



# Innovation in services: present findings, and future pathways

Innovation in  
services

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## Abstract

**Purpose** – The purpose of this paper is, firstly, to review existing schools of thought and to identify present research fields in new service development (NSD) and service innovation research, and, secondly, to discuss future research opportunities.

**Design/methodology/approach** – The literature review is based on a search for “service innovation” and “NSD” in titles, abstracts and keywords of articles. As a result of looking at the references, as well as through analysis of papers which cite the articles identified, additional publications are included in this study.

**Findings** – Four schools of thought and five distinct research fields are presented. Herein, the authors show that there is a lack of studies of organisational innovations, and that differences in the drivers for radical or incremental innovations may be of degree rather than of kind. Further, contradictory results in the research field on differences versus similarities of new product and NSD are identified. In addition, the authors propose possible pathways for future research for each research field and school of thought.

**Research limitations/implications** – The scope of publications included in this review may be subject to criticism as book-publications may be under-represented in this review. Also, the keywords used for the initial search could include additional words.

**Originality/value** – The paper groups previously scattered research activities from various backgrounds such as marketing and operations into distinct research fields, and presents both the status quo and a discussion of possible directions for future research.

**Keywords** Research work, Services, Innovation

**Paper type** Literature review

## 1. Introduction

In the recent past, the main focus of innovation research was primarily concerned with innovations related to technological artefacts or, in other words, products (Evangalista, 2000; Miles, 2000; Drejer, 2004; Howells, 2006). Little scientific knowledge has, however, been acquired concerning the innovation process inherent in the development of new services (Drejer, 2004; Adams *et al.*, 2006; Nijssen *et al.*, 2006; Spohrer, 2008), which has resulted in the fact that “current theory and understanding of the strategies and tactics for developing new services is inadequate” (Menor and Roth, 2007, p. 825).

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This may, at least partially, have been due to once dominant perceptions in management research that services are “laggards” which, if at all, adopt innovations from their suppliers (Pavitt, 1984).

Notwithstanding this sometimes still present perception, current research has started to investigate how innovation in services is adequately managed, and the study of innovation in services has emerged as an important research field (Menor and Roth, 2007; IfM and IBM, 2008). While there are already reviews on, e.g. the success factors for new service development (NSD) (DeJong and Vermeulen, 2003), with this paper we attempt to group the as yet quite scattered research activities into distinct research fields, and present both the status quo and a discussion of possible directions for future research. Hence, the purpose of this review is to provide the reader with an opportunity to learn more about some of those research fields in services innovation where no consensus on focal innovation concepts has yet been reached and, in consequence, to discuss what elements need to be studied in future to advance these fields. This paper may be of interest to readers who are already studying service innovation or NSD-related topics, or who have been introduced to the topic but feel the need to obtain more specific insights into where current research fields in this literature can be located, and how they may contribute to them. Following from this, our review is concerned with opening up possible ways to advance the field rather than providing a fully exhaustive account of it.

We started this review by searching in titles, abstracts, and keywords for “service innovation” and “NSD” in the database “ISI Web of Knowledge”. The rationale for using both constructs for our search is due to the fact that “service development” and “service innovation” have been applied interchangeably in existing studies (Menor *et al.*, 2002). In this study, we will likewise not distinguish between these two “labels”. By means of looking back (reference list of these articles) as well as by looking forward (analysis of papers which cited the articles identified), we were able to identify additional publications. The journals which most frequently appeared in our search were: *Research Policy*, *Journal of Product Innovation Management*, *International Journal of Service Industry Management*, *Journal of Service Research*, *European Journal of Marketing*, *Service Industries Journal*, *Journal of Business Research*, *Journal of Operations Management*, *Journal of Services Marketing*, *International Journal of Operations and Production Management* and *Industrial and Corporate Change*, to name some of them. Since this review is concerned with identifying ongoing fields of research, this resulted in the fact that most of the articles we reviewed have quite recent publication dates. However, in some long-standing research fields, we also turned to the initial publications, sometimes dating back to the 1980s. In most cases, we thus focused on publications ranging from the late 1990s to 2007. As regards the limitations of this review, some emerging areas where research on service innovation is likely to prosper could not be included in depth. For example, service innovation in manufacturing firms has emerged as a promising future research field (Mathieu, 2001; Oliva and Kallenberg, 2003; Mendonca *et al.*, 2004; Gebauer, *et al.*, 2005; Miles, 2008). However, this stream of research was not included in this article, as in our search we identified only a few articles that were clearly dedicated to service innovation in manufacturing. As a matter of fact, when we compare services to products in this review, we sometimes refer to the service vs manufacturing context. In these cases, we

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refer solely to new product development (NPD) in manufacturing and not to new services developed in manufacturing firms.

The structure of this paper is as follows: first, we outline different schools of thought operating in the field of NSD and service innovation. Second, we turn to important fields of research in current literature in which we focus on research on the taxonomies of service firms, classification frameworks of service innovations and, finally, those research fields on differences in success factors for various service dimensions and innovation types. These fields are not necessarily linked to each other, but rather constitute distinct research areas of their own. These were included in this review due to their inherent lack of consensus and their relatively high relevance for the field of service innovation/NSD. In addition to each field of research presented, we offer a discussion on future research opportunities.

## 2. Schools of thought in NSD

In an earlier study, Coombs and Miles (2000) presented three schools of thought operating in service innovation research, in order to illuminate the differences existing in basic assumptions about service innovation. As this original segmentation has also been applied by other authors (Drejer, 2004; DeVriess, 2006), a similar segmentation is also used here to present an updated account of the frequency and influence of each school of thought identified in order to reveal which basic assumption on innovation in services takes the lead in current research. In particular, four schools of thought are presented – technologist, assimilation, demarcation and synthesis – which have also been described to represent different stages in emergence of a new scientific paradigm from a Kuhnian perspective (Howells, 2006). However, the segmentation chosen here differs slightly from other studies in service innovation literature, as sometimes additional streams are considered (e.g. the “neglect” phase) (Salter and Tether, 2006) or a fourth “theory building” stage is suggested (Bryson and Monnoyer, 2004), or scholars jointly review the technologist/assimilation phases (DeVries, 2006). Owing to the fact that some authors either use the segmentation into “technologist, demarcation and synthesis” (Gallouj, 1998; Sundbo *et al.*, 2007) or “assimilation, demarcation and synthesis” (Coombs and Miles, 2000; Drejer, 2004; DeVries, 2006), we chose to include both assimilation and technologist studies as distinct schools of thought due to their slightly different focus.

### 2.1 *Technologist perspective*

Barras’ (1986, 1990) reverse product cycle model, is perceived by many as marking the beginning of the service innovation research stream (Miles, 2006; Tether and Howells, 2007). Starting with Abernathy and Utterback’s (1978) product life cycle theory; Barras (1986, 1990) suggests a different pattern for the life cycle in services. The cycle begins with process innovations which subsequently lead to the development of totally new services (Linton and Walsh, 2008). Owing to the fact that Barras relates innovation in services to technological competence gains and progress in information technology (IT) in general, several authors have termed his theory a technologist approach (Gallouj and Weinstein, 1997; Gallouj, 1998; DeVries, 2006; Sundbo *et al.*, 2007). Barras’ work has frequently been criticised (Nightingdale, 2003; Dolfisma, 2004; Hipp and Grupp, 2005; Howells, 2006), for example concerning:

- the dominant role which technology plays in the innovation of services;
- his “one-size-fits-all” assumption (Salter and Tether, 2006, p. 6), without differentiating between different service types; or
- the difficult distinction between product and process parts of services.

With regard to the limitations which arise when technology is taken as the only proxy for innovation, Gallouj (2002) argues that service innovations are frequently non-technological, such as a new form of insurance policy, a new restaurant format, or a new area of legal expertise. Critique on similar grounds has also been issued for related studies with technology focus, such as the study by Pavitt (1984) or Miozzo and Soete (2001) (Sundbo *et al.*, 2007).

### *2.2 Assimilation*

In a similar vein, scholars following the so-called “assimilation” approach propose that the theories and concepts developed in manufacturing contexts can easily be transferred to innovation in services (Coombs and Miles, 2000; Drejer, 2004; DeVries, 2006; Nijssen *et al.*, 2006). One example of these studies is the second European Innovation Survey (CIS II), conducted in 1997, which operated with definitions and concepts for manufactured products while asking for services (Howells, 2006). Other researchers within this stream, such as Sirilli and Evangelista (1998), or Hughes and Wood (1999), found that differences between services and manufacturing seemed to be smaller than within the manufacturing sector and the service sector, respectively. However, as their approaches focused mainly on technological drivers for innovation in services, it has been described as being too limited to thoroughly describe innovation in services (Drejer, 2004). Akamavi (2005) further states that, due to the fact that these studies derive their analytical frameworks from manufacturing to analyse innovation in services, they do not take into account the idiosyncrasies of services.

### *2.3 Demarcation*

Demarcation studies constitute a parallel research stream in which scholars emphasise the distinctive features of services which, in turn, make it difficult to transfer knowledge from manufacturing to services:

These differences pertain mainly to the specific characteristics of services, i.e. their intangibility, co-production with customers, simultaneity, heterogeneity and perishability (Fitzsimmons and Fitzsimmons, 2000) that affect the development process of services and make them to a certain degree unique (Nijssen *et al.*, 2006, p. 242).

It is interesting to note that some studies, such as Gallouj and Weinstein (1997), are sometimes considered to belong to the demarcation studies and to the synthesis approach reviewed below. Their study, however, explicitly discusses the blurred boundaries between services and manufacturing, and aims at creating a model of innovation valid for both products and services. Hence, we would argue that Gallouj and Weinstein (1997) should rather be related to the synthesis stream (reviewed below). By contrast, while more demarcation-orientated studies, such as Gadrey *et al.* (1995), Den Hertog (2000) or Djellal and Gallouj (2001), also remark on the usefulness of their insights for product innovation in manufacturing, they are more focused on revealing the idiosyncrasies of service innovation activities.

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For example, Djellal and Gallouj's (2001, p. 58) study "seeks to contribute to an autonomous concept of innovation in services", and implements survey research to illuminate the importance of clients and the client interface in the innovation processes, challenges in protecting service innovations, and the interactive character of service innovation in contrast to the classic linear models of innovation. Their results have frequently been quoted to exemplify typical results of the demarcation studies (DeVriess, 2006; Howells, 2006). Another study within the demarcation stream of literature is the work of Den Hertog (2000). This author takes a conceptual perspective of service innovation by presenting a taxonomy of service innovation patterns and a framework to better understand what parts of services are affected by innovation.

#### 2.4 Synthesis

In the synthesis stream, research has focused more on efforts to bring together innovation in services and manufacturing than on studying both fields separately (Gallouj and Weinstein, 1997; Coombs and Miles, 2000; Nightingdale, 2003; Drejer, 2004; Howells, 2006; Nijssen *et al.*, 2006). This is due to the acceptance that studies on service innovation illuminate important elements (e.g. the importance of customer involvement, Sandén *et al.*, 2006) which up to now have been neglected in the study of product innovation in manufacturing (Drejer, 2004). Gallouj and Weinstein (1997) were among the first to propose this avenue for research. In their theory on types and elements of "products", the authors do not distinguish between the product in the realm of services or manufacturing and explicitly offer an integrative approach to the study of innovation in both sectors (although their empirical examples, and also the refined version presented by DeVriess (2006), are still based solely on service industries). Scholars like Bitran and Pedrosa (1998), Hollenstein (2003), Hipp and Grupp (2005), DeVries (2006) or Froehle and Roth (2007), also apply this emerging trend and derive conclusions which are aimed at the two "sectors", manufacturing and services.

*2.4.1 Future research opportunities.* Where the research streams identified are concerned, researchers have acknowledged that service innovation constitutes a distinct research area by itself (Edvardsson *et al.*, 2005; Spohrer, 2008). Thus, further studies arguing in favour of the specificities of service innovation with regard to product innovation in order to justify this research stream are no longer urgently necessary. Hence, the stream of demarcation or assimilation seems to decline in its impact and relevance, and many researchers now turn to the most recent approach of trying to "synthesise" innovation research in product and service innovation (Gallouj and Weinstein, 1997; Coombs and Miles, 2000; Drejer, 2004; Miles, 2006; Salter and Tether, 2006; Froehle and Roth, 2007). This leads to the need for future studies to empirically validate the so far mainly theoretically developed models for synthesising service and product innovation specificities. In particular, the framework of Gallouj and Weinstein (1997) has only been tested in service industries (DeVriess, 2006), although it was explicitly designed as a model of innovation applicable to both manufacturing and service industries. Hence, empirical studies testing this model in both sectors would seem to be a rewarding area of future research.

### 3. Important fields of research in NSD

Having briefly outlined the major schools of thought in service innovation literature, we now turn to the discussion of important research fields in NSD and service

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innovation literature encountered during our analysis of the literature. A discussion on general innovation patterns in the service sector forms the first part of this section, providing an overview on how innovation in services has been approached at the sector level. In the subsequent parts, a firm perspective on service innovation is chosen in order to present the main research fields on innovation frameworks and success factors for innovation in services.

### *3.1 Taxonomies of service firms*

One widely adopted way used to start to grasp what kind of innovation patterns exist within the service sector is the taxonomy developed by Soete and Miozzo (1989), which builds upon previous work by Pavitt (1984). Soete and Miozzo (1989) argue that services in general can be meaningfully grouped according to the technological activities within service firms. They subdivide services broadly into either technology-using, or technology-producing (Miozzo and Soete, 2001). In more detail, the authors group services into three subgroups, namely science-based, scale-intensive or supplier-dominated services, where science-based services (e.g. technical consultancies) are regarded as pure producers of technology, while supplier-dominated services (e.g. restaurants, hotels) are considered pure technology users. Scale-intensive services are considered ambivalent in terms of their use of technology. In line with the above-mentioned taxonomy of Soete and Miozzo (1989), Evangelista (2000) also introduces a taxonomy which takes the technological activity of service organisations as its organising element. de Jong and Marsili (2006), after having reviewed the above studies, among others, explore innovation patterns in the manufacturing and service sectors for small and medium-sized firms. By taking a broader set of variables into account than previous studies (Pavitt, 1984), these authors derive four innovation patterns, namely, supplier-dominated, specialised suppliers, science-based, and resources-intensive. From their empirical findings they conclude that, in their sample, the innovation patterns are more diverse than those proposed by Pavitt (1984), and that many patterns could be found in both manufacturing and services. They take this as further evidence that the boundaries of both sectors have become more and more blurred “as services and manufacturing activities are often closely bundled within organisations” (de Jong and Marsili, 2006, p. 226).

In a different vein, Den Hertog (2000) offers a taxonomy of innovation patterns focused on services, in which he suggests additional patterns to those presented above and takes a closer look at the role that the service organisation, its clients and suppliers, play during innovation activities. The author conceptually proposes five patterns: i.e. supplier-dominated innovation (e.g. introduction of interactive TV equipment); innovation in services (e.g. introduction of new shop formula); client-led innovation (e.g. green banking services); innovation through services (engineering consultancy innovates for its client); and paradigmatic innovation (multifunctional chip-cards). While especially the first pattern corresponds to the three taxonomies presented above, Den Hertog (2000) particularly emphasizes the role of knowledge-intensive business services (KIBS) in innovating for their clients, i.e. “innovation through services” (Den Hertog, 2000, p. 501).

However, the classificatory approaches mentioned above do not hold in every empirical analysis. On the one hand, Hollenstein (2003) found partial support for the taxonomies presented by Soete and Miozzo (1989) and Evangelista (2000). On the other

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hand, Hipp and Grupp (2005) tried to test the taxonomy explained above by Miozzo and Soete (2001) and found that “innovation patterns in services are less sector-dependent, and that every type of innovator can be found within each individual service industry” (Hipp and Grupp, 2005, p. 529). In a similar vein, van Ark *et al.* (2003) presented examples within the financial, transport, and retailing service industries that different patterns of innovation (i.e. supplier-dominated, innovation in services, client-led innovation and innovation through services) can be found in any one of the service sectors studied. In addition, the approaches of Miozzo and Soete (2001) or Pavitt (1984) presented above have been related to the “technologist” line of research within service innovation already discussed, as they tend to reduce innovation activity to exclusively technological aspects. Consequently, innovation patterns are being omitted which lie outside the technologist paradigm (Sundbo *et al.*, 2007). Finally, with regard to the distinction of Soete and Miozzo (1989), it may be difficult to discern technology producers from technology users in the case of joint projects which involve firms from both groups. Indeed, in studies in the field of KIBS (Bettencourt *et al.*, 2002; Fosstenlokken *et al.*, 2003; Skjolsvik *et al.*, 2007), the importance of the co-production role of the client firm (e.g. a technology user such as a retail company) within the consultancy’s innovation activities is noted, which is maybe best reflected in the paradigmatic innovation pattern of Den Hertog (2000).

*3.1.1 Research opportunities.* In this section we found that, to date, there has not been any consensus as to which taxonomy of service industries can be considered reliable. This is problematic as many studies rely on these grouping models. Hence, more work is necessary to validate existing models or create new taxonomies with regard to the question as to whether taxonomies might better be based on “service products” than on industries (Hipp and Grupp, 2005). One contribution of the existing studies on innovation patterns in services has certainly been to shed some light on the important role of consultancy services, i.e. KIBS, in innovation-producing activities and in particular in producing innovation in collaboration with their client firms (Wong and He, 2005). Hence, studies which concentrate on the “innovation through services” pattern put forward by Den Hertog (2000) could be a rewarding area of future research, as it would not only shed more light on the role played by KIBS in innovation, but also how their interplay with the client organisation functions.

### *3.2 Innovation classification frameworks*

We identified a broad variety of concepts which typify service innovation and NSD. Unlike innovation in manufacturing, in services it has been difficult to distinguish reliably between the well-known dichotomy of “product/process” innovations (Haukness, 1998; Djellal and Gallouj, 2001; Gallouj, 2002; van der Aa and Elfring, 2002; Tether, 2005; Sundbo *et al.*, 2007), although some contrary evidence also exists (Sirilli and Evangelista, 1998; Damanpour and Gopalakrishnan, 2001). As shown in Table I, a broad variety of different terms and concepts has been applied in service innovation research to describe where innovation happens in services, termed innovation dimensions here.

Possibly motivated by this broad variety of different conceptualisations of service innovation, some researchers have started to synthesise innovation in services into distinct frameworks in order to facilitate the analysis of innovations at the organisation level.

**Table I.**  
Variety in innovation  
research in service  
innovation literature

Author	Service innovation dimensions	Industry	Type of study
Gadrey <i>et al.</i> (1995)	Innovation in service products, architectural innovations, modifications of existing services, innovations in processes and organisation for existing service	Consultancy, insurance and electronic information services	Interview study
Gallouj and Weinstein (1997)	Service outcome characteristics, service provider competencies, service provider technology and client competencies	–	Conceptual
Sirilli and Evangelista (1998)	Product innovation and process innovation	Trade and repair, wholesale, retail, hotels and restaurants, transportation, travel, post and telecommunications, banking, insurance, computing and software, research and development (R&D), accounting, technical consultancy, advertising, cleaning, security, waste disposal and others	Survey
Den Hertog (2000)	Conceptual innovation, client interface innovation, service delivery innovation/organisational innovation and technological options	–	Conceptual
Van der Aa and Elfring (2002)	Technological innovation and organisational innovation	Teleshopping, hairstyling, car rentals, home furnishings, exploitation bus shelters, catering, professional cleaning, pharmaceutical wholesaling, engineering, and logistics services	Case study
Sundbo (2003)	Product innovation, process innovation, organisational innovation and market innovation	Insurance companies, banks, payment and credit card companies, chains of lawyers, engineering consultancy, cleaning and manual services company, and municipal	Case study
Drejer (2004)	External relationship innovation and expertise-field innovation	–	Conceptual
Dolfsma (2004) Djellal and Gallouj (2005)	<i>Ad hoc</i> innovation and organisational innovation Constituent services, mediums or targets of service, provision, service characteristics or utilities achieved or sought; competencies of the service providers	– Hospitals	Conceptual Conceptual
DeVries (2006)	Service outcome characteristics, service provider competencies, service provider technology, client competencies and client technology	Insurance, social security administration agencies, information technology service providers, providers of public and in-company educational services and telecom	Case study
Sundbo <i>et al.</i> (2007)	Product innovation, process innovation, market innovation, organisational innovation, technological innovation and widened service	Hotels, restaurants, travel agencies, attractions, transport, etc.	Surveys, qualitative interviews



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Owing to the fact that different frameworks coexist (Gallouj and Weinstein, 1997; Den Hertog, 2000), or are being refined (DeVries, 2006), criticised (Drejer, 2004), or adjusted to specific industries (Djellal and Gallouj, 2005), we decided to include this research arena as the second research field in service innovation/NSD research. The frameworks identified are to be presented in the following paragraphs.

The theory of innovation in services developed by Gallouj and Weinstein (1997) has been widely discussed in service innovation literature (Drejer, 2004; Windahl *et al.*, 2004; DeVries, 2006; Tether and Howells, 2007). Their model constitutes an early attempt to bring together research on product and service innovations which contributes to the “synthesising” stream of service innovation literature. According to the authors, service innovation can be found in one or several of the following elements: service outcome characteristics (e.g. new ingredient in a dish, new design of final report in consultancy), service provider competencies (new knowledge and new skills), service provider technology (new IT systems, new machines and new procedures), and client competencies (e.g. customer provides information on stock-level to supplier).

Furthermore, Gallouj and Weinstein (1997) introduce six types of innovation which can take place in some or all parts of the service, namely radical innovations, incremental innovations, improvement innovations, combinatory (architectural) innovations, formalisation innovations, and *ad hoc* innovations (Gallouj and Weinstein, 1997; DeVries, 2006). While many of these types are quite frequently used in innovation literature, *ad hoc* innovations constitute a novel concept. “Ad hoc innovations are defined as the interactive (social) construction of a solution to a particular problem put forward by a client”, (de Vries 2006, p. 1039). This type of innovation in services is easily omitted in empirical studies, as *ad hoc* innovations are hardly ever repeated and formalised into the standard service offering of an organisation. However, especially this mode of innovation has subsequently been criticised by scholars such as Drejer (2004), who argued that, due to the non-repeatability of *ad hoc* innovations, this is not an innovation in a Schumpeterian sense (Drejer, 2004). However, this view has also been challenged recently, as DeVries (2006) conceptually broadened Gallouj and Weinstein’s original model and tested it in the course of a number of case studies. He concludes, referring to Drejer (2004), that *ad hoc* innovation can in fact be regarded as a valid type of innovation (DeVries, 2006).

Related to the seminal framework developed by Gallouj and Weinstein (1997) and Djellal and Gallouj (2005) elaborate on an adjusted version for innovation hospital services. The authors propose four variables which help to locate innovations in hospital services. First, they conceptualise the hospital’s output as an aggregate of the sum of constituent services a hospital offers (e.g. catering, administrative services, medical services, shops, recreation, etc.); hence innovation can take place in each individual constituent service. In more detail, each of these individual services is again a representation of a combination of the variables service provider competencies (of individuals or small groups, i.e. education, experience, etc.); service mediums/operations (i.e. material operations, informational operations, methodological operations and contactual/relational operations); and the basic service characteristics or use values of the constituent service (the value which the constituent service provides, such as cleanliness in the case of a constituent service like “cleaning”). In comparison with the original model by Gallouj and Weinstein (1997), the framework described here only partially resembles the original framework, at most as regards the

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service provider competencies or the concept of the constituent service. In the types of innovations too, Djellal and Gallouj (2005) again partially depart from the initial model (Gallouj and Weinstein, 1997) and instead propose that service innovation in hospitals may be organised as extensive (adding characteristics to the constituent service), regressive (purifying the constituent service), intensive (intensifying specific characteristics of the constituent service) and finally combinatory (i.e. architectural innovation, introducing a new constellation of existing service characteristics such as a new “service package”).

Finally, another approach to bringing some order to the study of service innovation is the “four-dimensional model of service innovation”, developed by Den Hertog (2000). Den Hertog motivates his approach by arguing that, in services, rather than just changing some details of the final service offering, most of the time it is necessary to engage in many changes within the various parts of the service and its organisation in order to innovate in services. This is due to the close interaction of delivery processes and the actual service-offering activities. Thus, Den Hertog (2000) proposes mapping innovation in services according to a multidimensional model which takes into account the interrelated nature of innovation in services. He proposes considering four dimensions when analysing innovation, namely the new service concept dimension, new client interface dimension, new service delivery system dimension, and technological options dimension.

Overall, the studies briefly presented here all start, to a certain extent, from the basic difficulty to apply the classic product/process dichotomy. Indeed, most of the studies in the service innovation arena take a similar viewpoint and argue in favour of an alternative framework. The arguments involved in this research field relate to the notion that a sharp delineation between the product and the process parts of a service is hardly possible (Uchupalanan, 2000; Nightingdale, 2003; Miles, 2008), due to the fact that:

- the service is not an artefact but a process which develops over time (Gallouj, 2002);
- the product/process dichotomy is rather simplistic (Gallouj and Weinstein, 1997);
- that innovations in the product/service often require changes in the process and vice versa (Gallouj, 1998); or
- that product and process innovations are considerably intertwined and occur together (Uchupalanan, 2000), among others.

However, some researchers still apply the product/process framework to study service innovation. Damanpour and Gopalakrishnan (2001), for example, investigate the occurrence of product and process innovation in the banking industry. They find that product innovations are more frequently adopted than process innovations, that process innovations follow product innovations (contrary to Barras, 1986, 1990), and that both types of innovation often occur together, especially in high-performing banks. In another study, Gopalakrishnan *et al.* (1999) took a closer conceptual look at process and product innovations in the banking industry. An innovation was identified as a product innovation “when it was a new product or service that was introduced to meet an external user or market need”, while it was a process innovation “when it was a new element introduced to an organisation’s production or service operations (input materials, task specifications, work and information flow mechanisms, and

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equipment) to produce a product or render a service” (Gopalakrishnan *et al.*, 1999, p. 156). The authors found that process innovation included more systemic knowledge than product innovations, that process innovations involved more complex knowledge, and were not significantly different in involving tacit knowledge as compared to product innovations. Also:

- process innovations were developed more frequently in-house;
- were more expensive; but
- were also more effective than product innovations.

These findings of the former and latter study exemplify that, seemingly, the process/product dichotomy can sometimes be applied, at least in the banking industry.

### 3.2.1 *Research opportunities.*

3.2.1.1 Identifying distinguishable innovation dimensions. Above, we have presented conceptual frameworks of innovation in services, as the majority of researchers doubt the applicability of the classic “product-process” framework in the service innovation context. However, even where this basic notion is concerned, no consensus exists (Table I). We found that, sometimes, researchers can still identify and empirically separate these two types of innovation in services (Damanpour and Gopalakrishnan, 2001). Hence, first, studies could analyse whether this debate is based on measurement problems for product and process innovations or if another quality of concepts is necessary in order to grasp innovation in services. Second, if product and process innovations indeed constitute separate constructs, it might still be possible for both to be closely related in reality, meaning that when process innovation occurs, in the majority of cases this might concur with a simultaneous innovation in new service-products, as Pisano (1997) already showed in the case of biotechnological drug development. Studies examining the relationship between product and process innovation in manufacturing are quite frequent (Martinez-Ros, 2000; Reichstein and Salter, 2006), though studies of this relationship in services are relatively scarce and find different patterns (Boone, 2001; Damanpour and Gopalakrishnan, 2001; Nijssen *et al.*, 2006). Testing this relationship would also provide additional insight into the validity of Barras’ (1986, 1990) Reverse Product Cycle theory of services which is still applied in present research (Linton and Walsh, 2008).

3.2.1.2 Examining existing service-innovation frameworks. Few of the service innovation frameworks reviewed earlier have been empirically corroborated. For example, the framework proposed by Den Hertog (2000) or Djellal and Gallouj (2005) may be applied in studies in order to describe the variety of innovation dimensions, though we found no study examining it empirically as DeVriess (2006) did for the framework of Gallouj and Weinstein (1997). This could be rewarding, as shown in the case of DeVriess. The author was able to revise the classic model and found a new dimension, but at the same time he confirmed the appropriability of the existing dimensions of the original model.

### 3.3 *Success factors for service innovation*

Within this research field, many different perspectives have been taken in order to study the drivers for successfully developing new services. The main perspectives in this area are to be presented as follows. In Section 3.3.1, we review those studies which

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try to identify whether different success factors are needed for innovation in specific service innovation dimensions (e.g. service-product innovation and organisational innovation). In Section 3.3.2, we cover the debate on the need to establish different success factors for innovation projects which involve different degrees of newness (radical vs incremental service innovation). Finally, in Section 3.3.3., we discuss the conclusions that can be drawn from existing studies on the differences between NPD and NSD.

*3.3.1 Success factors for innovation in different service dimensions.* Starting with the accounts on innovation which specifically analyse the innovation drivers for new service “products”, several factors have been identified and this study can certainly be regarded as one of the most advanced fields of research on NSD (Martin and Horne, 1993; Edvardsson *et al.*, 1995; Froehle *et al.*, 2000; Lievens and Moenaert, 2000a,b, 2001; van Riel and Lievens, 2004; van Riel *et al.*, 2004). Froehle and Roth (2007) map previously identified innovation success factors into two groups, namely “Resource-orientated NSD practices” and “Process-orientated NSD practices”. According to Froehle and Roth (2007), in order to excel at innovation, organisations must consider all factors within both groups of success factors. The need to take both groups into consideration lies in the fact that, on the one hand, process-orientated NSD practices guide actions and assure that a service organisation is effective in its development efforts, while on the other hand resource-orientated NSD practices shift attention to the intellectual, organisational and physical resources that enhance an organisation’s NSD capability (Froehle and Roth, 2007).

In a different vein, Menor and Roth (2007) group innovation success factors found in literature into a different meta-structure set. NSD is dependent on the following factors: NSD process focus, market acuity, NSD strategy, NSD culture and IT experience. However, Menor and Roth (2007) emphasise the importance of considering the complementary effects when all five competencies are in place. Thus, similar to Froehle and Roth (2007), having only some of these success factors in place might not be sufficient to excel at NSD.

It should be noted, however, that many of these studies focus predominantly on the development of concrete service offerings or service products. This means that many omit to study the antecedents, or success factors, necessary to develop other service innovations than new service offerings. Thus, some innovation dimensions previously presented, such as organisational innovations, are not necessarily explained by these antecedents. In fact, we found that, to date, very little effort has been put into exploring the drivers for the innovations realised in the internal procedures of service organisations. In addition, research in services has given different names to this innovation type. Gallouj and Weinstein (1997), for example, refer in their innovation in services model to “provider technology innovation”, including innovations made in the technologies, methodologies and formal procedures for creating and delivering a service (Gallouj and Weinstein, 1997; DeVriess, 2006). Further, Den Hertog (2000) regards these internally orientated innovations as “service delivery system/organisation Innovations”. He also includes in this type any innovations that are directed at the change of internal organisational arrangements and the development and offering procedures for the service.

One of the few studies investigating the drivers of internally orientated service innovations is presented by Oke (2007). Oke claims, on the basis of survey research,

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that, especially for radical (internally orientated) service innovations, a defined innovation strategy, creativity and ideas management, and an active human resource management were found to significantly predict service innovation at the firm level. Factors such as portfolio management and implementation were, however, not significantly related to service innovation in firms. In another study, Djellal and Gallouj (2001) investigate how development activities differ for different innovation dimensions. However, they are more likely to offer a descriptive, exploratory account on differences in development duration and the prevalence of innovation in specific dimensions (product/service, process, organisation and external relationship) compared to different industries and do not investigate what factors are related to success in specific kinds of innovation dimensions.

3.3.1.1 Research opportunities. The area of research on success factors for developing service products is probably the most advanced among those covered in this review. As far as research covering innovations other than those focusing on innovations in final service offerings is concerned, we found a relative void. Only a few researchers investigating success factors had divided innovations into service products and other dimensions of innovations such as internal service creation or organisational innovations, Oke (2007) being an exception. Especially, in this respect, exploratory studies are therefore needed which will look into these other dimensions of innovation. In addition, research leaves out the perspectives of organisational learning (Levinthal and March, 1993), or the knowledge-based view of the firm (Grant, 1996). To our knowledge, only Sundbo (1997) and Stevens and Dimitriadis have entered this void to date. In a series of publications (Stevens and Dimitriadis, 2004; 2005a,b), the latter presented a first insight into the drivers that are important to successful service innovation when viewed from an organisational learning perspective. Additionally, the knowledge perspective has been rather neglected in service research. We found only a few studies, such as Leiponen (2005), which tackle this issue based on a sample of KIBS. Hence, there is a need for further exploratory studies to take these perspectives into account.

3.3.2 *Success factors for innovation projects with different degrees of newness.* In service innovation literature, the study of success factors directly related to specific degrees of radicalness has only emerged in recent years. Several scholars (Avlonitis *et al.*, 2001; de Brentani, 2001; Menor *et al.*, 2002) argue that this subgroup of innovation studies has not yet progressed as far as the more general accounts on innovation success factors in services. Menor *et al.* (2002) also note that “new services are treated and studied in aggregate which is problematic given the different degrees of newness [...]” (Menor *et al.*, 2002, p. 138).

Avlonitis *et al.* (2001) investigated whether different degrees of innovativeness call for different NSD activities, by studying NSD process activities, NSD process formality, and cross-functional involvement as independent variables. The authors identified a continuum of six degrees of innovativeness, namely “new to the market services”, “new to the company services”, “new delivery processes”, “service modifications”, “service line extensions” and “service repositioning”. The study revealed that not all degrees of innovativeness are equally related to a high degree of performance. In fact, Avlonitis *et al.* (2001) showed that, with regard to financial performance, there exists an inverted U-shaped relationship between the degree of innovativeness and the financial performance. Very high and very low degrees of innovativeness are both less positively

related to success, whereas moderately innovative services are more strongly related to high-financial performance. Interestingly, with regard to the success factors, they presented evidence that radically new and incremental innovations do not always require totally different antecedents. In fact, both new to the market services (radical innovations) and service line extensions (incremental innovations) showed great similarities in their related success factors:

[...] except for the increased formality that differentiates these two types of service innovations, our study shows the need to emphasize on almost the same stages of the NSD process and to increase the involvement of the various functions in almost the same phases of the process (Avlonitis *et al.*, 2001, p. 337).

deBrentani (2001) also investigated whether different antecedents are necessary in order to excel either at radical or at incremental innovations. Her results show that a number of factors exist which impact differently on the various degrees of innovativeness. *Inter alia*, an innovation-encouraging organisation culture has been found to be more significantly related to radical innovations than to incremental innovations. However, factors such as implementing an NSD process, or basing the development of new services on detailed knowledge of operating systems, problems and customer needs, among others, have been identified as being crucial for both incremental and radical innovations. In sum, in order to excel at incremental innovations and radical innovations, it has been found that basically the same success factors are required, but in several cases in substantially different degrees of presence and intensity. In particular, out of 12 factors tested, six showed the same or similar importance for incremental and radical innovations, while the other six showed differences in the level of importance for radical and incremental innovations. It should, however, be noted that no success factor impacts in opposition to either radical or incremental innovations.

In another study, Oke (2007) also investigates, *inter alia*, what kind of differences exist with regard to antecedents needed for either incremental or radical innovations in a variety of industries, such as finance, telecommunications, transport and retail. The study involves the testing of five independent variables, namely innovation strategy, human resource management, creativity and ideas management, selection and portfolio management, and implementation. Oke (2007) shows that these five success factors are only significantly related to radical innovations, while none of these factors – with the exception of creativity and ideas management for “me-too products” – is significantly related to incremental innovations. Oke argues that the insignificance of the antecedents for incremental innovations might be due to the fact that organisations do not regard incremental innovations as real innovations, and thus only treat them as an operational activity which does not have to be managed according to rigorous NSD (Oke, 2007). Besides, the author’s interpretation of the results, another insight is possible when looking closely at the statistical results. This reveals that, similar to deBrentani’s (2001) study, in this research too the coefficients of the success factors for both incremental and radical innovations all show a positive direction. It can be tentatively interpreted, though it is not statistically significant, that neither success factor is detrimental to one type and supportive of another. In fact, the antecedents support both innovation and improvements, meaning that having them in place may be beneficial to the development of both.

Finally, Leiponen (2005) conducted a study investigating the impact of different knowledge creation strategies on the innovativeness of professional services.

She studied the factors internal cooperation, vertical and horizontal information, technology adoption, incremental learning and scientific knowledge, and related them to improvements and innovations. According to her findings, some factors have a different influence on either improvements or innovations. The factor vertical and horizontal information is highly important to innovation, whereas the factor internal cooperation is very important in the case of improvements, while vertical and horizontal information is an important factor here as well, but only weak in significance. The other factors, technology adoption, incremental learning, and scientific knowledge, are not significantly related to either one of the dependent variables (improvement or innovation). When examining the results of the five main variables in more detail, the majority again show similarities, namely that more than half of the variables influence both improvements and innovations either positively or negatively, but only the factor scientific knowledge has a negative influence on innovations, though it has a positive impact on improvements. Table II summarises different degrees of newness (radicalness) used, the industry in which the reviewed study took place, and the method used by the authors in order to allow a better comparison between the studies presented.

3.3.2.1 Research opportunities. In our review, we were able to provide some first insights suggesting that differences in success factors for either radical or incremental service innovation may be of degree rather than of kind. In fact, in many studies half of the factors were equally important to both kinds of innovation and we found that success factors for radical innovation are generally not counter-productive to incremental innovations and vice versa. Thus, instead of following the trend to study differences in the success factors for radical and incremental service innovations, it could also be rewarding to study this phenomenon in ways which allow for first insights as to why these types may be more similar than different. For example, one could depart from the often *ex post* measures for identifying the degree of newness of an innovation project and could instead study whether innovation projects make use of prior knowledge to a greater or lesser extent (He and Wong, 2004). In other words, this could mean contrasting exploratory with more exploitative innovation projects, as

Authors	Degrees of radicalness	Industry	Method
Avlonitis <i>et al.</i> (2001)	New to the market service, new to the company services, new delivery processes, service modification, service line extensions and service repositioning	Financial services	Survey
de Brentani (2001)	Incremental innovations and radical innovations	Business services	Survey
Leiponen (2005)	Improvements and innovations	Advertising, industrial design, machine and process engineering, electrical engineering, management consulting and R&D services	Survey
Oke (2007)	Radical innovation and me-too products and incremental improvement	Financial and insurance, retail, transport, telecommunications	Survey

**Table II.** Studies which examine success factors according to different degrees of innovation radicalness

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shown in studies like He and Wong (2004) or Bierly and Daly (2007). This could offer a richer account on the differences and, in particular, the potential similarities between exploratory and exploitative NSD projects (Gupta *et al.*, 2006; Bierly and Daly, 2007). When taking a closer look at such studies on exploratory and exploitative innovation, possible avenues for future research could also include the study of the interaction effects between such different types of innovation in order to judge whether radical and incremental innovations can go together and thus benefit from similar success factors, when pursued in the same context (Knott, 2002; Raisch and Birkinshaw, 2008).

*3.3.3 Success factors for service and product innovation.* Different perceptions have been put forward with regard to the debate on the similarities and differences between NPD and NSD (Hollenstein, 2003). This becomes especially evident when viewing how researchers motivate their studies. Blindenbach-Driessen and van den Ende (2006), for example, argue that findings on NSD and NPD differences are limited, while other authors, such as Dolfsma (2004), Stevens and Dimitriadis (2004) or Alam (2006), refer to the considerable differences between product and service innovation activities. We therefore consider it necessary to look into the findings in this research field in order to arrive at more exact statements, since the findings from this field are crucial in order to become capable of ascertaining whether models of NPD can be meaningfully applied to NSD, and vice versa. Owing to space limitations, we are not going to review each individual publication in this field, and will instead provide two tables (Tables III and IV) aggregating the studies identified on similarities and differences between NSD and NPD.

After comparing the findings of the similarities and differences sections with each other, we identified several contradictory or inconsistent findings which are to be briefly discussed. First, several authors found that a formal NSD process was considered to be less important to NSD than to NPD (de Brentani, 2001; Henard and Szymanski, 2001; van der Aa and Elfring, 2002). However, some authors also found that formal development processes are important, and actually similarly important to the role that the formal development process plays in NPD (de Brentani, 1989; de Brentani and Ragot, 1996; Froehle *et al.*, 2000). The findings concerning the role cross-functional team involvement plays in NSD versus NPD have likewise not yet been consistently determined (Froehle *et al.*, 2000; Henard and Szymanski, 2001). Finally, studies frequently find that R&D is not as much present in NSD as it is in NPD in manufacturing (Tether, 2005). However, Nijssen *et al.* (2006) found that R&D is more positively related to innovation success in services than it is in manufacturing. Thus, research in this field has identified both similarities and differences between the two activities, though some findings contradict each other, which opens up some more scope for future empirical studies.

*3.3.3.1 Research opportunities.* All in all, the results relating to possible differences between NSD and NPD characteristics open up future research opportunities. Prior studies have provided many insights (see also Chapter 2.3 on demarcation studies), but as we discussed, they are sometimes contradictory. We propose that large-scale survey research can possibly shed more light on this debate. This would include the sample studied not being comprised of only a single service industry, but rather a variety of industries. In a different vein, the findings from the research field presented here can additionally be used to inform the emerging stream of synthesis which is trying to build a theory which applies both to service and to product innovation, as discussed in



Author	Differences: NSD vs NPD	Unit of analysis	Industry	Method
Mendonca <i>et al.</i> (2004) Griffin (1997)	Services cannot be protected via patents Service innovation takes less time than product innovation, concept generation in the development process is more frequent in NSD than in NPD, development processes are less complex (easier) than in manufactured goods firms, NSD reports to the marketing function, rather than to the strategic business unit level NSD is, conceptually, more complex than NPD Cross-functional teams are not related to a higher development speed in NSD, contrary to NPD	– Organisation	– Broad variety of manufacturing and service firms	– Survey
Johne and Storey (1998)		Literature review		
Froehle <i>et al.</i> (2000)		New service programmes	– Health care, financial services, professional services, utilities, hotels, retail, transportation, industrial services, dining/food services, local governments, information systems and media	– Survey
de Brentani (2001) and Martin and Horne (1993)	Formal NSD process is less important than in manufacturing	Single services, organisation	de Brentani: broad variety of business services; Martin and Horne: consulting, information processing, retailing, financial services and hospitality	Survey
Djellal and Gallouj (2001)	Testing of innovations more difficult for services	Organisation	Financial services, consultancy, operational services, hotels, catering and retailing	Survey
Henard and Szymanski (2001)	Higher importance of market synergy, lower importance of structured formal development process, lower importance of cross-functional communication in NSD	Organisation	Meta analysis	Meta analysis of several surveys

(continued)

**Table III.**  
Identified  
similarities/differences in  
NSD vs NPD

Author	Differences: NSD vs NPD	Unit of analysis	Industry	Method
Hollenstein (2003)	R&D levels are lower in services than in manufacturing	Organisation	IT & R&D services, other business services, banking/insurance/financial services, wholesale, transport/telecommunications, retail, hotels, restaurants, real estate and personal services	Survey
Tether (2005)	Manufacturers tend to source new technology through their internal R&D department, while in service firms, new technology is more often sourced through customers and suppliers or external intellectual property. Manufacturers tend to focus on technological issues and R&D, while services are more likely to emphasize the skills of their workforce	Organisation	Broad variety of manufacturing and service industries	Survey
Hipp and Grupp (2005)	Internal R&D is less important than in NPD, more departments and project teams involved in NSD than in NPD, service innovation more incremental than product innovation	Organisation	Wholesale, retail, transport, banking/insurance, electronic data processing/telecommunications, technical services, other business services and other services	Survey
Nijssen <i>et al.</i> (2006)	Willingness to change existing routines is more important in NSD than in NPD, R&D strength is more positively related to developing new services than to developing new products; willingness to give up general organisational dimensions is more positively related to NPD than to NSD	Organisation	Trade and repair, hotels and catering, transport, rental services, financial services, other services, construction and building materials, chemicals/rubber, glass, metal, machinery, electrical and optical goods, wood, paper, textiles and others	Survey

	Similarities: NSD vs NPD	Unit of analysis	Industry	Method
de Brentani (1989)	How to measure success, importance of market orientation, a formal NSD process, project synergy and superior service offering	Individual services	Financial services, management services (accounting, consultancy, ...), transportation and communications	Survey
Martin and Horne (1993)	Customer involvement similarly important and present as in NPD	Organisation	Financial services and hospitality	Survey
de Brentani and Ragot (1996)	Formal development process	Individual development projects	Computer and systems consultants, marketing and advertising, management consulting and accounting	Survey
Griffin (1997)	Strategies are important to both innovation in manufacturing and service innovation, leaders in development projects are generally project managers, multi-functional teams are important to both NPD and NSD, finding appropriate rewards is similarly difficult in NSD and NPD	Organisation	Broad variety of manufacturing and service firms	Survey
Froehle <i>et al.</i> (2000)	Cross-functional team structures and effectiveness of development efforts, formalised development processes, IT-enabled development process	New service programmes	Health care, financial services, professional services, utilities, hotels, retail, transportation, industrial services, dining/food services, local government, information systems and media	Survey
Meyer and DeTore (2001)	Platform-based product development strategies are also applicable to services	New service programmes	Re-insurance (insurance for insurance companies)	Case Study
Hollenstein (2003)	Human resources levels equally high, similar use of IT	Organisation	IT and R&D services, other business services, banking/insurance/financial services, wholesale, transport/telecommunications, retail, hotels, restaurants, real estate, (personnel services	Survey
Tether (2005)	Innovation patterns exist which are more often found in services than in manufacturing (and vice versa), but these patterns are not unique to services or manufacturing, respectively	Organisation	Broad variety of manufacturing and service industries	Survey
Nijssen <i>et al.</i> (2006)	Incremental product and service innovation do not require process innovation; both new products and new services may or may not affect current sales	Organisation	Trade and repair, hotels and catering, transport, rental services, financial services, other services, construction and building materials, chemicals/rubber, glass, metal, machinery, electrical and optical goods, wood, paper, textile and others	Survey

**Table IV.**  
Identified similarities/differences in NSD vs NPD (continued)

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Section 2.4. One way to do this could be to study product and service innovation by applying theoretical lenses which would look at the underlying phenomena in the innovation activities (Sundbo, 2000). As we have already noted elsewhere in another section on research opportunities, applying organisational learning theory to this field of research (Crossan *et al.*, 1999) could be helpful (Sundbo, 1997, 2000; Stevens and Dimitriadis, 2004) in order to understand the basic dynamics and characteristics occurring in these innovation activities. However, other perspectives, such as a resource perspective as put forward by Froehle and Roth (2007), have also been advocated as a viable means to study product and service innovation from an integrative perspective (Froehle and Roth, 2007).

#### 4. Concluding remarks

Summing up, this review has presented several significant fields with which research on innovation in services has been concerned. After an initial review of existing schools of thought in service innovation research, we turned to a review of important fields of research. Starting with studies taking a service sector point of view, several authors have tried to group service industries into distinct groups of innovators or non-innovators, which has not yet led to conclusive results. At the organisational level, research has mainly been focused on revealing the factors needed for the successful innovation of new-service products. Yet, with regard to other innovation dimensions such as organisational innovations, only scarce research has started to present the drivers needed for successful innovation. Further, after reviewing the studies dealing with the antecedents of different degrees of newness, we found that there is a considerable match of influencing or non-influencing factors on both radical and incremental service innovations. Finally, we ascertained that the research field on similarities and differences between new service and new product innovation has progressed, but we identified contradictory results, calling for further studies in this field. We hope that this review and the discussion on future research opportunities will nurture the progress of this emerging topic in operations, in marketing, and in innovation management.

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