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**INNOVATION MANAGEMENT IN SERVICES:
THE CASE OF CONSULTING FIRMS**

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EDIM is run by a consortium consisting of the industrial management departments of three institutions:

- Politecnico de Milano (POLIMI), Milan, Italy
- Universidad Politécnica de Madrid (UPM), Madrid, Spain
- KTH Royal Institute of Technology, Stockholm, Sweden

EXECUTIVE SUMMARY

Innovation in consulting firms has missed specific attention in academic research. Consulting firms are usually considered to be part of Knowledge-Intensive Business Services (KIBS), Professional Service Firms (PSF) or Project-based Firms (PbF). Consulting firms usually help other companies to be innovative, but they also need to innovate themselves to survive in the market. However, consultancies possess characteristics that do not correspond to generalizations made in previous studies. Some recent service innovation models have been identified but none of them focuses exclusively on service innovation in the context of consulting firms.

The research explores how firms organize to manage innovation from a process perspective as well as its relationship with innovation dimensions and capabilities. It investigated the innovation processes in the context of consulting firms based on the interaction among main actors identified during the literature review from an internal (management, employees) and external (customers, competitors) perspective. In a lesser extent, other studies have also pointed out the role of other actors such as suppliers, competitors, universities, government, and society. Nonetheless, companies struggle to implement the best innovation strategy and innovation processes based on the wide range of options above mentioned. Companies tend to simplify reality by trying to control one single linear innovation process, but in fact, there are several innovation processes running at the same time. It is true that each of this innovation processes are generally related with one of the perspectives. Our results show that all these views are not mutually exclusive; on the contrary, many of them coexist or evolve into the other along the lifecycle of the company and its business circumstances.

To achieve the research objective, the methodology follows three steps. Initially, a semi-quantitative literature review was conducted to get familiar with the state of the art in the field, identify gaps and draw a preliminary framework about the innovation processes in consulting firms. After that, a qualitative research strategy was used based on case studies. The first phase of the study was conducted in consulting firms from Italy between June and September 2015. The second phase of Study was realized in consulting firms from Spain between April and June 2016. We contacted around 60 companies via the university external relation offices, LinkedIn and personal networking. We selected companies from all ranges that had important projects and

operation in both countries. In total, 15 consulting firms participated in our study (7 from Italy and 8 from Spain).

There are three main contributions of this research. First, there are some peculiarities in the management of innovation in Professional Service Firms. Consulting firms have the challenge of using a mix of seven innovation processes as a solution to the strategic problem of innovation management, which are related to seven different drivers and sources of knowledge. PSF, primary focus on innovating new services concepts and new technological delivery systems in an initial project with a client which is rather customized than standardized when this knowledge is reused to provide a solution to another client. Consulting Firms create new practices not only to provide new service offerings (operational capabilities) but also to adapt and renew their innovation capabilities (dynamic capabilities). Signaling user's needs and co-producing and orchestrating are the main dynamic service innovation capabilities that distinguish consulting firms.

Second, IT Consulting Firms manage innovation different when compared to Management Consulting Firms. Consulting Firms cannot be treated as an undifferentiated group. We distinguish at least two subgroups: IT Consulting Firms, which share more similarities with the T-KIBS, whilst Management Consulting firms are more similar to P-KIBS. Evidence suggest that IT Consulting firms have a more mature implementation of open innovation compared to Management Consulting Firms. IT Consulting Firms focus on the development of innovation ecosystems changing their role from problem solvers to solution seekers.

Third, the use of Open Innovation for Innovation Management in PSF. Due to nature of the service provision (co-production/co-creation), consulting firms have always used open innovation processes because it allows them to have organizational ambidexterity. Exploration is done through the customization of a solution to the client, while the exploitation is performed by initially standardizing a solution to be later customized again when applied into another client project. This research also proposes a taxonomy of outbound open innovation strategies.

Keywords: innovation management, services, consulting firms, innovation capabilities, innovation process, innovation types, innovation sources, open innovation

RESUMEN EJECUTIVO

La innovación en empresas consultoras no ha tenido atención específica en la investigación académica. Las empresas consultoras generalmente se consideran parte de los Servicios de Negocios Intensivos en Conocimiento (KIBS), Empresas de Servicios Profesionales (PSF) o Empresas basadas en Proyectos (PbF). Las empresas consultoras generalmente ayudan a otras compañías a ser innovadoras, pero también necesitan innovarse para sobrevivir en el mercado. Sin embargo, las consultorías poseen características que no corresponden a las generalizaciones realizadas en estudios anteriores. Se han identificado algunos modelos recientes de innovación de servicios, pero ninguno de ellos se centra exclusivamente en la innovación de servicios en el contexto de las empresas consultoras.

La investigación explora cómo las empresas se organizan para gestionar la innovación desde una perspectiva de proceso, así como su relación con las dimensiones y capacidades de la innovación. Se han investigado los procesos de innovación en el contexto de las firmas consultoras basándose en la interacción entre los principales actores identificados durante la revisión de la literatura desde una perspectiva interna (gerencia, empleados) y externa (clientes, competidores). En menor medida, otros estudios también han señalado el papel de otros actores como proveedores, competidores, universidades, gobierno y sociedad.

No obstante, las empresas se esfuerzan por implementar la mejor estrategia de innovación y los procesos de innovación basados en la amplia gama de opciones mencionadas anteriormente. Las empresas tienden a simplificar la realidad al tratar de controlar un solo proceso de innovación lineal, pero, de hecho, hay varios procesos de innovación que se ejecutan al mismo tiempo. Es cierto que cada uno de estos procesos de innovación está generalmente relacionado con una de las perspectivas. Nuestros resultados muestran que todas estas opiniones no son mutuamente excluyentes; por el contrario, muchos de ellos coexisten o evolucionan hacia el otro a lo largo del ciclo de vida de la empresa y sus circunstancias comerciales.

Para lograr el objetivo de investigación, la metodología sigue tres pasos. Inicialmente, se llevó a cabo una revisión de la literatura semi-cuantitativa para familiarizarse con el estado del arte en el campo, identificar brechas y dibujar un marco preliminar sobre los procesos de innovación en las

firmas consultoras. Después de eso, se utilizó una estrategia de investigación cualitativa basada en estudios de caso. La primera fase del estudio se realizó en firmas consultoras de Italia entre junio y septiembre de 2015. La segunda fase del estudio se realizó en firmas consultoras de España entre abril y junio de 2016. Nos contactamos con unas 60 empresas a través de las oficinas de relaciones externas de la universidad, LinkedIn y redes personales. Seleccionamos empresas de todas las gamas que tenían importantes proyectos y operaciones en ambos países. En total, 15 firmas consultoras participaron en nuestro estudio (7 de Italia y 8 de España).

Hay tres contribuciones principales de esta investigación. Primero, hay algunas peculiaridades en la gestión de la innovación en las empresas de servicios profesionales. Las empresas consultoras tienen el desafío de utilizar una combinación de siete procesos de innovación como una solución al problema estratégico de la gestión de la innovación, que están relacionados con siete factores diferentes y fuentes de conocimiento. El enfoque principal de PSF se centra en la innovación de nuevos conceptos de servicios y nuevos sistemas de entrega tecnológica en un proyecto inicial con un cliente que se personaliza en lugar de estandarizarse cuando este conocimiento se reutiliza para proporcionar una solución a otro cliente. Las empresas de consultoría crean nuevas prácticas no solo para proporcionar nuevas ofertas de servicios (capacidades operativas) sino también para adaptar y renovar sus capacidades de innovación (capacidades dinámicas). Las principales necesidades dinámicas de innovación de servicios que distinguen a las empresas de consultoría son señalar las necesidades de los usuarios, la coproducción y la orquestación.

En segundo lugar, las Consultoras de TI gestionan la innovación de forma diferente en comparación con las Consultoras de Gestión. Las firmas consultoras no pueden ser tratadas como un grupo indiferenciado. Distinguimos al menos dos subgrupos: empresas de consultoría de TI, que comparten más similitudes con el T-KIBS, mientras que las empresas de consultoría de gestión son más similares a P-KIBS. La evidencia sugiere que las empresas de consultoría de TI tienen una implementación más madura de innovación abierta en comparación con las empresas de consultoría de gestión. Las empresas de consultoría de TI se centran en el desarrollo de ecosistemas de innovación que cambian su rol de solucionadores de problemas a buscadores de soluciones.

En tercer lugar, el uso de la innovación abierta para la gestión de la innovación en PSF. Debido a la naturaleza de la provisión del servicio (coproducción / co-creación), las firmas consultoras

siempre han usado procesos de innovación abierta porque les permite tener ambigüedad de organización. La exploración se realiza mediante la personalización de una solución para el cliente, mientras que la explotación se realiza al estandarizar inicialmente una solución para luego personalizarla nuevamente cuando se aplica a otro proyecto cliente. Esta investigación también propone una taxonomía de estrategias de innovación abierta de salida.

Palabras clave: gestión de la innovación, servicios, empresas consultoras, capacidades de innovación, proceso de innovación, tipos de innovación, fuentes de innovación, innovación abierta.

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CHAPTER 1. INTRODUCTION

This chapter explains what the identified phenomena in today's business environment is, what is the associated research problem that needs to be addressed as well as the motivation to conduct this doctoral project.

1.1 EXPLANATION OF THE PHENOMENA

Currently, society is living in a world that is changing drastically. The products and services that we used to know are now having a different purpose, presentation, characteristics and way to be delivered or provided. Sometimes, these innovations are introduced so fast that people cannot even get used to them when an upgraded or better offering is already available.

For many people, technology is the main driver of innovation. Usually, every time that there is a technology, it transforms existing offerings into new inventions or an enhancement of existing products and services. Business managers have the idea that clients will try to buy these new offerings because it has a better technology than the previous one, which make it better than the offerings by the company or by its competitors.

Nonetheless, we have also seen the opposite cases, when technology is not the reason to buy a product/service by the client. Let us take the case of Nintendo Wii. Nintendo launched it in 2006 during a time of market crisis, when Sony PlayStation and Microsoft Xbox were the leaders of the videogame console market. Nintendo Wii was really revolutionary because it changed the meaning of what it was to play video games. Video games were not only for children anymore, nor playing them would mean necessarily that people had to be sitting all the time. Actually, Nintendo Wii's technology was poorer than the competitors' consoles in terms of graphics and utilities. However, Nintendo Wii provided value that the other two consoles could not deliver, such as an easy-to-use interface (simpler than traditional joystick with multiple buttons), as well as a wider variety of video games (Yoga, dancing, etc.) more suitable for all age tastes, which was a key element for attracting a new segment (parents and grandparents) that were

traditionally customers but now also became users. So, we can see that technology was not the driver for innovation but the new meaning and design of the product.

Experience is another factor that companies usually explore to innovate. One of the most well-known cases of this is Starbucks. Once again it was not something related to technology what provided value to the customer. When a new client arrives to a Starbucks store, the employees are very friendly. They greet him/her and ask for the customer's name to label the coffee cup and address him/her when the full order is ready. The shops' decoration and ambience is very cozy, just like being at home but provides the experience of being outside and the feeling of getting pampered as well as providing a place to work or relax among friends/family. In this case were talking about the process and the concept during the service delivery that was the key success factor for innovation at Starbucks, not the technology behind coffee production.

Yet, we can have a Business Model-led perspective. Business models are getting very popular for companies in the search of innovation. Business models focus on the business design to generate, use and capture value. We have a good example in the tourism industry. During the 90s, the hotels provided some e-business options so that their customers could book a room online. However, the radical innovation arrived with the travel websites such as Booking.com, that allowed to have a single search engine where customers could look for a room at a specific date and time easily and faster without having to check at each hotel website. Nonetheless, it was just recently that the hospitality industry was disrupted with new business models such as Airbnb. It is now possible for both companies and people with an available room or property to be able to rent it out competing directly with hotels. Usually, Airbnb prices are lower than hotels, they provide a more home alike experience and the opportunity to have more locations available and even to make new friends with the owner or other guest. A similar example happened in the transportation industry with Uber competing directly with the taxi drivers. In this case technology (platform/mobile app) was an enabler but not the unique driver for market disruption by business model innovation.

Moreover, some other businesses focus in humans and not technology to innovate. In this case, firms listen carefully to customers and users, who have become co-creators of the new product/service offering. Although any business should always have the client's needs in mind, some companies have totally gone client-driven. This means that they do not innovate for the

client but with the client. In this case, the client is the main source of innovation. Companies such as Netflix and Spotify organized focus group and used Design Thinking to get the clients' ideas to develop a useful a simple interface for their streaming services. These companies also used big data techniques to analyze the data generated by each user to identify new opportunities for their online content, providing them with a high acceptability rate by their users.

Our overview of the phenomena doesn't end here. The openness trend is also present in the business arena. Linux was one of the first open source products and was developed by different people in diverse parts of the world. Each contributor provided his/her expertise to develop a component of the Linux operative system. Nowadays, many companies opt to be open. Being open can mean many things. One is the collaboration with stakeholders outside the firm such as clients but also supplier, universities, government, etc. It can also mean to be open within the firm among different departments or hierarchical level employees. It can also mean to look for an application of internal ideas that are not aligned to the business strategy but that could make totally sense in other companies. Usually this is done through a patent other firms can exploit paying a price for the company's know-how. And finally, being open also means to eliminate the not-invented-here syndrome, by using ideas, knowledge and people from outside the firm. i.e. sometimes companies acquire startups that are experts in a very specific business are which is not the strength of the company. A good example is Lego. They have a webpage to design your own Lego which can be submitted by both clients (parents) and users (children) using a crowdsourcing to generate innovative ideas. Another similar example is done by Deloitte. They only have an idea generation system where employees can submit their innovative idea. Some of them are selected and the employees become part of the project team to develop them. The type of innovative ideas goes from service or process improvements to the creation or hi-tech startups.

All these previous cases exemplify the diversity about ways to be innovative. There are many alternatives and every day there is a new tool, methodology or practice that is presented by diverse practitioners claiming that they have found the best path to innovation, but companies do not always have the same results as the successful ones. This is part of the problematization that will be explained in the next section.

1.2 RESEARCH PROBLEM

The first part of problem is related to the lack of a holistic and strategic view of innovation, one that is more systemic and less serendipitous. Most of innovation studies have focused in explaining how an organization can foster innovation based only in a particular innovation type (product, service, organizational, business model), driver (technology market, design), novelty (known to the company, unknown to the company, unknown to the world), process (technology-push, market-pull, push-pull, parallel processing, e-integration, network innovation), complexity (capital-intensive, knowledge-intensive), openness (open vs close innovation), life cycle (New Businesses, SMEs, Mature Companies), resources (physical, intellectual, financial, human). Nonetheless, companies struggle to implement the best innovation strategy and innovation processes based on the wide range of options above mentioned. Companies tend to simplify reality by trying to control one single linear innovation process, but in fact, there are several innovation processes running at the same time.

The second part of the problem refers to two recent trends have drastically increased the ease of collaborating across firm boundaries, rendering the topic of open innovation potentially more important: globalization and the emergence of the Internet (Alexey & Dahlander, 2014). Companies are opening their innovation process because of the paradigm shift on corporate strategy and as a solution to create and sustain competitive advantage in the disrupted, highly competitive and hyper-dynamic markets (Chesbrough, 2003).

Since the arrival of computers and the Internet, digitalization is one of the main disrupters of the economy (Bower & Christensen 1995; Yoo et al. 2012). It has created, supported and perish different processes, products, services and business models (Teece 2010a). Digital activities are becoming common daily. i.e. a person who uses daily the applications in a mobile device (such a laptop or a smartphone) to perform different tasks such as working, making a phone call, ordering products from a supermarket, paying online, publishing in social media, looking for a new job, searching information, tracking its physical activity, accessing documents storage on the internet, reproducing a suggested playlist, and so forth. This digitalization has not reached only individuals but also organizations such as enterprises, government, and universities, who now interact in a more rapid, easier and effective way. Therefore, it is no surprise that digital

technologies (ICT) are widely used to support the innovation process within and among organizations (Nylén & Holmström 2014).

Technology has been considered as one of the main sources of innovation (Tidd & Bessant 2013). Briefly recounting the evolution of innovation management models, Rothwell (see Tidd 2001) identifies five generations of innovation models. The first generation has a focus on technology (technology-push). It is when organizations create their internal R&D areas to explore new technologies and their applications to create new products. Subsequently, innovation management models emerge with a market-pull approach. These types of processes point to the importance of customers and users as sources for innovation. So, these actors are considered as a point of reference to determine the organization's efforts in its innovation projects. Subsequently, non-linear coupling models emerged comprising both technology and the market in innovation initiatives, which in turn recognizes feedback flows and cycles between them. The fourth generation contains parallel innovation processes between the firm and its suppliers and customers. Finally, we have processes of continuous innovation, with extensive networks, integration of flexible systems and with personalized answers

New models of innovation have suggested that many innovative firms have changed the way they search for new ideas and use digital technologies, adopting open search strategies that involve the use of a wide range of external actors and sources to help them achieve and sustain innovation (Laursen & Salter 2006; Rampersad et al. 2010). Approaches such as open innovation have recognized the importance of the knowledge inflows and outflows to nurture the innovation process (Chesbrough 2003). The boundaries of the innovation process have evolved to create business innovation ecosystems, that could be seen as a net of interconnected innovation processes among employees, customers, suppliers and business partners (Adner & Kapoor 2010; Soto-Acosta et al. 2010). Although a number of research work has been done on generic innovation management processes, there is still a need to investigate new frameworks that consider both closed and open innovation processes (Yoo et al. 2010; Vanhaverbeke, Chesbrough, et al. 2014).

1.3 RESEARCH MOTIVATION

Personal motivation

I have always been a fan of innovation. I studied a BSc in Computer Systems and management because I wanted to learn how to apply technology to solve business problems. I was also a business consultant for many years and I was helping companies to improve their processes, products and services. To do this, I conducted projects for my clients, which actually were innovative projects for them. I also did a MSc in Strategic Project Management where I learned how important were projects as a means to implement the strategy of a firm. Later on, when I was working as a senior project manager, I realized that strategy nowadays has a focus on innovation in most companies. Therefore, when I was managing my firm's strategic projects, I was indeed managing innovation.

However, in my firm there was no formal Innovation Department or team per se. For instance, in my area, we were in charge of managing the strategic projects by coordinating internal areas with our suppliers to assure that the project was done according to the planned time, cost and scope. Most of my working time, I was immersed in the project operation activities, and I wasn't really able to grasp what would be the best way to foster innovation in the projects that I had in charge. When I was talking with other people involved in the project, we realized that there were different views about how to make innovation happen. Each responsible person had their own opinion whether to focus on people or project management techniques or creativity training or buying technology or outsource the full project. Ever since, I have questioned myself how to organize for innovation in a strategic way within and outside the firm with the key stakeholders. In other words, my aim is to provide with this doctoral research project with some guidance that allows firms to have a systemic view of innovation instead of an spontaneous one.

Academic motivation

The academic motivation of this research encompasses the rise of services. Services are the most representative sector in developed economies due to their contribution to Gross Domestic product (GDP) and employment. Figure 1 shows a colored world map where the bluer the countries, the more their economy is based in Services, the redder, their economy is based in manufacturing and the greener, their economy is based in the first sector (agriculture, fishing,

husbandry, mining). Services account for more than 77% of the GDP of the biggest economies (CIA 2006) and 82% of the total value-added growth and 83% of total jobs in 2006 .

Figure 1. GDP composition by sector

One of the main strategic factors in the Europe 2020 strategy is innovation (Kaynak et al. 2017), and the European Union has decided to develop an economy based on knowledge and service innovation. It recognizes that *"services and the service sector are increasingly important growth motors in the economy and account for more than two-thirds of employment and gross value added generated by the EU"* (European Commission 2012, p. 11).

Institutional context is important for the operation of innovation processes in general, and to innovation management in particular. This implies that innovation will work differently in different instructional environments and this is a research gap that needs to be covered with new frameworks (Phillips 2014; Chesbrough & Bogers 2014). It would be beneficial to understand which constructs apply to each type of service sector.

Some service sectors such as Knowledge-Intensive Business Services (KIBS), Professional Services Firms (PSF) and Project-based Firms (PbF) are considered much more innovative than others, and many of them base their work on projects (Tether 2014). KIBS are the leading sub-sector regarding innovation and cooperation (Trigo & Vence 2012), using multiple sources of

information and co-producers of innovation (den Hertog 2000). PSF usually has ambidexterity between exploitation and exploration activities because due to the interconnection between product and process innovation, therefore, by nature, PSF have an open innovation process to cooperate with clients (Smets et al. 2012a; Morris et al. 2015). PbF is characterized by having long life cycles of the project where the provision of the service often implies a close collaboration with its clients, which in turn reflects the contribution of a client to the innovation process (Salunke, Weerawardena & Janet R Mccoll-kennedy 2011).

Consulting firms are an appropriate context to research innovation in services because they convey at the same time with the characteristics of KIBS, PSF, and PbF that show a high internal trend and a favorable environment to innovate. Anand, Gardner, & Morris (Anand et al. 2007) argue about the importance of consulting firms for knowledge-based innovation: expertise and competence of their personnel are their primary assets, widespread use of the partnership form of ownership, inherent imperative for both organic growth and diversification on the context of innovation, and continuous creation of new knowledge-based structures.

Traditionally, consulting firms are classified as intermediaries, that is, providers of knowledge and experience that are used to solve customer problems (den Hertog 2000). However, now consulting companies are moving towards activities to connect businesses. They are becoming the central axis of innovation ecosystems. Recent work reveals the emergence of an open innovation process that coexists with other processes. Öberg & Alexander (2016) identify the need for openness in companies and the creation of links with actors who were traditionally not involved in innovation in terms of sources (patents, acquisitions, mergers, R&D alliances), markets (subcontracting, outsourcing, alliances) and shared activities (clusters, networks, joint ventures).

1.4 RESEARCH OBJECTIVE

This doctoral research was carried out in the context of consulting firms, which has not been subject to specific attention in academic research concerning innovation management (Fischer 2011), and its main objective is to understand how consulting firms strategically manage the service innovation..

CHAPTER 2. THEORETICAL BACKGROUND

Chapter 1 explained the phenomena, set the research problem and the motivation to conduct this study. Chapter 2 is divided in three sections and provides with the literature review to understand the theoretical positioning of the study as well as the identified research gaps and questions.

The first section explains services, innovation and the interplay of them in the form of service innovation. It also discusses identifies why Consulting Firms are a good are to study service innovation and defining its nature as part of the Professional Service Firms (PSF), Knowledge-Intensive Business Services (KIBS) and Project-based Organizations (PbO).

The second section examines concepts of the Innovation Management literature related to the study of the management of service innovation, such as innovation strategy, innovation process, innovation sources, innovation types and innovation capabilities. It also addresses the new phenomena of Open Innovation from an innovation strategy perspective. The third section summarizes the Research Gaps and Research Questions based on the constructs from the two previous sections.

2.1 SERVICE INNOVATION

As mentioned in the previous chapter, Services are the most representative sector in developed economies due to their contribution to GDP and employment (OECD 2005; CIA 2006; IfM & IBM 2007). The following paragraphs discuss the definition of Services, what Services Innovation in means, and the selection of Consulting Firms as suitable context to study innovation in services.

2.1.1 Services

Traditionally, services are a set of operations carried by a service provider on behalf of a client intended to bring a change of state. Tether (2014) argues that services are difficult to define.

First, some confusion arises from the use of the word ‘service’, because it describes both the productive activity and the output. Contrary, when talking about goods, we use the word ‘manufacturing’ to describe the productive activity and ‘product’ is another word to identify the output of that activity. Second, services comprise both the most and least knowledge intensive activities in an economy or what could be consider the best or worst type of jobs. Third, services can act on people (individually or in groups) or things (from tangible property to information). Fourth, services were traditionally considered less productive and problematic when compared to products. However, nowadays knowledge-intensive service are the main engine upon which economies are built.

Services are different from products (either physical or digital ones), previous works by Sasser et al. and John & Storey (cited in Tether 2014) identified four characteristics particular to services captured by the acronym IHIP:

- a) Intangibility. Services are immaterial and cannot be perceived by any of the five senses).
- b) Heterogeneity. Each service is different from another, even if there are of the same nature with the same actors involved, thus they are hard to standardize, especially if people is involved in their provision.
- c) Inseparability. Services are co-produced, they can be done with the client or on behalf of the client with a third party, and there is no transfer of ownership. Usually they are consumed as they are produced.
- d) Perishability. Services are temporal, they cannot be stored, and their demand is unpredictable over time.

Droege et al. (2009) identify four main schools of thought about research in new service development. Firstly, the ‘technologist’ approach emphasizes the dominant role of technology as the main driver and source of innovation. However, some authors (Gallouj & Weinstein 1997; Gallouj & Savona 2009) argue that many innovations in services are not technological (e.g. a new restaurant design, a new company structure, a new insurance policy). Besides, this approach does not differentiate among types of services and uses a one-size-fits-all approach (Tether 2005). Secondly, ‘assimilation’ which proposes to use the theories and concepts developed in tested in other sectors, primarily manufacturing firms. Nevertheless, as mentioned by Tether (2014), services possess different characteristics that need customized analytical frameworks.

Thirdly, the “demarcation” school of thought recognizes the distinctive features or services (den Hertog 2000; Howells 2006), identifying their peculiarities such as the interactive character of innovation processes in services which differ from the linear models of innovation in manufacturing firms (Djellal et al. 2013). Finally, ‘the synthesis’ approach joins the efforts of the previous schools of thought and provide insights aimed at both manufacturing and service sectors (de Vries 2006).

For the purpose of this research, we are taking a demarcation approach, since recently most management scholars claim that services require frameworks appropriate for their nature and they have found empirical evidence supporting that (Hertog et al. 2010; Chesbrough 2011; Keupp et al. 2012; Barrett & Hinings 2015; Rubalcaba et al. 2016; Janssen et al. 2016). Moreover, this study takes a more recent conceptualization from the service-dominant (S_D) logic by Vargo and Lusch (Vargo & Lusch 2004; Lusch et al. 2007), who define a service as a process of using a firms’ competences (knowledge and skills) for the benefit of another party. This definition is more applicable to consulting firms, the type of highly skilled services selected for this study, as well as with view of sources of knowledge that will be used to categorize innovation strategies in the theoretical research framework explained at the end of this chapter.

2.1.2 Service innovation

Innovation is defined as the commercial exploitation of new ideas that provide both radical new service offerings as well as incremental improvement of existing services (Tether, 2014). It is an essential means by which organizations survive and thrive but involves uncertainty and risk. Innovation disrupts markets, technologies, and workplaces, requiring collaboration inside and outside the organizational boundaries (Dodgson 2014; Tidd & Bessant 2014)

Innovation is both an outcome and a process, a fact and an act (Tidd & Bessant 2014). An innovative outcome involves the successful application of new ideas, which results from organizational processes that combine various resources to that end. Its objectives are to produce positive results for organizations and their employees, customers, clients, and partners, such as growth, profit, sustainability, and job security, with better and cheaper products and services for consumers, and personal satisfaction for its contributors. Achieving these requires a process that

creates, delivers, and captures innovative outcomes by combining and coordinating resources, including people and knowledge, finance, technology, physical spaces, and networks-and their capabilities, that is, their bundles of skills.

We have identified different Service Innovation definitions that based on diverse perspectives such as novelty, knowledge, relations and system as shown in Table 1 (Lemus-Aguilar & Hidalgo 2015).

Perspective	Service Innovation definition	Source
Novelty	“Service innovation is a duplicable, new or significantly improved service concept and offerings”	(European Commission 2012a)
Knowledge	“Service innovation is the extent to which new knowledge is integrated by the firm into service offerings, which directly or indirectly results in value for the firm and its customers/clients”	(Quintane et al. 2011; Salunke, Weerawardena & Janet R. Mccoll-kennedy 2011)
Relational	“Service value network is a set of activities where suppliers, service provider and customers integrate resources through service, and customer co-creates value in a specific cultural environment with service provider value proposal”	(Chae 2014; Hidalgo & D’Alvino 2014a)
System	“Service system is a dynamic value co-creating configuration of resources, including people, technology, organization and shared information, connected internally and externally by value propositions, with the aim to meet customer’s need better than competitors”	(Vargo & Lusch 2004; IfM & IBM 2007; Maglio & Spohrer 2008)

Table 1. Definitions of service innovation

It is important to mention that there is often confusion among concepts such as service innovation, new service development, innovation in services, servitization, and so forth. Rubalcaba et al, (2012) developed a multidimensional framework that clarifies the different dimensions of Innovation through services. The activity dimension or “service-oriented innovation” refers to any kind of business, including manufacturing firms, that provide new service offerings in addition to the products that they produce (e.g. servitization). The sectorial dimension or “innovation in services”, involves all services industries in public and private

sectors. The agent dimension or “service innovation in networks” includes the complementarities among different players. (Rubalcaba et al., 2012).

For the purpose of this study we will use a definition based in the service system viewpoint and the focus of “Innovation in Services” by Rubalcaba et al. , i.e. all type of innovations outputs in the services industry including product/services innovation (e.g. new methodology to become a sustainable organization offered by consulting firms to their clients), process innovation (e.g. Idea Management Systems to get innovation ideas from consultants), organizational innovation (e.g. the creation of an Innovation Office to manage innovation inside the consulting firm and with its external stakeholders) or business model innovation (e.g. charging clients by actual obtained results instead of projects, investment in high-tech startups). A more detail explanation on this is provided in the next section when talking about innovation outputs.

2.1.3 Selection of consulting firms as a research context.

Types of service firms: KIBS, PSF, PbF

Institutional context is important for the operation of innovation processes in general and to innovation management in particular. This implies that innovation will work differently in different instructional environments and this is a research gap that needs to be covered with new frameworks (Chesbrough & Bogers 2014; Phillips 2014). Some service sectors, such as knowledge-intensive and professional services are considered much more innovative than others, and many of them base their work on projects (Tether, 2014). Table 2 summarizes the definition of these type of firms.

As part of the findings from a systematic literature review that is presented in Chapter 4, only few studies have conducted research about innovation in these type of firms as is briefly described afterwards. Knowledge Intensive Business Services is a services sector that involves both knowledge and innovation. They have this transformative capacity because of its closely collaboration with customers and across sectors (European Commission 2012b). Most studies on innovation in services have pointed KIBS as the leading sub-sector regarding innovation and cooperation (Trigo & Vence 2012). KIBS can play the role of facilitators, carriers or sources of information; but also a role as co-producers of innovations (den Hertog 2000). In general, KIBS

literature calls attention of the central role that these firms play in organizational innovations, making joint use of technological and soft skills (Muller & Doloreux 2009). KIBS have two main types T-KIBS and P-KIBS

Type of Service Firm	Definition	Source
Knowledge-Intensive Business Services (KIBS)	KIBS are firms locating, developing, combining and applying various types of knowledge to solve the problems of their clients.	(Miles 2005)
Professional Service Firms (PSF)	PSF provide services directly from a professional (employee) to the client.	(Von Nordenflycht 2010)
Project-based Firms (PbF)	PbF are organizations where most of the work is done as projects, because the nature of the product or service requires it.	(Keegan & Turner 2002)

Table 2. Definition of KIBS, PSF and PbF

Drawing from KIBS to PBS, von Nordenflycht (2010) distinguishes consulting firms from other professional business services according to three variables: characteristics (knowledge intensity, low capital intensity, and no professional workforce), challenges and opportunities (medium cat herding, low opaque quality, low no investor protections, no trusteeship norm, no muted competition), and organizational responses (medium alternative compensation, high autonomy and informality, low no outside ownership, no slack). Consulting firms and advertising are named Neo-PSFs sharing the same features. Since consultants are not regulated professionals such as lawyers or accountants, therefore, they have fewer constrains that would limit innovation. PSF usually have ambidexterity between exploitation and exploration activities because of the interlink between product and process innovation, therefore by nature PSF have an open innovation process, for a start with clients (Smets et al. 2012b; Morris et al. 2015). Some examples are: law, accounting, business consulting (management, IT, engineering), publicity, architecture, hospitals, research centers.

In project-oriented environments, there is a need to understand how managers are to create new resources combinations and strategically deploy outcomes that leads to service innovation (Salunke et al. 2012). Project-oriented firms are characterized by having long project life cycles

where the provision of service often involves close collaboration with their clients, reflecting client input to innovation process (Salunke, Weerawardena & McColl-Kennedy 2011). Therefore, it is important that a model suitable for consulting firms considers an internal and external approach for service innovation. Keegan and Turner (2002) conducted a study in project-based firms finding that companies are dominated by ideas about how to manage projects instead of how to manage innovations. Blindenbach-Driessen and van den Ende (2010) compare innovation management practices among different types of project-based firms finding that these firms do not manage innovation projects different than other firms, however, project management practices differ in order to ensure performance. However, they also argue that factors such as planning of work, project selection and support from senior management, expertise, pre-developing, testing and launch are more important to enhance innovation in project-based organizations than in functional ones.

Innovation in consulting firms

Barrett and Hinings (2015) state that innovation in PSF has been neglected. Limited work on this area is related to the introduction of new practice areas and the development of new organizational structures and systems, which is in line with the few studies of innovation in consulting firms that were found and summarized in Table 3.

Consulting firms are an appropriate context to research innovation in services because they convey at the same time with the characteristics of KIBS, PSFs and PbF that show a high internal trend and favorable environment to innovate. Fischer (2011) also identified in a complementary study that entrepreneurship is a distinctive characteristic in consulting management in order to enable innovation capability. Swanson (2010) argues that consultancies possess capabilities and roles that enables IT innovation in their clients.

Finally, Christensen et al. (2013) argue that consulting firm as well as other professional service firms are on the cusp of disruption. They have gone from generalist to functional focus, from local to global structures, from tightly structured teams to spiderwebs of remote exports and this is changing their service offerings and business models. Such a dynamic and turbulent environment make innovation strategies to play a crucial role for a consulting firm to adapt and survive.

Aspect	Main finding
Innovation Processes	<ul style="list-style-type: none"> • PSF literature identifies only two innovation processes instead of seven: the client-driven product innovation and the internally-driven process innovation (Morris et al. 2015).
Innovation Drivers (Sources)	<ul style="list-style-type: none"> • PSF have three main drivers: co-creation, customers and technology (Kvalshaugen et al., 2016). • Wood (2001) states that consultancies are able to experience an issue many times, while their clients only experience it once, which makes possible for them to innovate in solutions from their gathered expertise. This is the how some management innovations such as Total Quality Management (TQM) or Business Process Reengineering (BPR) were born.
Innovation Types	<ul style="list-style-type: none"> • PSF literature argues that Process innovation in PSF is used for standardization while product innovation is used for customization (Tether, 2014). • Consulting firms are sources of information for innovation activities in service firms. They promote promoting “best practices” usually perceived as radical innovations, but most of these innovations are not new to the world but new to the firm, no matter whether the type of innovation model is closed, outsourced or open (Wright et al. 2012). • Consulting Firms create new practices to diversify into innovative domains (Gardner et al. 2008). • Consulting firms provide knowledge-based services that co-produce with their clients in order to innovate (Taminau et al. 2009).

Table 3. Studies on innovation in consulting firms

Since there is are few studies focusing in understanding the innovation management in consulting firms, we select it as our target sample in this study. The following section develops further what an innovation management is, and the constructs associated to its composition and development.

2.2 INNOVATION MANAGEMENT

2.2.1 Current innovation management theories

From the strategic management perspective there are two major theories that explain the basis of competitive advantage: the classic industrial economics based in corporate strategy (Diebold & Porter 1990) and the “resource-based view of the firm” that argues that sustainable competitive advantage emanates from resources that are valuable, rare, difficult to imitate and deliverable to customers (Dunford 2000).

Taking a step forward, Dodgson et al. (2014) argue that there is no unified theory of innovation management. They identify three analytical lenses, the two classic ones from strategic management plus one the one from innovation studies (i.e. evolutionary economics, dynamic capabilities, and innovation studies) with different strands that are interconnected:

- a) Evolutionary economics is concerned with the dynamic processes by which economies develop and change through entrepreneurship, technology and organizational routines. It builds on the Schumpeterian view of creative destruction.
- b) Dynamic capabilities are related to the capacity of organizations to rearrange their resources to respond to changing and uncertain environments.
- c) Innovation management studies are based on strategic management frameworks such as complementary assets (Teece et al. 1997) and absorptive capacity (Cohen & Levinthal 1990).

All lenses recognize a dynamic environment and the involvement of certain capabilities that are needed to be able to so. In this same line, McGrath & Kim (2014) state that with the advent of hyper competition, there is “a new focus for strategy analysis that considers firms within networks of individuals and other organizations”. They argue that both the economics and the resource-based view of strategy assume markets to be stable and with clear boundaries.

However, factors such as globalization and digitalization are changing rapidly the environments for firms so that innovation becomes critical to long-term organizational survival. Companies

need to create a pipeline of innovations on a systematic basis. Services lifecycles are becoming shorter, which push organizations to be temporary. Therefore, capabilities are no longer created and developed within firms, they are rather created by individuals and networks in innovation ecosystems. That leads to another research gap identified in this study: the interlink between the innovation management configurations pursued by an organization and the capabilities that are used to make service innovation happen in hypercompetitive environments.

We have conceptualized the innovation management configurations as the mix among elements such as innovation strategy, innovation sources, innovation process, innovation capabilities, and innovation types. We will explain further each of these elements.

2.2.2 Innovation strategy

According to Tether (2014), “innovation management comprises the strategies and practices that decision-makers use to achieve organizational benefits from innovation”. Tidd et al. (2005) state that successful innovation is strategy based. An innovation strategy provides clear direction to focus the organizational efforts to create and capture value from the market, it is a clear framework to make decision is necessary for discussion and alignment (Tidd and Bessant, 2014). Oke (2007) propose “the innovation pentathlon” framework, where the innovation strategy is of utmost importance because it guides the innovation process (Idea Management/Selection/Implementation) by having a clear direction to focus all the organization efforts. He suggests that the first step to define an innovation strategy is to define what innovation means for the firm or the focus areas for innovation. Then it must be communicated to employees fostering a proper innovation culture that allows the creation of new products, processes and services to satisfy the market.

An innovation strategy is about building the capability to work in complex and changing environments. It is about building routines -capability- to make innovation happen but also to be able to adapt and change those routines as the world shifts -dynamic capability- (Tidd & Bessant, 2014, p. 37). The purpose of innovation strategy in small firms is the same as in large ones: to create a firm-specific innovative advantage (Tidd et al., 2005). This is in line to the research gap

identified in the previous subsection. This shape the strategies and practices decision-makers use to improve organizational benefits from innovation. (Dodgson et al. 2014).

As commented in Chapter 1, the proper selection of an innovation strategy becomes even more significant nowadays in times characterized by dynamic conditions, where digitalization is disrupting markets, where users have wider and more sophisticated options to choose from, where policy makers and users are demanding for environmental-friendly and ethically-produced products, and where knowledge and expertise cannot reside only in one individual, department or single company.

Therefore, a second gap would be to explain the type of innovation strategies (practices) that consulting firms create for service innovation in these dynamic conditions. In the next sections, we theorize the type of innovation strategies that could be present in consulting firms based in open innovation. Open innovation is appropriate for this study as it recognizes the collaboration of the organization with other external actors to provide service innovation.

2.2.3 Innovation sources

We hypothesize that rather than having a unique and linear innovation process, each actor could in turn start a different innovation process. Therefore, multiple innovation process can coexist aiming at the creation of diverse service innovations. Table 4 shows the list of actors identified as sources of innovation in the literature.

The study of innovation management builds upon understanding of the sources, process, and outcomes of innovation and the economic, technological, and social context in which it occurs. Its concern lies with innovation within the organization and factors that affect its occurrence: its sources, strategies, and practices (Dodgson et al. 2014).

Service Innovation involves inward and outward activities (Hidalgo & D’Alvano 2014b). Therefore, the actors that bring knowledge to the firm are sources can be either internal or external to the firm (Miles et al. 1995). West and Bogers (2014) discuss about the actors that

have been studied by researchers such as individuals, customers, suppliers or universities. Many of these studies seem to be more common in the open innovation and value co-creation literature.

Position	Category	Actor	Studies
Internal	Individuals	Employees	(Melton & Hartline 2010; Isidro-Filho et al. 2013; Dahlander et al. 2016)
		Managers	(Rubalcaba et al. 2012; Kissi et al. 2012)
External		Users	(Oliveira & von Hippel 2011; Piller & West 2014; Boor et al. 2014)
Customers		(Alam & Perry 2002; Lundkvist & Yakhlef 2004; Melton & Hartline 2010; Foss 2011; Witell et al. 2011; Yi & Gong 2013; Heirati et al. 2016)	
Entrepreneurs		(Wakkee et al. 2008; Kelley et al. 2009; Colombo & Grilli 2013; Autio et al. 2014; Galindo & Méndez 2014)	
	Organizations	Suppliers	(De Faria et al. 2010; Rosell & Lakemond 2012; Czarnitzki & Thorwarth 2012; Heirati et al. 2016)
		Government	(Criado et al. 2013; Gonzalez et al. 2013)
		Universities	(Tether & Tajar 2008; Authors et al. 2009; Rampersad et al. 2010; Janeiro et al. 2013)
		Competitors	(Bos et al. 2013; Ritala & Hurmelinna-Laukkanen 2013; Bouncken & Kraus 2013; Pellegrin-Boucher et al. 2013)
		Networks	(Bao et al. 2012; Salavisa et al. 2012; Mustak 2014)
		Society	(Eric von Hippel & Georg von Krogh 2003; Snyder et al. 2016).

Table 4. Sources of innovation identified in the literature

2.2.4 Innovation processes

Innovation processes can have different aims and be organized in diverse manners according to the type of company. The traditional innovation process is linear and lies within the boundaries

of the firm. According to Oke (2007), the traditional linear innovation process encompasses three activities:

- a) Idea management refers to the generation of ideas aimed to satisfy the customer needs.
- b) Selection involves portfolio management and aims to choose the best ideas for implementation.
- c) Implementation is the capability to turn ideas into new products, processes and services.

Other authors such as Rubalcaba et al. (2012) propose a multidimensional framework for service innovation identifying a model of innovation processes in service firms with 3 process variations according to the actors involved: strategic service innovation model (top-bottom approach from managers to employees), employee-driven innovation (bottom-up approach from employees to managers) and employees involved in user-based innovation (co-creation between employees and clients).

Yet other authors argue that there are other innovation processes which are not only delimited by the actors involved, but by the type of driver pushing the innovation, such as technology or the market. An example of this is the six different types of innovation process are delineated by Dodgson (2014): research and technology led, market facing, internal coupling, external collaboration, strategic integration, and future ready. In the same line, Hidalgo and D'Alvino (2014) also propose the inward and outward innovation process in service organizations in order to develop an innovation capacity. They recognize that besides traditional linear process activities such as scan, focus, resource, implement, learn and lead, there are other activities involving other external actors such as co-operation. This raises another research gap about what are the innovation processes that are present in consulting firms and whether they are designed based on the actors or drivers involved as a source of service innovation.

2.2.5 Innovation capabilities

Success in innovation appears to depend upon two key ingredients: resources (people, technology, financial assets, tangible assets, intangible assets) and capabilities (abilities composed by routines) in the organization to manage them (Tidd et al. 2005; Furseth & Cuthbertson 2013; Dodgson et al. 2014). The RBV argues that organizations can be seen as

collections of distinct resources. resources can be differentiated into capabilities and assets (Plattfaut 2012). A capability is a coordinated set of tasks which is conducted to achieve a particular end result (Helfat & Peteraf 2003). Operational capabilities are a special class of capabilities needed for performing the basic functional activities of an organization (Winter 2003). Moreover, operational capabilities make use of tangible or intangible assets, e.g. machines, production plants, brands, or patents.

Plattfau (2012) discusses how several authors argue that this is true for stable market environments only. In contrast, in dynamic markets organizations have to adapt their operational capabilities which is done using dynamic capabilities (Teece et al. 1997; Eisenhardt & J. Martin 2000; Zollo & Winter 2002; Helfat & Peteraf 2003; Winter 2003). Dynamic capabilities are another class of capabilities. They are used to build, integrate, and reconfigure operational capabilities and, thus, contribute only indirectly to the output of the organization (Helfat & Peteraf, 2003). Dynamic capabilities emphasizes two aspects: the shifting character of the environment and the key role of strategic management in appropriately adapting, integrating and re-configuring internal and external organizational skills, resources and functional competencies towards a changing environment (Teece et al. 1997; Teece 2007). Teece argues that embracing open innovation is an important part of firms' dynamic capabilities, thus bringing open innovation explicitly into the domain of theories of firm strategy (Chesbrough & Bogers, 2014).

Therefore, we can state that innovation in services is a dynamic capability that builds, integrates, and reconfigures services using specific assets (Teece et al. 1997; Eisenhardt & J. A. Martin 2000; Teece 2007; Agarwal & Selen 2009; Plattfaut 2012). It is not a linear process and several iterations are required. Therefore, there is core role for dynamic capabilities to adjust and refined the actual strategy (Tidd and Bessant, 2014).

Some authors consider innovative capabilities as a type of organizational capabilities and not necessarily dynamic capabilities (Figueiredo 2010; Breznik & D. Hisrich 2014; Schneckenberg et al. 2015). Furseth & Cuthbertson (2013) propose the "service innovation triangle", a conceptual tool with nine business components to create value through service innovation. Value is seen as the ultimate innovation outcome (in any innovation type form explained before). A firm manages the service system, business model and customer experiences (innovation ability)

based on the combination of five resources (innovation capacity): technology, tangible assets, financial assets, people and intangible assets.

A recent research stream focuses on specific innovation capabilities in the context of service firms. They base on the demarcation of service innovation capabilities from innovative capabilities. (Gebauer et al. 2010; Jong & Hertog 2010; den Hertog et al. 2010; Eleni et al. 2011; Chen & Tsou 2012; Plattfaut 2012). One research gap is to identify how companies build these capabilities (dynamic capabilities and absorptive capacity framework) and to which extent they are different from each other to explain open innovation strategies (Vanhaverbeke & Cloudt 2014).

2.2.6 Innovation types (output)

As mentioned before, innovation is usually treated by authors as a process or an output. When we talk about the result of the innovation process, we are referring to the innovation as an output. Innovation outputs are also labeled as innovation dimensions (den Hertog et al. 2010) or innovation types (Tidd 2006; Oke 2007; Gunday et al. 2011). Quite a recent work by Prange and Schlegelmilch (2018) propose the cube solution, which cover eight combinations of innovation outputs based on the impact caused by the innovation in three factors: market, strategy and organizational change: Industry innovation, design innovation, paradigm innovation, strategic innovation, incremental innovation, operational innovation, standard setting innovation and lower-end innovation.

However, due to the focus of this study on service innovation, we will use the six Dimensions of service innovation outputs proposed by Den Hertog et al. (2010): New service concept, new customer interaction, new business partner, new revenue model, new delivery system: personnel, organization, culture, and new delivery system: technological. Based on the conducted literature review, innovation outputs can be classified as internal, when the output is used within the firm, and external, when the output is used outside the firm.

Internal innovation outputs can be either a process innovation or an organizational innovation. Process innovations refer to the creation of new activities and routines (Panesar & Markeset

2009; Uriona-Maldonado et al. 2010; Yuan & Qi 2010; Chen & Tsou 2012; Berre et al. 2013). Organizational innovations include a new structure (Connor 2005; Ihl & Wagner 2012) or culture (Martins & Terblanche 2003; Jaskyte & Dressler 2005; Cagliano et al. 2011; Hogan & Coote 2014). These types of innovation are more associated with incremental innovations.

External innovation outputs involve a new product (Nijssen et al. 2006; Oke 2007), a new service offering (den Hertog 2000; Van Der Aa & Elfring 2002; de Jong & Vermeulen 2003; Blindenbach-Driessen & van den Ende 2006; Schwarz et al. 2012), or a new business model (Bucherer et al. 2012; Zott & Amit 2013; Nair et al. 2013; Maglio & Spohrer 2013). These types of innovations are more associated with radical innovations. Tether (2014) suggests that major innovations in services often involve business model innovation and a fundamental change in the organization.

Radical innovation processes aim to bring new products or services that are new to the market and the company. (Verganti 2009; Perks et al. 2012; Apak et al. 2012; Jepsen et al. 2014; Snyder et al. 2016). Incremental Innovation Processes aim at improving existing products or services (Vermeulen et al. 2007; Ritala & Hurmelinna-Laukkanen 2013; Candi 2013). The challenge for innovation in PSF lies in the balance between generating incremental innovation by exploiting current knowledge and creating radical innovations by exploring new ideas as well (Smets et al. 2012b). The result of these innovation processes is an innovation output that can be classified as incremental or radical innovation (Droege et al. 2009).

2.2.7 Innovation strategy and open innovation processes

Going back to the concept of innovation strategy, we have identified a new stream in literature, the open innovation perspective that has been beneficial to articulate our analysis of innovation strategies in consulting firms. This type of firms uses different sources of knowledge to innovate (for both exploration and exploitation), therefore identifying the open innovation strategies that they use makes sense for our analysis. Close innovations processes only use knowledge and resources with the firm. (Chiaroni et al. 2010; Hsieh & Tidd 2012; Felin & Zenger 2014; The et al. 2016). While open innovation processes involved the exploration and exploitation of

knowledge and resources from within and outside the firm boundaries (Wallin & Von Krogh 2010; Huizingh 2011; Chesbrough 2011; Vanhaverbeke, Du, et al. 2014).

Currently, companies use the ‘fifth generation’ of innovation models that are not linear (technology-push vs market-pull) but rich in knowledge flows with diverse network linkages enabled by an intensive set of information and communication technologies (Dodgson et al., 2015). Open innovation provides a construct aligned with the ‘fifth generation’ of innovation models. It is conceptualized as “a distributed innovation process that involves purposively managed knowledge flows across the organizational boundary, including pecuniary and non-pecuniary flows” (Chesbrough & Bogers, 2014). Open innovation should therefore as well be linked to the resource-based because of its focus on the internal development of capabilities; and relational view because of its focus on how companies can tap into external resources. It is also related to the knowledge-based view that covers internal and external sources of knowledge (Vanhaverbeke & Cloudt, 2014).

Few studies have analyzed the degree of openness in companies. Laursen and Salter (2006) used the breadth and depth of external sources of innovation as a way to capture how open a firm is and followed in subsequent studies to identify the determinants of open innovation (Keupp & Gasmann, 2009); Lichtenthaler (2008) studied the technology exploitation and acquisition; and Lazzarotti & Manzini (2009) focus on the innovation funnel openness and partner variety. Besides, at least in manufacturing firms, breadth of knowledge sources has proven to be associated with higher innovation success (Leiponen & Helfat 2010) and in shaping innovation outputs (Love et al. 2014). We can build on these studies to study external sources of innovation in services as well.

To my knowledge, except from the work by Saebi & Foss (2015), none of these studies have focus in understanding the variety of innovation strategies based on the degree of openness. These authors only focused on inbound open innovation strategies based on the conceptualization by Laursen & Salter (2006) about breadth and depth of external sources of innovation. Saebi & Foss (2015) linked inbound open innovation strategies with business models and innovation performance. However, there is still no classification of outbound open innovation strategies; and more importantly, the same sources that initiate this type of innovation

strategies from inside the firm (employees, management, R&D Department, innovative project team), can also create closed innovation strategies.

Therefore, the research framework of this thesis study aims to cover this theoretical research gap by identifying open and closed innovation strategies according to the breadth and depth of the sources of innovation to set a comparable basis for analysis and theory building. This is important because in some manufacturing industries to be close is good for appropriability through secrecy (Keupp & Gassmann 2009), but it is still unknown if this is the case of services such as consulting firms. Besides, to answer the research questions, this research framework will explain the interlink between innovation strategies, innovation outputs and innovation enablers.

Based on the literature review we can conceptualize inbound and outbound innovation strategy. The first ones are always open, while the second ones could either open or close, depending whether the innovation output can be applied or not outside the firm.

Inbound open innovation strategies

Inbound Innovation Strategies use external knowledge sourcing. They refer to the practice of establishing relationships with external organizations or individuals with the purpose of accessing their technical or scientific competencies for improving internal innovation performance (Chiaroni et al. 2010).

Saebi & Foss (2015) developed the following taxonomy of Inbound Open Innovation Strategies (see Figure 2):

- **Market-based** (low depth / low breadth). The knowledge input to the innovation process is acquired through the market (inward-licensing of IP, R&D outsourcing or the acquisitions of innovative small start-ups). Market-pull innovation process have a starting point in the user and client needs (Magnusson et al. 2003; Von Hippel 2005; Verganti 2008; Ozer 2009; Oliveira & von Hippel 2011; Baldwin et al. 2011; Battisti 2012; Peine et al. 2014; Pajo et al. 2017).
- **Crowd-based** (low depth / high breadth). The knowledge input is sourced from a larger number of actors enabled by digitalization and low communication cost, such as

innovation contests to engage with user communities (Afuah et al. 2012; West & Sims 2014).

- **Collaborative** (high depth / low breath). a company enters into collaborative agreements with a few knowledge-intensive partners, such as lead-users, technology-partners, universities and research institutes other companies such as design-driven innovation labs (Dell’Era & Verganti 2009; Dell’Era & Verganti 2010; Verganti & Era 2014; Dodgson 2014).
- **Network-based** (high depth / high breath). The company becomes part of a larger innovation ecosystem consisting of individuals, communities and other organizations such as ecosystem innovation (Kastelle & Steen 2014; Autio & Thomas 2014).

Figure 2. Taxonomy of inbound open innovation strategies

Closed and outbound innovation strategies

Outbound Innovation Strategies use internal knowledge sourcing (Figure 3). They refer to the practice of establishing relationships with external organizations to which proprietary technologies are transferred for commercial exploitation (Bianchi et al. 2011). They can be closed if they innovation output is not applied outside the firm or open otherwise.

Figure 3 shows a taxonomy of outbound open innovation strategies was developed from the literature review using knowledge search depth and breath as refence to allow cross-comparisons with inbound open innovation strategies:

- **Project-based** (low depth / low breadth). This is endogenous to the consulting service provision. (e.g. Projects with clients). This type of strategy generally employs consultants involved in co-creation activities with clients/users (Aarikka-Stenroos & Jaakkola 2012; Perks et al. 2012).
- **Employee-driven** (low depth / high breadth). The knowledge output comes from collaborative work from different areas of the firm towards an external communities (e.g. Company website, blogs, social media). Opposite to management-based strategy, this type of strategy has bottom-up view covered by employee-driven innovation processes (Wakkee et al. 2008; Melton & Hartline 2010; Gallego et al. 2012; Isidro-Filho et al. 2013; Malhotra et al. 2017).
- **Management-driven** (high depth / low breadth). The company provides in-house developed knowledge (e.g. Labs, out-licensing, spin-offs). This type of strategy has a top-down view of innovation management (Tampoe & McDonough 1992; Jong & Hartog 2007; Gebauer 2011; Rubalcaba et al. 2012; Colombo & Grilli 2013).
- **Corporate-driven** (high depth / high breadth). The company becomes the hub to manage a larger innovation ecosystem consisting of employees, clients, suppliers, communities and other organizations (e.g. Innovation Office). It usually involves complex linkages with multiple actors inside and outside the firm, having an ambidextrous organization with absorptive capacity (Randhawa et al. 2007; Artto et al. 2011; Vanhaverbeke, Chesbrough, et al. 2014; Malhotra et al. 2017).

Figure 3. Taxonomy of closed and outbound innovation strategies

2.3 Research protocol

2.3.1 Theoretical gaps and research questions

Table 5 summarizes the theoretical gaps and related research questions when it comes to service innovation management in consulting firms.

Research Gap	Research Question
<ul style="list-style-type: none"> • Most of the understanding about innovation in services is based on the paradigm of technological innovation in manufacturing firms, using a linear innovation process inside a R&D unit. However, building on contingency theory to argue that innovation management should be tailored for individual situations and different type of firm. • Service Firms are heterogeneous and further research distinguishing the sectorial differences need to be conducted (Tether 2014; Heirati et al. 2016) 	<ul style="list-style-type: none"> • Do all types of consulting firms use the same type of innovation strategies? • Is there any interrelation between the type of innovation management configuration and the innovation output in consulting firms?
<ul style="list-style-type: none"> • Explain the type of innovation management configurations that consulting firms create for service innovation in dynamic conditions (globalization, digitalization). • Most literature links innovation to technology as the main source of innovation. A good number of studies have also shown the importance of markets and users as a source of innovation and recently, few studies have been conducted in network and open innovation and other new approaches. Innovation in services are involve multi-actors and organizational dimensions, generate different types of results and are susceptible of external influences. 	<ul style="list-style-type: none"> • What type of innovation management configurations do Consulting Firms use to adjust to their hypercompetitive environments? • Has the role of consulting firms changed due to this dynamic condition and why? • Which are the multi-actors involved as knowledge sources in service innovation in consulting firms?
<ul style="list-style-type: none"> • Linking open innovation to Services (Chesbrough 2011) 	<ul style="list-style-type: none"> • Under which circumstances is it appropriate for consulting firms to

	use Open Innovation approaches in their strategies?
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Table 5. Summary of theoretical gaps and research questions

2.3.2 Theoretical service innovation management framework

Traditionally, management scholars have studied innovation strategy from the internal perspective of the firm, which is in line with the internal view largely studied in strategic management. Nonetheless, as explained in the previous sections, companies are experiencing rapid changes in the market and they need to cooperate with other firms to sustain their competitive advantage. This paradigm shift claims for new frameworks to analyze, select and implement innovation strategies. Developing such a framework is the main focus of this doctoral study, while addressing simultaneously the research gaps and research questions aforementioned. Figure 4 shows the theoretical research framework designed for this study, operationalization the contracts explained beforehand related as the components for at each step to create an innovation strategy.

Figure 4. Theoretical research framework

The next chapter introduces the research methodology selected to collect and analyze data based on this theoretical framework for the management of service innovation in consulting firms.

CHAPTER 3. METHODOLOGY

This chapter examines the research design of used in this doctoral research study. Preparing a research design was a critical task undertaken before the field work was realized, providing a defined framework of locally interconnected activities that link the data collection and analysis with the research questions and provides with the required validity and reliability in scientific research.

Having an education as a computer system engineer, with a master specialization in business management, and having worked previously as a business consultant and a manager in strategic planning and project management departments, helped me to understand the innovation management process at different levels in consulting firms. Still, I had limited understanding in the practical implications of innovation managements in terms of strategy, organizational design or the ecosystem surrounding the aforementioned consulting firms.

This research was initiated based on an intuition that innovation in consulting firms might have different dynamics than the empirical context of prior research on innovation that has particularly focused on manufacturing firms. After an initial literature review, findings showed that service firms, including consulting ones, were facing different challenges to manage innovation due to the nature of the services. This seemed intriguing and worth researching.

First, the different research methodologies available are presented in contrast them with the research questions to debate the appropriateness of the selection. Then, specific decisions made in designing the field activities are discussed, such as unit of analysis, data collection and data analysis techniques. Finally, the case study protocol used to operationalize the research design is displayed as well as the order taken to conduct the field work.

3.1 Abductive approach

It is also important to note that this study has an abductive standpoint. It started in a deductive manner by making a review of the literature and building a general framework about innovation

management in services that allowed the elaboration of the interview protocol based on this. Therefore, the initial part of the study was to comprehend and describe the peculiarities related to service innovation in the context of consulting firms. Theoretically framing the empirical findings regarding the past literature was a continuous iteration between exploring the literature and the data analysis. In other words, the results were emerging from the data such as in a more grounded theory approach (Glaser & Strauss, 1967). A more interpretivist approach was also adopted because of the nature of the data collection (interviews), so that the entities to be studied were part of a socially constructed and subjective world (Easterby-Smith et al., 2002).

3.2 The research strategy

A research strategy can be defined as a set of techniques and constructs for acquiring knowledge in a logical manner (Morais, Martins and Kansikas, 2009). Figure 5 shows the two steps followed during the research process of this doctoral thesis: systematic literature review, multiple exploratory case-studies in consulting firms. In the following subsections, it is explained the selection and design of each method addressed in the research process diagram.

Figure 5. Research process diagram

3.3 Method: Literature review

To provide a comprehensive theoretical framework, aligned with our purpose, a systematic literature review was conducted by using diverse methods to identify, select, and critically assess the current state of the art. Fink (2005) defined a literature review as “a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed

and recorded work produced by researchers, scholars, and practitioner” (Fink, 2005). Figure 6 indicates the actions needed for conducting a literature review.

Figure 6. Key steps for performing literature review

The systematic literature review is principally based in academic journals. Figure 7 illustrates the flowchart of the research process.

Figure 7. Flowchart of the research process

First, the Science Direct, Emerald Insight and Google Scholar databases were searched, focusing in the period from 1995 to 2014 using the keywords “consulting firms” combined with “innovation”, “KIBS” (Knowledge Intensive Business Services), “PSF” (Professional Service Firms), “project-based”, “service innovation process”, “service innovation model”, “service innovation strategy”, “innovation in services”, “service innovation management”, “knowledge”, “projects” and “services”. This review focuses on service innovation in consulting firms. Thus, it

excludes studies from non-service organizations (i.e. the primary and secondary economic sectors).

Second, the review only considers service innovation in existing companies, so no innovation papers from the entrepreneurial perspective were selected. The review focuses on the intersection between new service development, innovation management and the consulting industry. This leaves out studies that encompass other aspects such as specific type of innovation, a unique service innovation model, no innovative-oriented processes performed in service firms as well as those with a sole focus in organizational, marketing or technological innovation drivers.

Third, from the articles obtained in the last step, an abstract analysis was applied in order to ensure relevance for the scope of the review; having as main filters that the article addressed results related to service innovation in consulting firms, consistency of the theoretical background, rigor in the employed research method (either qualitative, quantitative or both) and identification of limitations and further research.

Fourth, from the relevant selected publications, 59 articles were identified as relevant works or most cited among the rest, and the references were checked in order to complement the search with related relevant articles that were from a previous time period or were not listed in the scientific databases utilized.

Finally, 15 articles were identified with a sole focus in context of consulting firms and classified in five clusters according to the theories that use to ground their research.

3.4 Method: Case study (qualitative research)

The selected methodology was Multiple Exploratory Case-Study in Consulting Firms, because of the nature of the research questions and because this is recommended when there is few studies on the subject (Yin 2003). The case study methodology is well suited for this type of research endeavor when the empirical phenomena has not been previously explored (Eisenhardt 1989).

The exploratory methodology permitted to search for unknown results and compare them with the existing theory.

Multi-case study research is regarded as stronger to deliver scientific results, as the phenomena is observed repeatedly as opposite to Single case study when the researcher aims to challenge a dominant theory (Yin, 2003). Theory Building Structures are suitable for Exploratory Multiple Case Studies, so that it can be debated the value of further investigating various hypothesis or propositions. A comparative structure repeats the same case study two or more times comparing alternative descriptions or explanations to the same phenomena (Yin 2003).

Before initiating the case study, I had some prior understanding about the literature on service innovation and professional service firms, which in turn helped me to understand the case study. The initial part of the study was to develop an interview protocol base on the theoretical research framework obtained as part of the literature review. However, framing theoretically the empirical findings with regard to the previous literature required a series of iterations between exploring the literature and contrasting it with the empirical evidence. Thus, there is a similarity with the logic of grounded theory when theory is built from the data collected from an empirical phenomenon (Glaser & Strauss, 1967). Yet, this was not purely inductive approach since I use my previous knowledge in service innovation management to guide the exploration. This is in line with the previous about having an overall abductive approach to conduct this dissertation.

The empirical field work was done as multiple exploratory case studies. The use of case studies is better for theory building (Eisenhardt & Graebner 2007). We also used the polar type approach to have sample of opposite cases that could have or not the expected characteristics derived of theory. That is why we selected both Management and IT consulting firms, being more people-driven vs more technology-driven respectively (Eisenhardt & Graebner 2007). Figure 8 shows the case study process proposed that was followed for this research project.

Figure 8. Case studies process

The case studies are based on interviews, archival data and observations. Interviews are great when the phenomena are episodic, and we can make use of knowledgeable informants, such as the innovation management responsible. It is important to use construct tables summarizing our propositions in order to contrast them with the evidence (Eisenhardt & Graebner 2007). This is also called maximum variation cases and allows to have a stratified sample to falsification propositions or test verifications (Flyvbjerg 2006).

Case studies also allow “systematic combining”, which makes the research process more visible as opposite to linear or positivistic, providing more interesting research opportunities (Dubois & Gadde 2002). Dubois and Gadde also state that when doing multiple exploratory case studies, it is better to keep what is similar, but also not to forget the contextual differences. That is the reason why a second wave of case studies were conducted to contrast data from consulting firms in Italy versus data from consulting firms in Spain.

These additional Spanish case studies were also considered to yield stronger internal validity (Eisenhardt, 1991) and even two pilot interviews case were conducted with the aim of assessing whether new knowledge could be obtained from the designed interview protocol. The two pilot interviews were conducted with people in charge of innovation management from a Spanish-French design consulting firm and a European virtual management consulting firm. The insights of the pilot interviews were useful to calibrate the interview protocol, especially in terms of wording and sequence.

Since there are limited studies on the management of innovation in the context of consulting firms, this methodology is consistent with the nature of the research questions and the aim of the study. The exploratory case study allowed looking for unknown results and then comparing them with the existing theory. There is no right or wrong when it comes to selecting a qualitative or quantitative approach, but the key part relies on the coherence with the research aim and questions. So, in this case an exploratory qualitative research was more suited for our research questions addressing a new type of phenomena that is yet to be explored.

3.5 Data collection

A first data collection phase was conducted in consulting firms from Italy and a second phase from consulting firms in Spain. Observations and structured interviews were performed to clarify and get more in-depth answers about the innovation management process (Yin 2003).

Based on Yin (2003), we have collected data from an individual source (responsible for innovation) about an organization design (innovation office). Therefore, our research study has the innovation management process as unit of analysis. We have collected evidence from three different sources to triangulate the facts: interviews, direct observations and documentation (Yin, 2003).

3.5.1 Interview method and respondents

As mentioned before, interviews were directed to people responsible of the innovation management process, either a partner or senior manager. A full version of the interview protocol can be found in Annex A. Nonetheless, the main questions are listed here:

1. What is the view of innovation your firm regarding innovation?
2. What are the benefits and problems brought by innovation?
3. What is the process, tools and capabilities that you use to innovate?
4. Could please cite an example of an innovative idea that has been implemented?
5. Has any of these innovations change the organization business model?

Table 6 shows the characteristics of the consulting firms included in this study sample.

3.5.2 Participant observations and informal interactions

Participant observations were made to understand the innovation management process in the consulting firms' sample (Bryman & Bell 2003). On a couple of consulting firms, we had a passive participation in short meetings. The consulting firms that had a physical space enabled for innovation to happen either as an innovation office department or as a collaborative employee co-working space gave us a tour to know the facilities and observed people working on innovative activities. When allowed, pictures of the innovation spaces were taken regarding rooms, walls, and any interesting gadget displayed in the space. Thus, the participant observations were not ethnographic, because I did not become a full participant of the organization, but rather an outsider observer (see Gold classification of participant observations in Bryman & Bell, 2003).

The informal interactions took place before, during and after the company visits. Before the visits, informal interaction was done via telephone, conference meetings, e-mail or LinkedIn message center. During the visits, the informal interactions could take place in a chat before commencing the interview, during a coffee break, when being introduced to other team members, or during the tour at the innovation offices/centers. After the visits, informal interactions were mainly done via e-mail. The important things risen during these interactions that could actually be considered useful for research purposes were later noted.

3.5.3 Secondary material

The secondary material was collected in a variety of ways: from a file storage or hardcopies during the company visits, some documents were sent via e-mail after the visit (mainly Power Point Presentations and brochures), or from the consulting firms websites and social media (Twitter and LinkedIn). Especially Power Point Presentations and brochures acted as a good and efficient source for secondary data information.

Case	Consulting Type	Office Country	Size	Respondent	Interview Length	Interview Date	Data sources	Brief profile
1	Information Technology	Spain	Large	Innovation Director & Innovation Manager	60min	May 2016	Answered Interview Protocol, Observation Notes, Company Website & Social Media	Global professional service firm that provides strategy, consulting, digital, technology and operational services in more than 120 countries.
2	Information Technology	Spain	Large	Innovation Director	45min	May 2016	Interview Recording, Observation Notes, Company Website & Social Media, Photos, Visit to Innovation Center	Global innovation, engineering and high technology consulting firm operating in more than 20 countries.
3	Information Technology	Spain	Large	Innovation Director	63min	May 2016	Interview Recording, Observation Notes, Company Website & Social Media	Innovation and technology service firm focused on digital transformation.
4	Information Technology	Italy	Large	Innovation Director	50 & 44 min	July 2015	Interview Recording, Observation Notes, Company Website, Internal presentations	Global technology and consulting company serving clients in more than 150 countries.
5	Information Technology	Spain	Large	Innovation Manager	45min	Apr 2016	Interview Recording, Observation Notes, Company Website	Multinational consulting firm specialized in technology in Spain and Latin America.
6	Information Technology	Italy	Large	Strategy Director & Marketing Director	64 min	July 2015	Interview Recording, Observation Notes, Company Website	Multinational technology corporation that specializes in developing and marketing database software and technology, cloud engineered systems and enterprise software products.
7	Information Technology	Spain	Large	Innovation Director & Industry Director	73min & 62 min	March & June 2016	Interview Recording, Observation Notes, Company Website, Internal presentations	Multinational consulting firm specialized in technology in Spain, Portugal, USA and Latin America.
8	Information Technology	Spain	Large	Director of Innovation, Strategy and New Technologies	57min	May 2016	Interview Recording, Observation Notes, Company Website	Digital and technology service provider focused on digital and technological transformation in Europe and Latin America.
9	Management Consulting	Italy	Large	Innovation Director & Innovation Manager	56min & 180min (workshop)	May & Nov 2015 (workshop)	Interview Recording, Observation Notes, Company Website, Photos, Manifesto, Visit to Innovation Center, Innovation Workshop	Multinational professional service firm that provides audit, tax, consulting and advisory services in more than 150 countries.
10	Management Consulting	Spain	Large	Chief Innovation Officer	67min	May 2016	Interview Notes, Observation Notes, Company Website, Photos	Multinational professional service firm that provides audit, tax, consulting and advisory services in more than 150 countries.
11	Management Consulting	Spain	Large	Innovation Director & Industry Director	46min	May 2016	Interview Recording, Observation Notes, Company Website	Multinational professional service firm that provides audit, tax, consulting and advisory services in more than 150 countries.
12	Management Consulting	Italy	Large	Innovation Director	52 min	Sep 2015	Interview Recording, Observation Notes, Company Website	Global consultancy firm offering services in more than 30 countries.
13	Management Consulting	Spain	Medium	Innovation Manager	45min	Apr 2016	Interview Notes, Company Website	Local service firm focused on transportation, new technologies and social knowledge.
14	Management Consulting	Spain	Medium	CEO & Innovation Manager	50min	May 2016	Interview Recording, Observation Notes, Company Website, Internal presentations and manuals	Business corporation offering professional services in management and organizational consultancy, IT, human resources, support to the third sector, international financing and strategic innovation in Spain and Portugal.
15	Management Consulting	Italy	Small	Innovation Director	70min	July 2015	Interview Recording, Observation Notes, Company Website	Foundation that provides research, consulting, training and advisory services in Italy.

Table 6. Consulting firms sample characteristics

3.6 Data Analysis

As indicated above, the methodology had an abductive approach, where initial theoretical findings guided the further empirical gathering and theoretical positioning. Therefore, the analysis continued throughout all the research until the very last word written in this manuscript. Analyzing and looking for details in the data was a core part of the methodology. Different types of data were used to capture our understanding of the innovation management process inside the sampled consulting firms. The various data sources helped to construct the generalizations about the concepts identified in the theoretical framework by adding evidence of the activities supporting them and those that were not. Moreover, while analyzing the data, I would also combine the time to read articles and textbooks about the subject. By doing this, we can also find some resemblance to the concept of triangulation mentioned before, i.e. using different kind of methods and information for the study of the same phenomenon to understand it better and to confirm earlier interpretations (Eisenhardt 1989).

The drafts of the analysis were discussed in several for a with research peers, especially thesis supervisors, to ensure that the analysis of the case was a trustworthy interpretation. Three times per year, my doctoral program established workshop where we were asked to submit working articles to be presented. During the workshops, I received comments about the working articles from the general audience and more specific feedback from a junior (usually another PhD student) and a senior discussant (usually a professor who was part of the Faculty of any of the Doctoral Program University Consortium) that were assigned to read in full my paper. Besides, follow-up meetings were scheduled with supervisors from my home and host university to assess the progress of my research, including the analysis and interpretation of the results. Data analysis methods include Narrative, Coding, and Interpretation (Yin 2003; Saunders et al. 2009). All interviews had a duration between 45 and 90 minutes. The interviews were transcribed and codified according to Table 7.

First Coding Labels	Second Coding Labels	Third Coding Labels
Collaborative	Inbound OI Strategies	Open Innovation Strategies
Market-based		
Network-based		
Market-based		
Technology-based	Outbound OI Strategies	
Project-based		
Ecosystem-based		
Corporate-based		
Globalization	External Drivers	Innovation Drivers
Digitalization		
Sustainability		
Market requirements		
Regulations	Internal Drivers	
Change in business strategy		
Dynamic capabilities	Dynamic Service Innovation Capabilities	Innovation Enablers
Signaling user needs & technological options		
Conceptualizing		
(Un-) Building		
(CO-) Producing & Orchestrating		
Scaling & Stretching		
Learning & Adapting		
Strategy	Organizational Design	
Structure		
Process		
Behavior		
Human Resources		
Network		
Management	Innovation Sources	
Employees		
Clients/Users		
Suppliers		
Government		
Society		
Cloud Computing	Digital Technologies	Innovation Tools
Internet of Things (IoT)		
Big data		
Mobile Applications		
Operational Systems		
Social Networks		

Community of Practice		
Software Development		
Architecture Platform		
Inside-out	Dimensions of Open Innovation	Open Innovation Implementation
Outside-in		
Coupled		
Un-freezing	Process of adoption	
Moving		
Institutionalizing		
Co-creating		
Network	Managerial Levers	
Organizational Structure		
Evaluation processes		
Knowledge Management Systems		
Venture Capital		
Business Models		
Leadership & Culture		
New service concept	Service Innovation Dimensions	Innovation Outputs
New concept interaction, new business partner		
New revenue model		
New delivery system		
New delivery technological system		

Table 7. Coding order labels

The coding had clear categories and indicators to be understood with limited training. They were related to the unit of analysis. The research question determined the model and coding schema as operationalized in the theoretical framework and incorporated into the interview protocol. We followed the advice to use a coding software such as Atlas.Ti that facilitates the data analysis and manage large amount of data (Garrison et al. 2006) as well as different view datasets using Microsoft Excel.

The results of these case studies are discussed and presented in the next Chapter. Chapter 4 focus on the innovation drivers/sources and outputs. It also provides an explanation on innovation enablers (innovation processes and innovation capabilities). And finally, it provides an empirical adjustment of the theoretical framework according to the results and interlink analysis among elements thought the innovation strategy.

CHAPTER 4. FINDINGS AND EMPIRICAL ANALYSIS

4.1 SYSTEMATIC LITERATURE REVIEW ANALYSIS

4.1.1 Quantitative findings

The research in service innovation has increased from 2005 (Figure 9). The studies considering consulting firms in their study sample have augmented from 2008; however, the research focused only in consulting firms has recently risen from 2011. The field is still in development and there is no mature understanding about how the phenomena of service innovation in consulting firms works, how it should be managed and all the related variations such as co-creation with clients and suppliers, innovation-lead by knowledge exploitation/exploration, characteristics of innovation in a project-based environment, and so on.

Figure 9. Selected service innovation articles timeline.

Service innovation studies have focused research in different types of service firms (Table 8). Only 59 articles (29%) of the total sample have considered in their sample consulting firms, either a purely consulting paper or included in other service firm classifications such as PSF, KIBS or PbF. The rest of the papers contain data from other types of service firm and in many cases this is not defined.

Type of Firm	Number of Papers	Percentage
Consulting	28	48%
PSF	13	22%
KIBS	11	19%
PbF	7	11%
Total	59	100%

Table 8. Number of articles focusing on different types of firms.

As a final remark, only 15 of these 59 articles have been identified as relevant papers according to the methodology used (citation and research focus in service innovation in consulting firms). From this group, the majority come from the academic side, considering a balanced view about if innovation happens inside or outside the consulting firm. Table 9 shows these relevant papers ordered by number of citations.

Authors	Year	Cites	Publisher	Paper Name	Academic Cluster/ Stream
(Anand et al. 2007)	2007	236	Academy of Management Journal	Knowledge-based Innovation: emergence and embedding of new practice areas in management consulting firms.	Knowledge Management
(Tether & Tajar 2008)	2008	177	Research Policy	Beyond industry-university links: Sourcing knowledge for innovation from consultants, private research organisations and the public science base	Innovation Studies
(Leiponen 2006)	2006	144	Journal of Product	Managing Knowledge for Innovation: The Case of Business-to-Business	Innovation Studies

Authors	Year	Cites	Publisher	Paper Name	Academic Cluster/ Stream
			Innovation Management	Services	
(Wood 2001)	2001	129	Routledge	Consultancy and Innovation: The Business Service Revolution in Europe.	Innovation Studies
(Blindenbach-Driessen & van den Ende 2006)	2006	79	Research Policy	Innovation in project-based firms: The context dependency of success factors.	Innovation Studies
(Heusinkveld & Benders 2005)	2005	77	Human Relations	Contested commodification: Consultancies and their struggle with new concept development.	Knowledge Management
(Mors 2010)	2010	50	Strategic Management Journal	Innovation in a Global Consulting firm: when the Problem is too much Diversity.	Knowledge Management
(Taminau et al. 2009)	2009	48	Journal of Knowledge Management	Innovation in management consulting firms through informal knowledge sharing.	Knowledge Management
(Swanson 2010)	2010	28	Journal of Strategic Information Systems	Consultancies and capabilities in innovating with IT.	Strategic Management
(Salunke, Weerawardena & McColl-Kennedy 2011).	2011	27	Industrial Marketing Management	Towards a model of dynamic capabilities in innovation-based competitive strategy: Insights from project-oriented service firms.	Strategic Management
(Hogan et al. 2011)	2011	15	Industrial Marketing Management	Reconceptualizing professional service firm innovation capability: Scale development.	Strategic Management
(Wright et al. 2012)	2012	14	Research Policy	Management innovation through standardization: Consultants as standardizers of organizational practice.	Innovation Studies
(Sandberg & Werr 2003)	2003	7	European Journal of Innovation Management	Corporate consulting in product innovation: overcoming the barriers to utilization.	Innovation Studies
(Salunke et	2012	5	Journal of	Competing through service innovation:	Strategic

Authors	Year	Cites	Publisher	Paper Name	Academic Cluster/ Stream
al. 2012).			Business Research	The role of bricolage and entrepreneurship in project-oriented firms.	Management
(Fischer 2011)	2011	0	Journal of Knowledge Management	Recognizing opportunities: initiating service innovation in PSFs.	Knowledge Management

Table 9. List of relevant articles focusing on innovation in consulting firms.

4.1.2 Qualitative findings

The 59 articles focusing in consulting firms have been classified in different academic clusters according to the basis theory that they use: knowledge management, strategic management, innovation studies, and others such as service science and project management (Table 10).

Academic Cluster	Number of Papers	Percentage
Strategic Management	21	36%
Knowledge Management	19	32%
Innovation Studies	13	22%
Others	6	10%

Table 10. Academic clusters of articles focusing in consulting firms

From literature review, we identify five main streams or clusters that have performed research in service innovation including at least one consulting firm in their study sample or as a generalization for KIBS, PBS or PbF. Some studies have a multi-stream perspective that enables cross-fertilization of academic fields. These five streams are:

Innovation studies. They are based on innovation management and new product/service development theories (Bessant & Rush 1995; Tidd 2001; Chesbrough 2003; Tidd 2006; Leiponen 2006; Fagerberg & Verspagen 2009; Fagerberg et al. 2012; D'Alvano & Hidalgo 2012; Tidd & Bessant 2013). According to Wood (2001), consultancies are able to experience an issue many times, while their clients one experience it once, which makes possible for them to innovate in solutions from their gathered expertise. He claims that management innovations such as Total Quality Management (TQM) or Business Process Reengineering (BPR) were born this way. Sandberg and Werr (2003) analyses corporate consulting from a innovation process perspective in a telecom company trying to go from a product-centered logic to a customer-centered logic. Success factors for innovation in project-based firm are identified by Blindenbach-Driessen and van der Ende (2006) grounded in new service development theory. They found that factors such as planning of work, project selection and support from senior management, expertise, pre-developing, testing and launch are more important to enhance innovation in project-based organizations than in functional ones. Tether and Tajar (2008) identify consulting firms as sources of information for innovation activities in service firms. They point-out that most of these innovations are not new to the world but new to the firm, no matter whether the type of innovation model is closed, outsourced or open. Wright et al. (2012) explore the ambiguity of consulting practice, in a sense that consulting work can be innovative, but at the same time it has an standardizing component that plays a role against. However, this contradiction needs to be managed inside consulting firms to maintain a balance.

The knowledge management cluster emphasizes the important role of knowledge as the key detonator for innovation in consulting firms (Nonaka & Takeushi 1995; Leiponen 2005; Anand et al. 2007; Hidalgo & Albors 2008; Taminau et al. 2009; Reihlen & Nikolova 2010; Quintane et al. 2011; Fischer 2011). Authors in this stream view innovation in consulting firms as internal. Consultants have interaction outside the company with clients and suppliers, but this seems to be taken as part of the operation, not the source of innovation. Innovation is regarded as a result of inner characteristics of the firm, such as structure, processes and human resource profile. Heusinkveld and Benders (2005) label innovation in consultancies as new concept development. Knowledge commodification is the basis to explain how knowledge is exchange by consultants within the organization for new concepts to arise. Anand et al. (2007) explore innovative

knowledge-based structures in consulting firms as, especially when a new practice area is open in order to satisfy client demands and channel employee expertise and professional growth. Opposite to the latter perspective, Taminau et al. (2009) discuss that innovation in consulting firms is not mainly enabled through formal structures but through informal knowledge sharing among consultants. For example, a conversation by consultants during lunch time is more likely to bring new ideas in order to innovate. Mors (2010) argued about knowledge networks and how it is difficult to access information inside consulting firms and to integrate information from outside the organization, playing both factors against innovation by consultants. A different approach is used by Fischer (2011) who proposes that innovation in consulting firms depends on the entrepreneurial behavior that consultants have in their daily activities. He performed a case study in PricewaterhouseCoopers, a leading consulting firm, finding out that the application of knowledge management can help consultants to recognize opportunities for triggering innovation.

Scholars in the strategic management field mostly view innovation based on resource and capability-based view of competitive advantage (Teece et al. 1997; Eisenhardt & J. Martin 2000; O'Reilly & Tushman 2008; Teece 2010a; Hertog et al. 2010; Gebauer et al. 2012; Plattfaut 2012). Consulting firms harmonize their resources (i.e. physical, human, financial and knowledge assets) to deliver value for themselves and their clients in order to be competitive in the market. Salunke et al. (2011; 2012) attempt to provide a service-based innovation model for competitive strategy in project-oriented firms. This model has 4 key activities that need to be undertaken to create these dynamic capabilities: episodic learning capability, relational learning capability, client-focused learning capability and combinative capability. Similar to Fischer (2011), these authors also identified in a complementary study that entrepreneurship is a distinctive characteristic in consulting management in order to enable innovation capability. In the same line, Hogan et al. (2011) identified that innovation capability can show three different dimensions: client-focused, marketing-focused (the most prominent one) or technology-focused. Swanson (2010) also argues that consultancies possess capabilities and roles that enables IT innovation in their clients.

The service science cluster view services as a way to innovate, having a customer-oriented perspective and a service-dominant logic (Sundbo & Gallouj 1998; Vargo & Lusch 2004; Hipp & Grupp 2005; Vargo & Lusch 2007; Vargo et al. 2008; Toivonen & Tuominen 2009; Gebauer et al. 2010; Tuominen & Toivonen 2011; von Hippel et al. 2011; Gebauer 2011; Rubalcaba et al. 2012; Sørensen et al. 2013; Hidalgo & D'Alvino 2014b). Rubalcaba et al. (2012) propose a multidimensional framework for service innovation identifying three dimensions: sectorial (innovation in service industries), activity (service-oriented innovation in any type of business) and agent dimension (service innovation in network among different players). They also identify a model of innovation processes in service firms with 3 process variations: strategic service innovation model, employee-driven innovation and employees involved in user-based innovation. Recently, Hidalgo and D'Alvino (2014) investigate the inward and outward innovation process in service organizations in order to develop an innovation capacity.

Authors in the project management field mostly view innovation as a type of project to be managed. Keegan and Turner (Gann & Salter 2000; Keegan & Turner 2002; Blindenbach-Driessen & van den Ende 2006; Bygstad & Lanestedt 2009; Kapsali 2011; Artto et al. 2011). Keegan and Turner (2002) conducted a study in project-based firms finding that companies are dominated by ideas about how to manage projects instead of how to manage innovations. Therefore, innovation is not foster nor encourage is the best manner to rise smoothly. Blindenbach-Driessen and van den Ende (2010) compare innovation management practices among different types of project-based firms finding that these firms do not manage innovation projects different than other firms, however, project management practices differ in order to ensure performance.

It is also important to notice that service innovation in consulting firms is different from other type of services. For example, in tourism and banking innovation tend to be more consumer-driven and the user-involvement is important to create new service offerings (Hjalager 2010; Oliveira & von Hippel 2011). Other services such as retail and entertainment have a wider creation of radical and incremental innovations (Sorescu et al. 2011; Ford et al. 2012). Digital innovations are easier to implement in public, banking and telecom services that are less

dependent in people like the case of consulting firms(Consoli 2005; Weber et al. 2011; Apak et al. 2012). Also for some technology-based services like banking and telecom, it is easier to innovation with competitors and in a network (Swan et al. 1999; Bos et al. 2013; Pellegrin-Boucher et al. 2013; Ritala et al. 2014).

4.1.3 Literature review findings

Consulting firms have a predominant role in service innovation research among other KIBS, PSF and PbF because these types of organizations have proven to be innovative and foster the economy. Besides, it is believed that consulting firms have a nurturing environment for service innovation since the consulting service delivery is distinguished by being project-based, process-oriented, as well as intensive knowledge exchange enabling value co-creation among the consultants, customers and suppliers. The review shows that research on Service Innovation started to grow rapidly from 2008, but the focus on studies involving consulting firms initiated after 2011. Some scientific journals stand out with their contribution in the literature: Research Policy, International Journal of Project Management, Journal of Knowledge Management and Scandinavian Journal of Management. The selected papers database has 206 publications including journals articles, conference papers, books and working papers: more than 70% of these publications have been published in the period from 2008 to 2014 and 24% (59 articles) focused on service innovation in the context of consulting firms. From these 59 articles, 15 articles have been considered as completely focused in consulting firms as unit of analysis.

We contribute with this systematic literature review in the context of consulting firms with the identification of five main research streams: knowledge management, innovation studies, services, project management and strategic management. Each academic cluster emphasizes in a greater or minor way certain aspects (processes, structures, models, characteristics, factors, etc.), resources (clients, consultants, suppliers) and views (internal or external) about innovation in the consulting industry. It seems that the linkage between these different streams is missing.

4.2 MULTIPLE CASE STUDY ANALYSIS

4.2.1 Innovation Sources

The innovation processes in consulting firms distinguish according to the locus of innovation; in other words, it can be categorized based on the actor that makes innovation happen either intentionally or not. This actor or source of knowledge for innovation could be inside or outside the organization. Table 11 provides the compilation of findings on innovation processes. Based on the nature of this innovation process, we can group them into three main categories: internal, external and mixed. The internal category is compound by innovation processes where the initial push or creative idea for innovation comes from inside the firm. The external category addresses those innovation processes where the initial push or creative idea comes from outside the firm. Finally, the mixed category refers to the innovation processes where the initial push or creative idea comes from a joint effort of an internal and external entity to the firm.

Case	INTERNAL			MIXED		EXTERNAL	
	Management-driven innovation	Technology-driven innovation	Employee-driven innovation	Employee-involved in user innovation (co-creation)	Open-driven innovation	Policy-driven innovation	User-driven innovation
1	X			X			
2				X		X	
3	X	X		X	X		
4				X			
5	X	X		X	X		X
6	X	X	X	X			
7	X	X	X	X	X		X
8	X	X	X	X	X	X	
9		X		X		X	
10				X			
11				X			
12				X			
13				X			
14				X			
15				X			
Total	6	6	3	15	4	3	2

Table 11. Identified innovation sources

Three out of these seven innovation processes come from the literature review and another four from the data analyses. According to the Model for Innovation Processes in Services, there are three innovation processes:

- Management-driven innovation. Six cases (1,3,5,6,7,8) presented evidence of this type of innovation process. Some of the tools, activities, and structures to develop, promote, evaluate, foster and reward ideas include the use of an innovation intranet where employees can be informed about news related to innovation, events, and projects inside the organization related to this field. Some of them also have blogs in each department or a key champion within the organization that keeps the audience informed. Some intranets also have forums in a wiki format where employees can ask a question and be involved in different discussions with their co-workers, bosses, and subordinates. The top management also provides employees with software that helps them to organize their ideas, project tracking, and knowledge management systems where the details, deliverables, and lessons learned are storage and indexed. Training is also provided on methodologies for creativity, negotiation, project management (Agile, Scrum) and innovation (design thinking, design-driven innovation). The most structured firms have also created an Innovation Management Office and the role of a Chief Innovation Officer (CIO) who is in charge to articulate the initiatives and resources pursuing an innovation objective inside and outside the firm. Many of these improvements are organizational or management innovations, which refers to the invention and implementation of management practice, process, structure, or technique that is new to the company and aims to contribute to the achievement of organizational goals (Birkinshaw et al. 2008). A manager of the consulting firm 8 states: *“Organizationally, there is an Innovation Department with a Chief Innovation Officer that reports directly to the CEO. This department is separated from the sectorial, regional and offerings divisions. The main duty is the reuse of capacities and experiences...”*.
- Employee-driven innovation. Three cases (6,7,8) presented evidence of this type of innovation process. The innovation mechanisms provided by the firm’s top management (management-driven innovation) is combined with the own individual skills of the employees (consultants). A few companies have created a platform for idea generation and empower its use by creating competitions among employees with the aim to solve a

specific problem or challenge, which is usually related to the organization interest or business. It is important to note that employees informally share ideas during coffee breaks, lunches, and hallway encounters, and these ideas are not put in practice unless they arrive at the right person or if the employee is entrepreneurial enough to sell his ideas inside the firm or with the client. It is also common that companies incentivize these creative employees by having them in a special fast-track to grow faster in the organization and having assignments in projects across different disciplines (Fischer 2011). The manager of the consulting firm 7 explains that: *“We allow our employees to have their personal projects on a part-time basis... We believe as well in flexible models that big American companies such as Google have incorporated, such as the policy of employees having up to 20% of their time for their personal projects. We foster creativity... the knowledge that the employee is developing in that personal idea will be applied inside the firm ... so we have to be flexible on that”*.

- Employee-involved in user innovation (co-creation). All cases presented this type of innovation process. Nowadays, consultants recognize the importance of user participation and its integration during the service delivering by sharing of knowledge, problems, and ideas that turn into innovative solutions, trying to exceed the clients' expectations. Consequently, the user has evolved from a role of co-production to a position of co-creation (Santos-Vijande et al. 2013; Gebauer et al. 2013). On this, the head of innovation at the consulting firm 5 said: *“Especially in this part, clients play a relevant role what we are explaining here we do it with the input from clients”*.

And four new innovation processes were identified:

- Technology-driven innovation, where the research of radical technological changes within the firm is the main priority. Six cases (3, 5, 6, 7, 8, 9) presented evidence of this type of innovation process. These examples correspond to IT consulting firms, which focus on digital innovation on five primary services: cloud, mobile, internet of things, big data and analytics, and software development. Some authors studied this business logic that emphasizes the importance of strategies based on the digitalization of processes (Grant et al. 2013; Nylén & Holmström 2014). Digitalization gives

companies new opportunities to propel their business and, at the same time, transforms operations processes, business processes, and customer experience. A manager from consulting firm 9 refers to this point: *“Before we were just developing apps and focused on cloud computing and big data. Currently, we are emphasizing machine learning, or marching intelligence as we call it, and we are trying to launch more projects abroad”*.

- Open-driven innovation, where the exchange of knowledge and activities between the organization and external entities is the primary purpose when innovating. Four cases (3, 5, 7, 8) presented evidence of this type of innovation process. A new universal practice is that consulting firms are participating in venture capital activities. They are creating spin-offs seeded by ideas of employees, users or citizens, especially those that are related to their service offering portfolio. If the firm perceives that the new business model is disruptive and successful, it most probably will be acquired and integrated it as another business unit (Puranam et al. 2006; Rubalcaba et al. 2016). Besides this, the traditional collaboration with suppliers, allies, project partners, universities and research centers prevail to create a coordinated innovation ecosystem where consulting firms tend to be the hub (Wallin & Von Krogh 2010; Chesbrough 2010; Ritala & Hurmelinna-Laukkanen 2013). A quote from a manager at the consulting firm 8 can exemplify this: *“We have our ecosystem, which is evolving if you take a picture of our partners five years ago, and you look at it now, it changes due to mergers, acquisitions, alliances, etc. We evolve along with the ecosystem”*.
- Policy-driven innovation. Three cases (2, 8, 9) presented evidence of this type of innovation process, which is propelled due to constraints in the environment usually started by an external actor. For example, some companies became innovative because they could have a tax benefit out of these activities or in other cases changes in legislation allowed them to offer new services to clients in the banking and telecom industry. This type of innovation process expands the scope of actions to create new offers of services or the use of certain practices or technologies favoring the creation of collaborative networks in knowledge-intensive sectors (Salavisa et al. 2012). Nowadays, not only clients but also governments require the creation of sustainable offers in the service industry (Moisescu 2018). In this context, a manager in the

consulting firm 2 mentions that: *“Sometimes there is no evolution of an idea, or no additional value is delivered according to the client's expectations. The reason for this is the type of our projects; public bids have a limited scope and defined time that must be respected”*.

- User-driven innovation. Two cases (5, 7) presented evidence of this type of innovation process, where users are the center of the innovation. As mentioned by the head of innovation in the consulting firm 5, *“There is also a fourth component in innovation, which is the focus in the client. We do not focus innovation in the revision of our internal processes, but in what has to do with the client”*. Clients, customer, and users provide the innovative ideas that companies should further develop and implement. Some firms only have new offerings until a client requires it. Otherwise, they keep with the original service portfolio. The involvement of users into innovation brings new ideas, but firms can struggle to implement them as it requires a customized innovation process and organizational structures to be able to work (Magnusson et al. 2003; Oliveira & von Hippel 2011; Peine et al. 2014).

4.2.2 Innovation drivers

According to our literature review, the main driver for a company to innovate is survival. In other words: the need to be competitive in the market and have an economic growth. Since this is a default driver inherent to every firm, we focused on identifying evidence of the other drivers as a reason to innovate in the firms that participated in our case study sample.

Table 12 shows the identified drivers in the case studies. All case studies mentioned digitalization as a driver, having at least one example of an innovation project where technologies and the internet were the main drivers of a new innovation output. Because of this, a closer look was taking to digitalization in the next subsection, exploring the different digital tools that firms are using to innovate. Subsequently, some examples are given about other drivers are also given.

Case	Digitalization	Globalization	Sustainability	Entrepreneurial
1	X	X		
2	X			
3	X			
4	X		X	
5	X			
6	X			
7	X			
8	X			X
9	X		X	
10	X			
11	X			X
12	X			
13	X			
14	X			X
15	X			
Total	15	1	2	3

Table 12. Identified drivers

Digitalization

This digitalization provokes new market requirements, demanding new technological service offerings such as cloud computing, blockchain, big data, mobile apps, etc. It should be noted that all firms in the case studies carry out digital innovation, although it is not necessarily their focus in their innovation strategy and service offerings. The nature of digital technologies could be internal or external. In one hand, internal nature means that the digital technologies are used for innovations inside the organization, i.e. an intranet, Enterprise Resource Planning System (ERP); Customer Relationship Management System (CRM), Knowledge Management System (KMS) or any social media that supports and enhances operational processes. On the other hand, external nature means that digital technologies are used for innovation with other actors in the ecosystem, such as service offering for clients or a collaborative project with partners. Table 13 shows the summary of results on digital technologies.

Case	Consulting Type	DIGITAL INNOVATION									MAIN SERVICES
		Cloud Computing	Internet of Things	Big Data	Mobile applications	Technology Development	IT Services	Operational Systems	Social Networks	Community of Practice	
1	ITS	X	X	X	X	X	X	X	X	X	Management Consulting, Systems Integration and Technology, Business Process Outsourcing, and Application and Infrastructure Outsourcing.
2	ITS		X			X	X		X	X	Engineering and Innovation Consulting, Energy, Industry and Life Sciences, Aerospace and Defense, Automotive, Infrastructure and Transportation, Financial Services and Government, Telecoms.
3	ITS	X		X	X	X	X		X	X	Big Data, Open Source, Amazon Web Services, APIs, UX, Business Intelligence, IT Strategy, Web Development, Cloud Computing, Google App Engine.
4	ITS	X	X	X	X	X	X	X	X	X	Cloud, Mobile, Cognitive, Security, Research, Watson, Analytics, Consulting, Commerce, Experience Design, Internet of Things, Technology support, Industry solutions, Systems services, IT infrastructure, Resiliency services, and Financing.
5	ITS				X	X	X		X	X	Technology consulting, defense and security, mobility and IT services.
6	ITS	X		X		X	X	X	X	X	enterprise, software, applications, database, middleware, fusion, business intelligence, Primavera, PeopleSoft, EPM, BEA, Hyperion, Retek, Utilities, On-Demand, server & storage systems, BPM, solutions for communications industry, ERP, CRM, CRM On Demand, JDE, Siebel.
7	ITS	X	X	X	X	X	X	X	X	X	Technology consulting, ICT solutions, digital transformation, payment media, application management, SAP and ERP.
8	ITS	X		X	X	X	X		X	X	Consulting, Development, IT Solutions and Infrastructure, Content Factory, Quality Office, Application Maintenance, Architecture design, Avaloq factory, Content management, document management and enterprise management.
9	MC						X	X	X	X	Audit, Consulting, Financial Advisory, Risk Management, and Tax services.
10	MC						X	X	X	X	Audit, Consulting, Financial Advisory, Risk Management, and Tax services.
11	MC						X	X	X	X	Advisory, Tax, and Audit, Management Consulting, Risk Consulting,.
12	MC					X	X		X	X	Strategy & corporate excellence, Organization, Corporate finance, Marketing & sales excellence, Information management, Restructuring, Operations strategy, and ... in all industrial area.
13	MC						X		X		Innovation, technology, transport, social research, civil engineering.
14	MC						X		X		Consulting, Human Resources, Innovation, Energy efficiency, Services and Public Administrations.
15	MC						X		X		Policy-oriented research, intervention research, consulting, entrepreneurship training, think tanks, actions groups, free labs, publications, networking, forum multi-client.

Table 13. Results on digital technologies

In addition to the list of digital technologies identified in the literature review, two more categories raised from the collected data: technology development and IT Services. Technology development is related to artificial intelligence and software development as can be seen in the following quotes:

- Case 7: “If I tell you what our organization was 4 or 5 years ago, it does not look like now... We have changed our delivery models and the way to have vertical units (industries). We have a digital transformation area at a horizontal level, where we put together all different technologies applicable across sector for digital transformation (cloud, software service, internet of things, data analytics and big data). All these technologies have a common body and we have them in a common unit that we manage and give visibility”.
- Case 12. “...innovation is also developing technology, something with technology content”.

The other new category is related to IT Services, which includes IT outsourcing and IT consulting is exemplified with the following quotes:

- Case 8: “We have 11 software factories with more than 1500 programmers...”
- Case 9 “No really only regarding the innovation process, but the way of communication. The way they help us to create this disruptive way of communication inside the firm like creating videos, those are the courier (advertisement in the wall), it is something really disruptive for our world.”

There is a clear distinction, as it can be expected, between ITS and MC firms. The latter do not have a strong digital innovation capability, while the former, because of their core business, have explored a wider mix of digital technologies to satisfy their clients by offering new digital products and services. An important point of comment is that the development of digital innovations, has a repercussion in turn in other processes of innovation within the company. Hence its importance and complexity, since it is necessary to pay attention to the interaction of the multiple processes of innovation of a company to obtain the greatest benefits.

For example, the internal platform for employees to generate ideas would also bring impacts at the level of innovations organizations regarding incentives for employees and the innovative culture that is generated. Likewise, the ideas that are selected and implemented can bring about an improvement in the ways of doing things within the organization (process innovation) or create a new way to meet the needs of customers (product/service innovation), or even the development of new value propositions that result in new business units for the organization (business model innovation). Similarly, to move from the generation of ideas of digital innovation to its implementation and subsequent commercialization, companies must integrate other innovation processes such as open innovation, which implementation analysis results are described in the next section.

Globalization

An example of globalization as a driver was mentioned by the director in Company A “Our company's growth strategy is based on three fundamental pillars: innovation, internationalization and the use of new customer relationship channels”. The unexpected part here is that this is already a multinational company, so it would be interesting to know why they are focusing in globalization, while SMEs were expected to have this as a driver and surprisingly there was no evidence on that.

Sustainability

Few companies have identified a positive relationship between innovation and sustainability. We cite the director from Case 4 to exemplify this: “It is a social program... that brought together people from different parts of the company and they are working together on social issues, like helping a local city to have an education program for children or bringing food or water in an area that has this kind of problems or improving the conditions of an hospital in a Country and things like that. So, these are people that have been working in different functions and it's a team of 6-8 people. We create the conditions for that in a social program so these people can validate their esteem and come back with a different manners in the way that they are working because they are willing to work much more in teams for the company and understand what the company can do in this part that we have to work together and solve social issues... I think that it's

bringing significant contribution to our innovation chain”. The fact that sustainability equals innovation has been stated by Nidumoli et al. (2009). They identify five stages in order to become sustainable: 1) viewing compliances as an opportunity; 2) making value chains sustainable; 3) designing sustainable products and services; and 4) developing new business models. And during all these stages innovation is the solution to do so.

Recently, more authors have started to realize the integration of social and environmental issues into their strategy and processes of modern corporations (Eccles et al. 2014). In a recent working paper, Flammer & Ioannou (2015) conducted a quantitative research about firms that have maintained with innovation (Research & Development) and sustainable (Corporate Social Responsibility) initiatives during the big recession. They found out that companies that kept doing CSR that better results after the recession than the ones which cut it off. Even better results were achieved by companies keeping R&D activities. However, the better results were obtained by the companies that maintained both R&D and CSR projects. This can be explained by the concept of complementarity stated by Ennen and Richter, showing that the interplay between innovation and sustainability increases the value of each other in (Ennen & Richter 2010). This complementary between innovation and sustainability is an interesting area that needs to be further explored in KIBS such as consulting firms.

Entrepreneurship

Some companies have identified the entrepreneurial behavior as a main driver for innovation. A couple of quotes are helpful on this matter. The CEO of Company 14 gave an example about employees and intrapreneurship: “...people have to learn to be entrepreneurial, and there is room to be an entrepreneur within the companies...”, while a partner in Company 11 referred to entrepreneurial endeavors with other members of the innovation ecosystem: “We are very connected with entrepreneurship networks and knowledge networks such as the UE campus of Telefonica, such as start-up Angels, very connected in all the ecosystem and with these three aspects we try to compile a strategic plan for the rest of the year. Our strategic plan is composed of a series of projects that identify strategic projects to develop a new solution or a new technology. We are launching also start-ups, we believe that we as a company must launch

start-ups to the market. Last year we have launched four start-ups and this year we have three about to launch”.

The literature echoes this type of entrepreneurial behavior. Entrepreneurial innovation involves the disruption of existing industries and the creation of new ones. Autio et al. (2014) propose a framework of entrepreneurial innovation and context. Entrepreneurial innovation focuses on radical innovation driven by co-creation, having multi-actor and -level processes to foster the development of entrepreneurial ecosystems (Autio et al. 2014). These authors refer as ‘entry behaviors’ in the context of established organization (intrapreneurship), which are performed by the employees; as well as the ‘post-entry’ behaviors, which are choices influencing the achievement of the previous ones such as the creation of network ecosystems.

This behavior of creating social networks is in line as well with the theory of entrepreneurship proposed by Leyden (2014). This social aspect of entrepreneurship increases innovation and reduces uncertainty, and it is performed by the same actors that started the entrepreneurial action, in this case the KIBS consultants. Therefore, it opens up new research avenues to explore entrepreneurial behavior inside and outside the firm in this type of service sector.

4.2.3 Innovation management configurations

We decided to cluster our different cases in terms of ambidexterity for capabilities and business, in other words, whether if the consulting firm innovated trying to exploit their current capabilities and business, or if they were trying to explore into new business opportunities and capabilities.

Figure 10 shows the number of firms that have adopted each configuration. We can see that all of them are ‘Problem solvers’, which means that they use their current capabilities to exploit current business opportunities, which in this case are the projects with their clients.

	Capabilities Exploitation	Capabilities Exploration
Business Exploitation	1. <u>Case 1</u> 2. <u>Case 2</u> 3. <u>Case 3</u> 4. <u>Case 4</u> 5. <u>Case 5</u> 6. <u>Case 6</u> 7. <u>Case 7</u> 8. <u>Case 8</u> 9. Case 9 10. Case 10 11. Case 11 12. Case 12 13. Case 13 14. Case 14 15. Case 15 Problem Solvers	1. <u>Case 1</u> 2. <u>Case 2</u> 3. <u>Case 3</u> 4. <u>Case 4</u> 5. <u>Case 7</u> 6. <u>Case 8</u> 7. Case 9 8. Case 10 9. Case 12 Solution Seekers
Business Exploration	1. <u>Case 1</u> 2. <u>Case 2</u> 3. <u>Case 3</u> 4. <u>Case 4</u> 5. <u>Case 7</u> 6. <u>Case 8</u> 7. Case 14 Solution Creators	1. <u>Case 1</u> 2. <u>Case 3</u> 3. <u>Case 4</u> 4. <u>Case 8</u> Ecosystem Orchestrators

Figure 10. Innovation management configuration clusters

Fewer companies are ‘Solution Seekers’ which means that they are trying to extend their current capabilities to make innovation outputs for their current business. The most typical case if this are consulting firms who are learning how to apply a new technology such as artificial intelligence, big data, cloud, etc.

‘Solution Creators’ are consulting firms who are using their existing capabilities to create new business models. An example of this are some organization innovation such as investing into innovative startups, charging projects by results (i.e. increase of sales in the client) instead of project hours or extending services into related business such as research activities.

‘Ecosystem Orchestrators’ are consulting firms exploring new business models using new capabilities. Since this is more challenging and disruptive (as the next section on innovation outputs will demonstrate), they are holding upon the use of partners and taking the lead into

crating their own innovation ecosystems to nurture those disruptive projects with knowledge, capabilities and resources of their own and those of their partners, so that collaboration and risk sharing create the necessary synergy to make greater innovation to see the light to the market. Only few companies present this behavior, and in this study all of them are IT consulting firms.

It is important to notice that IT Consulting firms (underlined ones) are more ambidextrous than Management Consulting firms. IT Consulting firms use more often configurations that involve exploration activities and are becoming ‘Solution Creators’ or ‘Ecosystem Orchestrators’, which represents a new role for consultants.

4.2.4 Innovation type (output)

Innovation output refers to the type of innovation outcome generated by the innovation process. The challenge of innovation in PSF lies in the balance between generating incremental innovation by exploiting current knowledge and creating radical innovations by exploring new ideas as well (Smets et al. 2012b).

Results in Table 14 suggest that consulting firms tend to create new service offerings and new technology-based delivery systems. An example of this is expressed by the manager responsible for innovation in the consulting firm 8: *“The innovation area does not function as a department but as a series of labs. We have one lab focused on product design using the knowledge on new technologies. We have another lab with people in charge to explore for a more radical and futuristic innovation. And we have a central lab related to user experience”*. As the interviews confirmed, this effect correlates with the client requests and needs. In one hand, clients usually ask for a way to reshape their current services or offer a new one, as well as the digitalization of their business models. This result refers to the interconnection that exists between product and process innovation, which represents the ambidexterity between exploitation and exploration activities in PSF, respectively (Smets et al. 2012b; Morris et al. 2015). Then, when the process is digitized, space is left for a new product/service offer.

Case	New service concept	New customer interaction	New business partner	New revenue model	New delivery system: personnel, organization, culture	New delivery system: technological
1	X					X
2	X					X
3						
4	X					
5						
6	X			X	X	X
7				X		
8	X		X	X	X	X
9	X	X	X		X	X
10	X	X	X	X	X	X
11	X	X	X		X	X
12	X		X		X	X
13	X	X	X	X	X	X
14	X				X	X
15	X					X
Total	12	4	6	5	8	11

Table 14. Service innovation outputs

On a minor degree, this type of service firms is changing the way of capturing value in their revenue model and is investing into new delivery systems that affect the innovation at an employee, organizational and cultural level. On the other hand, consulting firms do not innovate that much into their business models looking for new channels to interact with customers and find new alliances and suppliers.

Since consulting firms do not have only service innovations as an output, we decided to take a step forward to identify other types of innovation that they produced (i.e. service/product, organizational, process, business model) as well as the degree of this innovation (i.e. incremental, radical, architectural, disruptive). We finally assed if these characteristics related to an ‘exploiter’ approach when companies were looking to “exploit” their current business and capabilities, an ‘explorer’ approach, when companies were looking to create a new business or capabilities, an inbound approach when companies where using knowledge or capabilities outside the firm to innovate in their current business, or outbound approach when they were looking to use their current capabilities to enhance other businesses outside the existing firm. Table 15 shows the findings on this analysis.

Innovation Output		Problem Solvers	Solution Seekers	Solution Creators	Ecosystem Creators
Degree	Existing Business	X	X		
	Existing Capabilities	X		X	
	New Business			X	X
	New Capabilities		X		X
Type	Service / Product	X	X	X	X
	Organizational		X	X	X
	Process	X	X	X	X
	Business Model			X	X
Degree		Incremental	Radical	Architectural	Disruptive
Ambidexterity		Exploiters	Inbound	Outbound	Explorers

Table 15. Identified innovation outputs in terms of type and degree

Results suggest that the more companies explore the creation of new capabilities and business, the more types of innovation outputs they produce. In this line, problem solver companies (the traditional consulting firms) have the lowest degree of innovation when compared to solution seekers, solution creators and ecosystem creators, being this last one with highest degree of innovation.

4.2.5 Service innovation capabilities

Table 16 shows that all consulting companies possess the same two capabilities about “signaling user needs” and “co-producing and orchestrating”. Because the service needs the client to participate during the process and consultants are experts in making the best use of resources if a problem arises during the service provision or with the client so that that value can be delivered (Werr & Stjernberg 2003). Conversely, the “(un)-bundling” capability is the scarcest and possessed by IT consulting firms that experience more disruptive innovation processes, and thus they need to have a flexible and adaptive organization. A manager from consulting firm 7 explains the way they signal user needs: *“What we think is fundamental is to have the client/consumer as a central axis to everything that we design, therefore we created focus group sessions with the potential user of the platform that we were to develop. We went for two weeks to the main spots in Madrid for international transfers, and we interviewed people coming out*

from this place, saying: hey, would you like to participate in a focus group? We incentivize them with a small compensation. We had them in our offices and showed the prototypes, asking which requirement they had for this type of services”.

Case	Signaling user needs	Conceptualizing	(Un) bundling	Co-producing & Orchestrating	Scaling & Stretching	Learning & Adapting
1	X	X		X		X
2	X	X		X	X	X
3	X			X		
4	X	X		X	X	X
5	X			X		
6	X	X		X	X	X
7	X	X		X		
8	X	X		X	X	X
9	X	X	X	X	X	X
10	X	X	X	X	X	X
11	X	X	X	X	X	X
12	X	X	X	X	X	X
13	X	X	X	X	X	X
14	X	X	X	X	X	X
15	X			X	X	
Total	17	12	6	17	11	11

Table 16. Identified innovation capabilities

It is important to note that the two most found capabilities in consulting firms depend highly on the consultants that bring creative compliance while balancing client’s constraints with the firm's business goals (Morris et al. 2015). The traditional organizational model in PSF is based on the innovation provided by the composition of the team. In this case, the senior consultants bring their knowledge to the application and training of junior consultants (Smets et al. 2012b). Our results complement this view by identifying that external knowledge of the company coming from users, start-ups, and other ecosystem partners, is also necessary to nurture some innovation processes.

Most of the consulting firms incorporate the rest of the capacities (conceptualizing, scaling and stretching, learning and adapting), which means that the more formalized the process of

innovation in the company, the greater the capacity to survive in the market. Service innovation is a type of dynamic capability that could be event-dependent or not and enables companies to sense, seize and transform their business (Eisenhardt & Martin, 2000).

4.2.6 Organizational design

This section lists the most common practices regarding organizational design (see Table 17) as well as some examples of quotes exemplifying the categorization of each organizational design element.

Organizational Design Element	Innovation Management Practices	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Strategy	Build an innovation ecosystem	X		X	X				X							
	Digital Transformation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Top management support	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Define innovation outputs and measures	X	X	X	X			X	X	X	X	X	X			
	Use of Mergers & Acquisitions				X		X									
	Focus on product solution rather than service						X									
	Use start-ups to collaborate or finance them	X		X	X											
Structure	Create an Innovation Office or Team	X	X	X	X			X	X	X	X					
	Provide an open physical space to innovate	X	X	X	X			X	X	X	X					
	No hierarchical			X												
	Creation of an innovation program	X	X	X						X						
	Use of Labs	X	X	X	X			X	X							
Process	Technology-driven	X	X	X	X	X	X	X	X	X	X		X		X	
	Client-driven	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Employee-driven	X								X		X				X
	Network-driven	X		X	X			X	X	X	X					
	Use or creation of innovation methodologies	X	X	X	X			X	X	X	X	X			X	

	Formal process (ideation, implementation, commercialization)	X	X	X	X		X	X	X	X	X	X	X		X	X
	Foresight and Trends	X	X	X	X				X							
	Open process	X	X	X	X		X	X	X	X	X	X	X			
People	Diversity of people and backgrounds												X			
	Training employees in innovation	X	X	X	X			X	X	X	X	X	X			
	Creative people	X	X	X	X			X	X	X	X	X	X			
	Talent Management	X			X											
	Training clients in innovation										X					
	Rotate people along the organization			X	X					X						
	Identify leaders						X									
	Share experiences			X						X			X			
	Communications		X	X						X						
Behavior	Create and Maintain a culture of Innovation	X	X	X	X	X	X	X	X	X	X	X	X			X
	Design rewards for people who participate in innovation activities			X						X						
	Foster a proactive attitude, motivation and curiosity									X			X			
	Awareness and communication for innovation	X	X		X			X	X	X	X		X			
	Organizational Innovation Culture that does not require to have an Innovation Office								X							
External Linkages	Partners (suppliers, Alliances)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Clients	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Network	X		X	X			X	X	X	X	X	X			X
	Innovation Ecosystem	X			X				X							
	University	X			X		x			x						x
	Competitors															
	Start-ups / Accelerators / incubators	X	X		X				X							
	Knowledge / Centers	X			X											

Table 17. Innovation practices by organizational design element

Strategy

When it comes to strategy, we identified that this is aligned with the main driver digitalization. In addition, most firms have the support from the top management and define clear outputs and measures to the innovation management process. Fewer firms decide to pursue more specialized and challenging strategies such as creating ecosystems or working with startups. A director from Company 8 stated this about Strategy: “This is our innovation code, this is what is our innovation and how we will try to achieve our objectives and how we involve the people... We have an objective for the 2020. All the biggest member firms they have a strategy which will be to have a 20% of the revenues coming from innovative services. Now what is an innovation for us is defined by the corporate innovation program. Each of the previous members firms are working on an Innovation program... And our real strategic goal is to, which is like a vision, is to make our company part of the innovation agenda of Italy”.

Structure

About the structure supporting the innovation management, most firms have a formalization through the creation of a physical space for innovation such as an Innovation Office or Center, and the creation of a program that cascades throughout the whole organization for people to take part into the innovation training and activities. Few companies have other peculiarities related to flat and nonhierarchical structures and the use of labs to organize innovation groups. A director from Company 3 stated this about Structure: “Let's say that the vision of innovation or our mission is that innovation is part of the whole company and not only of some areas. That is why we structured ourselves as laboratories to allow the rest of employees to actively rotate and participate in the innovation. Then we opened different channels and different forms of participation in this innovation work and we are in contact with more experimental areas and new technologies. In this way and in that mission, we act more as facilitators of this innovation. This has come imposed above all by the rapid growth of the company and the demand for new technologies”.

Process

Most consulting firms have a client-driven innovation process or a technology-driven one. The use of network-driven process is highly present in IT consulting firms. Most companies have a formal innovation process covering the traditional steps: ideation, implementation and commercialization. Moreover, most of them have open up their innovation process and many have started to use foresight activities to keep an eye on new technological trends that they could use in the future. A director from Company 9 stated this about Process: “We have a Head of Innovation and an innovation process with a system based on 12 pillars: leadership, definition, investment, innovation communities, wider firm, ideas from anywhere, sharing culture, rewards, skills and behaviors, make it real, metrics and brand”. It is important to notice that usually the innovation process acts as the backbone to connect to the rest of the organizational elements.

People

Human Resource Management for innovation was characterized by extensive training programs to teach people how to participate in innovation projects, submit new ideas and learn methodologies to become creative and manage innovation in general. Some firms mention the importance in making the right selection of people, learning sharing, leadership and keeping the talent in the firm or even involving the clients in the training programs. A director from Company 9 stated this about People: “For innovation to work it has to be a process that comes supported by senior management, but it is a process in itself that is from the bottom up. Those who have to contribute ideas are the employees. A very important stage of sensitization is necessary, both to top management, which is the people who have to support you to divert resources to innovation projects instead of production projects as well as downwards.”.

Behavior

Creating an innovative culture and awareness among the involved stakeholders in the innovation management process was rated important by far most consulting firms. Fewer companies possess practices related to reward and motivate individuals to participate in innovation activities. A director from Company 12 stated this about Behavior: “That can measure if your organization and the input you're measuring from the innovation side is productive or not... There are some

cultures that are more devoted to innovation than others. One can say that is a paradox... you can put some fresh minds within the traditional organization. You know what consultants should do from my point of view? They should hire 18 years old students working on technologies and dedicate half a day just to listen and share ideas. It's a way to reverse and a way to empower within well-established organizations by breaking the rules. It would be great to have such an inspiration and some contamination, because innovation from my point of view the more different angles you have in that condition, you're perfect to be an innovator. Every company should nurture the innovation culture”.

External linkages

It was clear that all consulting firms in the sample innovate having joint projects with their clients and suppliers and to their immediate network. In a lesser extent, the companies looked for other type of partners such as universities, research centers, competitors, startups and ecosystems. A director from Company 6 stated this about Network: “You're not my channel, you're my partner. In this case we have a situation where we're around a table and we try to listen more rather than talk more. You know because then in the end they're close to the market and sometimes they are closer than us or sometimes they are experts on some businesses and industries. We have high level people, but they're on the market. We talk about some areas and we exchange information. This is one of our innovative ways of looking at these discussions ... we work together. Another thing that we do ... is an initiative of the vendors, they are the kind of partners that bring our technology to the market embedded in their own offering. They are experts and might have a solution on certain areas, or their own position, their own solution and they embed some of our products technology within their solution... So, for us it's important to understand the trend and it's important how to attract them in this new part because when you offer to them you need to understand what they're doing and how can you intersect the network... So you need a management for this kind of local innovative issue”.

4.2.7 Innovation barriers

Although it was not originally considered in the research framework, while doing the coding on the collected data, it was possible to identified more information that was addressed during the interviews such as the innovation barriers illustrated by Table 18. Some of these barriers are proper of Professional Service Firms. For example, teams change people from one assignment to another, which can be translated into a loose of knowledge and performance because there is a new learning curve when a newcomer is integrated into the project team. Another interesting barrier is related to seniority and hierarchy in consulting firms, which is a natural detractor to create innovative environments. Only Case 3 mentioned that they preferred to have a flat structure to overcome this barrier. Other barriers that only pertain to consulting firms are the limitation in client budgets or legacy systems need for their operations, which can affect the range of possible innovative solutions.

Organizational Design Element	Barriers
Behaviour	A good communication strategy is necessary to create awareness and foster an innovation culture
	Hierarchy and Seniority play an important role in Politics that needs to be considered. Top management involved can sponsor but are not contributing to the operation tasks done by the innovation team
External Linkages	It is harder to learn when some of the knowledge does not reside inside the firm but within other actors in the innovation ecosystem.
	IT budget, legacy systems and other client conditions
	Perception of consultants. Consultants are more conservative and traditional than others even if they are in a dynamic environment and being perceived as that by the client
People	Size of the firm makes it hard to communicate and train
	Politics due to hierarchy and seniority. It is demanding to create awareness about the importance of innovation in the whole company, creating involvement and engagement into this type of activities. Besides, it takes time and effort to build a relationship with people and to specialize with some particular groups,
	Being able to select, recruitment, train and retain people, so that they can be categorized and assigned accordingly. (generators, conceptualizers, optimizers, inventors)
	Smart Creative people are hard to find in the market
Process	Experience beyond expertise. Companies might have the expertise in their people to innovate, but it doesn't mean that they have experience. Therefore, Consulting Firms need to learn by doing to avoid mistakes when applying innovation in their clients.
	Confusion between invention and innovation with stakeholders

	Linear innovation processes are controlled, but they have to be free or iterative and cyclical can be creative processes.
	Discard opportunities in an early stage
	Bureaucracy increases time and complexity to the innovation process
	Overflow of ideas
	Doing too many and unnecessary things brings more failures
Strategy	Budget not sufficient for innovation activities
	Some ideas might provide some value, like ethical value, but they differ from core business
	Change the original objectives
Structure	A non-flexible hierarchical structure hinders innovation
	Makes structures changes and stop knowledge usage is not good for innovation

Table 18. Innovation barriers in PSF

4.2.8 Implementation of open innovation

During the interviews, most respondents mentioned open innovation as a new practice inside their organization aiming at new ways to innovation. Therefore, it seemed appropriate to analyze the degree of the implementation of open innovation among consulting firms.

Table 19 shows the result of the assessment of the implementation of open innovation. We can see that 2 managerial levers are represented more often: the creation of networks outside the organization to cooperate in innovative projects as well as the use of knowledge management systems that allow different stakeholders (primarily employees and the crowd) to generate ideas to solve an addressed problem by the management team. Nonetheless, the use of more sophisticated open innovation practices such as creation of new business models, evaluation processes for initiatives and gathering venture capital to invest in startups are just commencing.

Another trend is the institutionalization of open innovation, mainly through the creation of an innovation unit and the codification of processes related to collaboration among employees and among other firms of the innovation ecosystem. About the dimensions of open innovation, most firms look how to apply the knowledge generated inside the firm to another entities. And, to a lesser extent, consulting firms are willing to use knowledge generated outside to solve their

business problem. It would be interesting to identify cases when open innovation was a failure or where it just simple did not find the top management support to be implemented.

The following are examples of quotes that exemplify the use of Open Innovation among the case studies:

- Case 12: “From my point of view it [innovation] is external and you should find a way to catch that gold pot outside and not inside”.
- Case 1: “Before it was strategy, now it is digital! We are a hub for innovation. A has changed towards a more digital transformation and the focus on the digital business”.
- Case 7: “Business models are changing and that is necessary so that our clients absorb certain type of technologies”.
- Case 11. “It has a double objective the main reason of this investment is nor the normal venture capital, we invest in assets that that are considered to be relevant to our business, but at the same time , they have a business capacity per se, in other words, this is not an investment only for our use but it pursues a business objective that the company can have a life beyond our company”.

Case	Managerial Levers							Dimensions of Open Innovation		Process of Adoption			
	Networks	Organizational Structure	Evaluation processes	KM Systems	Venture Capital	Leadership & Culture	Business Models	Inside-out	Out-side in	Un-freezing	Moving	Institutionalizing	Co-creating
1	X	X		X	X	X	X	X	X			X	X
2	X	X	X	X		X		X	X			X	X
3	X	X		X		X		X	X			X	X
4	X	X	X	X	X	X	X	X	X			X	X
5	X	X		X					X		X		
6	X	X		X				X				X	
7	X	X	X	X		X	X	X	X			X	X
8	X	X	X	X		X	X	X	X			X	X
9	X	X		X	X	X		X	X			X	X
10	X	X		X	X	X		X	X			X	X
11	X			X	X				X			X	
12	X			X					X		X		
13	X								X	X			
14	X				X		X		X		X	X	
15	X							X		X			
Total	15	10	4	12	6	8	5	10	13	2	3	11	8

Table 19. Assessment of the implementation of open innovation

4.2.9 Digital open business innovation ecosystem

Consulting firms are facing changes when it comes to the digital open business innovation ecosystem. They extended use of open innovation becoming “Innomediaries” and reinventing their role from “problem solvers” to “solution seekers” (Chesbrough et al. 2007; States et al. 2016). Consulting firms are also creating innovation ecosystems (Adner 2006; Tamoschus et al. 2015; Bogers et al. 2016). Large consulting firms have a big asset: they have access to several clients. They can connect ideas from companies in very different areas that otherwise wouldn’t have been able to connect. Coopeting (Bouncken & Kraus 2013; Ritala et al. 2014), cooperating with their competitors, is not a common practice, yet they could complement capabilities that enable companies to explore and exploit competitor’s knowledge.

Consulting firms are also using dynamic capabilities to transform themselves, creating of an organizational structure in charge of innovation, creating new business models, creating incubators and spin-offs, acquiring innovative SMEs, doing other sectors activities such as research centers and venture capital for external and internal projects (Teece et al. 1997; Hobbs et al. 2008; Teece 2010b; Vanhaverbeke & Chesbrough 2014).

Figure 11 maps the maturity of the implementation of open innovation among the cases. This allows us to categorize into three types:

- Digital Followers. They have a reactive behavior, just imitating what other firms have already done successfully to innovative in new service offerings.
- Digital Innomediaries. Most firms tend to be part of the digital innovation projects that are coordinating with their clients. They perform more labors of corporate foresight, training and project management, but there are other firms providing the key service component.
- Digital Ecosystem Innovators. These are firms taking a leading role not only in managing innovation projects but also investing time and resources to develop an

innovative ecosystem and cross-fertilizing clients with different solutions that can be applied to a different industry or context than the initial development.

Figure 11. Maturity of digital open business innovation ecosystems

The new paradigm and the importance of creating open innovation ecosystems are exemplified by the following quotes:

- Case 1: “To get internal and external ideas, we have an internal program for idea generation, we go to innovation events and we have a close relation with the ecosystem (startups, universities and researches”.
- Case 4: “In the last 10 years, there has been a major shift in the way we're doing research and innovation. Traditionally we've done that mostly internally... In the last 10 years, we opened our goals to build the ecosystem of multi-layers of partners and these are universities, so we have several universities which are focused on high tech studies”.

- Case 6: “I’m in charge for the organization in the ecosystem of partners that add value to our core competences... We have internal consulting and professional services that supports the products because you have complex products and you need to position and support them. Then you need to an expert in different industries or partners, and there could be the integrators while you have sellers, then you have partners that use a lot of technology to bring their own IP to the market. And then you know there are many other ways to add value, offers or even digital agencies. The ecosystem is quite... complex in terms of interaction and evolution. For me it's important that the partners are fully aligned with our strategy, our priorities, so my objective is to maximize the sales and add value. That's my role and the role of my organization.”
- Case 11. “Because of the importance of FinTechs [for our clients], we started to make connections with the new FinTechs”.

CHAPTER 5. THEORETICAL DISCUSSION

5.1 The interlinks between innovation drivers, outputs and enablers

In Chapter 2, a theoretical framework was developed as basis for this research project. Based on the empirical results from the case studies provided in Chapter 4, Figure 12 displays an update of the final research framework after empirical data was analyzed.

Figure 12. Empirically updated research framework

An interesting modification is that we have found that there is a link between innovation enablers. It seems that they are constantly affecting each other. If a company changes its structure and creates an innovation unit, then its capabilities to organize for innovation increase as well as the use of wider sources of innovation. It is the same case with the relation between innovation enablers, drivers and output. It could be that the reason to create a digital product is not the market itself but an internal idea from an employee that was captured thanks to a defined

crowdsourcing or idea generation process. It is the same case with the innovation outputs. Therefore, our updated framework recognizes this mutual stimulation between the elements of the innovation management configuration of a firm. Further research would need to define the direction of this influence, or if there is a sequence or a logic behind. However, our results helped us to refine this interaction.

Our results show that there are 7 different innovation processes that affect the typology of the innovation management system in consulting firms and that can be categorized in 3 groups: internal (management-, technology-, and employee-driven innovation), mixed (employee involved in user innovation, open innovation), external (policy-, user-driven innovation). Due to the analytical approach used in this type of organization to structure work to be done and the role of the client in consulting services, most of the case studies present a management-driven innovation and employee involved in user innovation processes. This can be contrasted with other innovation processes identified in professional service firms such as client-driven product innovation and internally-driven process innovation (Morris et al. 2015). The type of innovation processes mix also conditions the innovation capabilities and dimensions. The main capabilities shown in the case studies are “Signaling user needs” and “Co-producing and Orchestrating”, while the main innovation dimensions are new service offering, especially base in technology delivery systems. In both cases, the management and the clients are key actors related to these capabilities and dimensions.

5.2 Innovation strategies (closed and opened)

5.2.1 How are open innovation strategies evolving?

Consulting firms are changing to Network-based Inbound Strategy searching diversified expertise across all their clients (Figure 13). They are changing their role from problem solvers to solution seekers because they cannot possess anymore the most skilled personnel nor ultimate technologies.

Figure 13. Evolution of inbound open innovation strategies

Consulting firms are aiming to be the hub firm while creating innovation ecosystems to which they can nurture different innovation processes (Figure 14). They are becoming ‘innomediaries’, the orchestrators of innovation cross fertilizing players that otherwise would not be connected. -

Figure 14. Evolution of outbound open innovation strategies

5.2.2 Why are open innovation strategies changing?

One plausible explanation about the evolution of open innovation strategies based in the alignment of the knowledge search breadth and depth is that consulting firms need to have a compatible organizational design that allows them to create synergies into complementary capabilities, i.e. Having organizational forms with high knowledge search depth and breadth enables them to handle simultaneously inbound and outbound strategies that are complementary such as network-based and ecosystem-based strategies and using coupled dynamic capabilities such as absorptive capacity (Figure 15).

Figure 15. Evolution of closed and open innovation strategies

5.2.3 What is the result of the open innovation strategies?

Innovation output

A self-elaborated classification of innovation output has been conceptualized based on three dimensions: innovation types (product/service, process, organizational, and business model

innovation); internal impact (incremental, radical, disruptive); and external impact (new to the firm, to the market and to the world).

From product/service innovations to organizational innovations

Consulting firms usually have incremental innovation of product or services as part of the deliverable of the projects with their clients (Figure 16). However, because of the evolution to couple open innovation strategies explained before, consulting firms are creating organizational innovations that enable them to formalize the innovation process, as its linkages with internal and external networks (e.g. Innovation Office, Innovation Labs, Idea Generation Platforms and Rewards Systems).

Figure 16. Evolution of innovation types

CHAPTER 6. CONCLUSIONS

Companies struggle to find the best manner to manage innovation according to their ecosystem. They cope with internal (management, employees) as well as external actors (customers, competitors, suppliers, investors, government, society) that require different ad-hoc innovation processes and capabilities within the firm (Teece et al. 1997; Eisenhardt & J. Martin 2000). The result of these innovation processes is an innovation output that can be classified as incremental or radical innovation (Droege et al. 2009).

Firms make strategic choices to select, develop and maintain a mix of innovation processes. This goes beyond the mere fact of addressing the management of innovation (Tidd 2001; Keegan & Turner 2002). It might also represent a new shape of their business model because changes affect aspects such as the value proposition (services or products), activities, resources, partners, type of customer, distribution channel, cost structure, revenue modality, and so forth (Chesbrough 2010; Teece 2010a; Osterwalder & Pigneur 2010; Christensen et al. 2013; Visnjic et al. 2014).

The research explores how firms organize to manage innovation from a process perspective as well as its relationship with innovation dimensions and capabilities. It investigated the innovation processes in the context of consulting firms based on the interaction among main actors identified during the literature review from an internal (management, employees) and external (customers, competitors) perspective (Rubalcaba et al. 2012; Garriga et al. 2013; Furseth & Cuthbertson 2013). In a lesser extent, other studies have also pointed out the role of other actors such as suppliers, competitors, universities, government, and society.

Nonetheless, companies struggle to implement the best innovation strategy and innovation processes based on the wide range of options above mentioned. Companies tend to simplify reality by trying to control one single linear innovation process, but in fact, there are several innovation processes running at the same time. It is true that each of this innovation processes

are generally related with one of the perspectives. Our results show that all these views are not mutually exclusive; on the contrary, many of them coexist or evolve into the other along the lifecycle of the company and its business circumstances.

6.1 Main contributions

The main findings can be summarized in three categories: 1) Peculiarities of Innovation Management in PSF; 2) IT Consulting Firms manage innovation different than management consulting Firms; and 3) The Use of Open Innovation for Innovation Management in PSF.

6.1.1 Peculiarities of innovation management in PSF

Our evidence about some peculiarities of innovation management in PSF addresses three research gaps found during the literature review : 1) Identifying the peculiarities of consulting firms when managing innovation (Fischer 2011); 2) Service firms are heterogeneous and further research distinguishing the sectorial differences needs to be conducted (Tether 2014; Heirati et al. 2016); 3) To understand the characteristics of dynamic capabilities in the service innovation context (Teece 2007).

Consulting firms have the challenge of using a mix of seven innovation processes as a solution to the strategic problem of innovation management: management-driven, technology-driven, employee-driven, employee-involved in user innovation (co-creation), open-driven, policy-driven and user-driven. This finding enriches the PSF literature which only identifies two innovation processes instead of seven: the client-driven product innovation and the internally-driven process innovation (Morris et al. 2015). PSF literature recognizes three main drivers: co-creation, customers and technology (Kvalshaugen et al., 2016). To our understanding, this are not drivers but sources of knowledge. Our study detects the mix of seven innovation processes in

consulting firms according to seven different sources of knowledge. It pinpoints 4 drivers that foster innovation: digitalization, globalization, sustainability and entrepreneurship.

PSF literature argues that process innovation in PSF is used for standardization while product innovation is used for customization (Tether, 2001). Our study found that PSF primary focus on innovating new services concepts and new technological delivery systems in an initial project with a client which are rather customized than standardize when this knowledge is reused to provide a solution to another client.

The literature proposes that consulting firms create new practices to diversify into innovative domains (Gardner et al., 2008). Our findings suggest consulting firms create new practices not only to provide new service offerings (operational capabilities) but also to adapt and renew their innovation capabilities (dynamic capabilities). In this like, the literature poses that all type of services use indistinctively six dynamic service innovation capabilities (den Hertog, 2010). However, our evidence points that “signalling user needs” and “co-producing and orchestrating” are the main dynamic service innovation capabilities that distinguish consulting firms.

6.1.2 IT consultancies manage innovation different than management consultancies

Our evidence about the difference between IT and management consulting firms addresses a research gaps found during the literature review: Differences between classic regulated PSF and non-regulated neo-PSF (Tether, 2014).

Consulting Firms are usually classified as a whole to the category of P-KIBS (Von Nordenflycht 2010) i.e. professional knowledge intensive business services. Consulting Firms cannot be treated as an undifferentiated group. We distinguish at least two subgroups: IT Consulting Firms, which share more similarities with the T-KIBS (i.e. technology knowledge intensive business services), whilst management consulting firms are more like P-KIBS.

Consulting Firms are PSF that solve problems for the clients (von Nordenflycht, 2010). This is partially true, as our evidence suggest that consulting firms are now producing service offering before a client approaches them to solve a specific problem. So now consulting firms are also producing product innovation, primarily digital ones or they are provided with the innovation structures to cross-fertilize different industries and areas of expertise beyond their mere client projects. In this line, IT Consulting Firms focus on the development of innovation ecosystems changing their role from problem solvers to solution seekers. This will be important to reposition the importance of consultant in the future, especially when artificial intelligence is the technology that menaces to disrupt this industry soon.

6.1.3 The use of open innovation for innovation management in PSF.

Our evidence about the difference between IT and management consulting firms addresses a research gaps found during the literature review: Linking open innovation to Services (Chesbrough, 2011). While open innovation might seem as s a new paradigm in services for manufacturing firms, it is not necessarily the case for consulting firms (Chesbrough, 2011). Due to nature of the service provision (co-production/co-creation), consulting firms have always used open innovation processes because it allows them to have organizational ambidexterity. Exploration is done through the customization of a solution to the client, while the exploitation is performed by initially standardizing a solution to be later customized again when applied into another client project. This is especially clear for IT Consulting firms that possess a more mature implementation of open innovation compared to Management Consulting Firms.

Recently, some scholar proposes inbound open innovation strategies (Saebi & Foss, 2015), our study has made possible for us to contribute in this line with the creation of a taxonomy of outbound open innovation strategies. Consulting firms have always looked outside for the application of their knowledge and solutions as part of the nature of their work, which makes them a good example to base on for other firms.

6.2 Implications for academics, practitioners and policy makers

For scholars in the innovation management field, we have shed some light on the interlink between innovation management configurations, innovation drivers and sources, innovation enablers (organizational design, innovation capabilities, innovation practices) and innovation output. We have cross-fertilized frameworks in the innovation management, service innovation and organizational design fields to make a better understanding of innovation in consulting firms. Academics in open innovation can find useful the extension of inbound and outbound open innovation strategies in services, especially the creation of a taxonomy of outbound open innovation strategies.

Academics in the KIBS and PSF research field can find interesting the identification of similarities and differences between consulting IT and Management Consulting Firms, which should be treated as separated groups at least in terms of innovation management. Besides, this is one of the first studies of the use of open innovation strategies in consulting firms that can be a reference for comparison with other KIBs, PSFs and PbFs.

Managers should take into consideration the typology of innovation management configurations to design their innovation sources, strategy, processes, structure, people management, innovative behavior (innovation culture) and external links (innovation ecosystems) according to the type of associated capabilities, practices and innovation outputs that they want to pursue.

Policy-makers should develop regulations and provide funding that fosters the use of open innovation strategies to realize the benefits in the different innovation ecosystems at the regional and national levels.

6.3 Limitations and future research lines

This study has also included IT and Management Consulting firms, but other consulting firms might behave differently due to their type of clients or suppliers in the environments. The extent to which internal and external capabilities are shared in open innovation strategies could be explored more rigorously. There is a potential bias in the choice of interviewees based on availability and network of the research team and the companies that were interested to participate.

The sample companies varied in terms of competences and resources which can be provide new typologies of analyses such as size or R&D budget. The interpretation of results was enclosed according to the information provided by respondents. Finally, there is a limited amount of onsite observations and interviews (only 1 or 2 per company), therefore, it would be good to conduct more interviews to get further information and support for these findings.

Some interesting research avenues that can be considered to complement, validate and expand the findings further are related to Quantitative research, which can provide more evidence to generalize results of the inbound, outbound and couple open innovation strategies in consulting firms in terms of traditional innovation performance measurements (R&D investment, innovation training, revenues derived from innovations, number of innovative projects, etc.).

More in-depth case studies would be beneficial to keep explaining the linkages between open innovation strategies, innovation antecedents, innovation determinants, innovation enablers and innovation barriers. This research had a rich but wide set of data. Having a especial focus on the innovation strategy. This allowed to identify the different elements of our framework and its linkages with the innovation strategy. However, having an immersed and concentrated set of data per company can be beneficial to identify other motives, cause-effect directionality (unilateral, bilateral) for each linkage. These case studies can focus on each of the different element of our framework (drivers, outcomes, organizational design, capabilities, sources). Building on the

previous point, in terms of capabilities and resources, two areas of research could be interesting. The first one is related to investigate how companies build and reconfigure their internal capabilities, i.e. dynamic capabilities. The second one refers to the way that companies integrate external capabilities with other actors of the ecosystem during open innovation activities.

Future research should make use of further testing of multi-actor innovation management models in the context of different service industries. During this thesis, there was an emphasis in exploring the sources of innovation and its relationship with the type of innovation output and innovation enablers that a firm possess. It would be interesting to take a deeper look into the innovation process associated with each source of innovation as well as to apply this research design having a sample of different types of service firms to be able to compare similarities and discrepancies among them.

Collaborative methodologies could provide more insights to develop explanations about the design and performance of open innovation strategies. Traditional methods such as case study take a picture (or pictures in longitudinal case studies) along time about the phenomena. Collaborative methodologies provide a closer and richer data to understand the phenomena that will enable to theorize about underlying mechanism that traditional methodologies are not able to capture.

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ANNEX A: SEMI-STRUCTURED INTERVIEW PROTOCOL

Interviewee: Innovation Management Responsible

- Brief greeting and introduction.
- Ask permission to record the interview and state the confidentiality and academic purpose of the study.
- Preliminary questions about the company's and interviewee's background (including time in the company and current job position).

1. What is the view of innovation your firm regarding innovation?

- Has this view been designed or is has just arisen?
- Is this view homogeneous in the whole organization?
- What is your participation in the innovation process?

2. What are the benefits and problems brought by innovation?

- Example of results
- What are the drivers and the barriers to be innovative?
- What is the motivation to be innovative?
- Which are the sources of innovation in the firm (either internal or external)?

3. What are the process, tools and capabilities that you use to innovate?

- Is there a difference on managing radical or incremental innovations?
- How do you collect internally and externally innovative ideas?
- How do you take innovation from idea to implementation (new product, service or management practice)?
- Which stakeholders intervene during these activities and which is their role?
- How do you evaluate the cost and revenue for developing and developing an innovation?

- How do you foster innovation inside the organization?
- How do you plan and control all this process?
- How do you go/kill decisions in innovation projects?

4. Could please cite an example of an innovative project?

- In which way was the project innovative?
- What was your role in this project?
- Which entities participated in this project?
- How was the communication during the project?
- What are the factors that were relevant for the success of the project?
- What were the main results of the project (qualitative and quantitative)?
- What were the main results of the new service, product or process innovation?

5. Has any of these innovations change the organization business model?

- If so, what has changed in the organization?
- What is the new value added by these innovations?