



Preface

The service era is characterized by the increasing participation of users in service delivery and value creation as well as by the rise of competition among companies which is mainly due to the fast pace of technological change.

This complex socio-economic phenomenon has had significant effects and implications on marketing and management. In fact, the current research has gradually redefined the meaning as well as the conceptual boundaries of some changing notions such as service and innovation.

Starting from the need for an all-encompassing perspective on markets and embracing an original (eco)systems view, this work offers a reinterpretation of service innovation, highlighting and offering a better understanding of the most critical management issues which the extant research has underestimated.

The adoption of a meta-perspective (enveloping micro-, meso- and macro-environment in the analysis of ecosystems) let the work combines the most recent developments of S-D logic and Service Science with a general system mind-set, aimed at exploring that “missing link” of innovation process from which its bi-directionality and to the renewal of knowledge rise up.

The definition of an original system perspective on service innovation has led the study to addresses service research toward: 1) a reconceptualization of service innovation; 2) the analysis of service innovation management; 3) the reconceptualization of new business models fostering innovation in new service era. Therefore, this work represents a synergistic synthesis – intended as a fertile integration in line with the Hegelian thought – of the most recent advancements in service research, pointing to systematize service innovation models. In fact, several are the works delving on the shifting from a product-oriented vision of innovation to a system-based view, even if an accepted definition of service innovation still lacks.

The definition proposed in the book presents an all-inclusive and strategic conceptualization of service innovation aimed at investigating how decision makers can manage and optimize: 1) multi-levelled relationships and multi-stakeholder collaborations; 2) the emergence of value co-creation in all the phases of service co-delivery; 3) the appearance of different kind of innovations (product, service, social development, etc.). For this reason, a key reinterpretation of service innovation paves the way also for an interesting research agenda on the need for managing innovation from its early stages, to “close” the innovation cycle and to reopen it in order to renew knowledge over time. Therefore,

the value added of this work lies in the exploration of the most suitable strategies for handling the whole innovation path in progress and, above all, for understanding how to re-start the process through the ongoing regeneration of innovation rising from a circular resource exchange. Indeed, the circularity is the key concept of the model that has been presented in the last section, which analyses not only the main dimensions of service innovation, but also its key drivers, such as resource integration, value co-creation – focusing on social, technology and human dimensions – and its consequences e.g. well-being, viability, and creativity.

Finally, the end point and the main result of the proposed circular model is the gradual and potential rising of creativity and co-learning, intended as levers for an ideal and never-ending dissemination and reproduction of innovation.

Thus, service innovation can be considered as a real philosophy, which should permeate decision-making starting from the first strategic steps and, then, which should be always nourished through the gradual improvement of the ecosystem well-being. Hence, in this way management might be able to address in real time complexity as well as user's needs developing a proactive attitude towards the co-evolution.

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Introduction

Over the last decades, the diffusion of service-based economy has led to the redefinition of the traditional meaning of goods and services, of user's role in service provision and of the "old" closed business models.

In this complex scenario, characterized by a mounting hyper competition, customers have more and more information on products and businesses conduct. Consequently, they have turned into real co-creators actively involved in service production and delivery and – for this reason – they have also become more and more demanding. On the other hand, organizations should adopt open and flexible layouts in order to collaborate with users, intended as a key driver for fostering that knowledge exchange able to boost competitiveness.

This process of resource sharing, which can provide businesses with suggestions and new knowledge on products and services improvement, is currently almost totally ICTs-enabled. Thus, the spread of digital technologies has boosted actor's participation in service delivery by reducing time, costs and information asymmetry and offering opportunities for innovating together with users getting from relevant stakeholders a unique knowledge. Therefore, in the light of the leading role that ICTs have played as the "glue" of service exchanges, the aim of the work is to (re)define service innovation adopting an ecosystems-based mind-set intended as an all-encompassing philosophy, which transcends markets, exchanges and the relationship between goods and services as well as users and providers.

To achieve this goal and to explore a complex construct such as service innovation, a multi-dimensional approach is used for describing: 1) the definition and main dimensions of service innovation; 2) the main drivers for service innovation; 3) the innovation business models typical of service-era.

After a brief description of the shift from a general definition of innovation to the emergence of service innovation, Chapter 1 offers a review on service innovation, conducted according to the three approaches that have been reported in the literature: assimilation, demarcation, synthesis.

The transition from the first to the second approach lies on the fading away of the strict separation existing between product and service innovation, which has led to conceive service innovation as an autonomous construct. The last perspective, the synthesis, has been conceptualized as a general orientation that permeates the whole work and that is related to the call for the adoption of a new integrated perspective on service and service innovation.

In line with the shifting from assimilation to synthesis, the Chapter 2 describes the evolution from a *good-dominant* to a *service-dominant logic*. Thus, among the proposed different service theories, Service Science and S-D logic are depicted as the most adequate frameworks for rereading service in digital service era. The main assumptions and evolutions that the two theories have had over time lead to the development of two organizational layouts aimed at addressing contemporary businesses to challenge complexity: service systems and service ecosystems.

These two frameworks seem to be complying with a general system thinking that can be considered as an underlying philosophy that encloses S-D logic and SS.

This perspective proposes a meta-level able to better explore the relationships between and among micro-, meso- and macro-context.

More in depth – combining the main assumptions of S-D logic with systems thinking – service ecosystems represent the mind-set of the entire work. Based on this meta-approach aimed at defining service innovation across the three ecosystems' levels (micro-, meso- and macro), the main goals of the study are formulated. The remaining chapters are devoted to the analysis of each step.

Firstly, at the micro-level – in line with the overcoming of products supremacy over services – the Chapter 3 analyses how service innovation arises as a general philosophy, which transcend product and service exchanges. In particular, rereading the concept of service innovation in the light of digital era, the chapter focuses on the identification of platforms as essential ICTs tools for fostering innovation. Thus, the investigation stresses the definitions, architecture and dimensions of platforms, putting a great emphasis on their new conceptualization, based on the shifting from considering them simple technological tools to real intermediaries, which per se do not produce innovation, but are drivers that actors use to integrate resources. Specifically, the emphasis is on the role of service platforms in fostering actor's engagement. Moreover, the work has led also to hypothesize the existence of a bidirectional relationship between service platforms and institutions, which is able to enhance resource integration, value co-creation and innovation.

The Chapter 4 (meso-level) investigates the business models suitable for fostering service innovation. In line with the research on service and on service innovation, the open innovation models proposed over the time can be divided into three perspectives: 1) technology-driven (new product development); 2) customers-driven; and 3) service-driven (new service development and open service innovation).

The end point is open service innovation in networks, in which the attainment of innovative practices stems from interactive, relational and social dimensions. This all-encompassing and reticular conception of innovation paves the way for the proposition, in the concluding section, of an ecosystems-based view aimed at analysing the strategic management of innovation from the early stages of value co-creation process in order to detect whether the use of ICTs

can be strategically integrated with the other elements of service ecosystems.

In the last Chapter, the definition of service innovation is proposed. The concept is intended as a circular resource integrating process of new knowledge creation, which transcends all stages of the co-delivery and which culminates in products, processes innovation or in the creation of new service modalities and practices. In particular, it can be revealed that not all the steps leading to service innovation are explored in extant service research. Previous studies did not adequately stress the circularity of co-innovation process, which leads to knowledge renewal through institutionalization and technology. Therefore, the new knowledge rising from the dynamic resource integration is re-implemented as the input of the following innovation cycles and constantly regenerated.

In order to better describe the circularity of the abovementioned process, three drivers of co-innovation are identified: 1) collaborative decision-making; 2) pervasive use of technology; and 3) ICTs and fit mechanisms to enhance actor's alignment. Collaborative decision-making, technology (platforms) and fit strategies all encompass the entire co-innovation cycle, being enablers (before), intensifiers (during) and producers (after) of service innovation.

The three dimensions are singularly described and, then, integrated in an innovation pathway, explored in all its phases; thus, a fundamental last step is introduced to address toward the emergence of creativity.

Starting from an (eco)system-based view, the work rereads service innovation according to an original meta-perspective. This model overcomes the mere description of relational and interactive levels of service exchanges (the focus of S-D logic) to embrace a broad perspective. However, the proposed transcending systems vision calls for an in-depth exploration of the entire innovation cycle.

According to this strategic view on service innovation, its enablers and outcomes can be simultaneously explored through the investigation of the pivot of the entire process, that is resource integration. The co-innovation cycle needs to be managed throughout: 1) all the stages of the co-delivery; 2) all the steps of innovation, from ideas generation and diffusion to co-development; and 3) all the different kinds of innovation generated (from processes innovation to the creation of new service modalities and practices).

The first step for the introduction of a transcending framework of service innovation management through ecosystems-based models can address future empirical research to the specific investigation of the antecedents and consequences of innovation. Moreover, decision-making can be addressed to a better management of each innovation stage, through the continuous and emerging identification and harmonization of co-creation and engagement patterns. Therefore, service innovation stands out as a philosophy, a managerial orientation to the constant production and reproduction of new knowledge based on a proactive mindset for optimizing, spreading and renewing over time innovation.

Chapter 1

From innovation in services to service innovation

SUMMARY: 1.1. Introduction. – 1.2. The main Characteristics of Innovation in Services. – 1.3. Service Innovation: Some Categories. – 1.3.1. The Degree of Change: Radical versus Incremental Service Innovation. – 1.3.2. The Type of Change: Product versus Process Service Innovation. – 1.3.3. The Newness of Change: new to the Market versus new to the Firm. – 1.3.4. Means of Provision as a Change: Technology versus Organization. – 1.4. Do categories boost the understanding of service innovation? – 1.5. Reading Service Innovation according to different perspectives. – 1.5.1. Assimilation. – 1.5.2. Demarcation. – 1.5.3. Synthesis. – 1.6. Final remarks.

1.1. Introduction

In the last decades, the rising of the so-called service economy¹ and the “servicisation” of society² have led to paradigmatic changings in the business dynamics. Interconnected trends call for service prominence across socio-economic contexts. On the one hand, the importance of services industries and the related professions stimulated a wider debate on service productivity for economic development in the political arena. On the other hand, citizens are even more demanding for personal services (e.g. healthcare, banking, education, etc.). This complex scenario sheds lights on the fact that firms’ competition is even more played on service dimension, rather than on goods dimension. In other words, in the contemporary markets, immaterial attributes (such as dematerialization, networking, servitization, etc.) are emerging as fundamental critical success factors. Examples of this emerging trend can be recognised in many companies such as the International Business Machines (IBM), the General Electric, and the Hewlett Packard, which shifted from being primarily

¹ The notion of “service economy” refers to the fact that in the current economy more than half of the total labour force is employed by the service sector. While the importance of products has declined, the role of services in the global economy has grown steadily. Therefore, services are currently dominating the global economy, making up more than 70% of the aggregate production and employment in the OECD nations. BERRY, L., BOLTON, R.N., BRIDGES, C.H., MEYER, J., PARASURAMAN, A., SEIDERS, K., “Opportunities for innovation in the delivery of interactive retail services”, in *Journal of Interactive Marketing*, 2010, Vol. 24, n. 2, pp. 155-167. OECD, *Innovation and Inclusive Development*, 2013, OECD Press, Paris.

² TOIVONEN, M., TUOMINEN, T., “Emergence of innovations in services”, in *The Service Industries Journal*, 2009, Vol. 29, n. 7, pp. 887-902.

manufacturing organizations to service-based organizations³. For example, IBM sold the whole production to Lenovo, completely focusing its offering on data solutions and consulting and, in this way, changing its value proposition and consequently innovating its business model⁴.

Innovation is considered as a persuasive path that led organizations towards the creation of value and the achievement of competitive advantage; thus, it is synonymous with change or with an evolution process based on selection and learning mechanisms, which make organizations able to survive and develop. In a similar vein, innovation is commonly considered as the engine of economic and social progress, evolving over the whole twentieth century, since the Peter Drucker and Everett Rogers era⁵, as key research topic. Thus, these two fundamental authors approached innovation as «the effort to create purposeful, focused change in an enterprise's economic or social potential»⁶, considering it as the ability of firms in grasping the opportunities arising from the surrounding context and in spreading them among members of a social system. However, at the first innovation drove the attention of those economics scholars and researchers who were concerned with technological change. Hence, at its early stage innovation research mainly focused on science and technology as well as their link with economic productivity and the New Product Development⁷ model, intended at commercialising ideas and inventions⁸.

Over the last decades, the growth of services prominence in organizations

³ MILLS, P., SNYDER, K., "Defining competitive advantage in knowledge services", in: MILLS, P., SNYDER, K. (eds), *Knowledge services management*, Springer, New York, 2010.

⁴ The company defined its business model in order to achieve two main goals: a) supporting clients to succeed, delivering business value assuming a more innovative, efficient and competitive conduct, possible thanks specific business insights and IT solutions; b) offering to shareholders' long-term value. www.ibm.com

⁵ ROGERS, E.M., "New product adoption and diffusion", in *Journal of Consumer Research*, 1976, Vol. 2, n. 4, pp. 290-301. DRUCKER, P. F., "The discipline of innovation", in *Harvard Business Review*, 1985, Vol. 63, n. 3, pp. 67-72.

⁶ DRUCKER, P.F., 2002, *op. cit.* p. 96.

⁷ The New Product Development (NPD) model has been developed to better depict the way companies launch new product in a specific market. In particular, this model aims to define the one best way to develop innovation. One of NPD first model arose in 1982 from the research of the management consulting firm of Booz Allen Hamilton and it was defined the BAH model. The model breaks the product innovation process into seven stages and offers a simple linear progression that steams from the strategy development to the market launch. The BAH model has inspired most other NPD models, including the popular Stage-Gate model of Cooper. See COOPER, R.G., "Stage-gate systems: a new tool for managing new products", in *Business Horizons*, 1990, Vol. 33, n. 3, pp. 44-54.

⁸ SCHUMPETER, J., "Creative destruction" in *Capitalism, socialism and democracy*, Harper and Brothers, London, 1942, p. 825. GRILICHES, Z., "Patent statistics as economic indicators: a survey", in *R&D and productivity: the econometric evidence*, University of Chicago Press, Chicago, 1998. p. 287-343. CAINELLI, G., EVANGELISTA, R., SAVONA, M., "The impact of innovation on economic performance in services", in *The Service Industries Journal*, 2004, Vol. 24, n. 1, pp. 116-130.

and economy draw the attention on innovation in services⁹ making innovation in services one of most challenging research area¹⁰, which has gained relevance in different research fields such as strategy, marketing, operations, economics and information systems¹¹ as the growing number of contributions demonstrates¹².

In developed countries, the high rate of innovation efforts and the complexity of service development make innovation and in particular service innovation one of the most critical area of service management, being essential for service companies' viability. However, although the importance of innovation in services is widely recognized, service innovation can still be considered in its infancy in both theory and practice¹³. This implies that theory building on this topic is still its early stages¹⁴. Previous research on service innovation has mainly focused on two main issues: the nature of innovation in services and its

⁹ MILES, I., "Services in the new industrial economy", in *Futures*, 1993, Vol. 25, n. 6, pp. 653-672. MILES, R.E., MILES, G., SNOW, C.C., *Collaborative entrepreneurship: How communities of networked firms use continuous innovation to create economic wealth*, Stanford University Press, 2005. DEN HERTOOG, P., "Knowledge-intensive business services as co-producers of innovation", in *International Journal of Innovation Management*, 2000, Vol. 4, n. 4, pp. 491-528. MAGLIO, P. P., SPOHRER, J., "Fundamentals of service science", in *Journal of the Academy of Marketing Science*, 2008, Vol. 36, n. 1, pp. 18-20.

¹⁰ The importance of this research area emerges from the recent critical literature reviews on the topic, which aim at shedding lights on service innovation and its evolutionary path. SUNDBO, J., "Innovation and learning in services-the involvement of employees", in *Advances in Services Innovations*, Springer, Berlin, Heidelberg, 2007. p. 131-150. MAGLIO, P.P., SPOHRER, J., 2008, *op. cit.* TOIVONEN, M., TUOMINEN, T., 2009. *op. cit.* CARLBORG, P., KINDSTRÖM, D., KOWALKOWSKI, C., "The evolution of service innovation research: a critical review and synthesis", in *The Service Industries Journal*, 2014, Vol. 34, n. 5, pp. 373-398. SNYDER, H., WITTELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., "Identifying categories of service innovation: A review and synthesis of the literature", in *Journal of Business Research*, 2016, Vol. 69, n. 7, pp. 2401-2408.

¹¹ LUSCH, R.F., NAMBIAN, S., "Service innovation: A service-dominant logic perspective", in *MIS Quarterly*, 2015, Vol. 39, n. 1.

¹² ORDANINI, A., PARASURAMAN, A., "Service innovation viewed through a service-dominant logic lens: a conceptual framework and empirical analysis", in *Journal of Service Research*, 2011, Vol. 14, n. 1, pp. 3-23; DOTZEL, T., SHANKAR, V., BERRY, L. L., "Service innovativeness and firm value", in *Journal of Marketing Research*, 2013, Vol. 50, n. 2, pp. 259-276.

¹³ FLIKKEMA, M., JANSEN, P., VAN DER SLUIS, L., "Identifying neo-Schumpeterian innovation in service firms: A conceptual essay with a novel classification", in *Economics of Innovation and New Technology*, 2007, Vol. 16, n. 7, pp. 541-558. MAGLIO, P.P., SPOHRER, J., 2008, *op. cit.* OSTROM, A. L., BITNER, M. J., BROWN, S.W., BURKHARD, K.A., GOUL, M., SMITH-DANIELS, V., RABINOVICH, L., "Moving forward and making a difference: research priorities for the science of service", in *Journal of Service Research*, 2010, Vol. 13, n. 1, pp. 4-36. OSTROM, A.L., PARASURAMAN, A., BOWEN, D.E., PATRICIO, L., VOSS, C.A., "Service research priorities in a rapidly changing context", in *Journal of Service Research*, 2015, Vol. 18, n. 2, pp. 127-159. WITTELL, L., SNYDER, H., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., "Defining service innovation: A review and synthesis", in *Journal of Business Research*, 2016, Vol. 69, n. 8, pp. 2863-2872.

¹⁴ FLIKKEMA, M., JANSEN, P., VAN DER SLUIS, L., 2007, *op. cit.*

designing modes. Moving from these two main issues, the relationship existing between innovation and service and the main characteristics of service innovation will be presented and discussed in the following sections.

1.2. *The main Characteristics of Innovation in Services*

In current era, services span a wide range of industries and markets, such as customer services, business services as well as IT or legal services. This variety highly affects the way services are changed or innovated, focusing on different dimensions or processes ranging from the way they are designed and developed to the way they are delivered¹⁵.

A general definition of innovation considered it as «the introduction of a new product, or a significant qualitative change in an existing product, [...] the introduction of a new process for making or delivering goods and services»¹⁶. However, dealing with innovation in services implies the need for handling a bundle of different concepts strictly related to service delivery systems, client interfaces and technologies, not forgetting the way customers approach and use services¹⁷. In line with the previous considerations and pointing out its inner multidimensionality – nourished by its ability in involving functions other than R&D as well as actors internal and external to the firm –, service innovation has been also defined as «elevated service offering [...] new client interface/customer encounter; new service delivery system; new organizational architecture or marketing proposition; and/or improvements in productivity and performance through human resource management»¹⁸.

What really makes service innovation different from innovating in manufacturing industry are some intrinsic technical characteristics of the service, such as intangibility, heterogeneity, interactivity¹⁹, perishability²⁰.

¹⁵ MILES, K., “Innovative financing: filling in the gaps on the road to sustainable environmental funding”, in *Review of European, Comparative & International Environmental Law*, 2005, Vol. 14, n. 3, pp. 202-211. TROTT, P., *Innovation management and new product development*, 5th ed. Pearson Education, Essex, UK, 2012.

¹⁶ GREENHALGH, C., ROGERS, M., *Trade Marks and Performance in UK Firms: evidence of Schumpeterian competition through innovation*. Department of Economics, University of Oxford, 2007, p. 4.

¹⁷ DEN HERTOOG, 2000, *op. cit.*

¹⁸ AGARWAL, R., SELEN, W., “Multi-dimensional nature of service innovation: operationalisation of the elevated service offerings constructs in collaborative service organisations”, in *International Journal of Operations & Production Management*, 2011, Vol. 31, n. 11, pp. 1164-1192, 1172.

¹⁹ The interactivity calls for a growing customer involvement and the simultaneity between production and consumption. See, SAMSON, D., LAWSON, B., “Developing innovation capability in organisations: a dynamic capabilities approach”, in *International Journal of Innovation Management*, 2001,

The intangibility makes service innovation more difficult to make inimitable through patent protection²¹ and its measurement because it is mainly based on user perception²².

Service heterogeneity needs for tailoring activities, adapting them to each different service context. In this respect service innovation is highly context dependent calling for a more dynamic approach to organizing innovation in services.

Interactivity draws on the fact that service production and consumption occur simultaneously, so service innovation calls for interactive and coupling processes between service providers and customers. Interactivity is at the core of a lively debate in marketing management literature, delving on exchange relationship of information, knowledge as well as goods during the service production is expressed through a variety of terms, such as service relationship, coproduction, co-creation, collaborative innovation, interaction and partnerships in service.

Perishability refers to the impossibility to store and resold services so service innovation also entails technology and processes to better manage demand and plan capacity²³.

Some scholars highlighted that service heterogeneity and perishability positively affect service innovation²⁴, acting as a pushing force that drive service organizations towards an ongoing service improvement or renewing with the aim of staying competitive and being always compliant with market demand.

The interactive nature of service innovation is also highly interactive, imply the strong collaboration between service suppliers and customers²⁵. Consequently, it is deeply focused not only on these interactions, but also on the current service product or process that service literature has named “servuction”²⁶.

Vol. 5, n. 03, pp. 377-400. SAMPSON, R.C., “R&D alliances and firm performance: The impact of technological diversity and alliance organization on innovation”, in *Academy of Management Journal*, 2007, Vol. 50, n. 2, pp. 364-386. SAMPSON, S.E., SPRING, M., “Customer roles in service supply chains and opportunities for innovation”, in *Journal of Supply Chain Management*, 2012, Vol. 48, n. 4, pp. 30-50.

²⁰ In marketing literature, the afore-mentioned characteristics are translated by the acronym IHIP.

²¹ MILES, R.E., MILES, G., SNOW, C.C., 2005, *op. cit.* LOWMAN, M., TROTT, P., HOECHT, A., SELLAM, Z., “Innovation risks of outsourcing in pharmaceutical new product development”, in *Technovation*, 2012, Vol. 32, n. 2, pp. 99-109.

²² BESSANT, J., TIDD, J., *Innovation and entrepreneurship*, John Wiley & Sons, London, 2007.

²³ TROTT, P., 2012, *op. cit.*

²⁴ JAW, C., LO, J., LIN, Y., “The determinants of new service development: Service characteristics, market orientation, and actualizing innovation effort”, in *Technovation*, 2010, Vol. 30, n. 4, pp. 265-277.

²⁵ ZEITHAML, V.A., BITNER, M.J., *Services Marketing: Integrating Customer Focus across the Firm*, 3rd ed., McGraw-Hill, New Delhi, 2003.

²⁶ MILES, R.E., MILES, G., SNOW, C.C., 2005, *op. cit.*

Customers inputs to service development – which is defined as customer-supplier duality²⁷ – highly affect service innovation complexity and multidimensionality²⁸. Thus, the involvement of customer in service innovation process adds extra possibilities to service customization, which also contribute to increase its heterogeneity²⁹. This is also due to service intangibility that opens up services to the interaction and collaboration between customer and supplier.

The differences which separate innovation in manufacturing from innovation in services are mainly related to the fact that the former is deeply product and technology-oriented, being strictly dependent on technical expertise and capabilities, while the second is more focused on cultural and human capabilities, such as person-to-person skills or customer interface and communication skills³⁰.

Drawing on the differences existing between innovating in services and in manufacturing industries, it is worth underling that service domain has sometime used manufacturing practices in innovation *processes*. This refers to the so-called service “modularization” or, in other words, to the breaking down of service in some different modules; thus, this led to couple mass customization with standardization and to the following recombination of the achieved service modules in several different ways³¹. This process culminates in some different service innovations, such as for example those related to the fast food chains and call centres which were inspired by the so-called “productization” or industrialization of services³² that in pairs with the “servitization” of manufactur-

²⁷ SAMSON, D., LAWSON, B., 2001, *op. cit.* SAMPSON, S.E., FROEHLE, C.M., “Foundations and Implications of a Proposed Unified Services Theory,” in *Production and Operations Management*, 2006, Vol. 15, n. 2, pp. 329-343.

²⁸ GOLDSTEIN, S. M., JOHNSTON, R., DUFFY, J., RAO, J., “The service concept: the missing link in service design research?”, in *Journal of Operations management*, 2002, Vol. 20, n. 2, pp. 121-134. VOSS, C. ZOMERDIJK, L., *Innovation in experiential services: an empirical view*. AIM Research, London, 2007. AGARWAL, R., SELEN, W., 2011, *op. cit.*

²⁹ AGRAWAL, A., CATALINI, C., GOLDFARB, A., “Crowdfunding: Geography, social networks, and the timing of investment decisions”, in *Journal of Economics & Management Strategy*, 2015, Vol. 24, n. 2, pp. 253-274.

³⁰ JOHNE, A., STOREY, C., “New service development: a review of the literature and annotated bibliography”, in *European journal of Marketing*, 1998, Vol. 32, n. 3/4, pp. 184-251. ETTLIE, JOHN E.; ROSENTHAL, STEPHEN R., “Service innovation in manufacturing”, in *Journal of Service Management*, 2012, Vol. 23, n. 3, pp. 440-454.

³¹ MILES, R.E., MILES, G., SNOW, C.C., 2005, *op. cit.* SEITE, F., SCHNEIDER, O., NOBS, A., “The Concept of Modularisation of Industrial Services”, in *International Federation for Information Processing*, IFIP Proceedings, 2010, pp. 555-562. TUUNANEN, T., CASSAB, H., “Service process modularization: reuse versus variation in service extensions”, in *Journal of Service Research*, 2011, Vol. 14, n. 3, pp. 340-354.

³² Levitt described the industrialization of services as a strategic imperative for service firms, being based on the increasing mechanization, the application of industrial production methods (Taylorism, Fordism), the addition of goods to services and the search for productivity gains. See LEVITT, T., “The industrialisation of service”, in *Harvard Business Review*, 1976, Vol. 54, n. 5, pp. 63-74.

ing³³ – or the service component of manufactures offered to customers – added a new and further dimension to service innovation³⁴. Therefore, the term servitization emphasizes that manufacturing firms tend to further develop the product offering adding service components to it³⁵. A growing number of companies are developing servitization strategies, selling an integrated product and service offering. An expressive example is Rolls Royce, the first provider in the aircraft engine industry to adopt a servitization strategy. In fact, the company no longer sold simple engines (e.g. airlines), but developed a product-service system, in which they assembled and retained ownership of the engines and contracted to customers a managed service, based on a new business model of “power by the hour”³⁶.

Servitization can be defined as «a change process wherein manufacturing firms embrace service orientation and/or develop more and better services, with the aim to satisfy customer needs, achieve competitive advantages and enhance firm performance»³⁷.

In service innovation, technology plays an enabling role. For example, the refrigeration technology inspired innovations in food retail as well as in biotechnology and medical services coupled with genetic engineering³⁸. More recently, Information Technology (IT) has highly boosted service innovation. In fact, the pervasiveness of IT-based service innovation is well depicted, for example, by the power of energy-based technologies such as the steam engine or the electric power that was at the core of manufacturing innovation³⁹. Moving back to the Roll Royce, the company leveraged digital innovation through analytics and the “Internet of Things”, deploying sensor-based digital technologies on the turbine blades of their aircraft engines to trace and track engine performance from real-time analytics centres.

Nevertheless, the pervasiveness of IT in boosting service innovation, it must be noted that if compared with manufacturing sector, service sector has had a

³³ BAINES, T.S., LIGHFOOT, H.W., BENEDETTINI, O., KAY, J.M., “The servitization of manufacturing. A review of literature and reflection on future challenges”, in *Journal of Manufacturing Technology*, 2009, Vol. 20, n. 5, pp. 547-567. OSTROM, A. L., PARASURAMAN, A., BOWEN, D. E., PATRICIO, L., VOSS, C. A., 2015, *op. cit.*

³⁴ SANTAMARÍA, L., NIETO, M.J., MILES, I., “Service innovation in manufacturing firms: Evidence from Spain”, in *Technovation*, 2012, Vol. 32, n. 2, pp. 144-155.

³⁵ VANDERMERWE, S., RADA, J., “Servitization of Business: Adding Value by Adding Services”, in *European Management Journal*, 1988, Vol. 6, No. 4, pp. 314-324. BAINES, T.S., LIGHFOOT, H.W., BENEDETTINI, O., KAY, J.M., 2009, *op. cit.*

³⁶ NEELY, A., “Exploring the Financial Consequences of the Servitization of Manufacturing”, in *Operations Management Research*, 2008, Vol. 1, n. 2, pp. 103-118.

³⁷ REN, G., GREGORY, M. J., “Servitization in manufacturing companies: a conceptualization, critical review, and research agenda”, in *Frontiers in Service Conference 2007*, San Francisco, CA.

³⁸ MILES, R.E., MILES, G., SNOW, C.C., 2005. *op. cit.*

³⁹ MILES, R.E., MILES, G., SNOW, C.C., 2005, *op. cit.*

slow adoption of ITs and other technologies, due to its heterogeneity and dynamism. Therefore, service innovation cannot be organized as a standardized R&D model as typically happens in manufacturing⁴⁰; thus, to be used in innovating services a generic technology has to be reconfigured and tailored for the purpose.

More recently, this contributed to the emergence of the so-called Knowledge Intensive Business Services (KIBS) – consultancy in its different professional or technological, engineering and R&D forms – which offered specialised solutions to firms and support them in innovation activities, acting as facilitators, sub-contractor or co-producers of innovation⁴¹. The establishment of the role of KIBS in service innovation research depicts the shifting from innovation in services towards innovation through services. The above-mentioned role of KIBS in innovation activities has been defined “inversion”, because it underlines an inversion of «the balance of power between manufacturing and services in terms of innovation»⁴².

1.3. Service Innovation: Some Categories

The studies on service innovation has also delved in its categorization in order to better understand its nature and functioning, starting from the definition of some different categories of service innovation. In fact, the categorization that will be detailed in the following paragraphs will support the comprehension of both differences and similarities existing among each category⁴³.

During the last decades, research on innovation discussed about the opportunity to exploit service innovation in different categories, highlighting the number of benefits that potentially can stem from it especially in terms of development of useful heuristic and operationalization systematization⁴⁴. If

⁴⁰ TROTT, P., 2012, *op. cit.* OZYILMAZ, A., BERG, D., “The role of Information Technology in service innovation in the two different quadrants of the service-process matrix”, in *International Journal of Services Technology and Management*, 2009, Vol. 11, n. 3, pp. 247-271.

⁴¹ DEN HERTOOG, 2000, *op. cit.* SHUNZHONG, L., “Organizational culture and new NSD performance: insights from knowledge intensive business services”, in *International Journal of Innovation Management*, 2009, Vol. 13, n. 3, pp. 371-92.

⁴² GALLOUJ, F., “Services innovation: assimilation, differentiation, inversion and integration”, in BIDGOLI, H. (eds.), *The Handbook of Technology Management*, John Wiley and Sons, Hoboken, NJ, 2010, pp. 989-1000, p. 991.

⁴³ ROSCH, E., MERVIS, C.B., GRAY, W.D., JOHNSON, D.M., BOYES-BRAEM, P., “Basic objects in natural categories”, in *Cognitive Psychology*, 1976, Vol. 8, n. 3: 382-439.

⁴⁴ LOVELOCK, C.H., “Classifying services to gain strategic marketing insights”, in *The Journal of Marketing*, 1983, pp. 9-20. GATIGNON, H., TUSHMAN, M.L., SMITH, W., ANDERSON, P., “A structural approach to assessing innovation: Construct development of innovation locus, type, and characteris-

scholars like Lovelock pointed out the importance of categorizing service innovation for marketing (in terms of strategies and managerial tools selection)⁴⁵, others also emphasized the problems that the use of categories can cause to the operationalization of this kind of innovation⁴⁶. In addition, Hsieh *et al.*⁴⁷ argued that most studies dealing with the categorization of service innovation fail to offer real and exhaustive examples of the different categories attached to this specific type of innovation. Nevertheless, following the Carlsborg *et al.*⁴⁸ dichotomy, in the following sections service innovation will be approached according to four different dichotomy classes.

It is worth noting that approaching service innovation, scholars are used to classify it through dichotomy and, therefore, separate mutually exclusive types or categories⁴⁹ basing on different classificatory principles.

Drawing on Schumpeter's⁵⁰ classification, innovation can assume different forms, such as the introduction of a new good or a new means of production, the discovery of new sources of raw materials, the rising of new markets and/or new organizations. Therefore, in line with the Schumpeterian approach to service innovation, more recently Drejer focused on the separation between *product* and *process* innovation, which have been considered as the two main categories in which service innovation can be exploited⁵¹. Going further and basing on the degree of change typical of innovation, service innovation can be also classified according to the following categories: *radical* and *incremental*.

In addition to the above-mentioned dichotomies (product and process; radical and incremental), other two classification of service innovation will be presented, *new to market* and *new to the firm* (defined according to the degree of newness) and *technology* and *organization* (defined according to the means of provision)⁵².

tics", in *Management Science*, 2002, Vol. 48, n. 9, pp. 1103-1122. HSIEH, J.K., CHIU, H.C., WEI, C.P., REBECCA YEN, H., CHENG, Y.C., "A practical perspective on the classification of service innovations", in *Journal of Services Marketing*, 2013, Vol. 27, n. 5, pp. 371-384.

⁴⁵ LOVELOCK, C.H., 1983, *op. cit.*

⁴⁶ WITELL, L., SNYDER, H., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁴⁷ CHENG, C.C., KRUMWIEDE, D., "The effects of market orientation on new service performance: the mediating role of innovation", in *International Journal of Services Technology and Management*, 2011, Vol. 16, n. 1, pp. 49-73. HSIEH, J.K., CHIU, H.C., WEI, C.P., REBECCA YEN, H., CHENG, Y.C., 2013, *op. cit.*

⁴⁸ CARLBORG, P., KINDSTRÖM, D., KOWALKOWSKI, C., 2014, *op. cit.*

⁴⁹ SNYDER, A., WITELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁵⁰ SCHUMPETER, J.A., 1934, *op. cit.*

⁵¹ DREJER, I., "Identifying innovation in surveys of services: a Schumpeterian perspective", in *Research Policy*, 2004, Vol. 33, n. 3, pp. 551-562.

⁵² CARLBORG, P., KINDSTRÖM, D., KOWALKOWSKI, C., 2014, *op. cit.*

1.3.1. *The Degree of Change: Radical versus Incremental Service Innovation*

The degree of change is the most common principle for classifying innovation as well as service innovation; thus, as stated in the previous section, it separates radical from incremental service innovations, which main difference lies upon “how” the characteristics of a new service are different from the previous⁵³. More in details, a radical service innovation occurs when a service offering does not have any common feature with the earlier offering. It follows that customer need to learn how to approach and use it. The ATM represents an expressive example of this kind of innovation. In fact, it was created to ensure to banks’ customers a full-time service, overcoming the traditional limitations due to the service inseparability⁵⁴. In this way, customers also when a bank is closed can process a transaction.

On the other hand, incremental innovation is about limited changings occurring in service offering composition⁵⁵. Therefore, this kind of innovation does not completely change service offering, but adds new elements or improve some characteristics of the offering itself⁵⁶. An example of incremental service innovation is the adding to the common ATMs of a touch screen, which does not change the inner nature of the service, but just improve it, making customers’ interaction with the disposal even more friendly and immediate.

Dealing with incremental service innovation, some authors identified the *re-combinative* service innovation⁵⁷, which they considered as the most common type of service innovation. This kind of innovation derives from the bundling of one or more new or pre-existing service characteristics⁵⁸. Recombinative ser-

⁵³ SNYDER, A., WITELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁵⁴ LOVELOCK, C.H., 1983, *op. cit.*

⁵⁵ GALLOUJ, F., WEINSTEIN, O., “Innovation in services”, in *Research Policy*, 1997, Vol. 26, n. 4-5, pp. 537-556.

⁵⁶ DE VRIES, E.J., 2006, “Innovation in services in networks of organizations and in the distribution of services”, in *Research Policy*, Vol. 35, n. 7, pp. 1037-1051. OKE A., 2007, “Innovation types and innovation management practices in service companies”, in *International Journal of Operations & Production Management*, Vol. 27, n. 6, pp. 564-587. GUSTAFSSON, A., KRISTENSSON, P., WITELL, L., 2012 “Customer co-creation in service innovation: a matter of communication?”, in *Journal of Service Management*, 2012, Vol. 23, n. 3, pp. 311-327.

⁵⁷ GALLOUJ, F., WEINSTEIN, O., 1997, *op. cit.* MOLLER, K., “Sense-making and agenda construction in emerging business networks—How to direct radical innovation”, in *Industrial Marketing Management*, 2010, Vol. 39, n. 3, pp. 361-371.

⁵⁸ SUNDBO, J., 1997, “Management of innovation in services”, in *Service Industries Journal*, 1997, Vol. 17, n. 3, pp. 432-455. GALLOUJ, F., SAVONA, M., 2009, “Innovation in services: a review of the debate and a research agenda”, in *Journal of Evolutionary Economics*, Vol. 19, n. 2, p. 149.

vice innovation tends to be less uncertain, even if it can culminate in both an incremental and radical innovation⁵⁹.

Drawing on the degree of change of service innovation, the literature agrees that innovation practices and methods can have a different effect in radical and incremental innovation, even though it still calls for a better understanding of the way firms should succeed introducing radical or incremental service innovation⁶⁰.

Table 1.1. – *Main contributions on radical and incremental service innovation.*

Author	Context	Concept	Degree of innovation
Gallouj and Weinstein (1997)	Service firms	Innovation	Radical, incremental, recombinative
Sundbo (1997)	Service firms	Innovation in services	Radical, large incremental, small incremental
De Vries (2006)	Services	Innovation	Radical, incremental, recombinative
Oke (2007)	Services	Service Innovation	Radical, incremental
Moller et al. (2008)	Services	Service Innovation	Radical, incremental
Cheng and Krumweide (2011)	Service firms	Service Innovation	Radical, incremental
Gustafsson et al. (2012)	Services	Service Innovation	Radical, incremental
Janeiro et al. (2013)	Service firms	Service Innovation	Radical, incremental
Savona and Steinmueller (2013)	Service firms	Innovation	Radical, incremental

Source: Our elaboration.

1.3.2. *The Type of Change: Product versus Process Service Innovation*

Another common classification of service innovation is based on the type of change that it implies; thus, this kind of innovation is defined product or process innovation⁶¹. Therefore, the traditional dichotomy product *versus* process

⁵⁹ CORROCHER, N., ZIRULIA, L., 2010, "Demand and innovation in services: The case of mobile communications", in *Research Policy*, Vol. 39, n. 7, pp. 945-955. JANEIRO, P., PROENÇA, I., DA CONCEIÇÃO GONÇALVES, V., 2013, "Open innovation: Factors explaining universities as service firm innovation sources", in *Journal of Business Research*, Vol. 66, n. 10, pp. 2017-2023. SAVONA, M., STEINMUELLER, W.E., 2013, "Service output, innovation and productivity: A time-based conceptual framework", in *Structural Change and Economic Dynamics*, Vol. 27, pp. 118-132.

⁶⁰ AMARA, N., LANDRY, R., DOLOREUX, D., 2009, "Patterns of innovation in knowledge-intensive business services", in *The Service Industries Journal*, Vol. 29, n. 4, pp. 407-430. SNYDER, A., WITTELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁶¹ DOLOREUX, D., SHEARMUR, R., 2010, "Exploring and comparing innovation patterns across different knowledge intensive business services", in *Economics of Innovation and New Technology*, Vol.

points out that the first type of innovation implies the launch of a new or highly renewed product, while the second one implies the complete renewing or a significant improvement of production processes⁶².

An impressive example of product service innovations is Google, the semantic research engine that allows people to find out different kinds of digital contents (e.g. texts, images, audio files, web sites, etc.), and the Wikis, the software that make users able to create, remove and edit content on Web pages.

Drawing on process service innovation, examples are the automatic teller machines and the automatic and self-service petrol pumps. Another impressive and more recent process service innovation is Netflix, the innovative channel for the distribution of the digital videos (e.g. films, series, sit-coms, etc.).

Table 1.2. – *Main contributions on product and process service innovation.*

Author	Concept	Context	Degree of innovation
Amara et al (2009)	Innovation	KIBS	Process, product
Doloreux et al. (2010)	Service Innovation	KIBS	Process, product
Fuglsang et al. (2011)	Service Innovation	Services	Service process, service product
Chang et al. (2012)	Service Innovation	Service firms	Radical, incremental processes
Gotsch and Hipp (2012)	Service Innovation	KIBS	Process, product, organization
Ferreira et al. (2013)	Service Innovation	KIBS	Process, products/services, organization
Salunke et al. (2013)	Service Innovation	Service firms	Process, product

Source: Our elaboration.

1.3.3. *The Newness of Change: new to the Market versus new to the Firm*

The categorization based on the dichotomy new to the market and new to the firm lies upon the degree of newness that a service innovation has for the mar-

19, n. 7, pp. 605-625. FUGLSANG, L., SUNDBO, J., SORENSEN, F., 2011, "Dynamics of experience service innovation: innovation as a guided activity-results from a Danish survey", in *The Service Industries Journal*, Vol. 31, n. 5, pp. 661-677. WITELL, L., SNYDER, H., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁶² CHANG, Y.C., CHANG, H.T., CHI, H.R., CHEN, M.H., DENG, L.L., 2012, "How do established firms improve radical innovation performance? The organizational capabilities view", in *Technovation*, Vol. 32, n. 7-8, pp. 441-451. FERREIRA, F.N.H., PROENÇA, J.F., SPENCER, R., COVA, B., 2013, "The transition from products to solutions: External business model fit and dynamics", in *Industrial Marketing Management*, Vol. 42, n. 7, pp. 1093-1101. SALUNKE, S., WEERAWARDENA, J., MCCOLL-KENNEDY, J.R., 2013, "Competing through service innovation: The role of bricolage and entrepreneurship in project-oriented firms", in *Journal of Business Research*, Vol. 66, n. 8, pp. 1085-1097.

ket or for firms⁶³. If compared with the previous categories, this dichotomy seems to be somewhat ambiguous, referring to the way offerings and processes are new to the firms or to the market (customers)⁶⁴. In fact, research on product innovation has described the newness of an innovation as generally related to the difference between the new and the existing offering⁶⁵. In particular, when service innovation is referred to new market offerings generally calls for customer additional training or effort for adopting the new offering, therefore, the success of this category of service innovation mainly lies on customers' behaviour changing⁶⁶. An example of a new to the market service innovation is Amazon-Kindle, which have changed the whole book industry, transforming the way to sell and manage the e-books. In fact, Amazon innovation mainly lies upon the combination of vertical integration with the purpose of allowing users to read their e-book on whatever device they wanted, in order to have their complete book library on their Kindle.

Table 1.3. – *Main contributions on service innovation newness to market or to firms.*

Author	Concept	Context	Degree of innovation
Mansury and Love (2008)	Innovation	US Business firms	New-to-market, new-to-firm
Alam (2012)	Service Innovation	Service firms	New-to-market, new-to-firm
Thakur and Hale (2013)	Service Innovation	Service industries	New-to-market, new-to-firm

Source: Our elaboration.

On the contrary, a new to firm service innovation arises when the production of a new or renewed service produces effects on firm processes⁶⁷. In this vein, a service innovation for the firm is well represented by the digital household appliances in general. In fact, the new technologies have changed the way firms produce and sell these appliances, which for example call for brand new marketing strategies as well as new managerial models and renewed operative skills in order to better handle the new technologies and the renewed production processes. However, the separation between the degree of newness that a service innovation offers

⁶³ SNYDER, A., WITTELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁶⁴ MANSURY, M.A., LOVE, J.H., 2008, "Innovation, productivity and growth in US business services: A firm-level analysis", in *Technovation*, Vol. 28, n. 1-2, pp. 52-62. THAKUR, R., HALE, D., 2013, "Service innovation: A comparative study of US and Indian service firms", in *Journal of Business Research*, Vol. 66, n. 8, pp. 1108-1123.

⁶⁵ ZINGER, B.J., MAIDIQUE, M., 1990, "A model of new product development: An empirical test", in *Management Science*, Vol. 36, July, pp. 867-88.

⁶⁶ SNYDER, A., WITTELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁶⁷ TOIVONEN, M., TUOMINEN, T., 2009, *op. cit.*

to market or to firms is one of the pillars of service innovation research⁶⁸. In a similar vein, it is worth noting that the degree of market newness is fundamental for any innovation, even if the newness for firms is gaining growing attention⁶⁹.

1.3.4. Means of Provision as a Change: Technology versus Organization

The last dichotomy, technology service innovation *versus* organization service innovation, is based on the means providing innovation which can be organizational or technology-based⁷⁰. Scholars have often looked at organization as fundamental for service innovation⁷¹. Thus, research pointed out that service innovation need for dynamic managerial and organizational capabilities together with technological issues. In particular, organization service innovation refers to renewed use of strategic resources in order to achieve a successful process of new service development, based on dynamic capabilities, such the internal and external integration of knowledge and organizational learning.

While drawing on technology influence, Dotzel *et al.*⁷² introduced two different terms, *e-innovation* and *p-innovation*, which focus on how the Internet and human technologies influence the rising of service innovation. More in details, e-innovations are new service that benefit customers through the Internet, while p-innovations are just new services provided through human interactions⁷³.

An example of organization service innovation in hospitality industry is the implementation of a knowledge-sharing management practices at Ritz Carlton Hotel. These practices are based on the introduction of a new routine, which requires that all staff members have to fill out cards about the encounters with a guest. The information and all guest requirement are, then, stored and shared with the staff, when the guest returns, in order to offer him/her a personalized treatment and better satisfy him/her. Such an organization service innovation can benefit hotel's competitive advantage, boosting the ability to meet customers' ever-changing demands. Another example is offered by General Electric Co.; the company organized a quality department, oriented to ensure the quality and the meeting of technical specification in product and services.

Examples of technology service innovation are nowadays very common; thus, they include e-commerce web sites, home medical test kits, mobile phones, bar code, credit cards and many others.

⁶⁸ SNYDER, A., WITTELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁶⁹ TOIVONEN, M., TUOMINEN, T., 2009, *op. cit.*

⁷⁰ SNYDER, A., WITTELL, L., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁷¹ VAN DER AA, W., ELFRING, T., 2002, "Realizing innovation in services", in *Scandinavian Journal of Management*, Vol. 18, n. 2, pp. 155-171. YOON, B., KIM, S., RHEE J., "An evaluation method for designing a new product-service system", in *Expert Systems with Applications*, 2012, Vol. 39, n. 3, pp. 3100-3108.

⁷² DOTZEL, T., SHANKAR, V., BERRY, L.L., 2013, *op. cit.*

⁷³ *Ibidem.*

However, most of the research on technology service innovation has been focused on e-innovation, neglecting p-innovation; therefore, this dichotomy and the related academic debate follows the dualism existing between high-touch and high-tech services. This has led scholars⁷⁴ to debate about the fact that even if the automation boosts the speed and efficiency of service delivery, the importance of human interaction, which still characterize any delivery system, should not be underestimated.

More recently, some authors approached service innovation according to other categories distinguishing between service, technological and administrative, where the latter category replace the organizational service innovation⁷⁵. In particular, service innovation is considered as «a company's new service offering beyond its usual service (i.e. an offering not previously available to a firm's customers), in terms of a new service potential, process, and/or result»⁷⁶. Technological innovation lies upon «the knowledge that links methods, components, and techniques with processes in order to create a product or service»⁷⁷. Finally, administrative innovation concerns to «changes in organizational structure and processes, including the authority, structuring of tasks, recruiting of personnel, and allocating of resources and rewards»⁷⁸.

Table 1.4. – *Main contributions on service innovation newness in means of provisions (technology or organization).*

Author	Concept	Context	Degree of innovation
Van der Aa and Elfring (2002)	Innovation	Service industries	Technological, organizational
Dotzel et al. (2012)	Service Innovation	US firms	e-innovation (Internet enabled innovation) p-innovation (people enabled innovation)
He and Abdous (2013)	Service Innovation	Education services	Service, technological, administrative

Source: Our elaboration.

⁷⁴ WÜNDERLICH, N.V., WANGENHEIM, F.V, BITNER, M.J., 2013, “High tech and high touch: a framework for understanding user attitudes and behaviors related to smart interactive services”, in *Journal of Service Research*, Vol. 16, n. 1, pp. 3-20.

⁷⁵ HE, W., ABDOUS, M., 2013, “An online knowledge-centred framework for faculty support and service innovation”, in *Vine*, Vol. 43, n. 1, pp. 96-110.

⁷⁶ VAN DER AA, W., ELFRING, T., 2002, *op. cit.*

⁷⁷ POPADIUK, S., CHOO, C., 2006, “Innovation and knowledge creation: How are these concepts related?”, in *International Journal of Information Management*, Vol. 26, n. 4, pp. 302-312, p. 309.

⁷⁸ LIN, R.J., CHEN, R.H. and CHIU, K.K.S., “Customer relationship management and innovation capability: an empirical study”, in *Industrial Management and Data Systems*, Vol. 110, n. 1, pp. 111-133, p. 121.

1.4. Do categories boost the understanding of service innovation?

The categories presented in the previous sections offer different perspectives on service innovation and, in particular, on the degree of change and newness that it provides. This implies that most of research mainly draws on radical service innovation, often referred to the change occurring into the market, rather than on incremental service innovation, which mainly leads to a change within the firm. Therefore, focusing on radical service innovation, research should be oriented to investigate how it “radically” changes the current society and the related common mind-set, rather than how it merely changes the existent markets⁷⁹.

Shifting the attention on the other two classifications previously discussed – *type of change* and *means of provision* –, the focus is on the different kinds of resource changings, rather than on the different ways they use to approach this change.

Due to the richness of service innovation research, the attempt to categorizing it represents a way to better grasp its multidimensionality through a common language⁸⁰. However, it worth noting that the above-mentioned categories are not mutually exclusive, but focus the different traits of service innovation, such as degree of newness, activities and process.

Literature usually approaches new services as well as service innovation «in aggregate which is problematic given the different degree of newness»⁸¹, even if different are the factors that may affect it. Among others, service research considers an innovation-oriented organizational culture as strictly contributing to radical more than incremental service innovation⁸². Going further, scholars considered also other innovation factors such as New Service Development (NSD) process, the development of detailed knowledge on operating systems, problems and customers’ needs as fundamental both for radical and incremental service innovation⁸³. In this stream of research, also the influence of knowledge creation strategies on innovation in services has been investigated⁸⁴, in order to highlight if and how internal cooperation, vertical and horizontal in-

⁷⁹ SNYDER, H., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁸⁰ ROSCH, E., MERVIS, C.B., GRAY, W.D., JOHNSON, D.M., BOYES-BRAEM, P., 1976, *op. cit.*

⁸¹ MENOR, L.J., TATIKONDA, M.V., SAMPSON, S.E., 2002, “New service development: areas for exploitation and exploration”, in *Journal of Operations Management*, Vol. 20, n. 2, pp. 135-157.

⁸² DE BRENTANI, U., 2001, “Innovative versus incremental new business services: different keys for achieving success”, in *Journal of Product Innovation Management*, Vol. 18, n. 3, pp. 169-187.

⁸³ DROEGE, H., HILDEBRAND, D.H., FORCADA, M.A., 2009, “Innovation in services: present findings, and future pathways”, in *Journal of Service Management*, Vol. 20, n. 2, pp. 131-155.

⁸⁴ LEIPONEN, A., 2005, “Organization of knowledge and innovation: the case of Finnish business services”, in *Industry & Innovation*, Vol. 12, n. 2, pp. 185-203.

formation, technology, incremental learning and scientific knowledge boost service improvements and renewing⁸⁵. Other scholars investigated service innovation according to the organizational learning theory⁸⁶, in order to better understand the dynamics and the main characteristics of this innovation⁸⁷, or to the resource perspective⁸⁸, in order to investigate both product and service innovation according to an integrative perspective.

In sum, what really arise from the previous considerations is that service innovation is an «imprecise and dispersed theoretical concept»⁸⁹, which is still important to grasp in order to foster the growth of service sector. In this direction, literature calls for going beyond the traditional separation between product and process as well as for paying more attention to value and to changes that service innovation can cause in customers' perception of value. In fact, most research contributions delved on service innovation influence on offering⁹⁰, being customer and value creation central for this innovation, failing to consider influence that it plays on firms, their strategies and organization.

1.5. Reading Service Innovation according to different perspectives

The mainstream literature⁹¹ approached service innovation research summarizing it according to three main perspectives: *assimilation*, *demarcation* and *synthesis*. This approach – firstly defined by Coombs and Miles⁹² – has been commonly applied to categorise, analyse and understand what service innova-

⁸⁵ *Ibidem*.

⁸⁶ CROSSAN, M.M., LANE, H.W., WHITE, R.E., 1999, “An organizational learning framework: From intuition to institution”, in *Academy of Management Review*, Vol. 24, n. 3, pp. 522-537.

⁸⁷ SUNDBO, J., 2000, “Organization and innovation strategy in services”, in *Services and the Knowledge-based Economy*, pp. 109-128. STEVENS, E., DIMITRIADIS, S., 2004, “New service development through the lens of organisational learning: evidence from longitudinal case studies”, in *Journal of Business Research*, Vol. 57, n. 10, pp. 1074-1084.

⁸⁸ FROEHLE, C.M., ROTH, A.V., 2007, “A resource-process framework of new service development”, in *Production and Operations Management*, Vol. 16, n. 2, pp. 169-188.

⁸⁹ WITELL, L., SNYDER, H., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*, p. 2407.

⁹⁰ MICHEL, S., BROWN, S.W., GALLAN, A.S., 2008, “Service-logic innovations: how to innovate customers, not products”, in *California Management Review*, Vol. 50, n. 3, pp. 49-65.

⁹¹ COOMBS, R., MILES, I., 2000, “Innovation, measurement and services: the new problematique”, in *Innovation Systems in the Service Economy*, Springer, Boston, MA, pp. 85-103. DROEGE, H., HILDEBRAND, D.H., FORCADA, M.A., 2009, *op. cit.*; ORDANINI, A., PARASURAMAN, A., 2011, *op. cit.* CARLBORG, P., KINDSTRÖM, D., KOWALKOWSKI, C., 2014, *op. cit.*

⁹² COOMBS, R., MILES, I., 2000, *op. cit.*

tion is⁹³. However, all the above-mentioned perspectives are not exclusive, because they differently occur over the time and can hardly be used to label well-defined phases of innovation process, offering just an overview on advances in service innovation research⁹⁴. These perspectives differently approach service innovation; thus, they offer different explanations and definitions of it as well as of the actions and methods that can be implemented. In sum, the above-mentioned perspectives highlight the different facets of service innovation, even though its conceptualization might sounds fairly confusing⁹⁵.

1.5.1. Assimilation

The assimilation perspective approaches service in the same manner of manufacturing, underlining the importance and the influence of emergent technologies on innovation, being considered as one of its main drivers⁹⁶.

At the core of this perspective lies a technologist conceptualization of innovation, according to which services are merely related to the adoption of technological innovations arising from manufacturing industries, such as transportation, home devices, computers and many others⁹⁷. Furthermore, the unit of analysis is often the offering and the production processes of technological or financial innovations⁹⁸.

The assimilation perspective can be dated back to the sectorial taxonomy for innovation provided by Pavitt⁹⁹ in which services are considered as supplier-dominated and service companies as mere recipients of innovations coming

⁹³ DREJER, I., 2004, *op. cit.* DROEGE, H., HILDEBRAND, D.H., FORCADA, M.A., 2009, *op. cit.* VENCE, X., TRIGO, A., 2009, “Diversity of innovation patterns in services”, in *The Service Industries Journal*, Vol. 29, n. 12, pp. 1635-1657.

⁹⁴ CARLBORG, P., KINDSTRÖM, D., KOWALKOWSKI, C., 2014, *op. cit.*

⁹⁵ SNYDER, H., GUSTAFSSON, A., FOMBELLE, P., KRISTENSSON, P., 2016, *op. cit.*

⁹⁶ GALLOUJ, F., 2002, *Innovation in the service economy: the new wealth of nations*. Edward Elgar Publishing, Cheltenham, UK. TETHER, B.S., 2005, “Do services innovate (differently)? Insights from the European innobarometer survey”, in *Industry & Innovation*, Vol. 12, n. 2, pp. 153-184. TOIVONEN, M., TUOMINEN, T., 2009, *op. cit.*

⁹⁷ In other words, this assimilationist view of innovation is reduced to the adoption of technical systems produced by the manufacturing sector, moreover just as in manufacturing, service innovation is primarily supposed to consist in a material artefact. Last but not least, the exogenous dimension of technologies reflects a subordinate position of services vis-à-vis manufacturing. Last but not least, services simply adopt, relatively passively at this stage, innovative technologies produced in manufacturing sectors. DJELLAL, F., GALLOUJ, F., 2010, “Innovation in Services and Entrepreneurship”, in *Handbook of Service Science*, Springer, Boston, MA, pp. 535-559.

⁹⁸ DREJER, I., 2004. *op. cit.*

⁹⁹ PAVITT, K., 1984, “Sectoral patterns of technical change: towards a taxonomy and a theory”, in *Research Policy*, Vol. 13, n. 6, pp. 343-373.

from others sectors. For example, a municipalisation or a local authority, which decides to buy gas- or electricity-powered vehicles for public transportation because of their cleanness, quietness and little maintenance, cannot be considered an innovator, but just an adopter.

The assimilation perspective approaches service innovation adopting theories and mechanisms derived from traditional research on product innovation, not adapting them to the peculiarities of service domain¹⁰⁰ and differences in priority and intensity¹⁰¹, which separate goods from services; thus, it looks at this domain as technology- and capital-intensive¹⁰².

Drawing on the technology-focus that characterizes this perspective, Barras¹⁰³ developed the so-called reverse product cycle model, which has been considered the starting point of service innovation research¹⁰⁴. Moving from Abernathy and Utterback's product life cycle theory¹⁰⁵, the author defined a different life cycle in services, starting with process innovations and culminating with the development of new services¹⁰⁶. Due to the fact that Barras relates innovation in services to technological competence and technology advancement (e.g. the spread of ITs) some authors considered his theory as a real and technology-based approach to innovation in services¹⁰⁷.

Dealing with this assimilation perspective on innovation in services, much of the scholars underlined that several factors, which promote innovation in manufacturing – such as top management's disposition, organizational incentives and market orientation –, tend to stimulate innovation in services as well.

¹⁰⁰ EVANGELISTA, R., 2000, "Sectoral patterns of technological change in services", in *Economics of Innovation and New Technology*, Vol. 9, n. 3, pp. 183-222. MIOZZO, M., SOETE, L., 2001, "Internationalization of services: a technological perspective", in *Technological Forecasting and Social Change*, Vol. 67, nn. 2-3, pp. 159-185.

¹⁰¹ GRIFFIN, A., "The Effect of Project and Process Characteristics on Product Development Cycle Time", in *Journal of Marketing Research*, 1997, Vol. 34, n. 1, pp. 24-35.

¹⁰² RULLANI, E., "La nuova economia dell'immateriale", in *Economia dei servizi*, 2006, Vol. 1, n. 1, pp. 41-60. GALLOUJ, F., SAVONA, M., 2009, *op. cit.*

¹⁰³ BARRAS R., "Towards a theory of innovation in services", in *Research Policy*, 1986, Vol. 15, n. 4, pp. 161-173. BARRAS R., "Interactive innovation in financial and business services: the vanguard of the service revolution", in *Research Policy*, 1990, Vol. 19, n. 3, pp. 215-237.

¹⁰⁴ MILES, R.E., MILES, G., SNOW, C.C., 2016, *op. cit.* TETHER, B., HOWELLS, J., "Changing understanding of innovation in services", in *Innovation in Services*, 2007, Vol. 9, n. 9, pp. 21-60.

¹⁰⁵ ABERNATHY, W.J., UTTERBACK, J. M., "Patterns of industrial innovation", in *Technology Review*, 1978, Vol. 80, n. 7, pp. 40-47.

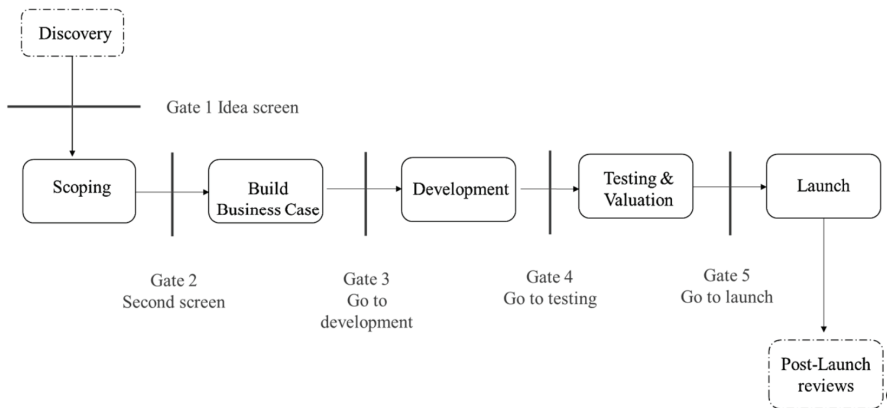
¹⁰⁶ LINTON J.D., WALSH S.T., "A theory of innovation for process-based innovations such as nano-technology", in *Technological Forecasting and Social Change*, 2008, Vol. 75, n. 5, pp. 583-594.

¹⁰⁷ GALLOUJ, F., WEINSTEIN, O., 1997, *op. cit.*; GALLOUJ, F., "Innovating in reverse: services and the reverse product cycle", in *European Journal of Innovation Management*, 1998, Vol. 1, n. 3, pp. 123-138. DE VRIES, E.J., 2006, *op. cit.*; SUNDBO, J., ORFILA-SINTES, F., SØRENSEN, F., "The innovative behaviour of tourism firms-Comparative studies of Denmark and Spain", in *Research Policy*, 2007, Vol. 36, n. 1, pp. 88-106.

The assimilation perspective is well depicted by the studies dealing with management's trend to counteract and, if necessary, cannibalize the existing company's capabilities as one of the most important determinants or drivers of both product and service innovation¹⁰⁸.

The development process of innovation in services, which has embraced this perspective, adopted the classical *Stage-Gate* model¹⁰⁹, which considers the overall innovation a sequential process, steaming from internal R&D activities and, getting through control and revision stages, ending with new product/service launch (see Fig. 1.1).

Figure 1.1. – *The stage-gate model.*



Source: Adapted from Cooper, R.G., 1990.

The Stage-Gate model introduced for the first time a comprehensive conceptual and operational map of the New Product Development (NPD) process, developed on some sequential phases or stages, separated by gates that act as decision points that allow or not the shifting towards the following stages. The above-mentioned map depicts Research and Development (R&D) activities, marketing insights and a combination of components as simple linear sequential events¹¹⁰. More in details, this model is mainly characterized by the ability

¹⁰⁸ CHANDY, R.K., TELLIS, G.J., “Organizing for Radical Product Innovation: The Overlooked Role of Willingness to Cannibalize”, in *Journal of Marketing Research*, 1998, Vol. 35, n. 4, pp. 474-487.

¹⁰⁹ COOPER, R.G., 1990, *op. cit.* COOPER, R.G., “The stage-gate idea-to-launch process—update, what’s new and NexGen systems”, in *Journal of Product Innovation Management*, 2008, Vol. 25, n. 3, pp. 213-232. COOPER, R.G., “What’s Next?: After Stage-Gate”, in *Research-Technology Management*, 2014, Vol. 57, n. 1, pp. 20-31.

¹¹⁰ COOPER, R.G., 1990, *op. cit.*; COOPER, R.G., KLEINSCHMIDT, E.J., “Stage-gate process for new