Service innovation policies
Rationales, strategies, instruments

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1 Introduction

This report contributes to the EU FP7 KNOWINNO activity in Innovation in Services: the role of R&D and R&D Policies (INNOSERV), undertaken jointly by the Organization for Economic Cooperation and Development (OECD) Working Party on Innovation and Technology Policy (TIP) and the Working Party of National Experts on Science and Technology Indicators (NESTI). At the request of OECD TIP group, the Dutch research-based consultancy firm Dialogic has prepared this report, which builds on recent OECD work on service innovation, in particular OECD (2012a) and OECD (2012b).

To examine the policy part of the KNOWINNO activity, we focus on the following aspects of Service R&D and Innovation:

A. Rationale for service R&D and innovation policies
B. Policy strategies
C. Support measures and coherence with policy strategies
D. Evidence-based instruments – process and impact evaluations.

The main aim of this report is to inform policy-makers about the state of the art in service innovation policy: what is the rationale behind service innovation policy? Which policy strategies are involved? How can service innovation policy be operationalized in terms of specific instruments? And what do we know about the effectiveness of these instruments? The report will form part of an anticipated joint EU/OECD publication on service R&D as well as innovation indicators and policies.

The Dialogic team worked closely with the OECD secretariat (Mrs. Irene Martinsson and Mr. Mario Cervantes) from mid-September to mid-October 2012 to prepare the report, based on the available INNOSERV reports, relevant policy documentation and scientific literature. We will deal with the topics A-D mentioned above systematically in chapters 2 to 5, and present our main conclusions and policy implications in chapter 6. However, before starting on these chapters, first of all we would like to outline our contribution and provide some context.

Box 1. How we define service innovation

Service R&D and innovation refers to new or significantly improved service concepts that create additional value for firms and their customers (also through co-creation). A service innovation is a new service experience or solution in the form of a new service concept, new customer interaction, new value system/business partners, new revenue model, and new organizational or technological service delivery system (den Hertog, 2010, p. 19). Such new dimensions or in combination, often lead to the customer being involved with further new service experiences or solutions. These require new technological or organizational capabilities on the part of the service provider to enable their introduction and distribution in the market. Service innovations can have technological components and do not necessarily rely on R&D-based strategies; but they do have the potential to significantly impact a wide range of firm activities, especially relationships with customers, delivery channels, and the development of new combinations of products and services.

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**Why service innovation matters**

The impact of services on the entire economy is substantial. Service R&D and innovation affects growth through three key mechanisms: a) the service sector accounts for 70% of GDP in most OECD countries; b) business services, especially knowledge-intensive services, are used as intermediate inputs in production; and c) manufacturing firms increase their efforts to provide services in addition to their traditional business. It is important to emphasize that service innovation not only drives and affects the ‘classic’ service sectors (see NACE classifications), but also manufacturing companies innovate and use service contracts for machinery, consultancy activities, and leasing constructions to increase their turnover. In addition, business services – like consulting firms – can drive innovation with their analyses and advice. Attempts to increase the productivity of services R&D and innovation have been problematic for governments in many OECD countries facing slow economic growth. However other services have expanded, largely fuelled by globalization and increasing use of ICT to enable more standardized services such as in health, education, and government. Innovative business services are part and parcel of today’s global value systems and are increasingly sourced globally, as we see in BERR (2009), OECD (2012c) and (2012d).

**We still associate technical innovation with manufacturing**

The majority of innovation and management scholars, statisticians, policy-makers as well as the wider audience still associate innovation with technological innovation in a manufacturing setting. In their eyes, innovation is mainly the result of a concentrated R&D effort and the innovation process is seen to be linear. Innovation management textbooks mostly talk about managing technological innovation. Likewise, technological definitions of innovation still dominate innovation surveys, and we are only on the brink of using more sophisticated methods to measure innovation in services and the wider scope of non-technical innovation. Similarly, over the years, policy-makers have learned to design and implement tools and programs aimed at furthering R&D and innovation in manufacturing industries and networks, but are struggling with, and seem hesitant to support innovation in services. This current narrow-minded approach does not sufficiently appreciate the characteristic features of service innovation which deserve a more specific (policy) focus.

**Service innovation is multi-dimensional and distributed**

Service innovations are multi-dimensional, involving numerous organizational alongside technological aspects. Service innovation processes are non-linear and essentially ‘distributed.’ This means that the innovation of a service does not usually come from a concentrated and formalized R&D effort (the goods-based logic of innovation). On the contrary, it is more frequently the result of a fuzzy, distributed R&D and innovation process, (the service-based logic) involving many disciplines, departments including strategy, business development, marketing and service operations, and even clients. We elaborate on the key characteristics of service innovation in box 2.

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3 This observation may be true for some firm managers, although many in service-dominant firms are already highly involved in service innovation processes.

4 Earlier this was referred to as the soft side of innovation as opposed to the hard, technological side (den Hertog et al., 1997).
Box 2. Five key characteristics of service innovation

1. A shared process. New concepts and related business processes are usually developed in a shared and interactive process between a service provider and its customers. In that sense, we can even label this as co-production or co-innovation. Many service innovations involve a change in the division of labor (and thus tasks and responsibilities) between service provider and customer. Examples are introducing self-service concepts like electronic banking, online check-in, or integrating additional services into existing products or offers such as all-inclusive holidays or document management as a service. The changes in customer-interaction and accompanying distribution mechanisms have had a major impact on many service innovations.

2. Conceptual and intangible nature. In most cases, service innovation does not result in a tangible product but involves value propositions which are hard to assess beforehand by potential customers. A new way to handle insurance claims, a new type of pool management in staffing services or new store concepts (e.g. the mono brand store) all have in common that they are highly conceptual. Thus communication and branding of new service concepts have become crucial.

3. Combinatory or architectural nature. Service innovations often take new combinations (Schumpeter’s concept) of existing service concepts and apply them in a new context. Examples are triple-play provisioning of telecommunication services, bundled maintenance or facility services or self-service in health care (e.g. home dialysis).

4. Demanding in terms of replication and scaling. Compared to goods-based innovations, service innovations are not easy to reproduce or replicate on a large scale. Mainly due to the human and cultural aspect, it is difficult to roll out a new service concept in numerous locations uniformly. For example, implementing a new franchise restaurant or store concept will differ from country to country. One particular aspect is the fit between an existing service delivery system and the newly introduced service. A new channel (e.g. a mobile payment functionality) imposes requirements on the organization and integration with other channels (multi-channel). A newly introduced service concept that cannot be distributed on a wide scale because of a failing service delivery system, cannot be called a (successful) service innovation.

5. Originates from a distributed innovation effort. Service Innovations do not usually occur in a traditional dedicated R&D department or in a laboratory setting. On the contrary, most service innovation activities have a distributed character and are tested in real-scale and real-life environments and are usually the result of an elusive, fuzzy and often wide-spread quest. New services can be initiated by marketing, business development, ICT or operations departments and for this reason, Sundbo & Gallouj (2000) state that service innovation systems have been labeled as loosely-coupled systems.

We can therefore go so far to surmise, that the models and tools basically developed for analyzing, managing and furthering technological innovation in a manufacturing context, cannot be used for service innovation processes.

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Box 3. TomTom Live Services – the multi-dimensional and distributed character of service innovation in what was once a manufacturing firm

TomTom, headquartered in Amsterdam, is best known for its personal navigation devices (PNDs). Recently it shifted towards a more services-dominant business model, where real-time traffic solutions called LIVE services are key. One of them is HD Traffic, a service that provides customers with real-time traffic information such as the location of current traffic jams and alternative routes. This information is obtained by gathering traffic data on individual road segments from a telecom network provider that shows how fast its clients are moving. After combining this with qualitative information on the traffic problems, the collaborating telecom network provider’s network communicates it to TomTom PNDs. Moreover, TomTom sells the real-time traffic information to third parties such as governments and gas stations.

HD Traffic can be characterized as a multi-dimensional innovation. Although the service concept can still be described as a navigation solution, it is different from static maps that do not provide real-time traffic information. Selling this type of information to other parties is certainly a new service. By establishing a permanent connection, TomTom developed a new way of interacting with its customers. In the case of HD Traffic, TomTom can also offer frequent map updates (without requiring customers to connect their PND to a computer). The service MapShare even allows customers to correct maps and share with TomTom and direct peers. New business partners were acquired, namely two small foreign enterprises that contributed to the technology behind HD Traffic. TomTom acquired them not only to develop a new technological delivery system, but also to secure permanent access to new skills and competencies. This points to a change in the organizational delivery system, and shows the distributed nature of the service innovation process. Finally, instead of selling physical products, TomTom developed a new revenue model based on subscriptions to its LIVE Services.

Policy-makers struggle with service innovation

Despite the importance of service innovation and the growth in the service sector, the productivity performance of service oriented firms has lagged behind other sectors (particularly manufacturing). This – as well as the harsh destruction from rising international competition – has forced not only the management of service-dominant firms, but also innovation policy-makers to seek ways to sustain and best facilitate service innovation. Some vanguard countries have formulated service innovation strategies and adapted existing policies to the needs of service innovators. Specific policy instruments have been introduced or framework conditions changed in order to encourage service innovation, both in firms classified as service firms or in manufacturing firms that provide services.

However, very little is known about the extent to which government policies, overall policy strategies and specific instruments actually encourage service R&D and innovation, how well they are in sync and how effectively these (direct and indirect) measures actually stimulate service innovation. Many innovation policy-makers seem to be struggling to adapt to an innovation model in which services play a more pronounced role. A 2009 European Commission staff working document on service innovation policies noted: “in recent years, the interest in services innovation policy has been increasing simultaneously with the growing economic weight and significance of services. At the same time, policies in support of services innovation have remained relatively underdeveloped in many Member States and regions” (2009, p. 2).

Before focusing on actual policy strategies and the effectiveness of various instruments, let us first turn our attention to the various arguments used for having service innovation policies and instruments in the first place.
2 Why service innovation policy?
A rationale

A logical question when discussing a policy framework for service innovation policies is whether or not there is a rationale for having these in the first place. In our view, we need to differentiate here between the macroeconomic and microeconomic argumentation to have service innovation policies. For the latter, we distinguish between the well-known market failure and the evolutionary systemic failure argumentation, which may apply to services innovators in both ‘pure’ service firms and industries as well as manufacturing firms adopting a more service-dominant logic.

There are many macroeconomic reasons to consider service innovation policies. Innovation as such has proved to be an essential factor for economic growth (Schumpeter, 1939; Griliches, 1986; Fageberg, 1988; Freeman, 1994). High-performing countries and industries are increasingly based on services, high service performance, high levels of service innovation and the ability to successfully link complementary technological innovation in manufacturing, although not exclusively, and non-technological innovation associated with services, although decreasingly so. This is not just because services represent merely 70 per cent of the more advanced economies; we also know that manufacturing firms achieve growth by offering their clients additional services (servitization). Furthermore, to increase their innovative capacity, manufacturing firms make use of knowledge intensive business services (KIBS), for example consultancies. Service innovation is therefore crucial for economic growth, however it has to go hand in hand with improving the low productivity and performance, especially in once sheltered (regulated and/or network) markets that are now facing international competition.

2.1 Market failures

As is the case with manufacturing firms, the main rationale for governments to promote innovation in service firms is based on market failure arguments. After all, market failure implies there are deficiencies in the market, causing outcomes that are not optimal from a societal point of view (see also OECD, STI Outlook 2012, p. 63). Related to innovation, market failure occurs when firms under-invest in R&D and innovation, because they are not able to appropriate the full benefits of these investments (Van Cruysen & Hollanders, 2008; Den Hertog, 2010). According to Van Dijk (2002), there are three main market failures related to innovation: 7

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6 This chapter is largely based on chapter 7 of den Hertog (2010), which was written in cooperation with Professor Luis Rubalcaba and earlier documented in den Hertog and Rubalcaba (2010). We also used some wording from OECD (2012a and 2012b).

7 Although other papers contain different types of market failures, in our view, these mostly relate to the main market failures mentioned in this report, e.g. transparency (Van Cruysen & Hollanders, 2008, related to asymmetric information), problems concerning property rights are part of the externalities failure, uncertainty is related to asymmetric information (especially given the intangible character of services and service innovation), and so on. Furthermore, some authors refer to Baumol’s disease as a market failure, whereby many services like healthcare depend on human delivery, (see http://www.economist.com/node/21563714). Consequently, there is a productivity market failure around services because productivity depends on the maximum hours a person is able to work per week). We have used Van Dijk’s typology because it provides a clear and accepted framework.
1. **Externalities.** When the social returns to innovations exceed the private returns, firms may be innovating too little, because innovations can 'leak' to competitors due to imitation (with significantly lower development costs) or employees switching jobs. This is related to appropriability, but also to entry and exit conditions for firms and individuals. Externalities are derived from the public nature of knowledge and its spillovers, which generate problems of appropriability and use of innovation without the need to pay their market value (free-riding).

2. **Market power.** For many reasons – sunk costs, lack of transparency, regulation, high entry barriers, high switching costs for consumers – there may be a lack of competition. Consequently, due to the lack of competitive pressure, there is a low urgency or willingness to innovate.

3. **Asymmetric information.** There may be asymmetric information between buyers and sellers, or between firms and investors. As a buyer of products, or user of services, it might be hard to compare products and services on their quality and specifications. Besides, investors might not have all necessary information concerning risks and possible returns of investments and firms to enable thorough and rational investment analyses.

Some of these market failures are faced by manufacturing and service firms alike, such as information asymmetries and knowledge spill-overs. However, these failures to innovate may affect service firms in particular depending on the very nature of their service activities, for example due to intangibility, low tradability, or customer proximity for delivery. Nevertheless, Van Dijk (2002) pointed out that services are quite heterogeneous and therefore do not all face similar market failures (if at all). Conversely, Van Dijk's analysis used a typology of services, identifying specific market failures for the various types: (i) intermediary services, (ii) capital-sharing services, (iii) network services, and (iv) knowledge/skill-sharing services. In Table 1 we present examples of how the earlier described market failures are visible in the specific context of services and service innovation. Additionally, we use Van Dijk's typology (2002) to highlight what types of services are influenced most by a particular market failure. This overview is not exhaustive and is only included here to serve as illustration. In our view, standard market failure argumentation is as relevant to service industries and service markets as it is to manufacturing industries and markets. What ultimately matters, is analyzing the presence of market failures in any market or industry, whether in manufacturing or in services, the more so as the two are increasingly hard to differentiate. Evidently, market failures can only be redressed if the cost of public intervention is lower than the cost of the imminent market failures.

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8 Like most of the HRM services, trade & repair services.
9 E.g. Transportation & storage services, real estate.
10 Examples are postal & telecommunication services.
11 Business services, financial services.
12 We have not aimed to provide a comprehensive list of specific service innovation issues but rather illustrate given market failures, thus underlining that the framework of market failure can also explain under-investment in service innovation.
### Table 1. A typology of market failure for service innovation: Examples (based on Van Dijk, 2002; Rubalcaba, 2006; Van Cruysen & Hollanders, 2008; den Hertog & Rubalcaba, 2010).

<table>
<thead>
<tr>
<th>Market failure type</th>
<th>Specific issue related to service innovation</th>
<th>Intermediary services</th>
<th>Capital-sharing services</th>
<th>Network services</th>
<th>Knowledge-sharing services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Externalities</strong></td>
<td>Service innovations are thought to be easier to copy and hence harder to appropriate (e.g. through patenting) and protect.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Because of the distributed character of service innovation and often intense client interaction, knowledge spill-overs are more likely.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Many service skills are not easily transferable but require extensive investment in employee training. However, labor market mobility is high (e.g. for consultants and bankers).</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In some service sectors, investments in innovation are rather transparent. Think about investment in infrastructure. Competitors can react easily to these investments.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Most service sectors have low entry barriers (low investment in capital goods to start a firm). Consequently, a new service can be copied without high investment.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Market power</strong></td>
<td>Service sectors currently or formerly regulated (e.g. energy, health, infrastructure, tele-communications) are often concentrated.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High switching costs or high sunk costs for buyers/consumers.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some sectors are related to specific infrastructures (for physical/data transportation). Newcomers face high entry barriers. Consequently, current service providers have relatively large market power.</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asymmetric</strong></td>
<td>Because of the intangibility of services, it is harder for buyers (and investors) to evaluate service quality beforehand.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>information</strong></td>
<td>In some sectors (e.g. banking), trust and reputation are key. It could take time to build that reputation and it is hard for innovative, new players to establish themselves on the market.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uncertainty about future use of services related to network investments (e.g. broadband infrastructure).</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Since startups and innovative SMEs have a limited track record, it is hard for investors to interpret the balance between risks and returns. Consequently, startups and innovative SMEs face difficulties in getting (pre)seed capital (credits or risk capital).</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2.2 Systemic failures

We need to look beyond the market failure arguments and adopt a broader view on service innovation and the potential need or rationale for service innovation policies, that is to say possible **systemic failures**. There is a growing body of thought that market failure argumentation is insufficient to deal with innovation **dynamics** and the rationale for R&D and innovation policies. The argumentation used here is mostly based on evolutionary rather than neoclassical approaches to innovation (key references are Edquist, 1997, and linked to services, Metcalfe & Miles, 2000). Cruysen & Hollanders (2008, p. 8) define systemic failures as "structural, institutional and regulatory deficiencies which lead to suboptimal investment in knowledge creation and other innovative activity.” Instead of focusing on the deficiencies in the market, by examining the system failure framework, we are able to analyze the (in)efficiency of the interdependencies between actors and institutions related to knowledge creation, diffusion and use. We use O’Doherty & Arnold’s typology (2003, p. 32) to describe the main systemic failures:
1. **Capability failures.** They occur when there are inadequacies in the potential innovator’s ability to act in their own best interests. Or put differently: when firms and their employees lack the right knowledge, skills and capabilities to innovate and translate customer needs into new services.

2. **Institutional failures.** These go beyond the responsibility of service firms. Institutional failures are related to the educational system, intellectual property system or (the lack of) governmental interventions that prevent service-oriented firms (or other service innovators) from innovating.

3. **Network failures.** Relating to the ‘interactions among actors in the innovation system’ (O’Doherty & Arnold, 2003, p. 32), these failures indicate that an innovation system as a whole might not have adapted well enough to the increasing role played by service firms in general and their potential role in R&D and innovation.

4. **Framework failures.** This category relates to the fact that ‘effective innovation depends partly upon regulatory frameworks, health and safety rules, etc., as well as other background conditions, such as the sophistication of consumer demand, wider culture and social values’ (O’Doherty & Arnold, 2003, p. 32).

Note that the failures described under 2, 3 and 4 cannot just be targeted with ‘classic’ R&D and innovation policy instruments. Some failures require for example adaptation of the educational system, export policies, or a redefinition of regulatory frameworks; these all imply a further horizontalization of innovation policies, in other words the use of non R&D and innovation policies to spur service innovation.

Den Hertog (2010) outlined how systemic failures relate to specific service innovation issues. We have used this analysis as basis for Table 2, illustrating our conclusion that, unlike market failures, systemic failures are more or less general for services. For this reason we have not used the Van Dijk (2002) typology of types of services to classify the types of failures listed in the table.

**Table 2. A typology of systemic failure for service innovation (based on Den Hertog, 2010)**

<table>
<thead>
<tr>
<th>Systemic failure type</th>
<th>Specific issue related to service innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capability</td>
<td>Firms and their employees may lack the right knowledge, skills, information and contacts to realize service innovations.</td>
</tr>
<tr>
<td></td>
<td>Firms might not be capable of identifying their customers’ actual needs, which prevents them from coming up with service innovations.</td>
</tr>
<tr>
<td></td>
<td>Service firms that are not capable of articulating their knowledge needs.</td>
</tr>
<tr>
<td>Institutional</td>
<td>Schools that do not educate students (i.e. future service professionals) in the right set of capabilities for service innovators.</td>
</tr>
<tr>
<td></td>
<td>Innovation management courses biased towards manufacturing.</td>
</tr>
<tr>
<td></td>
<td>Tax credit schemes that discriminate against service innovation.</td>
</tr>
<tr>
<td></td>
<td>R&amp;D and innovation programs and submission procedures are designed in accordance with manufacturing firm processes. Most services firms are have no experience with the procedures relating to R&amp;D and innovation programs.</td>
</tr>
<tr>
<td></td>
<td>Public interventions are mainly in R&amp;D and innovation policy and do not target the wider aspects of service innovation relating to marketing, export, human resources etc.</td>
</tr>
<tr>
<td></td>
<td>Financial and credit systems do not always value the intangible assets of more service-dominant firms.</td>
</tr>
<tr>
<td></td>
<td>Statistics that do not adequately reflect services and service innovations.</td>
</tr>
<tr>
<td>Network</td>
<td>Public knowledge infrastructure that primarily caters for the needs of manufacturing firms and is less suited to the needs of service innovators.</td>
</tr>
<tr>
<td></td>
<td>Government purchasing policies that do not challenge service firms or the wider scope of service innovators – innovation is rarely rewarded.</td>
</tr>
</tbody>
</table>
The lack of an appropriate system for knowledge management and structural capital for example innovation networks, science parks, cluster organizations, and intermediaries. These mechanisms can be highly useful to steer service innovation.

An industry–science relations (ISR) debate that is strongly biased towards high-tech industries, but pays hardly any attention to the role of these relations between the science base and more service-dominant firms.

Framework

| Regulation that does not provide the right incentives for innovation in service industries and markets (e.g. trade policies, spatial planning, environmental regulation, market regulation). |
| Legal and financial obstacles hampering entrepreneurship and dynamism, mainly affecting SMEs. |
| Consumers who are not prepared to pay for innovative services. |
| Foresight and road mapping exercises aimed almost exclusively at high-tech and manufacturing industries. |
| Governments that are not investing (enough) in innovative public services that can act as ‘role models’. |
| Mobility schemes that focus mostly on scientists and engineers. |
| Innovation debates dominated by technological innovation. |
| Absence of a services innovation culture. |

By way of conclusion, we would like to emphasize that innovation systems need to be designed to cater much better for service innovators’ needs. There are numerous examples of innovative services, mainly in manufacturing, that are key assets of dynamic and adaptive innovation systems and indeed global value chains. Firms in all sectors need service innovation to improve their competitiveness as well as their employment and wealth-creating capacity. The systemic approach to services R&D and Innovation is especially promising, as it recognizes this key role of innovative service functions in developing competitive innovation and global value systems. In our opinion, services can be better embedded in innovation systems and we need to ascertain how others see innovative services contributing to the overall innovativeness and competitiveness of these innovation and value systems. This lack of insight is largely due to the persistence of old and new myths regarding the services economy (low productivity, low innovativeness, low tradability; see Gallouj, 2002; Rubalcaba, 2007) and the still predominant ‘technological view’ on innovation (Gallouj, 2002). We consider that a more systemic approach, without disregarding macro-economic and market failure argumentation, is needed to counterbalance this myopic view and thus develop effective services R&D and innovation strategies, policy instruments and policy mixes.

2.3 The interplay between failure arguments and main conclusions

Figure 1 below shows the most significant elements that might justify a service innovation policy or instrument. They are based not only on the neoclassical viewpoint of market failures, but also on the contextual facts that reveal challenges from macro and political changes and the systemic or evolutionist approach. Obviously, these three types of arguments are interrelated and cannot be seen in isolation. For example, asymmetric information creates a natural barrier, resulting in a competition deficit in many service markets with consequences for productivity and innovation; at institutional level (government), these facts are insufficiently recognized, and for this reason, pro-innovative and pro-competitive actions have thus far been underdeveloped.
We conclude from Figure 1, that it is merely the interplay of arguments that could lead to a policy strategy or policy instrument. Before presenting the various types of policy strategies and for the sake of clarity, we would first like to summarize the main conclusions of this chapter:

- There are arguments for service innovation policies and instruments on multiple levels (macro-economic, market failure, systemic failure). It is the interplay of these arguments that makes the service innovation rationale;
- Although market failure argumentation is mostly used to explain under-investment by firms in R&D and technological innovation, we argue that this is not exclusively the case. Some forms of market failures (e.g. relating to the protection of intellectual property) prevent service providers from innovating.
- Market failure arguments differ: failures in network services (e.g. telecommunication) are different from the failures in knowledge-sharing services (e.g. consultancy and other business services).
- A systemic failure perspective demands a service innovation policy that goes beyond R&D and innovation policy; aspects of educational policy and regulations need to be adjusted.
3 Putting policy strategies on the agenda

3.1 Introduction to policy strategies

We just considered why governments might want to pay attention to service innovation in the previous chapter. This was based on a theoretical discussion about market failures, system failures and macro-economic arguments. Now we will focus on how policy makers go about putting service innovation on the agenda. Instead of closely examining specific schemes, we will describe so-called policy strategies. In other words, what visions do national governments have on: (i) the subject of service innovation, (ii) the importance of service innovation for their economies, and (iii) how they could drive service innovation? Our analysis of service innovation policies is based on desk research, using policy documents, advisory documents and analyses of supra-national organizations like the OECD and the recently finalized EPISIS project (see box 6). Later on we will describe how these visions are operationalized (or not) and what policy instruments are used.

3.2 An overview of policy strategies

Over the past decade, policy makers have begun to pay more and more attention to service innovation. We argue here, that in order to have a service innovation policy strategy, there first has to be a certain level of awareness. After all, acknowledging the importance of service innovation is what triggers a policy development trajectory and a clear vision on how to set it in motion. In several studies, governments as well as the OECD (2005; 2006) have attempted to understand the role of services in developed economies. Increasing the level of awareness is one recommendation by the EU Expert Panel on service innovation in the EU (see box below), and especially in recent years, several analyses have made a plea for the actual development of service innovation policy. The apparent simultaneity in the efforts to explore service innovation policy indicates that various countries are following each other’s activities closely. In the meantime, numerous member states have developed their own vision, or asked an agency or consultancy to conduct research on service innovation. Evidence-based service innovation policies are mostly absent because hardly any formal, public process and impact evaluations are available, as we will discuss in further detail in chapter 5.

In addition, we see a shift in the scope of policy reports from valuing the importance of service sectors to the importance of service innovation in a broader sense. There is an increasing understanding of the concept of service innovation and its effect on economic development (and indeed in addressing wider societal challenges). Consequently, more sophisticated measurements are being developed to monitor service innovation and its effects. We are now aware that the more classic measurements of innovation are not all suitable for measuring service innovation. As The European Commission emphasized in 2009: “The design of new policies and instruments in support of services innovation requires a clear, evidence-based approach and a better understanding of the services innovation phenomenon. Different and more comprehensive measures of firms’ innovation activities would be needed to improve our understanding of how, and where, services innovation takes place. The current Community Innovation Survey offers the best available statistical information on services innovation, but it does not provide the full picture” (EC, 2009, p. 82). Therefore, it does not come as a surprise that the OECD (NESTI-TIP, INNOSERV), the European Commission Expert Panel for service innovation in the EU [see
Box 4, EPISIS [see box 6], and INNOSER/KNOWINNO all put greater effort into measuring service innovation and gaining a better understanding of service innovation policies and their impact.

**Box 4. The Expert Panel’s recommendations for service innovation in the EU (2012)**

An important contribution to the service innovation policy debate in Europe is the publication of an expert report, commissioned by the European Commission (2011). The expert panel (chaired by Allan Mayo) emphasized the transformative power of service innovation and recommended taking service innovation into account when debating innovation policy and industrial policy in a broader sense. The expert panel came up with five recommendations:

First of all, “[to] raise awareness of the transformative potential of service innovation and its contribution to EU competitiveness.” (p. 5). The panel advised introducing a European Service Innovation Center (ESIC) to bridge the gap between researchers, policy makers and firms related to service innovation. The Commission adopted the idea of ESIC, and this center or rather virtual network organization, will be operational by the end of 2012.

Secondly, governments (at various levels) should participate in Innovation Partnerships and Large Scale Demonstrator programs. The expert panel said this would: "strengthen political leadership at the European, national and regional levels."

It recommended building new competitive business from service innovation and improving the ability of policy-making to do so. The European Creative Industries Alliance is given as an example.

In its fourth recommendation, the panel underlined the importance of dedicated programs in support of innovative services. Examples given include the Service Gazelles Programs that target better interaction between service providers (e.g. designers) and manufacturing companies.

The final recommendation is to promote the application of service innovation to meet societal challenges.

We present our analysis of service innovation policy strategies in a selection of OECD countries below. Table 3 is an overview of recent policy reports, strategies and visions on service innovation policy and contains examples rather than an extensive list of relevant strategies in all member states.
The objective is to develop an action plan for future R&D and service innovation activities in Austria, based on domestic needs.

The study highlights how the existing funding system fits services innovation. It focuses on the structure, capabilities, regulation and framework conditions, innovation activities and potentials of the Austrian service sector. The objective is to develop an action plan for future R&D and service innovation activities in Austria, based on domestic needs.

Examples of world-wide policy strategies (Source: Dialogic based on a development of the OECD inventory of service R&D and innovation relevant policies in DSTI/EAS/STP/NESTI/TIP(2012))

<table>
<thead>
<tr>
<th>Country</th>
<th>% market services</th>
<th>Strategy / Report</th>
<th>Responsible</th>
<th>Description/Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>51.8 %</td>
<td>Australian Public Service (APS) Innovation Action Plan</td>
<td>The Australian Public Service</td>
<td>The plan provides the platform and agenda to build an innovative culture in APS by supporting creativity, responsiveness and delivery excellence. Focus lies on own innovation and procurement of innovative solutions.</td>
</tr>
<tr>
<td>Austria</td>
<td>47.5 %</td>
<td>Service innovation landscape in Austria</td>
<td>Austrian Research Promotion Agency</td>
<td>The proposed policy aims to increase the turnover of high-tech service industry by more than 18% in 2015. By 2020, the high-tech service industry system has to be well established and play a significant role in boosting domestic demand, generating jobs, fostering the growth of emerging industries and optimizing the country’s industrial structure.</td>
</tr>
<tr>
<td>China</td>
<td>32.5 %</td>
<td>Notification on promoting the development of high-tech service industry (2010/2011)</td>
<td>National Development and Reform Commission</td>
<td>The study highlights how the existing funding system fits services innovation. It focuses on the structure, capabilities, regulation and framework conditions, innovation activities and potentials of the Chinese service sector. The objective is to develop an action plan for future R&amp;D and service innovation activities in China, based on domestic needs.</td>
</tr>
<tr>
<td>Denmark</td>
<td>n.n.</td>
<td>Inside Service Innovation (2008)</td>
<td>Danish Agency for Science, Technology and Innovation</td>
<td>Guidelines for restructuring the service sector with the overall goal to develop a modern service industry; integration of manufacturing and service sector through development of product-oriented services.</td>
</tr>
<tr>
<td>Finland</td>
<td>42.8 %</td>
<td>Services 2020 – Competence in the International Service Society (2004-2006)</td>
<td>Employers' Confederation of Service Industries (PT)</td>
<td>Long-term project by Confederation of Finnish Industries (EK), funded by Ministry of Education and the European Social Fund (ESF). The project aims to anticipate the changes that will take place in the private service industry and the operational environment of individual service sectors, and examine how these changes will be reflected in competence requirements.</td>
</tr>
<tr>
<td>France</td>
<td>52.9 %</td>
<td>Action plan for innovation in services</td>
<td>Ministry for Economy, Industry &amp; Employment</td>
<td>Strategy for anticipating future societal challenges, for example by deploying “forward-looking projects.” Technology-focused approach, but with attention to the role of service innovation (in specific sectors and technological domains), also evidenced by a special taskforce on service innovation.</td>
</tr>
<tr>
<td>Germany</td>
<td>47.3 %</td>
<td>High-Tech Strategy 2020</td>
<td>Federal Ministry of Education and Research (BMBF)</td>
<td>Strategy to create jobs and improve growth infrastructure. In consecutive policy packages, Korea announced plans to improve its service sector by investing in tourism and education, emphasizing deregulation of industry, streamlining the regulatory system, and promotion of human resources and R&amp;D in the service industry.</td>
</tr>
<tr>
<td>Ireland</td>
<td>46.5 %</td>
<td>Catching the wave: A Services Sector Strategy (2008)</td>
<td>Minister for Enterprise, Trade and Employment</td>
<td>To reduce uncertainty, DASTI initiated a process whereby Danish actors take a closer look at what is happening inside service companies when they innovate, the drivers of service innovation and what hinders service companies from innovating. Aim of the report is to raise the awareness of how to better support services.</td>
</tr>
<tr>
<td>Japan</td>
<td>51.2 %</td>
<td>Towards Innovation and Productivity Improvement in Service Industries (2007)</td>
<td>Ministry of Economy, Trade and Industry</td>
<td>Long-term project by Confederation of Finnish Industries (EK), funded by Ministry of Education and the European Social Fund (ESF). The project aims to anticipate the changes that will take place in the private service industry and the operational environment of individual service sectors, and examine how these changes will be reflected in competence requirements.</td>
</tr>
<tr>
<td>Norway</td>
<td>33.6 %</td>
<td>Innovation in services: typology, cases and policy approaches</td>
<td>ECON, for the Ministry of Trade and Industry</td>
<td>Given the economic dominance of services, innovation policy design requires additional knowledge on what innovation in the service sectors is all about. The study identifies important drivers and obstacles to innovation in the service economy and proposes a series of policy measures.</td>
</tr>
<tr>
<td>South-Korea</td>
<td>39.6 %</td>
<td>Service PROGRESS (2009)</td>
<td>Ministry of Strategy and Finance, Crisis Management Council</td>
<td>Strategy to create jobs and improve growth infrastructure. In consecutive policy packages, Korea announced plans to improve its service sector by investing in tourism and education, emphasizing deregulation of industry, streamlining the regulatory system, and promotion of human resources and R&amp;D in the service industry.</td>
</tr>
<tr>
<td>Sweden</td>
<td>46.1 %</td>
<td>Strategy for Greater Services Innovation (2010)</td>
<td>Ministry of Enterprise, Energy and Communications</td>
<td>This strategy is the basis of an adaptation of broader framework conditions, to better capitalize on and develop the opportunities in the service economy. It also aims to improve conditions and knowledge development concerning service innovation.</td>
</tr>
</tbody>
</table>

* Value added by market services (2008), as a percentage of GDP (OECD, STI Scoreboard, 2011)
The information in Table 3 shows that:

- The Austrian and Chinese reports are initiated by their national governments, but the others are mostly produced by a ministry in sectors such as economy, education, research, trade, enterprise and innovation. Some agencies did contribute to the studies (e.g. DASTI and Forfas). The Finnish document is an exception in that it is initiated by enterprises.
- About half of the 15 listed reports are still at the awareness stage, given the exploratory nature of the studies. The reports from the UK, Norway, Japan and Denmark mainly aim to increase the general understanding of service innovation. Some do make policy proposals, but mostly contribute to the stage of agenda setting. The Austrian study is about developing an action plan, something which Australia, China and France have already achieved. The documents from Germany, South-Korea and Sweden come closest to detailed strategies.
- The USA and the Netherlands are not nationally oriented towards service innovation as embodied in an action plan or strategy. The example of Finland’s project is government funded, but also lacks a dedicated vision (not per se required to develop various service innovation policies and instruments). However, service innovation is certainly part of the Finnish innovation policy. Box 5 describes how this country has developed a sophisticated attitude, whereby service innovation is more or less integrated in its entire systemic approach to innovation that is typical for Finland.

**Box 5. How the Finns silently integrated service innovation in their overall innovation strategy**

Of all the countries within the EU, Finland probably has the longest track record in service innovation policy. Since the late 1990s, efforts at the strategic policy making level were initiated to facilitate service innovation. This has significantly improved existing instruments and structures which were useful for service innovators (assimilation policy); it has redefined the role of central actors within the innovation system such as the Funding Agency for Technology & Innovation (TEKES), and has led to a number of programs focusing on service innovation. The best known, but certainly not the only one, is the SERVE program. Recently, the TEKES program focusing on tourism and leisure was extended with a comparable program on social and care systems.

How can we explain Finland’s success in making the innovation system more responsive to services? A thorough analysis is required to fully answer this question, however, we can identify several factors that clearly had a positive influence on the shift to demand driven policy:

- The underdeveloped service sector in Finland, at least from an international perspective. This may be due to: the lack of competition, a suboptimal labor market, insufficient government support for developing service markets, the suboptimal scale (in terms of population and population density) to launch new services, lack of entrepreneurship in the service sectors (or at least a certain crowding-out effect due to abundant focus on the ICT sector), as well as an underdeveloped demand for services (Kuusisto and Kotala, 2007, p. 8).
- The huge and on-going emphasis on modernizing Finland’s knowledge and innovation system. Ever since the severe economic crisis in the early 1990s, the Finnish innovation system and the knowledge economy in general were at the top of the political agenda. Unlike the manufacturing sector that has been modernizing rapidly, the Finnish service sector remained somewhat ‘behind’.
- From the late 1990s onwards, there has been specific focus on services and service innovation at the highest political and administrative levels. For example, concerning the financing of technology, Ministry of Trade and Industry plans for 2007-2011 indicated that “a special emphasis is laid on enhancing innovation and productivity in the services sector” (cited by Kuusisto and Kotala, 2007, p. 26).
- From an early stage, knowledge and innovation were linked to societal challenges such as healthcare, sustainability and social well-being, a trend that has only recently been identified within the rest of the EU. The role of users and their demands were questioned earlier in Finland.
than in most other countries. While the toolbox has been merely supply driven, Finland’s innovation policy has been demand driven or horizontally organized since the mid-2000s. The link between technological and social innovation has always been important traditionally. For example, the Ministry of Social Affairs and Healthcare plays a key role in revising public services in social security and healthcare and has initiated multiannual programs for this purpose. The Ministry of Internal Affairs has launched a program to modernize municipalities and the services they provide.

- Multiple key actors in the Finnish innovation systems have been gradually adapting to the demand driven approach. TEKES, as both strategist and executor of innovation policy and programs, has focused increasingly on services and service innovation in terms of strategy, policy making, and also budget. The aim to improve service provision competencies featured prominently in TEKES 2008 Strategy. The same holds for parties like the Academy of Finland, a major contributor to the creation of Finnish innovation and scientific policy. The Academy has had an explicit role in linking socio-economic research to service innovation. Other actors in the Finnish innovation system are moving in the same direction. As such, Finnish Industry Investment – a public provider of venture capital – has been increasingly investing in service startups. In addition, the Technical Research Centre VTT has also clearly shifted its focus from technology to innovative services and business models.

- All kinds of investments have been made to support service innovation. This can be seen in the various studies on service innovation, sometimes as part of the SERVE program. Typical framework policies such as foresight exercises focus on services and service innovation. In 2005-2006, TEKES and the Academy of Finland held one such exercise, Finnsight 2015, where service innovation was a key topic. A dedicated foresight-trajectory, Services 2020 – Competence in the International Service Society, organized by the Finnish employers association EK, discussed the role of services and the implications for required competencies.

Finland adjusts its innovation system in numerous ways to support service innovation. Besides revising the regular R&D programs and developing specific service programs, of which SERVE is an example, Finland has all sorts of systemic policies. For example, an extensive network of actors and measures concerning financing and export promotion was set up, which included services. Expert service packages have become available for SMEs. Furthermore, since 2008 Finland has demonstrated a visibly active approach to public procurement policies and employed various schemes to internationalize the service sector. The EU Service Directives were applied to make changes to the innovation system, although regulation is used to a lesser extent to foster service innovation. Also, an instrument FiDiPro (Finland Distinguished Professor Programme) was established for a 2-5 year period, to attract talented foreign scientists and to retrieve Finnish talents who had been working in other countries. Finally in 2006, TEKES published a manual for IP management in service innovation in response to the common opinion that appropriation of the benefits of service innovations was harder, and service innovations were easier to copy than innovations in goods.

In the next section we present some stylized conclusions relating to service innovation policy strategies.

### 3.3 Service innovation policy strategies: main conclusions

As follow-up to our analysis of policy strategies in the previous section, we are now able to present strategic conclusions on how OECD countries develop service innovation policy strategies.

**There is increasing policy focus on service innovation**

Looking at the policy reports in Table 3, we notice that most policy makers refer to their service innovation policy strategy as ‘something new.’ We also see that most of the policy reports have been published in the past 4 to 5 years, which implies an increasing policy focus on service innovation. However, we distinguish countries that have been developing service innovation policy for a longer period. Some started in the late 1990s already, for example Finland and Germany. Although South Korea only recently underlined the importance of service innovation policy, like other countries, it is catching up fast. One
reason might be that most strategy documents include references to other national policies. The Korean Science and Technology Policy Institute, for example, reported in 2008 and 2009 how their government was taking steps to keep up with other OECD countries that invest in services. Thus we have learned that policy makers are benchmarking their own situation and policy options with others, and so policy learning in this domain is rather intensive. Supra-national initiatives such as EPISIS (see box 6) are part of this policy learning.

**Box 6. EPISIS - European Policies and Instruments to Support Service Innovation**

Between September 2009 and August 2012, a consortium of European countries collaborated to develop service innovation policy recommendations. This project, EPISIS INNO-Net, was financed by the European Commission’s DG Enterprise & Industry and coordinated by TEKES, the Finnish Innovation Agency. The project’s main objective was “to facilitate transnational cooperation between policy-makers and innovation agencies in the field of services innovation through parallel policy, strategic and operational level activities.” These activities included investigating framework conditions, skills and capabilities, as well as providing an open platform for discussion on policy recommendations and testing new policy approaches. Although it focused on EU Member States, the project also explored good practices in China, Korea and the United States.

The EPISIS project encompassed five work packages (WP):

**WP1: Development of policy recommendations to support service innovation (TEKES)**

This work package aimed to facilitate trans-national cooperation between European innovation policy makers by identifying emerging needs, policy challenges and new policy concepts concerning support for service innovation. The work was carried out by six task forces, the last including an extensive benchmark of current service innovation policies in 15 countries:

- TF1 Service typology (TEKES)
- TF2 Impact analysis and indicators (DASTI)
- TF3 Integration of services and technologies (PT-DLR)
- TF4 New skills and competencies to manage innovation in services (VINNOVA)
- TF5 Internationalization of high-growth service companies (BIS)
- TF6 Benchmarking national service innovation policies and measures (TEKES)

**WP2: Annual conferences (DASTI)**

This group arranged an annual policy-oriented conference to facilitate the exchange of ideas, information and best practice on new and more efficient support mechanisms for service innovation.

**WP3: Improving knowledge transfer and service innovation (PT-DLR)**

WP3 initiated a common European learning and exchange process to draw up a strategy for the successful transfer of knowledge in the “service” innovation field. It built on a comprehensive analysis and systematic documentation of both existing and new transfer measures and instruments.

**WP4: New forms of support for open and user-driven innovation management (VINNOVA)**

This aimed to put more focus on innovation management, developing European policies and activities to support innovation management in new forms of service innovation (for example user-driven innovation, lead-user initiatives and open innovation). Also develop innovation management support tools to open up new forms of service innovation and encourage European collaboration for firms adapting to these new forms.

**Work Package 5: Strengthening the policy framework for innovation in services (BIS)**

Examined the policy framework in selected knowledge intensive service (KIS) sectors, to better understand the business perspective/barriers to innovation; also identified the most appropriate forms

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13 This information is based on EPISIS final reports: [http://www.tekes.fi/en/community/EPISIS_reports_and_publications/1361/EPISIS_reports_and_publications/2871](http://www.tekes.fi/en/community/EPISIS_reports_and_publications/1361/EPISIS_reports_and_publications/2871)
of intervention to promote service innovation by creating a portfolio of case studies to demonstrate the efficacy of policy measures.

The key lessons learned from the EPISIS project are summarized in four statements, the ‘Helsinki Principles’ 14

- Service innovation represents untapped potential
- Think People First in service innovation
- Service innovation makes an impact on global and local levels
- Service innovation can yield more with fewer resources

To support policies in practice: focus on macro-economic arguments

In practice, when it comes to argumentation for supporting service innovation, it seems that references to market failures are rare. This might be a missed opportunity, since we previously discussed that the market failure argumentation framework can be used as a rationale for having service innovation policy in the first place.

The rationale for such policy is based on macroeconomic or systemic reasoning, based on the fact that many studies are primarily inspired by acknowledging how important services are to national economies. Typically, contextual arguments refer to the importance of services for fulfilling national needs (e.g. in Austria, Ireland, Germany) or are simply based on the fact that services account for such a large part of the economy that it must be worthwhile to investigate how to improve productivity and benefit from this (e.g. Denmark, Korea, Norway, Japan, France). System-oriented policies, on the other hand, tend to point out the importance of services for other elements of the economy (e.g. China). As stated in section 2.3, various rationales are interrelated. Many macro-economic inspired policy reports highlight the barriers to service innovation which include low innovation capabilities and lacking or underdeveloped infrastructure (systemic notions) as well as the lack of scale economies (a market failure notion).

Market failure argumentation is perhaps the missing piece of the puzzle to really take off with service innovation policies and might explain why some countries seem to be ‘stuck in analysis.’ The market failure framework is accepted in governmental decision making and could help convince politicians and stakeholders about the necessity of service innovation policy. This could in turn create the awareness that is necessary for an (explicit or more implicit) service innovation policy strategy and the operationalization of that strategy into specific instruments or policy interventions, as we will discuss in the next chapter.

No unanimity about the need for specific service innovation policies

Despite the growing consensus that services are of key importance for the economy, there is no wide consensus on whether actively supporting service innovation is an efficient and effective way to achieve economic targets such as growth of GDP and employment. Currently, a dominant opinion is that services should not be overlooked in policy, but only some countries go further than extending their traditional strategies to services. Korea and the UK have explicitly formulated service innovation policy strategies, whereas the USA and the Netherlands are examples of member states that have not developed any service-focused strategy at all. However, some countries have introduced concrete service innovation schemes which we will describe in the next chapter. We conclude here that dedicated instruments do not always follow a specific strategy route and can also be the

outcome of a more generic debate on innovation policy or developed in a rather ad hoc way.

Interestingly, Norway and especially Sweden have developed strategies devoted entirely to service innovation such as “Strategy for greater service innovation.” Finland on the other hand, chooses framework strategies in which services are entirely integrated (see box 5). Although Finns acknowledge the importance of services, they have not formulated a national policy strategy dedicated to this issue.

As a result of this lack of unanimity, we see that several countries follow a piecemeal process: it starts with the formulation of a strategy document, the broadening of existing innovation policies and experimenting with specific instruments. This is a process of trial and error, which we do not necessarily perceive as a ‘bad’ development. It is part of the policy making process that we regularly see in new policy domains such as public procurement, greening of industry, social responsible entrepreneurship and in better established policy domains. Even traditional innovation policies tend to shift every now and again.

Servitization, ICT and service innovation: crucial for broader innovation policy

The integrated view is that local services are highly related to manufacturing sectors, something in which the Nordic countries and Germany excel. Also in Asian member countries like China, Japan and South-Korea, service innovation is often seen from a technology perspective. In China, the government delivered most services and the proportion of market services is still very modest (32,5%, see Table 3), which will affect service innovativeness. The Chinese government’s concept of service innovation is mostly geared to high-tech services. In essence, this is similar to the ‘servitization’ driving service innovation policy in the Nordic countries, where dedicated efforts have been going on for some time already.

Moreover, common for many countries is that there is a lot of policy focus on new ICT, which is a major driver of service innovation (Cainelli, Evangelista, Savona, 2004). In Taiwan and South-Korea, ICT Living Labs function as platforms for innovation in digital services. Besides supporting e-government and e-health, Sweden has a Digital Agenda to make data accessible for ICT enterprises as well as a Broadband Strategy for improving the adoption of fast internet. A similar initiative in the Netherlands is Digitally Connected, which also improves the conditions for service innovation.

Service innovation can help to face major social challenges

Like other countries, the USA and the Netherlands have strategies for certain service domains such as health and education, rather than specific service innovation policies. In this respect, some countries’ policies are designed to help solve major social challenges like health, safety, sustainability and mobility etc. As these challenges are more in the public domain, governments face fewer problems explaining their role there. This possibly explains the move in Germany from dedicated to more generic service innovation programs (technology programs where service innovation is built-in as well as broader social innovation programs).

With several countries like Germany shifting their focus from economic growth to social issues, they are automatically taking more interest in services. Governments realize that new solutions are not just a matter of better technology, but depend on many organizational issues as well. A concrete example is Korea’s intention to develop sectors around ‘Green Services’, which encompass “energy streamlining services, energy diagnosis & guidance services, chemical substance management services and green home manage-
ment services”. From this perspective, support for service innovation is often a good match with seeking more sustainable forms of economic activity.

**Service innovation in the public domain: the government is as much service provider as launching customer (innovative procurement)**

Another reason for the focus on service innovation stems from the fact that governments themselves provide services. Australia for example has developed a plan for improving its own services and in the next section we will see that the UK also implemented a policy instrument to improve public services. These types of strategy are essentially different from policies aiming to improve service innovativeness amongst enterprises or at the ecosystem level. Relevant policy debates are not which type of innovation or sector to support, but whether services should be private or public.

Besides providing services, governments also make use of business services such as consultancies, ICT service providers and public transportation services. We see a growing debate about why governments are able to drive innovation by their own procurement. The ‘public innovation procurement initiatives’ in Sweden and ‘small business innovation research’ policies for example in the UK and the Netherlands, are examples of programs that governments use to support enterprises developing innovative solutions. In both cases, these solutions can involve new services, as we will discuss later.

**In practice, designing and executing concrete service innovation schemes may be more of a bottleneck than formulating strategies**

Our discussion demonstrates how member states reported plenty of reasons to concentrate on service innovation policy. The overall impression, however, is that many countries are struggling to cope with executing these implicit or explicit strategies. Although service innovation is on most policy makers’ agenda, most of the examples listed in Table 3 are merely orientation research or intentions to formulate actual instruments, rather than well-defined strategies translated into dedicated policy mixes. The Nordic countries and Germany have not only analyzed service innovation for several years now, but literally invested in the topic. Compared to other member states, they realized relatively early, that they had to shift the originally industry-based focus of their economies. Today, the Nordic countries tend to have more elaborated plans than those who have only recently acknowledged the importance of services. This is for example the case in China: the Chinese State Council released notifications and guidelines on service innovation, yet thus far, hardly any have resulted in the implementation of specific policy instruments; although we should add that Asian countries are known for their ability to progress from awareness to action relatively swiftly. Overall, the above information suggests a long incubation time for the process from awareness to policy formulation and implementation.

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15 This is one reason why there is a more developed infrastructure for services and service innovation education and research in these countries than in others.
4 An overview of policy instruments

4.1 What policy measures can we find

In the previous chapter we have seen that well-defined strategies for service innovation are still scarce in many member states. A low number of explicit strategies could imply an absence of policy measures. However, this is not necessarily the case, as service activities are spread all over the economy and many policy instruments have a direct or indirect impact on service innovativeness. Among these, we find policy measures dedicated to R&D and innovation as well as policies and instruments focused on education, competition, trade and entrepreneurship. Therefore we can encounter several types of policy instruments that (mostly implicitly) affect service innovation, even in countries with no national vision on this subject.

4.2 How do we distinguish innovation policy instruments

Before reviewing the policy instruments implemented by OECD member states, we will first explain a useful classification scheme. The literature on service innovation policy emerging over the past decade has proposed classifications to analyze the various ways service innovation is implemented in policies. A common classification differentiates between an assimilation approach, a demarcation approach and a synthesized approach to services (Gallouj, 1994; Coombs & Miles, 2000) as shown in Table 4. This perspective has been translated to service innovation policy in 2006 (den Hertog et al., 2006), after being applied and enriched in many studies (den Hertog et al., 2008).

The main idea behind the assimilation approach is that services and service innovation can be analyzed with concepts and tools applied and developed in the context of technological R&D and innovation in mainly industrial sectors (Tether, 2005). In order to facilitate service innovation, existing instruments are modified by increasing their service sensibility. The demarcation approach, on the other hand, denotes instruments developed with the specificities of service innovation and its relevant processes in mind. The service innovation characteristics in Box 2 (chapter 1) form the legitimization for developing fundamentally distinct indicators, theories and policies, rather than adapting existing ones. This approach involves typically vertical policy instruments that are specific for individual service sectors. Finally the synthesis approach refers to policies and instruments in which technological and service innovation are integrated in a systemic view on innovation. Instead of looking at service sectors, usually based on classification systems, it focuses on service activities, irrespective of the industry or sector. The synthesis or systemic approach acknowledges that service innovation activities are often intermingled with technological innovation. Not only at the sector level, but even within individual enterprises, possibly classified as manufacturing firms, we often find activities of a technological nature alongside service activities. Instruments in this category aim to create structures and incentives that optimize the functioning of the entire innovation system. Especially in the synthesis approach, the instruments include measures that go further than just R&D and innovation policy.

Just like scientific research on service innovation increasingly follows the synthesis approach, we see that this approach to service innovation policy is gaining momentum as well. This trend illustrates how some instruments capture all kinds of innovation without making any distinctions, such as voucher schemes or public procurement. This indeed fits in with the synthesis approach, whereby separate policies for technological and service
innovation are abandoned. Typically, these horizontal policy measures apply to all types of innovations and sectors. However, some new instruments applying the synthesis approach do acknowledge differences, but focus explicitly on the interrelationships between specific technological and service innovation, which is often the case with cluster policies. Contrary to the previous approach, those instruments are not sector neutral, but geared to specific technology-service systems. For example, the innovation program ‘Service Innovation and ICT’ (NL) was based on insights in how the two contribute mutually. Like policies (and for that matter theories) in the demarcation approach, smart specialized\textsuperscript{16} policies can be dedicated to a single sector, but differ in that they value an integrated approach of both technology and services in this sector. Another example is the ‘Green service innovation voucher for construction services’ (France). In order to capture the fundamental differences within the synthesis category, we distinguish between an embedded approach with a neutral or horizontal scope, and a smart specialized approach, in which service innovation is explicitly connected to goods or a technology-based innovation, most likely in a specific sector or cluster.

Table 4. Types of service innovation approaches (Source: Dialogic based on a development of the OECD framework for service R&D and innovation policy in DSTI/EAS/STP/NESTI/TIP(2012)4)

<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Assimilation</td>
<td>Services and service innovation are analyzed and supported by using or adapting concepts and tools developed for manufacturing and innovation in manufacturing.</td>
</tr>
<tr>
<td>Demarcation</td>
<td>Given the peculiarities of services and service innovation, they are analyzed and supported in ways that are fundamentally distinct from manufacturing-based approaches.</td>
</tr>
<tr>
<td>Embedded</td>
<td>The embedded approach includes horizontal policies that cover a wide range of sectors and activities. In doing so, it does not discriminate between technological and service innovation. The starting point is the functioning of the innovation system as a whole.</td>
</tr>
<tr>
<td>Smart specialized</td>
<td>The smart specialized approach values the interrelations between technological and service innovation, and compared to the embedded approach, is more focused. Often, this type of policy is dedicated to a specific sector or cluster, and acts on the multidimensional and systemic (open) nature of service innovation.</td>
</tr>
</tbody>
</table>

Based on the four approaches shown here, examples of policies that directly or indirectly influence service innovation are listed in Table 5 below. For each approach, we collected examples from various member states that show how the approach was applied. Again, this table is far from exhaustive. As with policy strategies, it is possible to identify policy measures that influence service renewal without explicitly focusing on service innovation. This applies to generic policies. They are certainly important and a list of policies with implicit effects on service innovation would be endless. Here, we focus mainly on policies that impact on service innovation, implying that those implicitly relevant for service innovativeness are underrepresented.

Besides classifying policy measures on the basis of their approach, we distinguished several dimensions. In the first place, each instrument in Table 5 is characterized by the policy priorities it covers, based on the categories of the EU Trend Chart Innovation Policy Classification System. Secondly, the analyzed policy measures are classified by their orientation. On the one hand, this includes the distinction between instruments focusing directly on service innovation versus those with an indirect impact. On the other hand, we show whether an instrument is directed towards the supply-side of innovation or if it aims to increase the demand for innovation. In the next section, we discuss our findings and conclusions for each dimension, reflecting on the various routes member states have taken to develop a service innovation policy.

\textsuperscript{16} Please note that in European innovation policy, there is another connotation of the term smart specialization, which refers to the specialization of regions.
<table>
<thead>
<tr>
<th>Service innovation approach</th>
<th>Name Policy instrument (country)</th>
<th>Characterization instrument</th>
<th>Fostering an innovation culture</th>
<th>Establishing a framework conducive to innovation</th>
<th>Gearing research towards innovation</th>
<th>Direct/Indirect</th>
<th>Supply-/Demand-oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assimilation</td>
<td>Research &amp; Development Promotion Act (NL)</td>
<td>Tax credit scheme (DFB) aimed at fostering R&amp;D effort. The scheme was in 2009 adapted to include ICT-based innovation in order to foster added service innovations.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Demand</td>
</tr>
<tr>
<td></td>
<td>Research Spending (AT)</td>
<td>A research scheme. As of 2006, a substantial part of the tax credit scheme is devoted to services.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Demand</td>
</tr>
<tr>
<td></td>
<td>Service Innovation Service Engineering (IP)</td>
<td>The platform by the Committee for Integrated Reform of Budget and Economy unites industry, academics and government for using (manufacturing) know-how to develop service practices.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Supply</td>
</tr>
<tr>
<td></td>
<td>Service Productivity and Innovation for Growth (IP)</td>
<td>Platform for testing new (often technology-based) services.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Supply</td>
</tr>
<tr>
<td></td>
<td>GLOBAL (UK)</td>
<td>A platform to support collaborative service research.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Supply</td>
</tr>
<tr>
<td></td>
<td>The Green service innovation voucher (JP)</td>
<td>The scheme supports innovation in the construction sector by providing funding vouchers (mainly to SME’s).</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Supply</td>
</tr>
<tr>
<td></td>
<td>Innovation program (NL): Services Innovation &amp; ICT</td>
<td>Cooperation of financial and creative sector to realize new ICT-based services, and service-based start-ups and alliances.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Demand</td>
</tr>
<tr>
<td></td>
<td>Creative Credit (UK)</td>
<td>Voucher scheme designed to encourage SMEs to innovate by purchasing services from creative businesses.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Supply</td>
</tr>
<tr>
<td></td>
<td>Horizon (NL): Breakthrough Measure (MD)</td>
<td>Support innovation by giving SME’s and start-ups access to designers and people centered design methodologies.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Demand</td>
</tr>
<tr>
<td></td>
<td>Large Scale Demonstrators (UK)</td>
<td>Experimental projects in which businesses are challenged to participate in innovations that respond to (often local) societal issues, often involving technological and service aspects.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Demand</td>
</tr>
<tr>
<td></td>
<td>Public service innovation lab (UK)</td>
<td>The lab is trialing innovative service solutions and bringing them to scale across national public services.</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>Demand</td>
</tr>
</tbody>
</table>

* These programs contribute indirectly to service innovation, unlike the actual centers/networks/subprograms.

**Table 5. Examples of policy instruments**
(Source: Dialogic based on a development of the OECD inventory of policy instrument to facilitate service R&D and innovation in DSTI/EAS/STP/NESTI/TIP(2012:4))
4.3 Service innovation policy instruments: main conclusions

Service innovation is supported through a wide range of policy instruments

Instruments for service innovation are not just R&D and innovation policies like funding or tax schemes. Many tools and initiatives are relevant for understanding and supporting service innovation – indirectly or implicit. For example: NESTA’s innovation index tries to capture service innovation, and there is a plethora of education and research efforts aimed at services. The variety in instruments can be derived from the range of policy priorities they cover, as shown in the columns in table 5.

Contrary to industrial innovation policy, it is difficult to find policy instruments linked to framework-level measures. Policy measures explicitly concerning service innovation are mainly found in categories fostering innovation culture and gearing research towards innovation. For instance, relatively many of the identified policy instruments consist of specific centers or programs that focus on the development and diffusion of management principles, strengthening private R&D or supporting SMEs.

Many policy instruments spurring service innovation also aim to support SMEs, or happen to attract mainly SMEs. Obviously, this is because many are service providers rather than manufacturers. Other policy instruments with service innovation relevance aim to valorize university knowledge or regional employment. The variety of policy measures and their targets match the diversity in institutions initiating or implementing the instruments. Relevant actors include the ministries involved, but also regional governments, universities, incubators, innovation agencies or “independent executive Non-Departmental Public Bodies” like Technology Strategy Board in the UK, and private companies. Especially the systemic approaches seem to involve more varied sets of actors, possibly because they sometimes focus on a social problem that is seldom related to a narrow set of firms and institutions.

Similar instruments, different approaches

All in all, the wide range of possibilities to support service innovation offers a varied policy-menu. One way to analyze how member states are shaping their policy mix is by looking at the type of instruments they utilize.

In Figure 2, the analyzed policy examples are grouped into six general types of instruments (see OECD STI Outlook 2012). These have then been plotted to distinguish goods-based and service-based policies on the horizontal axis and focused versus systemic policy on the vertical axis. As we can see, this largely matches the four approaches to service innovation policy and most individual policy measures fall under two approaches. Based on this observation, we conclude that similar instruments can be used for the same purpose and vice versa. We now discuss each of the instrument types.
**Innovation programs:** This category includes programs that are usually sector-specific (ICT, logistics, creative industries) or social themes (health, sustainability). The programs involve both research and funding of innovative projects, some exclusively devoted to services and service innovation (Serve, Finland; Innovation with services program, Germany). Others take a generic perspective and support all kinds of innovation in service sectors. The Knowledge Transfer Networks (UK), Strategic Centers for STI (FI) and Top Sectors (NL), are examples of programs in which influence on services is embedded in individual measures, respectively: in a network, center or top sector. Sometimes these measures focus more explicitly on ICT, for instance the Dutch innovation program for service innovation and ICT.\(^\text{17}\)

**Service center / cluster:** Table 5 includes service centers in various member states. In Japan and China, they come under the assimilation approach, based on manufacturing practices (Japan) and/or focus on high-tech services (China).\(^\text{18}\) The Danish, Norwegian and Dutch centers are explicitly dedicated to service innovation, which is why they are included under the demarcation approach. The French center Nekoé is certainly service-specific, but comes under the assimilation approach, as it is part of a greater innovation program with a goods-based logic.

\(^{17}\) This program has not been continued in the new top sector approach, although there are other noticeable service components such as the creative industries and logistics, both with an important ICT component.

\(^{18}\) Korea also has a 'Service Innovation Research Team', but details about its activities are not known.
**Service labs / experiments**: Service labs, like Service Sciences Factory (NL) and SERVlab (D) strive to develop new service concepts, internally or together with businesses. A different approach is taken by the labs that do not primarily focus on services, but on resolving social issues. Recently some examples have emerged in the UK, which used to have predominantly sector-neutral policies. The ‘large scale demonstrator’ approach, aimed at smart, sustainable and inclusive growth, involves demonstrators who belong to either systemic approach, as they are mostly complex combinations of goods, technologies and services. In several countries, and quite intensively in Finland, experiments were conducted with Living Labs. These also generate and demonstrate innovations that tend to have service relevance.

**Innovation vouchers**: Voucher schemes apply to services in distinct ways. General schemes (Austria, Slovakia, Ireland) do not distinguish between technological or service-oriented SMEs; both are eligible to use a voucher. The green service innovation vouchers (started in France) apply specifically to service providers in the construction sector who can use the voucher to develop a service or technology-based innovation. The service-specificity of creative credits works the other way around: they are available for all types of SMEs, but can only be used for purchasing creative services.

**Tax credits**: Existing schemes in both the Netherlands and Austria have been adjusted to cover (some) service innovation activities or sectors. A specific part of the Austrian scheme’s budget is dedicated to services. Tax incentives are a feature of Serve (Finland), a good example of a more service-dedicated policy instrument, although it was originally introduced as part of a wider technology program!

**Procurement**: Procurement policies tend to rely on horizontal (thus embedded) instruments, generating both technological and service innovations. Sometimes, the instruments support solutions in domains expected to yield a specific type of innovation. For instance, a ‘Biobased economy’ is less likely to yield service innovations than ‘Transportation and logistics’. However, the instrument itself does not usually have explicit preferences for one kind of innovation; an exception is the American SBIR, which is mainly aimed at technological solutions.

**Non-R&D&I policies**: Besides policies explicitly supporting R&D and innovation, other instruments are used, such as the numerous research programs initiated by universities without further government involvement. SU Innovation is an example that strictly speaking is not part of R&D or innovation policy, since it is an incubator. Where other incubators might implicitly discriminate against services, this Swedish institution serves as a platform for service innovators in need of support. Another non-R&D&I initiative is the Innovation Index developed by NESTA to achieve a broader set of innovation indicators that better cover service innovations. These types of measurements and indicators help us understand the importance and value of intangibles and service innovation.

**Novel service innovation policy instruments tend to contribute indirectly to service renewal rather than directly address service innovation**

An additional way to analyze the spectrum of policy instruments affecting service innovativeness is by differentiating policy measures that target service innovation directly, and those that deliver indirect support. This is a less differentiated perspective than the notions of ‘policy categories’ and ‘policy priorities’ discussed in section 4.1, but helps to create a clear and more general overview. Our selection of examples is distributed equally over direct and indirect measures (see Table 5). Instruments directly devoted to service innovation consist of the service-specialized centers and laboratories. In that sense, the service incubator and green service innovation voucher are by nature more original. When it comes to indirect measures, the spectrum of instrument-types is more varied. Here we
find traditional instruments like innovation programs, tax credit schemes and measurement initiatives, but at the same time, innovative instruments such as demonstrator experiments, living labs and creativity credits. This observation matches the finding that novel instruments are not directly - and often exclusively - targeting service innovation, (which we could expect in light of the increasing interest in service innovation), but are the ones incorporating services more systematically. This explains why it is so uncommon to use only policy instruments directly targeting service innovation. Another reason is that many member states assimilate existing policies formerly focused on manufacturing. This observation will be discussed in more depth later on.

Supply-side instruments address other failures than demand-side instruments

About half of our sample of policy instruments can be qualified as a demand-side instrument. The matrix in Table 6 reveals that mainly indirect instruments focus on creating greater demand for innovative services. These are typically general instruments (assimilated or embedded) that allow firms to raise funds or knowledge that is essential for engaging in innovation. As outlined in chapter 2, this can be a special challenge for service innovators, since existing policies tend to discriminate against intangible innovations. The category of indirect demand-side instruments also covers initiatives to realize ‘total solutions’, often with societal importance. Again, services run the risk of being neglected in projects that are outlined as technological from the start. Both kinds of instruments are suitable candidates for addressing this type of market failure. The Danish Service Cluster is one of the few examples of a direct demand-side measure we encountered. It unites various actors (including enterprises) to create collaborative innovation projects. By supporting firms to make agreements around the use of new concepts, this cluster is helping them overcome the threat of imitation and unwanted spill-overs, a common barrier for service innovators.

The examples of indirect supply-side instruments in Table 3 are all general innovation programs that in essence have not been designed with service peculiarities in mind. However, in all cases, service sectors or even service innovation are covered by at least one of the sub-programs. This implies that the sample of service innovation instruments mainly consists of supply-side measures that directly target service innovation. They tend to supply firms with research, management principles and to a lesser extent funding. The first mentioned types of resources are crucial, bearing in mind that service firms tend to lack service innovation skills. This is because service firms might invest insufficiently in employee training, for example when labor mobility is high. Direct supply-side instruments like ‘The innovation with services program’ (DE) and Serve (FI) address both mobility and funding, whereas service (research) centers are suitable instruments if capability failures are inhibiting service development.
### Table 6. Analysis of policy instruments with service innovation relevance

<table>
<thead>
<tr>
<th>Supply</th>
<th>Direct</th>
<th>Indirect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Service Productivity and Innovation for Growth (JP)</td>
<td>• Innovation programs / Top Sectors (NL)</td>
</tr>
<tr>
<td></td>
<td>• SERViLab (DE)</td>
<td>• Strategic Centers for STI (FI)</td>
</tr>
<tr>
<td></td>
<td>• Service Sciences Factory (NL)</td>
<td>• Centre of Excellence (FR)</td>
</tr>
<tr>
<td></td>
<td>• SU Innovation (SE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The Service Initiative (AT)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Serve (FI)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Centre for Service Research (JP)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Service Science and Innovation Centre (SE)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• AMSI (NL), Center for Service Innovation (NO)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The Innovation with services program (DE)</td>
<td></td>
</tr>
<tr>
<td>Demand</td>
<td>• Public services innovation lab (UK)</td>
<td>• Large Scale Demonstrators (UK), Living labs (FI)</td>
</tr>
<tr>
<td></td>
<td>• Green service innovation voucher (FR a.o.)</td>
<td>• Research Premium (AT)</td>
</tr>
<tr>
<td></td>
<td>• Service Cluster Denmark (DK)</td>
<td>• Public innovation procurement initiatives (SE)</td>
</tr>
<tr>
<td></td>
<td>• Small Business Innovation Research (UK, NL)</td>
<td>• SkatteFUNN (NO)</td>
</tr>
<tr>
<td></td>
<td>• Innovation vouchers (AT, SI, DK, IR, NL)</td>
<td>• Knowledge Transfer Networks (UK)</td>
</tr>
<tr>
<td></td>
<td>• Service centres</td>
<td>• Creative Credits (UK)</td>
</tr>
<tr>
<td></td>
<td>• and an innovation program / top sector)</td>
<td>• Humin (BE), Ice Breaking Measure (NO)</td>
</tr>
<tr>
<td></td>
<td>• and an innovation program / top sector)</td>
<td>• Research &amp; Development Promotion Act (NL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Centralizing and Flagship of Services (NL)</td>
</tr>
</tbody>
</table>

**Member states differ in coherence between policy strategy and instruments**

The overview of relevant policies is interesting when linked to the earlier discussion on national service innovation strategies (based on Table 3). By examining actual policy instruments, we are able to assess whether strategies are just symbolic, still explorative, or the true point of departure for actual implementation.

The coherence between strategy and policy instruments varies between member states. Two extreme forms are the absence of policy instruments in a country that has defined a strategy, and vice versa. To exemplify the first form: we previously mentioned that Finland does not have a pronounced strategy on service innovation. Table 5 as well as box 5 show that the country certainly implemented service specific instruments, like Serve and two STI Strategic Centers. Similarly, we noted that the Netherlands does not have any explicit service innovation strategy. *Table 5*, however, does contain several Dutch policy instruments that are relevant to service innovation such as service centers, the voucher scheme, and an innovation program / top sector). China shows the opposite: although the State Council has released many notifications and guidelines for service innovation policy over the years, actual instruments are still very rare.

A more nuanced view is required when both service innovation strategy and policy instruments are present. Japan is an example of a member state where objectives formulated in its national strategy are pursued through consistently designed policy instruments. In 2007, the Ministry of Economy, Trade and Industry announced a strategy to increase productivity in services. Both the activities of the Japanese Centre for Service Research and the platform ‘Service Productivity and Innovation for Growth’ seem to be very much in line with the original objectives. The two initiatives try to apply management practices from industrial innovation to service industries, making them assimilated policies.

Most countries, however, do not show such a level of coherence. In chapter 3 we noted that the majority of member states’ service innovation strategies is still explorative. This might explain why many countries implemented policy instruments via different...
approaches at the same time, instead of being consistent in their policy design. Frequently member states have a policy instrument that focuses exclusively on the peculiarities of services, while at the same time modifying an existing instrument or developing a more systemic policy measure. Sweden, for example, has an incubator which focuses not only on services (assimilation), and the Service Sciences and Innovation Centre (demarcation), but also on the public innovation procurement initiatives that do not discriminate between technology or services (embedded approach).

**No maturity model for developing and implementing service innovation policy**

Because many countries extend their efforts over different approaches (in parallel), the existence of a ‘maturity model’ for formulating a service innovation policy seems unlikely. Likewise, we cannot identify a member state whose trajectory of policy making could serve as role model. The current impression is that most countries are experimenting with various instruments in a rather evolutionary way, balancing new priorities with recent (country-specific) policy objectives. Even if service innovation suddenly gets higher on the agenda, policy makers are restricted by the political landscape, traditional policy orientation (hands-on or hands-off, focus on public or private sector), and the existing institutional set-up. Transforming existing instruments, perhaps by devoting a part of the budget to services, as with the Austrian Research Premium tax credit scheme, could be more feasible than implementing revolutionary new measures. Another way to gradually increase support for service innovation is by developing policy in domains where governments have a natural role. This is what happens where public procurement is used to develop new service solutions to social problems (Australia and the UK).

Policy rationales are highly relevant for examining member states that do not shift their strategy from one approach to another, but develop instruments through different parallel approaches. The macro-economic arguments for focusing on services are sometimes insufficiently convincing to gain broad political support, especially if the paradigm of market failures is popular among decision makers. This might lead to a discussion where different approaches are competing, resulting in a policy mix with multiple approaches.
Policy makers face the difficulty of identifying good practices for promoting service R&D and innovation. Overview studies are available that take stock of the various policy approaches alongside the design and implementation of policy instruments for furthering service innovation. However, as most of these instruments are relatively new, impact assessments are largely absent. Although incidental evaluations are available such as Creative Credits in the UK, it is remarkable that despite a few countries with a relatively longer track record in individual service innovation schemes that are substantial also in budgetary terms like Finland (Serve in 2006) or Germany (Innovation with Services program in 2006), formal process and impact evaluations are to our knowledge not (or not yet publicly) available. As previously mentioned, a complicating factor in service innovation policy is that most service innovation instruments are part of more generic schemes, such as tax credits and voucher schemes. These instruments are regularly evaluated, however, without a specific focus on the service innovation aspect. The "circumstantial evidence" available for these generic schemes or indeed for broader policy portfolios, is their scope or extent to which they are used by services. However, they are mostly sectoral, that is to say describe what percentage of firms involved belongs to service industries. Those studies miss out on service innovation in manufacturing (and servitization), and hardly take into account the specificity of service innovation. The results are merely given as a description.

Further evidence-based policy learning is needed to guide policy makers and meet country-specific needs. In essence we distinguish: (i) the need to measure service innovation and its link to economic performance (not directly to one policy scheme), and (ii) the need to measure the efficiency and effectiveness of service innovation schemes.

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19 In 2005 den Hertog and Segers reported on service firms’ use of national R&D schemes in the Netherlands. They looked at the tax credit scheme, a major innovation collaboration scheme and the newly introduced innovation vouchers (this scheme was terminated in 2010). The remarkably varying rates of participation by service firms indicated that a demand-steered and relatively accessible instrument like innovation vouchers (with high additionality) was more often used than the other two. Another example is Vinnova in Sweden that performed a qualitative analysis of current programs (and calls for proposals) to assess to what degree they support service-based innovation (Martinsson, 2011). One main conclusion was that “many of Vinnova’s program and call texts use language which, above all, favors technical innovation and goods production.” This report makes a plea for indicators to better measure the results of service-based innovation, not least for monitoring and evaluation purposes. However, most of this analysis is based on sector definitions of service firms. In our quick scan we did not find evaluation studies looking at project level to classify the ‘services component’ of the instrument. For example: a firm in a classic manufacturing sector can use a scheme (e.g. vouchers) to develop a service. The more superficial analysis at sector level would miss this information.
5.1 More sophisticated indicators for routines and outcomes

Not directly related to one specific instrument, governments normally monitor the innovative behavior and economic performance of firms in order to understand the dynamics in their economies and to find macro-economic arguments for public intervention (see chapter 2). In Europe, when it comes to innovation, this is done by Community Innovation Survey (CIS). We contend, however, that until now, these measurement instruments have not suited service innovation at all; like CIS, they are biased towards measuring technological innovation or innovation in manufacturing firms. This is because:

- Most instruments start with a sectoral approach. Consequently, in the analyses, ‘classic’ manufacturing sectors are compared to services sectors, without taking into account our previous conclusion that also manufacturers benefit from service innovation. So, service innovation is not solely reserved for firms in classic service industries and service innovation is certainly not the equivalent of innovation in services firms.
- Classic innovation indicators do not fully match the characteristics of services and service innovation. For example, most indicators are still derived from the notion of a centralized intra-organizational source for innovation (an R&D department) and focus on new technologies instead of the combinatory nature of service innovation.

Up to now, we have seen some tools based on ‘classic’ innovation indicators (e.g. the number of FTE working on R&D activities) that are used in service industries, based on NACE codes. Alternatively, we could measure more at firms’ micro-level: look closer at how organizations really create new services and how they benefit. In that case, we would have to examine organizational behavior, organizational routines and the more soft sides of innovation; just looking at the total investment in machinery and personnel for R&D is not sufficient to capture service innovation and service innovation processes. Examples of instruments can be found in DAMVAD (2010) and the current research project ‘United We Stand’ run by the Amsterdam Centre for Service Innovation (AMSI). It is also a challenge for the indicator part of the OECD INNOSERV project to find more sophisticated and suitable indicators for measuring service innovation.

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20 The characteristics of services and service innovations are: (i) the intangibility of services, (ii) multi-site, non-centralized innovation processes (no central R&D department), (iii) the client intensity of innovation processes (towards innovation in networks), and (iv) the combinatory character of service innovation (mostly a combination of implementation of technology, a new client interface, new delivery processes, new revenue model, etc).
Box 7. Measuring service innovation in the ‘United We Stand’ project

Over the period November 2009-October 2012, a Dutch project United We Stand – Open Service Innovation took place in the greater Amsterdam and Utrecht region. Financed through the (then) Ministry of Economic Affairs and the Provinces of North-Holland, Utrecht and the cities of Amsterdam and Utrecht, the project was carried out by Amsterdam Centre for Service Innovation (lead contractor), Utrecht University and Dialogic Consultancy. This project aimed to: 1) improve knowledge on (managing) chains and networks of open service innovation; 2) provide practical insights and tools to firms wanting to engage in processes of open service innovation; and 3) co-develop with policy-makers to put the Greater Amsterdam-Utrecht region on the map as a “place to be” when engaging in open service innovation. Project case studies looked at open service innovation (mostly internationally active service and manufacturing firms) and alliance management for managing coalitions of service-dominant firms; also the interaction between MNEs and knowledge intensive business services and good practices in service innovation management were analyzed and strategic policy options for spurring (open) service innovation identified.

The project also included a large survey (130 items) of service innovators (in service and manufacturing industries, net response almost 500 firms). For this survey, two new scales were developed to measure service innovation and dynamic service innovation capabilities as well as a new typology to differentiate four types of service innovators, namely: service extensive firms; consumer-oriented services; industrial services and professional service. The results of these extensive surveys are currently being fed back to the participating firms through a service innovation dashboard. Here the firms can benchmark themselves with the overall population, their category of service providers and the best performing 25 per cent of firms. More details are available (in Dutch) at: http://www.opendiensteninnovatie.nl and www.diensteninnovatiedashboard.nl.

Since the DAMVAD and AMSI projects are not integrated in the longitudinal data collection processes of national statistical offices like CIS, the response rate and representativeness of the sample remain major issues. To increase the response rate and get a representative sample, both the DAMVAD and AMSI project (see Figure 3 below) developed a benchmark tool. Respondents were able to log onto a website after filling out a questionnaire where their innovation scores were compared to scores of peers (see figure below). So, a benchmark tool is an incentive for firms to take part in a survey and help policy makers gain better insight in service innovation. But besides that, a benchmark could function as a ‘mirror’ and trigger firms to behave in a more innovative way in the future, perhaps catch up with their peers. In this way, the measurement instrument would also function as innovation driver.
5.2 Evidence based policies: the need for process and effect evaluation

We already highlighted the ongoing discussion on the legitimacy of service innovation policy, and the arguments (macro-economic, system failures, market failures) pointing to the need for such policies. Empirical evidence of the effects of service innovation schemes would make that legitimacy discussion easier. After all, evaluation studies can show the impact and additionality of schemes. In essence, the need to confirm these effects and impact begs the question to what extent an instrument and its execution/implementation can be seen as effective and efficient. Firstly the main conditions for an instrument to be effective are: the objectives arise from having defined a problem, the objectives are clear and measurable, there is a timetable of deliveries, the objectives are achieved, and the governance of the instrument is transparent. These aspects can be researched using process evaluation methods. Secondly, the main conditions for the efficiency of the policy or instrument are: there is little crowding out by firms’ private money; the governance of the instrument is efficient; the number of project managers (working for agencies) and their labor costs are reasonable given the program being evaluated; and the total costs of the program. These aspects are investigated with tools and methods of effect evaluation.

Moreover, in more general terms we see a shift in policy evaluations towards more econometric research that investigates the hard impacts of instruments (at firm as well as social level). It is assumed that this shift is driven by the economic recession and the fact that also governments are more alert to cost-cuttings and have to reduce public expenditure. Because of that pressure on grounded policy choices, making the impact of
choices crystal clear, there is a growing need to develop impact measurements that suit service innovation policy and instruments.

5.3 Process and effect evaluation: some practical key factors

When it comes to designing evaluation instruments for service innovation policies, several factors should be taken into account, which we will discuss here.

Service innovation programs: monitoring versus evaluation

When measuring the effects of innovation programs, we first need to be able to distinguish between monitoring and evaluation. Monitoring is related to the direct execution of the program. It contains information about efficiency of the organization, the extent to which a target group of firms is reached, to what extent the program is on schedule. A significant characteristic of monitoring is that the output of the exercise can be used by program managers in order to steer the program. We argue here that monitoring is part of the ‘good governance’ of innovation programs and of importance, given the fact that service innovation programs have to prove their raison d’être and impact.

Evaluation – on the other hand – focuses on the real effects of a program or instrument. Although ‘classic’ evaluation methods also apply to service innovation programs, the challenge is to set up evaluation instruments that are sensitive to service R&D and innovation output. In most evaluation studies of innovation schemes, the focus is merely on increasing R&D intensity at firm level or on new products resulting from the policy intervention. For service innovation, output should be defined in such a way that it better suits the characteristics of service innovation (see Box 2), like new business models, new market opportunities or new customer channels.

Challenge for more indirect instruments: a clear picture of direct effects

We stated that promoting service innovation cannot only be done with innovation policy. Also policies relating to framework conditions (like competition and educational policy) are necessary to utilize the transformative power of service innovation. Consequently, we have found many indirect measures for service innovation. Direct instruments – specifically the ones that provide support at firm-level – are easiest to evaluate as we can use classic evaluation methods. The only specific challenge is the use of more service-sensitive output indicators, as discussed above. For the rest, the effects of those instruments can be analyzed similarly to all other types of firm-level instruments, using econometric methods to compare the experimental group of firms and one or several control groups. It is harder to evaluate the concrete effects of indirect instruments and instruments that support R&D (sector-level), and differences in regulations (country-level). In those cases, we are trying to find the direct effects of indirect instruments. Concerning the analysis of indirect schemes, we suggest that: (i) qualitative methods are more suitable, (ii) a longitudinal analysis could compare innovation systems before and after shifts in framework conditions, or (iii) meta-analyses and international benchmarks are applicable because framework conditions differ between countries. By a meta-analysis, we mean the systematic analysis of similar instruments in several countries (like all vouchers in Europe). It can be seen as an instrument review with a focus on explaining the results/effects of the instruments, and could be done by policy researchers or the OECD, as we will discuss in the following section.
The use of meta-analysis: evaluate as much as possible per category of schemes (tax credits, voucher schemes, service innovation clusters, and so on)

There are indeed evaluation studies of more generic instruments targeting services and service innovation. However, these studies hardly pay any attention to the real impact on service innovation. Basically, they outline to what extent firms in the classic service sectors utilize the instruments. Besides a more in-depth analysis of the effects of those instruments on service innovation (see also the recommendations above), we suggest more frequent meta-analyses. This definitely applies to instruments that are rather generic and implemented in multiple countries. Think of tax credit schemes. A meta-analysis could be relevant in this policy domain, because policy makers are constantly seeking rationales and evidence to justify the importance of service innovation (policies). A meta-analysis per category allows us to (i) accumulate insights on the effects of instruments and (ii) better analyze critical success factors such as what makes an instrument really effective, efficient and legitimate. Insights from these meta-analyses could be shared and would promote the sharing of best practices as well as improve policy learning.
6 Conclusions

In this final chapter we summarize the key elements of our report. They combine the theoretical arguments and empirical findings in response to the main questions: what is the rationale behind service innovation policy? Which policy strategies are involved? How can service innovation policy be operationalized in terms of specific instruments? And what do we know about the effectiveness of those instruments?

6.1 Main conclusions

1. Service innovation matters
The weight of services in the economy as a whole is substantial. Service R&D and innovation affects growth through three key mechanisms: a) the service sector comprises around 70 per cent of GDP in most OECD countries; b) business services, especially knowledge-intensive services, are used as intermediate inputs in production; and c) manufacturing firms increase their efforts to provide services in addition to their traditional business.

2. Innovation is still associated with technological innovation in manufacturing and policy-makers struggle to promote service innovation in their own country
Most of our current understanding of service innovation is still biased towards the dominant example of technological innovation in a manufacturing setting. In addition, very little is known yet about the extent to which government policies, overall policy strategies and specific instruments actually encourage service R&D and innovation, how well they are in sync with each other and how effectively these direct and indirect measures actually spur service innovation. Many innovation policy-makers seem to be struggling to adapt to an innovation model in which services play a more pronounced role.

3. Despite the struggle, there are definitely arguments for developing and implementing service innovation policy
There are arguments for service innovation policies and instruments in multiple categories and it is the interplay of these arguments that make up the service innovation rationale. Although market failure argumentation is mostly used to explain firms’ under-investment in R&D and technological innovation, we have argued that this is not exclusively the case. Some forms of market failures for example relating to the protection of intellectual property, especially hinder service providers from innovating.

Our overview of policy strategies reveals that in practice, argumentation supporting service innovation very rarely contains references to market failures. This is perhaps a missed opportunity since the market failure framework is accepted in governmental decision making and could prove essential for convincing politicians and stakeholders that service innovation policy is necessary. In practice, macro-economic arguments are the most common ones: the service sector is a large part of the economy, service innovation is a key factor for economic growth, and there is a clear need to improve the low productivity and performance in many service sectors, especially in once sheltered markets now opening up to international competition.
4. More and more countries have some type of service innovation policy strategy

In many member states, governmental departments have conducted or requested studies that can act as a basis for strategy formulation. Sometimes these reports are published by semi-public agencies involved in innovation. The available policy documents are undergoing various stages of policy making as most of the analyzed member states are still at the stage of creating awareness and putting service innovation on the agenda. Only a few countries have actually developed an action plan, and the number of fully-fledged policy strategies is even lower.

5. Some policy strategies are part of a broader vision on innovation, or relate to major social challenges and innovation in the public domain

Although the absence of a national orientation on service innovation can indicate a lack of interest, there are also cases where service innovation policy is integrated in broader strategies. Some countries that traditionally have been relying on manufacturing, now engage in servitization by supporting service activities in other sectors. Other member states implicitly incorporate service innovation when developing strategies to support smart solutions for social challenges. Many of these challenges are in the public domain, and opposing services for manufacturing often suits the aim to focus on more sustainable forms of economic activity. All these routes to implement service innovation policies, whether intentional or not, might avoid difficulties in legitimizing service support.

6. The major challenge is not about having a service innovation policy strategy, but about putting plans into action and implementing service innovation schemes

Given the novelty of most strategies, we can conclude that many countries have only started to take an interest in services in recent years. Nevertheless, there are examples of countries that have been developing strategies for a few decades already. The fact that their current strategies are relatively detailed and elaborated, implies that the incubation time of service innovation policy making is considerable. Member states that have recently taken this route tend to follow other countries closely, for instance through benchmarking, thereby engaging intensively in policy learning. Still, most seem to be struggling to develop a balanced policy mix that sufficiently addresses the specificities of services.

7. Service innovation is supported by a wide range of policy instruments, and each can be implemented using different approaches

There are many instruments and initiatives that contribute to service innovativeness, including measures outside the domain of R&D and innovation. Regarding policy instruments explicitly devoted to service innovation, they mostly focus on fostering an innovation culture including development and diffusion of management principles, and aligning research to innovation. Often, these measures coincide with SME-support.

In general, we differentiate four approaches to service innovation policy: assimilation, demarcation, systemic embedded, and systemic smart specialized. These approaches differ in the extent they regard service innovation as fundamentally different to technological innovation. Instruments that are similar in their policy priorities can be implemented in different ways, and following these approaches. A few of the latest policy measures that affect service innovativeness are smart specialized, meaning that they address the systemic way technology and services are intermingled.
8. Policy instruments directly targeting service innovation are often found on the supply-side, while novel instruments are mostly indirect and demand-oriented

Instruments directly devoted to service innovation are generally the service-specialized centers and laboratories. By delivering knowledge, management principles and funding, these supply-side instruments help firms providing services to overcome capability failures and barriers to invest in innovative projects. When it comes to indirect measures, the observed spectrum of instrument-types is more varied. Besides traditional (embedded) policy measures, this category includes experimental instruments like demonstrator projects and living labs. These recent initiatives have an integrative perspective on service systems. Being mostly demand-side oriented, they support service innovativeness by focusing on projects which do not discriminate against intangible innovation.

9. Member states differ in the coherence between their policy strategy and instruments: there is no maturity model

We can conclude that most countries do not have one coherent approach to implementing service innovation policy instruments: there does not seem to be something like a maturity model for service policies. Individual measures that are part of the national policy mix lead to different priorities. Some of these measures are explicitly devoted to services, whereas others are merely existing instruments, slightly adapted. There is no evidence that one approach is preferable. In general, the demarcation policy is useful for putting service innovation on the agenda, whereas assimilation is a relatively easy way to start supporting service innovation. This also applies to embedded approaches that ignore any distinction. The most advanced forms of service innovation that have recently gained ground, are integrating the relationship between services and technologies. They tend to emerge from evolutionary paths rather than radical changes in policy. Smart specialized instruments not only demand an understanding of how systemic innovation evolves, but also a mix of policy instruments that matches a specific type of innovation or target.

10. It is important to prove the effectiveness, efficiency and legitimacy of service innovation instruments: as a result of relatively new schemes, this evidence is scarce

Evidence of the design and implementation of policy instruments for service innovation is still limited, and as many instruments are new, impact assessments are rare or not forthcoming soon enough. Moreover, most of the already existing service innovation instruments are part of a more generic scheme, such as tax credits and voucher schemes. Such instruments will probably be evaluated, however, without a specific focus on the service innovation aspect. In the best case scenario, those evaluation studies describe what percentage of firms involved belong to the service sectors; they hardly take into account the specificity of service innovation and the results are merely in the form of a description. Despite that, we argue that there is a substantial need for evaluations; not in the last place due to the economic crisis and pressure on governments to cut public expenditure and its effects. Several key issues need to be taken into account when evaluating service innovation policies. Of great importance is the still insufficient availability of measurement instruments that capture the peculiarities of service innovation. Without indicators that can truly deal with the tacit and intangible nature of services, policy makers will continue to struggle with demonstrating the impact of innovative efforts and policy support.
References


BERR (2009), The globalisation of value chains and industrial transformation in the UK, BERR Economics paper no. 6, Department for Business Enterprise & Regulatory Reform, London.


European Commission (2009), Challenges for EU support to innovation in services – Fostering new markets and jobs through innovation, Commission staff working document SEC (2009)1195 final, Brussels.


