms develop an effective customer value proposition.

Keywords: Servitization, internet of things, value proposition, customer experience, technology communication.

Improving ICT services management through the adoption of Lean Kanban

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Abstract

In the current century, most of developed countries economy is based on the labor of ICT professionals and the provision of high-level services; therefore, there is a general interest in increasing the productivity of these activities, as it was done during the last century with the industrial sector.

In this regard, software developers have always been trying to identify and apply methods and techniques that allow them to improve their efficiency over the years. An example is the Lean Kanban method, which offers a good alternative to improve the productivity of development teams, paying special attention to the multi-project environment really common in these teams.

The term Lean was referenced for the first time in Womack, Jones and Roos (1990), becoming the western way to name the TPS (Toyota Production System), which was later adapted for its application to software development, in a movement that is currently called Lean Software Development.

Although providing a single definition to discuss the Lean method for software maintenance services is complicated, there are two main movements or schools when applying the principles of Lean software development: those that are based on the waste disposal and those that rely on the concept of flow (understood as the set of all the specific actions required to pass a product or service through the three critical management tasks of any firm: problem solving, information management and processing). The Lean Kanban method is a technique that belongs to the second school or

movement and is based on the philosophy of "Just in Time": to produce the elements that are needed, in the quantities needed, when needed.

The main motivation to face a methodological change like the adoption of Lean Kanban, comes from the quest for improving team productivity, which will obviously revert in the improvement of service provision. For the survival of ICT services, companies in the current context of economic restrictions, -as it happened to Toyota in the fifties - there is a pressing need for an improvement of the productivity of its development teams.

In fact, in situations of economic recession, the improvement of productivity obtained by the adoption of traditional methods is not enough to tackle the deterioration usually suffered by the teams. The decrease in the productive capacity does not only come from the reduction of the number of software engineers who compose the teams, but also from the loss of knowledge caused by the those employees leaving, with the consequent and drastic loss of efficiency in the provision of the maintenance service.

In the presence of a double brake in the productivity of the team, the solution cannot come only from the improvement of engineering techniques. Even though they are relevant, they will not be able to offer all the improvement needed. The implementation of a set of principles that radically change how ICT services and managed and the way they interact with the rest of interested in the value chain is needed. In this sense, the Lean principles described in Womack and Jones (1998) are focused on broader improvements than those offered by other methods, since the focus of Lean is not only on how to offer the service efficiently, but also on providing the right service, while the value delivered to the customer is maximized. It is worth noting that the quality of the product is not diminished and, in fact, the quest for quality is another of the Lean principles.

All this given, the aim of this paper is, following the approach described in Anderson (2010), to present a real experience of the application of the Lean Kanban method in a team that provides a software maintenance service. Such team is composed of 7 people: a project manager, five software engineers and a person who is in

charge of user assistance and the maintenance service for the internal management applications of a given organization. Specifically, the team is maintains approximately 25 systems of different nature: Web applications, client/server applications, Web services, etc., as well as a variety of data consolidation processes that are running in different technologies. In addition, during the time this experience was run, the team was immersed in the development of a new application and in some important evolution of one of his main systems.

Given the characteristics of the tasks of a team offering a software maintenance service, the main indicators that were established at the beginning of the study were: the number of requests waiting to be served and the average time that the team took to resolve them, since they entered the system, up to the release of a software version which resolve the request. Both indicators improved significantly with the implementation of the Lean Kanban method, as well as other indicators more generic, such as the improvement of the product quality and the creation of a culture of continuous improvement.

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Supporting business modelling in servitization processes

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Abstract

Servitization is an innovation process in an organisation's business model that leads to the integrated provision of goods and services, thus enhancing the customer's satisfaction, improving performance and permitting the generation of competitive advantages. It can be understood as the process of increasing value by adding services to products (Vandermerwe y Rada, 1988). Those companies that wish to attain a successful servitization process need to redesign their business model (Baines et al., 2009).

The first step of a servitization process consists of analysing and constructing the business model. The objective of this step is the innovation and the conceptualisation of a new organisation's idea of business. The business model describes the bases upon which the firm creates, provides and captures value (Osterwalder & Pigneur, 2010). As stated by Teece (2010), the definition of a business model implies dentifying the way in which the company provides value to customers, attracts them so that they will pay for this value and converts that payment into profit.

There are currently several techniques or notations for business modelling that allow the idea of business to be explored in greater or less detail, while simultaneously helping to understand, conceptualise and represent the services that add value to an organisation. Of these, it is possible to mention models such as the Business Canvas model (Osterwalder & Pigneur, 2010), the Value

model (Gordijn & Akkermans, 2003), the Service Blueprint model (Bitner et al., 2008) and those models that are more process oriented, such as the PCN diagram (Sampson, 2012) or BPMN (http://www.bpmn.org/).

All of these techniques have similarities and differences, but are in many cases complementary. It is therefore possible to identify relationships among them. For example, all the techniques clearly permit the identification of who are the consumers of a service, or which entities participate in a process. Note the importance of identifying and registering these relationships, since different organisation that collaborate in a business, and even different teams within a same organisation, may use one or several of these techniques to represent the business model, with the resulting understanding problems that this could imply.

Various tools supporting some of these techniques are currently available, and basically provide the technological support needed for the creation of graphic models. However, there is no integrated environment that makes it possible to work with several models simultaneously, and much less that provides support as regards identifying, registering and managing the relationships among them.

This work is a first step towards attempting to fill this lack by constructing a technological environment that will integrate tools in order to support different business modelling techniques and to register and manage the relationships among different models. This work in particular presents a modelling environment for the edition of Business Canvas models, Value models and Service Blueprint models, and shows its use by means of a case study which is also used to illustrate the relationships among these models. In the medium term, we intend to automate the identification of these relationships and integrate support for another series of functionalities, such as gap analysis, in the context of business modelling.

Keywords: Business modeling, tools.

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Bridging research communities in servitization

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Abstract

Objectives/Rationale: Servitization research has grown significantly in recent decades (Lightfoot, Baines & Smart, 2013). As illustrated by several recent literature reviews (Baines et al., 2007; Baines, Lightfoot, Benedettini & Kay, 2009; Boehm & Thomas, 2013; Lightfoot et al., 2013; Velamuri, Neyer & Möslein, 2011), the increasing frequency and amount of published material has resulted in several hundred publications that provide a significant amount of accumulated knowledge. However, this multidisciplinarity "has made the field more complex, since these communities each tend to have their own focus and vocabulary" (Tukker, 2015, p.87). Although systematic efforts have been undertaken to define the field and bridge the research communities (Baines et al., 2007, 2009; Boehm & Thomas, 2013; Lightfoot et al., 2013; Velamuri et al., 2011), there are no bibliometric studies that quantify the research on integrated products and services.

To advance our understanding, the present bibliometric study aims to map and bridge the research on servitization while reviewing different aspects of the terminology generated by the different research streams. This study intends to answer two complementary research questions: First, how is the field of servitization research structured and how large is this research field? In an attempt to understand the potential for future development, the second question explores how connected these research groups actually are.

Methods: To quantify the past research on servitization, a sample of articles was identified by adapting the methodological approaches

used in existing research. Based on the previous systematic literature reviews, we isolated a group of substantive keywords to identify relevant articles. We searched for peer-reviewed scholarly articles in English (published and in press) by introducing selected keywords in both the Scopus and Thomson Reuters Web of Science (WOS) databases. The final sample consisted of 1,015 papers involving 1,767 authors and 47,000 references. To take advantage of this data, the present study uses a bibliometric analysis to study the structure of the servitization field. Given the objectives of this study, author co-citation analysis was chosen as the primary bibliometric method. In doing so, we used the VOSviewer software as the main tool for the quantitative and visual representation of the structure of the field of knowledge related to integrated products and service offerings.

Results/Findings: Based on the identified articles and their references, the study provides a detailed picture of the research landscape on servitization, which adds structure to the field. It also extends the findings by Lightfoot et al. (2013) by confirming the five research communities; however, the study also identifies different subgroups within the main communities. In addition, the analysis of the full lists of references included in the analyzed articles increases the understanding of the main theoretical bases of the different communities and provides a first indicator for how the existing clusters are interconnected. Finally, to explore the interconnectedness of the research communities, this study uses author co-citation, cross-referencing and co-authorship analyses. Although some interconnectedness is found, most of the research communities are endogenic in nature and cross-community efforts are scarce.

Implications/Conclusions: With increasing heterogeneity and complexity, the research field of servitization has become more and more difficult to comprehend, preventing progress in the field. This complexity calls for studies that map the structure of the entire field while bridging the different communities of servitization research. The study's main contributions are its opportunity to provide a map to help scholars understand the structure of the field, increase consistency with regard to the concepts used, and bridge the knowledge provided by the different communities.

Keywords: Servitization, industrial services, integrated solutions, product-service systems.

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The intellectual basis of research into servitization: A citation/co-citation bibliometric analysis

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Abstract

The servitization of the manufacturing can be considered an emerging area of research that has attracted an increasing amount of attention in management, marketing and operations literature. Approaches from a variety of disciplines have led to insightful studies on the practical implications for businesses. The purpose of this research is to identify the studies that have had the greatest impact on investigation into servitization among manufacturing firms with a view to illustrating the intellectual structure of this discipline.

The methodology for the study is based on bibliometric techniques of citations and co-citations that appear in documents, applied to all articles published between 1980 and March 2015 in journals included in the database of the Science Citation Index Expanded and the Social Sciences Citation Index of the Web of Science.

A total of 343 articles were published in which 12,123 different documents were cited, of which 1,001 received more than one citation. The analysis of citations and co-citations is based on the premise that the authors citing the documents consider them to be important in their research. It can thus be deduced that the most commonly cited documents will have the greatest influence on the discipline and that, through their links with other cited documents, they make up a network of relations that constitute the intellectual structure of a line of research. The indicator of the degree of centrality (closeness) of each of the documents that make up the network of co-citations has allowed us to recognize the 79 documents that form the core of research on servitization.

A subsequent multivariate analysis of this core of the co-citation network has allowed us to establish the underlying intellectual structure of servitization.

We have synthesized the three major identifiable factors of servitization into three categories.

The first factor, “Service strategy in industrial firms”, is made up of documents that constitute the theoretical and conceptual foundations of the concept of servitization, that is to say, the incorporation of services into the manufacturing sector, leading to the production of different combinations of goods and services by industrial firms. This term, first coined by Vandermerwe & Rada (1988), forms the basis on which all the subsequent related literature has been built. This basis is framed within strategic management and represents the research that attempts to explain servitization as a business strategy. Service strategy is considered to be a continuum that goes from the production of goods to the production of services, resulting in an evolution through which firms offer the most suitable combination of products-services (Oliva & Kallenberg, 2003; Neu & Brown, 2008; Johnstone, Dainty & Wilkinson, 2009). The incorporation of services into manufacturing processes is thus considered to be a response to a change in strategy, on a spectrum that ranges from vertical integration (Davies, Brady &Hobday, 2007) to the constitution of services in a new business model (Galbraith, 2002).

The second factor, “Service innovation”, is made up of studies that focus on product-service systems. They are clearly identifiable in the documents that pertain to this factor in the following lines of research: I) technological innovation or technology and II) sustainability and/or eco-efficiency.

The first of these characteristics, technological innovation, can be found in all the studies that make up the second factor, and we can thus assume that this factor focuses on: a) the influence of innovation or technology or, b) the application of case studies in the development of technological services that complement the firm’s product offer (technological or non-technological). Sustainability and/or eco-efficiency is also one of the characteristics that describe an important part of the documents that make up the second factor.

The third factor is composed of studies that are developed within the conceptual framework of "Service dominant logic" (SDL) from the perspective of marketing. The seminal study on this topic is that of Vargo and Lusch (2004). They were the first authors to propose the redefinition of the basic characteristics of services (heterogeneity, intangibility and service dominant logic and simultaneity) not from the traditional vision of production, but from the perspective of dominant logic of services. Other authors had previously questioned the conceptualization of the term Service and its basic characteristics, defining the concept of service from a value co-creation approach, that is, from the perspective of the consumer based on the value-in-use (Lovelock & Gummesson, 2004; Edvardsson, Gustafsson & Roos, 2005).

This study applies bibliometric techniques for the first time to the field of servitization, which has allowed us to identify the most commonly studied topics in the field of servitization over the last 35 years. This research thus complements and improves upon the results of other studies that address the topic from a qualitative perspective, thereby obtaining a picture of the intellectual structure of the field, which in turn constitutes a highly important outcome for establishing the theoretical basis on which servitization is founded.

Keywords: Servitization, Intellectual structure, Bibliometric analysis.

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Evolution of the intellectual structure of literature on servitization: A bibliometric analysis

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Abstract

Strategic competition by means of the provision of services is becoming one of the distinguishing features of innovative manufacturing companies (Baines et al., 2009). There is an increasing interest in the role that services play in the maintenance of manufacturing companies' competitiveness, and this has led to the appearance of a series of research works analysing the literature produced by academics with the intention of evaluating the state of the art, identifying the advances that have taken place and proposing research agendas for the future.

In recent years several works analysing various aspects of servitization from a qualitative and quantitative perspective have been published. However, none of them have employed bibliometric methods. The objective of this work is, therefore, to use bibliometric methods in order to obtain an overview of research into servitization and its evolution over a prolonged period of time. We have therefore identified the most influential documents and analysed the links between them with the intention of discovering the changes that have taken place as regards the intellectual structure of research into servitization.

This was done by following the methodology shown below:

- Selection of unit of analysis. We have identified the documents on Servitization published in the WoS between January 1980 and March 2015. The search process resulted in a total of 343 documents of which our so-called 'citting sample' was composed.

- The establishment of sub-periods of analysis. This was done by analysing the number of publications in the total period of analysis in order to identify possible sub-periods, concentrating on the annual frequency of publications. More specifically, we identified four stages: 1992 (in which the first document on Servitization was published in the WoS) - 2005, 2006 - 2008, 2009 - 2011 and 2012 - 2015.
- Co-citation analysis. The 'cited sample' was obtained from the documents published in each stage. This contains all the bibliographical references cited by the 'citting sample', with the intention of constructing the matrix of co-cites for each of the stage. The analysis of co-cites was based on recounting the number of times that each possible pair of bibliographic references had been cited together.
- Network analysis were used to calculate the degree of closeness of each of the references cited for each of the stages.
- A two-level effect multi-variant analysis was then applied to each of the stages in order to determine the existence of groups within the structure of the network of co-cites for a particular stage.

  1) A factorial analysis was carried out with the objective of obtaining a set of explicative factors of an appropriate percentage of the explicative variance.

  2) The identification of the literature bases from the factorial score obtained for the bibliographic references. The factorial weight indicates the degree to which the bibliographic reference explains the factor.

The methodology described above was therefore followed in order to identify, for each of the stages, the most important bibliographical references according to the position that they held in the network of co-cites. In order to recognise the current tendencies in literature as regards Servitization, we present the results of a factorial analysis for each stage and describe the contents of the factors that explain the highest percentage of variance in each sub-period, in order to discover the changes that have taken place as regards the intellectual structure of research into Servitization.

The results of the factorial analysis have allowed us to identify seven factors, which we have denominated as: 'Service Strategy in Industrial Companies', 'Servitization Strategy', 'Service-Product Systems', 'Service Dominant Logic', 'Co-creation of Value', 'Sustainability' and 'Services Engineering'.

A preliminary analysis of these data has revealed that the research topic denominated as 'Service Strategy in Industrial Companies' is present in three of the four stages analysed, but has lost its influence over time. A topic of greater importance denominated as 'Servitization Strategy' has, however, emerged, which is present in 14, 19 and 21% of the explained variance in stages 2, 3 and 4, respectively. This shows a clear evolution of more general topics over those which are more specific. Note that Vandermerwe and Rada first coined the term Servitization in 1988. The discipline of Management plays an important role in both cases.

The topic denominated as 'Service-Product Systems', in the discipline of Operations Management, is similarly present, and continues to grow, in the last three stages of the research into Servitization, with 12, 15 and 17% of the explained variance in each case.

However, in the last two stages it is notable that new research topics have appeared, such as those related to 'Service Dominant Logic' (Vargo y Lusch, 2004) and 'Co-creation of Value'. In these cases, the discipline of Marketing is prevalent in the literature on Servitization.

All of the above has allowed us to contribute towards determining how the research on the topic of Servitization has evolved over time. We believe that this work complements research carried out using traditional qualitative methods, since the volume of scientific works currently published and the considerable number of academic journals available makes the use of qualitative methods inevitable.

Keywords: Servitization, Intellectual structure, Bibliometric analysis.

Acknowledgments: This research has been partially funded by the Regional Government of Madrid under the SICOMORo-CM (S2013/ICE-3006) project, by the MASAI (TIN-2011-22617) and ELASTIC (TIN2014-52938-C2-1-R) projects, financed by the Spanish Ministry of Science and Innovation, and by the Service Science,

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Analysis of the virtual reputation management and its impact on the hotel finantial performance: The effects of answering Tripadvisor posts in Andalusian independent hotels

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Abstract

This work entitles an empirical study based on the virtual reputation of the independent hospitality sector (3* and 4*) in Andalusia between 2012 and 2014.

The analysis goes over the evidences that underpin prior studies –rejecting several of them-, denying the assumption that answering the posts recorded in the corporate social media is always positively associated with perception rate and, ultimately, economic performance.

Keywords: reputación virtual, gestión del EWOM, desempeño financiero, shareholders liquidity ratio.

Customer perceptions regarding services in small and medium retailers

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Abstract

Introduction: The purpose of this paper is to measure what are the perceptions that customers have towards local small and medium retailers regarding the services they offer. In order to do so we first report the state of the art of the main theorists on servitization applied to other areas rather than manufacturing. We analyse the concept of servitization applied to retailing.

According to Vargo and Lusch (2004) we live in the era of services, which has been presented theoretically by the logic that all organizations, markets and society are involved in the exchange of services. By this logic, marketing should pay much more attention to principles, theories and practices of services. This paper analyzes first, the main theories and concepts of services, the tools related to the management of services marketing and the servitization concept (Vandermerwe & Rada, 1988).

Servitization is recognized as the process of creating value by adding services to products (Vandermerwe & Rada, 1988). The growing interest in servitization by scholars, business and policy makers is rooted in the belief that a move towards servitization could create additional value for the organizations (Hewitt, 2002; Muller & Doloreaux, 2007; Baines et al., 2008; Smith et al., 2014).

Scholars have studied servitization from different points of view during the last decades (Nordin & Servadio, 2012). One research stream is an internal perspective in the analysis to understand the servitization from the company's inside (Galbraith, 2002; Oliva & Kallenberg, 2003). A second stream, also internal, is how service

offering is carried out by manufacturers. Here the purpose is to identify organizational competences and capabilities that have to be practiced in order to deliver services, but in addition, it links the internal activities with the external factors involved in the process of servitization (Davies et al., 2007; Shepherd & Ahmed, 2000; Gebauer et al., 2007; Spring & Araujo, 2009). The third research stream it is defined as relational dimension of servitization and here the focus is on the external activities and on understanding how and why manufacturers interact with different networks when delivering services and solutions (Hakansson & Snehota, 1989).

The articles within this research stream have been grouped into two categories (Nordin & Servadio, 2012): 1) the first one is based on supplier-focused articles; 2) the second is composed by mainly customer-focuses articles. The latter is closely related to the idea that customers are considered as active actors that could co-create value in the servitization process (Vargo & Lusch, 2004, 2006; Grönroos, 2008).

As far as we know there are not too many papers devoted to servitization in retailing and so there is a gap to fil in this area. From this perspective this study aims at analising the perceptions that customers have related to small retailers and explore the idea of how the active role of customer could co-create value in the servitization process.

Methods: The methodology used in this article first is the review of the state of the art, present in books and articles. Our investigation consists of an extensive analysis of services, retailing and servitization. Then an empirical study to 1000 customers is carried to measure the perception that they have regarding small local retailers services.Findings

Findings: The findings of this paper are to measure the concept of servitization in retailing and more precisely to small and medium retailers from the customer point of view.

Implications: There are some important implications at different levels. For the scholarship there would be a theoretical contribution to better understand how the servitization concept could be applied to a retailing context. At the managerial level, the identification of

the customer's perception and the possibility to offer new services in order to increase the value offered could increase the competitiveness of the small and medium retailers.

Keywords: servitization, customer perception, small and medium retailers, survey.

Market orientation, innovation and servitization in small retailers in two regions

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Abstract

Objectives: The general objective of this paper is to measure whether the market orientation of small retailers is related to the servitization concept and to a more innovative profile of the retailer. The specific objectives of this paper are:

- Apply a multidimensional market orientation scale and check its reliability and validity in a two regions (Elg, 2003; Kara, Spillan & Deshields, 2005).
- Apply a retailers innovation scale and check its reliability and validity in two regions (Agarwal & Prasad, 1998).
- To develop a Retailer Servitization Indicator (R.S.I).
- To measure if higher score in R.S.I is related to higher scores in market orientation.
- To measure if higher score in R.S.I is related to higher scores in the innovation scale.
- To measure if a higher market orientation scale is related to a higher score in the innovation scale (Aldas-Manzano, Küster & Vila, 2005).

There is no too much literature on servitization applied to retailing and so there is much too explore conceptually and empirically. In order to do so we analyse the concepts of market orientation (Narver & Slater, 1990; Jaworski & Kohli, 1993; Pelham, 2000), innovation (Atuahene-Gima, 1996), servitization (Vandermerwe & Rada, 1988) and retailing (Dawson, 2000). After the literature review

we choose the most appropriate scales to measure market orientation (Elg, 2003; Kara, Spillan & Deshields, 2005), innovation (Agarwal & Prasad, 1998), and we develop a servitization indicator for retailers.

Methods: This study aims at analising the servitizatin concept in retailing and in order to do so we use qualitative and quantitative approach. First we have personal interviews with retailers and retailers' association directors. Then we use a survey to 800 retailers in two regions in order to measure the previous topics.

Findings: The findings of this paper are to explore the concept of servitization related to market orientation, innovation in small retailers in two regions.

Implications: The main contribution for academia is to propose reliable and valid tools to measure servitization, market orientation and innovation in retailing. For managers to offer them appropriate tools to measure and improve services oriented to customers. For policy makers it would be interesting to diagnose the situation of different regions and identify different profiles of retailers to have different recommendations to each of them.

Keywords: servitization indicator, small retailers, market orientation, innovation.

Developing a policy package to promote the servitization of crop protection in viticulture

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Abstract

Objectives/Rationale: The spread use of pesticides in agriculture, at least in the more intensive models of production, has important consequences in the environment and in people's health. The challenge of environmental sustainability in the agricultural sector may be faced through different practices, with organic farming being one of the most recognized alternatives. This paper proposes the servitization approach in vineyard protection as a valid alternative to achieve the decoupling between the economic and environmental performance of viticulture. Due to the existence of a lock-in situation in the use of pesticides (Jacquet, Butault, & Guichard, 2011; Vanloqueren & Baret, 2008; Wilson & Tisdell, 2001) and because of the characteristics of eco-innovation, it is usually acknowledged that policy support is needed to promote system changes (Rennings, 1998, 2000). The process of implementing policies and the selection of the more effective instruments to promote systemic changes in favour of sustainability must follow a specific approach. For instance, strategic niche management has been analysed in relation to organic farming (Smith, Voß, & Grin, 2010; Smith, 2006).

In this paper we present the policy package concept and the specific protocol to develop it. The outcome is a policy package aimed at promoting the uptake of a servicized model of crop protection in viticulture.

Methods: In this paper we use the policy packaging process that has been defined and presented by Feitelson, Givoni, & Matt (2013). The policy packaging process aims to try and ensure that the political formulation process is streamlined, to the extent possible, and is progressing while considering several stages and associated evaluations. The policy packaging process entails thus the use of different tools along the different steps. Amongst others, an Agent Based Model (ABM) was used to estimate the potential of the policy measures to achieve absolute decoupling through servicizing.

The process builds on a case study focusing on crop protection services in the Designation of Origin Rías Baixas (Galicia, Spain).

Results/Findings: The policy package obtained through the specific protocol, with different combinations of policy instruments tested in the ABM and evaluated against several criteria of effectiveness, implementability, social and political acceptability appears effective; meaning the goal set up at the start of the process is achieved. In addition, an evaluation of policy makers and experts in the field of grape growing endorsed the feasibility of the package.

Implications/conclusions: A policy package, defined as a bundle of policy measures specifically aimed at achieving an objective, is necessary to support the decoupling of economic and environmental effects in agriculture through a shift to servicizing. In this paper, a policy package has been formulated to promote the uptake of a servicized model of vineyard protection. In doing so, we have tested a specific methodology to design policy packages, which follows a step by step protocol and uses several tools. The main contribution of the paper is therefore the formulation of a targeted policy package according to a systematic methodology. The process is critically evaluated at the end of the paper and it can be used as a starting point for policy makers interested in promoting complex regime shifts.

Keywords: vineyard protection, servitization, decoupling, policy packages.

The internationalization of digital services in B2C markets: Branding or country of origin effect?

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Abstract

Though the increasing trend towards globalisation presents enormous opportunities for international market expansion, it has been acknowledged that the success of an internationalisation strategy depends, among various other factors, upon having a good understanding of the attitudes that consumers from different countries have towards foreign products or services (Netemeyer et al., 1991). In this respect, an incipient stream of research on servitization has been centered on the analysis of how digital services are commercialized to final consumers. Previous research focused on the perception of digital formats for final consumers (Parry et al., 2012), and its influence on supply chain approaches (Bustinza et al., 2013). However, there is not a clear understanding about the internationalization patterns of digital services yet. This is especially relevant given the fact that the success of digital services resides on the quantity sold, rather than on the margin obtained, and hence, firms commercializing those services are forced to expand their offer to foreign markets (Grönroos, 1999).

The present research aims to shed light on this gap by building upon existing international business and marketing literatures constructs such as country-of-origin (COO) effect (Ciravegna et al., 2014; Gomes et al., 2014) and cultural distance (Johanson & Vahlne, 1990). We hypothesize that these variables are as important as the brand

of the digital service provider in influencing consumers' purchasing decisions. This hypothesis is underpinned by the fact that digital services are offered in various diverse forms, making it difficult for consumers to be able to evaluate the real quality of all digital services. For instance, movies produced in Hollywood may exert more influence on consumers' perceptions and purchasing decisions than the actual quality of the movie.

In this study, these aspects are investigated in the context of the internationalization process of a British multinational that is intending to commercialize their digital services across the globe. To this end, we analyze how the COO British media services, in this case dubbed as 'Britishness,' affects consumers' purchasing decision in 22 potential target markets, covering a wide international spectrum. In doing so, we take into account the moderating influence of national cultural distance, as well as of the strength of company's own brand.

The analysis is based on extensive and unique surveys of 19,000 consumers, undertaken in 2013. Absolute sample sizes cover between 500 and 1,500 consumers per target market, depending mainly on country size. The central construct of 'Britishness' is constructed using 8 Likert scale items ('I generally prefer British to American programmes', 'I generally prefer British to local programmes', 'I love British programmes in general', 'I would love to watch more British programmes than I currently do', 'I love British Comedy programmes', 'I love British dramas', 'I love to see cultural differences such as "Britishness" when watching British programmes', 'British programmes are well filmed and have a high production values'). We have missing data since some respondents did not provide an answer to this question. In total we have 16,717 observations, and as 87.9% of consumers interviewed answered this question.

The other relevant variables of the study are relative brand recognition, which compares the valuation of the British brand to two other renowned competing international brands; and cultural distance, measured through the Hotsfede cultural distance index (Minkov & Hotsfede, 2011).

Results suggest that, on average, the COO effect (Britishness) is negatively linked with the brand recognition, suggesting that there is

a disconnection between brand and country effects. Besides, the optimal promotional strategy depends on the country and hence in some markets, the COO effect is expected to help the digital service to achieve a faster penetration. Further to this, the relationship between cultural distance and COO effect is negative. Countries culturally close to the British show larger COO effect than middle range cultural distance countries, and these ones have larger COO effect than distant countries. Not surprisingly, this suggests that direct contact with British culture will exert a positive influence on the COO effect.

This research has implications for academia and practitioners. The internationalization of digital services is contingent to the country in which they are commercialized. Managers should take into account this fact when designing their international strategies. Our results seem to suggest that while in some countries market penetration may be more facilitated by promotional campaigns emphasising the country brand ('Britishness'), in other markets, a stronger emphasis on the company's brand may be more appropriate; or a combination of both.

Our findings also have important implications for researchers. Our findings, not only corroborate previous findings suggesting that the COO effect is an industry related factor (Pharr, 2005), this research also has limitations; specifically future research will need to explore the links between the implementation of those international strategies and their performance.

Keywords: Digital services, Internationalisation, B2C, Country of origin.

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Why would a service-based SME add manufacturing capability?

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Abstract

This is an exploratory case study of a service-based SME which has moved into the product development of integrated solutions by developing an in-house manufacturing capability. Semi-structured interviews were held with five representatives, which were thematically analysed. Three main themes – value, partners and innovation – emerged, highlighting the motivations for the transition and the mechanisms by which it was achieved. An interpretation of the case based on the definitions of productisation and servitisation was then discussed, highlighting their potential complementary roles as a further topic for research.

Keywords: productisation, servitisation, service organisation, manufacturing.

Managing human resources in mergers and acquisitions operations

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Abstract

This chapter analyzes the literature on the role of HRM at each stage of the M&A process for developing a combined framework. To achieve this objective, we conduct a review of the literature. To search the previous literature, three related databases have been considered: Web of Science (WOS), Scopus, and Dialnet. Once the articles have been identified, we have placed them within the three stages of M&A operations –planning, integration and implementation- in order to study the prevailing views and existing gaps.

Although the existing literature reveals that some authors have studied the three stages in the M&A process and their relationship with HR, but most papers focus their research on a single part of the M&A process. Accordingly, with a view to understanding the importance HR management has in M/A processes, this chapter sets out to describe a model of the M&A process that integrates the contributions made by the authors in each stage. In other words, the factors related to HR in M&A activities will be identified and analyzed, along with their implications and the actions required for their management at each step on the way.

The evolution and impact of servitization in business perfomance: Evidences from Spanish manufacturing firms (1994-2013)

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Abstract

In recent decades we have witnessed a clear transformation in the industrial economies of developed countries. Furthermore, despite the relative size of the industrial sector's Gross Domestic Product shrinking in those regions, there has been a growing interest in nurturing the industry. On the one hand, in many manufacturing sectors competitors from developed economies were unable to compete with companies from low cost countries, so both companies and local authorities seek out appropriate strategies for maintaining or even improving the industry's future economic prospects and viability. On the other hand, technological developments and the increased sophistication of products and processes provide an opportunity to remain competitive. These advancements not only have the potential to impact the manufacturer´s existing market, they may also equip firms with the potential to break into new markets both in product and services fields. The so-called 'New Industry' we are referring to include the manufacturing industry (traditional industry) alongside production-oriented services. The latter is usually more likely to flourish in regions with a long tradition in industry since opportunities are born from the demands of the manufacturing companies upstream and downstream activities: energy, parts, subcontracting services, banking, transport, communications and ICTs, after-sale and maintenance and other business services, etc.

The European Commission has also emphasized the importance of the real economy and a strong industry. This is primarily due to the fact that industrial activities are integrated in increasingly rich and complex value chains, linking flagship corporations and small or medium enterprises (SMEs) across sectors and countries.

In line with this new context, manufacturing companies have been changing their business models, introducing added services and intangible features to their offerings. Since the 80s the idea of servitization as a benefit-adding, value proposition through increased offerings such as a combination of products with services, support or knowledge has been the focus of study for numerous scholars (Vandermerwe & Rada, 1988; Neely et al., 2011; Manzini et al., 2001; Baines et al., 2007; amongst others).

Presently in our increasingly competitive and dynamic environment servitization provides companies with new opportunities for novel and sustainable value propositions. The result of which can lead to the attainment of unique competencies and/or combination of resources that are difficult to imitate, and this in turn has the potential to change their business models. For this reason it is a promising field for mature industrial sectors in which companies are constantly striving for new ways to differentiate their offerings and add value for their customers. Additionally, and in some sectors more importantly, added services usually require proximity and trust and imply long-term relationships, thus providing incumbents with an additional competitive advantage over potential low-cost new entrants.

Nevertheless, along with the benefits come the pitfalls and risks. Servitization implies a risky and long-term strategic change. According to some studies, despite most manufacturers embarking on this form of strategic renewal (80%) only 1 in 5 emerge successful (Moscoso & Lago, 2008).

The objective of this paper is to analyze the incorporation of services to existing offerings by Spanish manufacturing companies since 1994 to 2010 and the consequential impact this had on economic results, growth and employment using descriptive and longitudinal approaches.

Information source used to analyse the impact of servitization into business performance is the "Encuesta sobre Estrategias Empresariales (ESEE)". This database is managed by Fundación SEPI dependant from the Ministry of Finance and Public Administrations of the Spanish Government.

Keywords: Level of Servitization, Spanish manufacturing firms, empirical evidences.

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Innovation and experiential services: The role of multidisciplinary arts in creative gastronomy: Toward a research agenda

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Abstract

Nowadays the unification of multidisciplinary teams of artists with gastronomy innovation laboratories is a key issue for promoting culinary creativity, as well as a strategic tool for fostering the so-called "gastronomic experiential services". This paper undertakes an analysis of experience as an innovative element for services in the field of gastronomy.

Our propose an analysis of the concept of experiential services to apply it in gastronomic services so as to understand and further develop the idea and its components. Teams of artists have been important for innovative processes in many fields, including a range of technology activities, in advertising, and in IT. In this regard, it is clear that the study of the contribution of artists working in multidisciplinary teams within gastronomic experiential services is critical, since they present many opportunities for new and alternative innovations. In addition, they provide the possibility of creating new companies, with new organizational structures and competitive strategies. What we are facing is a new market in which culinary flavours, aromas, textures and colors offer the customer an enhanced experience based on today's creative approaches to gastronomy. Placing experience at the core of service innovation can be a powerful and creative motor, but it requires close coordination and management to deal with the rich variety of artistic and gastronomic skills if successful outcomes are to be ensured.

Keywords: Innovation, experiential services, innovation in creative gastronomy, multidisciplinary arts, design services experience.

Predicting the reliability of product service systems

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Abstract

In the last decade the Product Service System (PSS) has emerged as a new business model aimed at generating value through the integration of each phase of a product's life cycle. However, it is clear that PSSs are complex, and they impose challenges and risks on organisations and their supply chains pre and post the point of sale (Baines et al., 2009a; Martinez et al., 2010; Neely et al., 2011). Accordingly, PSS providers require abilities characteristic of High Reliability Organisations (HRO) that are capable of managing through-life service risks linked to uncertainty, extended timeframes and pre-determined financial models. Competitive advantage and high reliability service offerings require balanced, market-aligned improvements across numerous parts of the service organisation and its extended supply chain.

PSS embody the shift by manufacturers downstream into services that has now progressed beyond the deliberate approach of large intercontinental giants. Smaller OEMs also view going downstream as a new profit imperative, opening the factory gate to co-create revenue streams that span a products entire service life. However, this transition identified as servitization is not all smooth sailing. Profitable service delivery often takes years, requires the development of new skillsets and introduces new risks. Success resides in a business's ability to re-examine value chains, innovate service offerings, develop service capabilities and re-engineer operational and business frameworks. The complex and challenging nature of these transformations leave many gaps in service engineering research to mitigate long term risks of in-service assets.

Managing servitization complexity is contingent upon understanding the service context. This is regulated by factors external to the service organisation as well as the adopted servitization strategy. The level of service customisation and value co-creation generate differing demands and risks on service providers. The complexity also has close relationship with the nature of the product being served. Complex products like those found in aerospace or defence highlight that technological products consist of many integrated subsystems each of which demand specialist capabilities. Managing complexity in such service environments requires customised service business models, specific to each particular service context. By modelling the attributes of real firms with those of an 'ideal', management is afforded insight into their firm's relative strengths, weaknesses, opportunities and risks.

Zeuschner and Mo (2014) presented an enhanced product service system model incorporating the characteristics of High Reliability Organisation (HRO). The concept of HRO can be traced back to the late 1980's. HROs are organisations with specific capabilities revered for their management of the unexpected. By doing so, we argue that a PSS incorporating HRO capabilities builds reliability into its service offerings. The overlap between HRO, servitization and a service performance framework is shown in Figure 1.

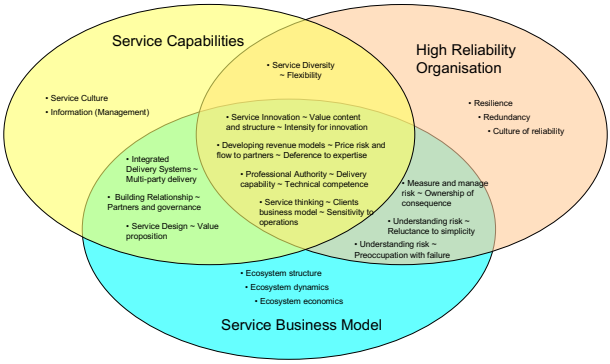

Figure 1. The interrelatedness of service capabilities, HRO and service business model

Integral with the delivery of high reliability service is an awareness of risk. HRO's preoccupation with failure describes their conscious effort to avoid complacency. This principle originates from a cognitive bias in humans that having achieved success, people or entire organisations become predisposed to expect future success. To counteract such tendencies HRO pursue incongruities and encourage a just and reporting culture. HRO place value on people's observations and do not disregard gut-feelings.

To assist Product Service System architects or managers decide whether HRO capabilities are sufficient to deliver the desirable service reliability, a quantitative method of risk assessment would be desirable. Many previous researches have focused on quantifying the effect of improving capabilities on performance of organisations (Bourne, 2005; de Waal & Counet, 2009) but very little research is found on determining the reliability of service delivery.

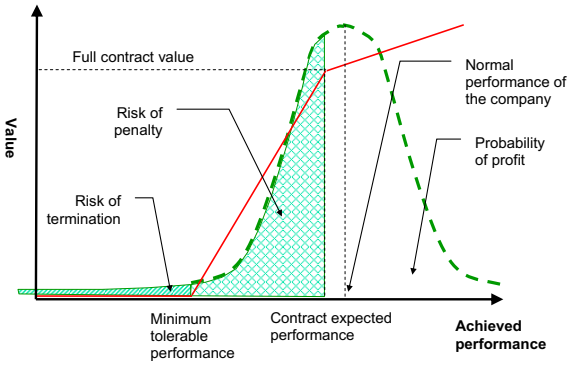

Figure 2. PSS performance distribution compared to contract requirement

In Figure 2, the service provider is expected to deliver the "contract expected performance" in exchange for the full contract value. If the service provider achieves performance better than the "contract expected performance", there is a bonus that is proportional to an agreed performance measure. On the other hand, if the service provider under-performs but the service remains tolerable; they will be rewarded at reducing value proportional to the performance

scale. There is typically a point "minimum tolerable performance" where the performance is negligible in value as the required outcomes cannot be obtained.

Hence, a PSS provider must achieve the expected performance level in order to receive full contractual payment, anything less results in degradation of its revenue. The rate of revenue reduction can be any linear or non-linear function. A point to note is that if the contract is terminated, the customer may further seek compensation for damages to their business as the system does not produce the required function, leading to further financial loss.

If the capability of the PSS can be estimated, it is natural to think of the outcome of applying a capability measure to predict where the PSS will deliver the expected contractual performance. At the PSS design stage, the capability of a PSS can be estimated, but in service and over time uncertainty grows, increasing possibilities that the capability can fall anywhere within a normal distribution as shown in Figure 2. The area under the normal distribution curve represents various probabilities of the PSS achieving certain performance level.

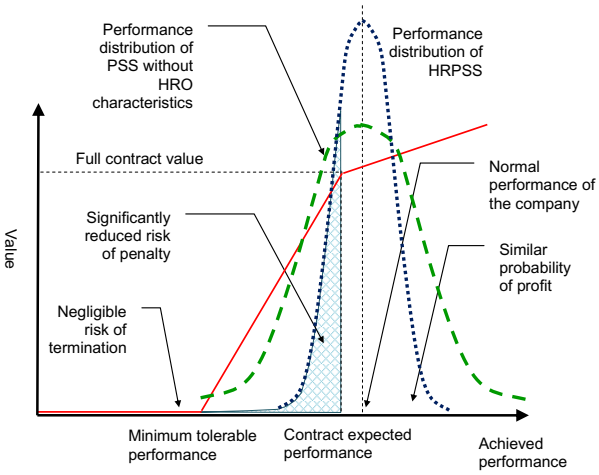

Figure 3. HRPSS performance distribution compared to contract requirement

Applying HRO causal factors successfully to a PSS offering represents reduced spread across the distribution. Figure 3 illustrates this point as a narrowing of the distribution curve, thereby decreasing the probability (risk) of penalty and termination. It is important to note the applying HRO does not automatically shift the curve left or right which would indicate either a decrease or increase (respectively) in PSS performance capability. This paper uses the enterprise system framework (known as 3PE) defined by Mo (2012) to build a capability model that represents a High Reliability Product Service System (HRPSS) so that a benchmarking exercise may be performed to find the current capability distribution. In this formulation, the three PSS elements in Figure 1 are modelled as shown in Figure 4.

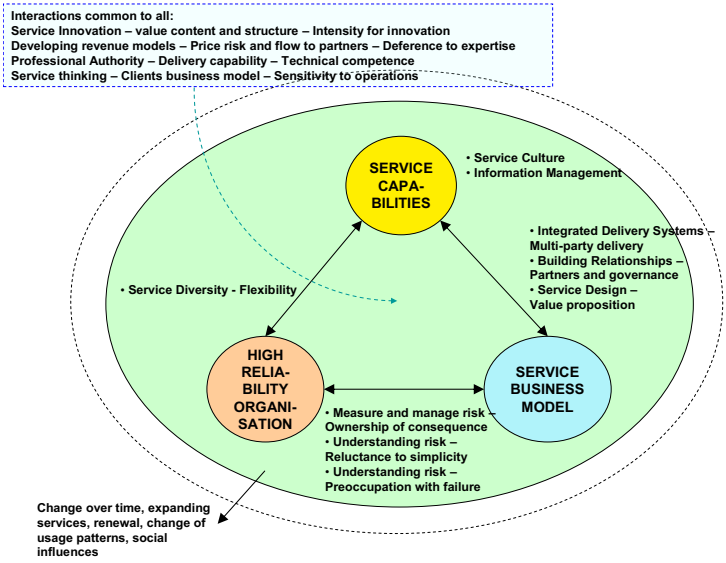

Figure 4. HRPSS under 3PE modelling framework

Having defined the HRPSS in the 3PE framework, the risk assessment methodology and the process presented by Nicholds and Mo (2015) can be used to assess the reliability of service that is expected to be

delivered by the HRPSS. This paper will explore the principles and governing parameters of a HRPSS and outline the application of 3PE risk assessment methodology with a worked example.

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A framework for analyzing integrated solutions

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Abstract

Introduction: Manufacturers can gain a competitive advantage by addressing their customers' needs and providing a combination of services and products (Wise & Baumgartner, 1999). Services and products integrated into a seamless offer that focuses on consumer solutions rather than products could be termed an integrated solution (Lightfoot, Baines & Smart, 2013; Wise & Baumgartner, 1999), a form of business model to move downstream in the value chain (Wise & Baumgartner, 1999).

However, in addition to the existence of various business models and solutions in different companies, various kinds of solutions are also provided simultaneously within each company (Kowalkowski, Windahl, Kindström & Gebauer, 2015). However, even though it can be argued that various types of solutions require different approaches in an organization (Galbraith, 2002), it seems classifications of solutions often are built on a comparison between companies (see for example Davies, 2003; and Johansson, Krishnamurthy & Schlissberg, 2003)), neglecting that various solutions exist within each company. As all solutions are not the same within a company, various aspects must be considered when developing those solutions. To further develop the integrated solution concept regarding various solutions, focusing on the differences and similarities between solutions when developed within each firm, the purpose of this paper is to develop a framework to analyze integrated solutions.

Research design: As the concept of integrated solutions is a phenomenon that is hard to separate from the context a case-study approach was beneficial (Yin, 2014). Semi-structured interviews

were used to collect the data. This choice of data collection method enabled for discussion about various aspects, meanwhile allowing for coverage of specific subjects and areas (Bryman & Bell, 2011). The interview guide used during the interviews was developed based on various characteristics of integrated solutions discussed in previous literature. In total eight recorded interviews were done in two case companies, four at each corporation.

Findings: As various solutions call for different approaches within the organization (Galbraith, 2002), it is important to understand what kind of solution is being developed when organizing the development of the solution components and the overall offerings. Complementing previous research focusing on the integrated solutions as a business model on a company level, this paper investigate various integrated solutions existing within a company, and developed a framework to analyze integrated solutions with focus on the development of those within each company.

The first identified aspect, highlighted in both theory and by the respondents, is that all integrated solutions should address the customer (Brax & Jonsson, 2009; Storbacka, 2011). In the empirical data it is however evident that different solutions address customers in various ways. The addressing of a customer could be made either by solving a specific problem of the customer, by delivering value-in-use for the customer, or by focusing on the outcome and results of the customer's operations.

Second, how integration is carried out when providing integrated solutions is also an aspect to use to analyze integrated solutions. The results from this study indicate that integration could take place in different parts of the company, affecting the solution development in various ways. Commercial and technical integration are discussed previously by Johansson et al. (2003) and seem to be one aspect influencing various types of solutions and their development to a large extent. The integration could hence be carried out either commercially, by the market or sales department within the company, or technically, including integration between solution components as well as integration into the providers' systems and/or their operations. To be able to integrate the solution vertically into the customer's system (Miller et al., 2002), it

seems in this study as technical integration need to be performed to some extent, as the solution has to be integrated into systems and other solutions by other providers, being used by the customer.

The third aspect for analyzing integrated solutions within a firm is the extent to which the solution is being customized. In terms of solution development, the solution could be either customized by adding or adapting service components in the offering, or by selling the solution in various ways to the customer, e. g., by leasing contracts, renting contracts or functionality contracts. The customization could also be technical, with various degrees of configuration or adaptions to the customer.

Hence, the framework is built up on three aspects; addressing the customer, integration and customization. Different approaches to those aspects result in the development of different integrated solutions within each company.

Keywords: Integrated solutions, framework

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Author Index

The 4th International Conference on Business Servitization (ICBS) celebrated on 19-20 November 2015 at Rey Juan Carlos University (Madrid, Spain).

In this fourth edition of the conference, following the success of previous editions, we have been happy to provide the scientific community related to the topic of servitization, with a meeting place to share advances in research. The 4th edition had as overarching theme: "Servitization: strategy, innovation and impact", and the day-and-a-half programme attracted different participants. It was presented 35 papers by 78 authors from 9 different countries.

As keynotes, the conference counted with the presence of, Professor Gebauer, who is a recognized author in the field of servitization; Leopoldo Maestu (from ALSTOM group), with broad experience in processes of servitization, and Elisa Martin (from IBM), as example of a company which has developed servitization and provides services to other companies.

We also counted with the presence of a number of managers, who I am sure found the subject very interesting and useful for their organizations. It was be very positive to share our research with them.

We are confident this book of abstract will be very interesting for all researchers interested in the topic of servitization. The conference inherit the current research of international academic community on the emerging field of servitization, which not only focus on the theoretic developments, but also pay attention to practical applications of the methods and techniques. Through this conference, participants shared the latest research findings and practical experiences and exchanged their innovative ideas.

The 4th edition of the International Conference on Business Servitization has allowed to bring together the scientific community of servitization and has provided important contributions that will be published in soon in prestigious journals.

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