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Executive summary

1. Objectives and scope

This policy brief explores whether and in what ways innovation policy can contribute to the beneficial development of an innovative services industry in Europe, thereby contributing to growth and, ultimately, well-being. The focus on services recognises the economic importance of this industry for employment and growth in developed economies, where service sectors (i) typically account for about 70-80% of GDP and (ii) have been a major source of growth in the past decades (see [Sections 1.1](#) and [1.2](#)). Against this background, the policy brief is rooted in the belief that further innovation in services can make important contributions to achieving the objectives of the Europe 2020 strategy to attain “smart, sustainable and inclusive growth”, i.e. enable economic growth without compromising environmental and social objectives.

The policy brief provides practical examples and evidence of the role policy can play (or should play) to enable and encourage innovation in services. The analysis concentrates on those sectors that are specified in the NACE Rev. 2 classification of business activities as Divisions G-U (see [Section 2.1.1](#)). This comprises a heterogeneous group of business activities, including wholesale and retail services, business services, education and health services. The study team is aware of the conceptual challenge this definition implies, as “services” are also a very important competitive factor in *manufacturing* (for instance the provision of maintenance services after machinery has been sold). Even if the framework chosen for this policy brief and the examples presented do not explicitly take into consideration the services part of manufacturing, a large share of the presented evidence and conclusions drawn can easily be applied to this area of “services” as well. The policy brief does not address innovation in *public services*, as there will be another policy brief specifically analysing this area.

The brief begins with a discussion of the specific characteristics of the service industry and innovation in services and identifies the main drivers and barriers for service innovation (see [Section 3](#)). It then presents the empirical evidence the study team has collected. First, specific innovation policies in support of services in place in different countries are introduced (top-down view, [Sections 4.2-4.3](#)); second, six case studies of innovative service companies from different sectors are presented. The study team has specifically explored the critical success factors for their innovation and the role which policy has played in enabling the innovations – the case evidence in [Section 4.4](#) summarises this evidence. From a combined view of the policy and case study evidence, the policy brief draws conclusions about new developments in service innovation ([Section 5.1](#)) and makes recommendations about how these could be reflected in policy measures ([Section 5.2](#)). In this context, specific attention is paid to the role of European policy, while also highlighting at implications for national and regional innovation policy.

2. Drivers and barriers for service innovation

The policy brief identified the following drivers and barriers for service innovation. Policies that aim to further improve the framework conditions for service innovation can either concentrate on leveraging drivers (strength-oriented approach) or aim to address barriers and mitigate them as much as possible (weakness-oriented approach) – see Section 3.4.

Drivers and barriers of service innovation

	Drivers	Barriers
Service innovation for smart growth	<ul style="list-style-type: none"> • awareness on service-based and demand driven innovation utility model by firms; • 'servicizing the product' phenomenon; • better integration of ICT into the services mindset of companies; 	<ul style="list-style-type: none"> • digital divide related problems; • ICT enabling investment needs more transformative service innovations; • hindrances to knowledge flow (external or internal sources);
Service innovation for sustainable growth	<ul style="list-style-type: none"> • enabling role of ICT; • increasing awareness on environmental side-effects; 	<ul style="list-style-type: none"> • institutional inertia, conflicting tendencies; • lack of market demand for sustainable transport;
Service innovation for inclusive growth	<ul style="list-style-type: none"> • flexible labour markets • permanently improving internet culture; • training, coaching; 	<ul style="list-style-type: none"> • too strict employment protections; • low level of service culture; • lack of skilled workforce – poorly performing educational system;

Source: ICEG European Center

3. Examples of current policies in support of service innovation

Very few programmes or other initiatives in EU Member States explicitly address service innovation (see Section 4.2).

Denmark: The Danish Innovation Strategy 2010-2013¹ contains references to services and the established ICE project (Innovation, Customers, Employees) has been providing a service innovation awareness raising function by publishing reports and articles in the field of service innovation. In an effort to promote service innovation, the *Servicinnovation 2011* conference was jointly organised by the Ministry of Science, the Council for Technology and Innovation and the Innovation Network Service Platform.

Finland: The SERVE programme has been promoting innovation in services companies since 2006. The focus has shifted from supporting existing and promising services companies to supporting new companies that are seen as pioneers on the market. The new Tekes Strategy, published in 2011, strives to rejuvenate Finnish industries by focusing both on new enterprises and forerunners. This new strategy focuses on areas in which the services sector can play a crucial role (natural resources and sustainable economy; vitality of people; intelligent environments; business in global value networks, added value by solution-based services and intangible concepts, renewing services and production by digital means).

¹ See more about the strategy in Danish: <http://www.fi.dk/publikationer/2010/innovationdanmark-2010-2013/>

Netherlands: The Programme for Reducing Businesses' Regulatory Burden 2011-2015 attempts to diminish regulatory and administrative burdens that hamper business. This should positively affect service innovation activity. Moreover, the Ministry of Economic Affairs, Agriculture and Innovation has announced the so-called "Top Areas" policy strategy which focuses exclusively on nine economic sectors, including services sectors such as logistics and energy.

Sweden: The Swedish government has recently addressed service innovation, apart from using public procurement as a demand-side instrument to drive innovation: the strategy of the Swedish Competition Authority and its Direction for Procurement Issues addressed innovation procurement in 2007. This contributed, for example, to the procurement of innovative services in the energy sector.

Germany: Since 2008, Germany has placed more emphasis on the support for service innovation. The High-Tech Strategy 2020² focuses on several service sectors. The "Innovation with Services"³ programme, launched in 2008, provides funding of up to € 15 million per year for the service sector.

Asian countries: Asian countries often focus their efforts on the ICT-sector, leaving room for service innovation improvements in other domains. India, China and South Korea have recently devoted more attention to service sectors, however. Indian service sector reforms led not only to a perceptible improvement of productivity, but also to the enhanced performance of downstream manufacturing industries.

4. Case studies of innovative service companies

The case studies of innovative service companies, including large players and SMEs (see [Section 4.4](#)) identified the following **success factors** for the innovations these companies introduced:

1. **leadership** that is committed to enhancing the innovation culture which can be promoted by the involvement of young employees in the decision-making process (see, for instance, Infosys);
2. **concentration on and anticipation of customer needs** in fields that have not yet been exploited (see, for instance, Asthmapolis);
3. **learning by example:** consider both successful and less successful examples, because continuous service innovation requires a persistent learning process (e.g. Webvan's failure with respect to the importance of the incorporation of local circumstances and customer needs);
4. make use of **internal sources of information:** to facilitate internationalisation, innovation teams consisting of people from different regions or backgrounds can be an effective means for finding strategies to deal with cultural differences (e.g. Banco Santander).

The case studies are also proof of the heterogeneous character of service innovation and the different barriers to innovation that result from this. The policy brief concludes from this evidence that policy should focus mainly on addressing persistent barriers to service innovation in a more dedicated way, rather than aiming to support specific innovation activities in individual companies. The main conclusions and lessons learned from each of the service innovation case studies are:

² For the High-Tech Strategy 2020 see: http://www.bmbf.de/pub/hts_2020_en.pdf

³ For the „Innovation mit Dienstleistungen“ programme see: http://www.bmbf.de/pub/innovation_mit_dienstleistung.pdf

Vattenfall (*product, process and organisational innovation*): R&D had an indirect effect on service innovation through the introduction of smart metering. This led to a more sustainable and reliable energy supply well aligned with customer needs. The case demonstrates the enabling role of ICT as a solid driver of service innovation. The Swedish public sector recognised the importance of public procurement as a demand-side tool to gear innovation towards sustainable growth objectives.

Infosys (*process and organisational innovation*): the objective of a new and integrated service delivery required a significant change of business model by creating a global delivery business model. This can be considered an organisational innovation. Since it was easily imitated, Infosys was required to further develop it, indicating that one of the relevant drivers of the service innovation is adaptive capacity.

Banco Santander (*process, marketing and organisational innovation*): due to the nature of financial services that can be easily adopted by others, permanent service and product innovation are needed in order to have the chance to utilise the white spaces in customers' needs. As a consequence, one of the most important drivers of service innovation is deep knowledge of customer needs.

Netrisk.hu (*process, marketing and organisational innovation*): the Hungarian online insurance broker combines elements of product and process innovation: a new distribution channel (the internet) and a new logic for making choices about insurance products were combined to provide a better market overview and access to an already existing service. The innovation depended on the "e-readiness" of society (critical mass of internet users, e-skills, ICT infrastructure).

Quanta Computer (*process and organisational innovation*): smart logistics service innovation safeguarded a better embeddedness in the logistics hub of Taiwanese ICT firms.

Asthmapolis (*product and process innovation*): the main driver was the ICT-based open service innovation which provides a way for the public health system to procure and drive innovation from the demand side as well as for future service innovation in health care services.

5. Strategic responses for future innovation policy

The main conclusion of this policy brief is that the best way to encourage innovation in services is by **removing (or at least reducing) identified barriers** to service innovation as well as to the related policy design, and by **creating optimal framework conditions** for innovation, rather than introducing direct support measures for companies or other specific programmes for innovation in services. In particular, innovation policy at the European level should concentrate on optimising the framework conditions for service innovation. This cannot be achieved by innovation policy (in the narrow sense) on its own, but will inevitably require a coordinated approach involving different policy domains such as economic, competition, education, labour and social policy (see [Section 5](#)).

This recommendation is linked with the basic observation that service innovation has a horizontal character which cannot simply be captured by focusing on R&D activities. With a view to the role of the European Commission, this implies that different EC services would have to get involved to further improve the framework conditions for service innovation. The policy brief makes the following recommendations to the Commission and Member States:

Recommendations addressed to European Policy (see [Section 5.2.1](#)):

- Set specific objectives and targets for service innovation (as a means to encourage the debate and steer efforts in the right direction)
- Raise awareness: be a messenger of best practice and communicate the importance of service innovation
- Strengthen cooperation between different EC services responsible for regional as well as enterprise and industry policies to promote service innovation through the use of EU Structural Funds
- Consider innovative ways to ensure IP protection in online services
- Improve the statistical base for policy making: policy needs more and better comparable data about service sectors and service innovation

Recommendations addressed to Member States (see [Section 5.2.2](#)):

- Increase efforts at carrying out evaluations of innovation programmes
- Promote collaborative research and innovation networks
- Contribute to the fulfilment of normative requirements for good governance with regard to service innovation
- Take into account the importance of the economic policy framework
- Apply regulation where needed and use public procurement to drive innovation

1 Background and objectives

1.1 Scope and potential in service innovation

Most developed economies have, to a large extent, developed into service economies. The service industry represents typically about 70-80% of GDP in developed countries (World Bank, 2008; WTO, 2010) and 40-50% of GDP in the developing world (Glushko, 2008). In terms of employment, only the service sector has exhibited a permanent rise since 1999, reaching 70% of total employment in the EU in 2009 (European Commission, 2010). Beyond the fact that the service sector is large and constantly growing, this sector is also fertile ground for technological change by broadening *inter alia* the range of science-based knowledge. Consequently, the service sector can be seen as an essential contributor to innovation and technological change.

This is especially important in light of the 'learning economy' we are living in (Lundvall, 2002). The term 'learning economy' alludes to the fact that nowadays knowledge production and the ability of actors to rapidly gain new competencies have become the key driving forces of innovation and, as a result, also of competitiveness. Many empirical studies have argued that significant shifts in knowledge have taken place across Europe through moving from the dominance of manufacturing to that of the service sector. Importantly, in the case of the learning economy, knowledge is an intangible good that is traded especially by the service sector (Miozzo – Miles, 2003).

For these reasons, service innovation research and policy should be regarded as increasingly important parts of economic activity in advanced economies. Many Member States of the European Union (EU) have also been going through a transition process from industrialised manufacturing toward service industry-dominated economies (Buera – Kaboski, 2009). Notwithstanding considerable differences in the situations of individual countries (including differences across EU Member States), the service sector plays a key role in advanced economies and keeps growing in terms of the size of the sector, employment and the export of services (Evangelista, 2000; Voss, 2003).

Although the service sector is growing, its performance cannot be isolated from the manufacturing industry. The behaviour of firms has changed significantly, leaving behind traditional location theory based exclusively on explanations geared towards the requirements of traditional manufacturing industries (i.e. the availability of raw materials, labour, markets and agglomeration).⁴ Since, services are dominating – that are resistant to distances –, the relevance of this kind of pure availability became obsolete. The service-based economy forces firms to consider *inter alia* conditions such as skilled labour endowment, knowledge flows, institutional settings, the availability of consulting and information services, opportunities for interactive learning and economic competence (e.g. maturity of the service culture, absorptive capacity of society) as well. What is extremely important is the interaction (synergy) of these factors.

A mutually reinforcing interaction is working between the production of services and of goods.⁵ Living in a 'learning' – and service-based – economy also implies that the heightening relationship between international trade in services and goods depends on a sound service sector. Importantly, "network"

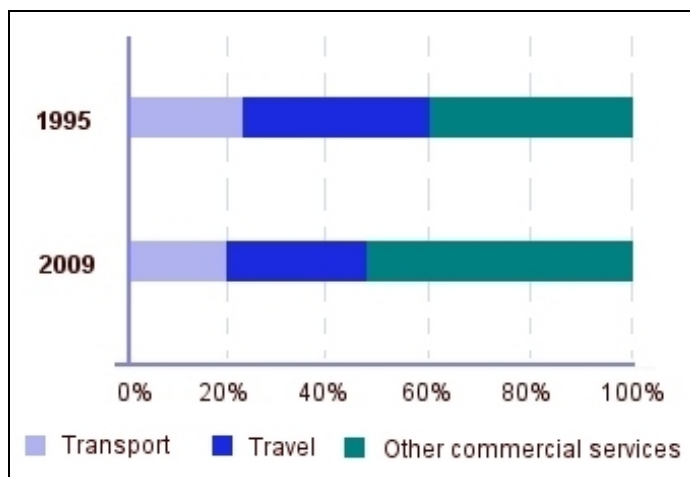
⁴ Raw materials are the so-called 'Ricardo goods'; labour is the so-called 'Heckscher-Ohlin goods', the availability of markets ('Lösch goods') and the availability of agglomerations is widely seen as 'von Thünen goods'.

⁵ The increasing number of highly qualified staff within the business services, as an indicator for the perceivable interdependence between sectors, conspicuously justifies this argument. See more: Miles et al. (1994).

services (e.g. telecommunication, finance, electricity and transport) serve as an indispensable infrastructure for trade in goods. Accordingly, the intertwined relationship between services and goods is continuously strengthened.

Trade in services has been rising and, at the same time, the structure of the traded services has also changed. As a corollary of the ICT revolution, more and more services can be supplied and consumed remotely and thus traded. Hoekman and Kostecky (2009) point out that almost 30% of world trade could be attributed to aggregate international transactions in services in 2006. According to the WTO (2010:9), this change caused a more than 13 percentage-point rise in the share of other commercial services within the total trade in services between 1995 and 2009 (see Exhibit 1).

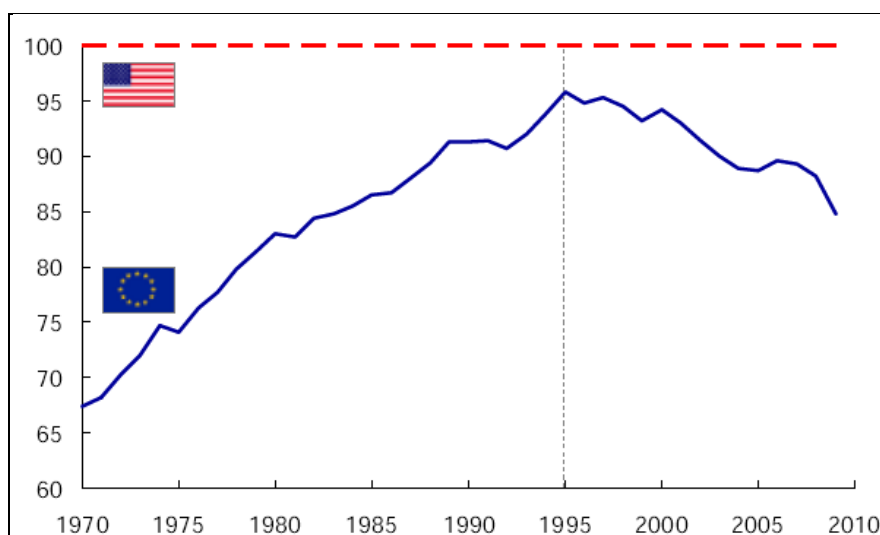
Exhibit 1. Development of trade in services



Source: WTO (2010)

While the service sector is rising in advanced economies, the world economy – including Europe – still faces enormous challenges in the near future which can easily have a negative impact on the growth performance of the economies, including the service sector. These challenges can be juxtaposed as the following: the issue of the productivity gap, demographic challenges, climate change, the emergence of new technologies and service solutions and, last but not least, the changing characteristics of emerging markets. Beyond the withering growth performance of Europe, which has been recorded for many years now, we highlight the relatively weak **labour productivity** of Europe compared to its main competitors such as the US. However, declining labour productivity is just a symptom. While European manufacturing has performed remarkably well compared to the US, the service sector seems more problematic when attempting to explain the slowing down of the catching-up process.

Exhibit 2. Declining European labour productivity (US dollar, PPP)



Source: McKinsey Global Institute (2010).

The *Service Innovation Expert Panel* in February 2011 pointed out that the major differences in the economic performance of Europe and the US can mainly be attributed to the performance of the service sector. The breakdown of labour productivity by sector provides an opportunity to compare results with those of the US. Over the period 1995-2007, the following peculiarities are evident (based on O'Mahony et al. 2010):

- For the manufacturing sector, the principal growth was registered in the field of radio, television and communications equipment in the EU25. Additionally, the office, accounting and computing machinery showed the largest growth in the New Member States. Growth in radio, television and communications equipment was 5% below that of the US. Productivity growth was more than 38% below the US data in the case of office, accounting and computing machinery. *"In comparison with the US, the EU15 growth is higher in around half of the manufacturing sectors, but these tend to be the lower technology sectors."* (O'Mahony et al. 2010:10).
- As far as the service sector is concerned, some sectors showed quite anaemic productivity growth (wholesale and retail) in the EU25. Growth performance surpassing that of the US was observable in the postal and telecommunications sector. This is the only sector whose performance outpaced the US.
- Labour productivity growth in the services sector lags substantially behind the manufacturing industry. The European service sector does not illustrate as much agility in catching-up to the US as the European manufacturing sector. The gap in labour productivity growth between the European manufacturing and services sector is still huge (See more information on the sectoral contributions to this gap in *Annex 1*).

Arguments emphasising only the lower level of R&D as one of the principal reasons behind this fact in the case of Europe may not be entirely accurate. Patterns of investment in R&D and the volume of high value-added production in manufacturing in Europe are similar to those in the US. The principal message of the Expert Panel was that, in order to cope with Europe's declining labour productivity, European policymakers should harness the transformative power of service innovation for smart, sustainable and inclusive growth.

Another contributing factor is the **demographic challenge**, of which we highlight two specific features. First, the ageing population in Europe will presumably lead to a society having relatively worse adaptive and absorptive capacity concerning the evolution of new services and technologies. Additionally, one of the main logical side-effects of the ageing population is the need for the greater geographic mobility of populations, i.e. for the steady flow of an active, tax-paying labour force. This is, in particular, due to the worsening financial base of traditional social systems which will be undermined by the decline in European employment levels. Hence, pursuing inclusive growth is inevitable if countries are to tackle these kinds of problems.

Climate change represents a further fundamental challenge and draws attention to the importance of sustainable growth. There is a high degree of confidence in the broad climate science conclusions stating that human greenhouse gas emissions are very likely responsible for the recorded increase of greenhouse gas concentrations in the atmosphere and for the incrementally higher annual average temperatures recorded since the middle of the 20th century. Accordingly, there is a need for adaptive policy action. More and more European countries ought to recognise opportunities to enhance green technologies and innovations –in both the manufacturing and service sectors – in order to facilitate the development of environmentally-friendly technologies and innovation in the creation of renewable energy resources.

Additionally, **new technologies and service solutions** will permeate the future Internet and the border between wireless and wired connections will increasingly disappear. Web 2.0 and 3.0 will impact all of society (online business services, social networks etc.) providing a strong foundation for smart growth as well as for inclusive growth, i.e. opportunities for new social services development. Services in the health and care area are increasingly being prioritised across Europe and, as a result, service innovation in this domain is growing. For instance, Germany, as one of the most advanced countries in this sector, is witnessing the development of a lot of services in the area of eHealth, including the logistics of health that can contribute to solving important societal challenges. From this point of, launching services targeted at aging populations is highly important and plays a key role in contributing to inclusive growth across the economy. Another very important aspect that should be more strongly taken into account is that a large part of the European population lives in rural areas, so-called “hard to reach regions”, and experiences difficulties in accessing proper services.⁶ Thus, the appropriate targeting of Structural Funds is of key importance for fostering service innovation.

Apart from these challenges, there can be no doubt that the **changing characteristics of emerging markets** – in particular concerning the shift from a manufacturing-based and export-oriented economic model to a more service-oriented and consumption-based economic model – is already posing new challenges for the EU. This is especially true in the case of China, whose latest Five-Year Plan (2011-2015) recognizes this shift (Feldstein, 2011) by noting the fact that while the manufacturing model fared quite well for almost 30 years, the model’s dependency on capital intensive and labour-saving productivity is immanent, thus this model is not able to absorb the immense volume of labour surplus. As the recent Five-Year Plan suggests, China is about to enhance a more labour-intensive services model.⁷ In a certain way, this point represents a tacit admission from the Chinese government that there will be a significant slowdown in the economic growth in the near future. This has also been estimated from 2015 by Eichengreen et al. (2011). This likely transition will create another challenge for the European service sector and its ability to innovate. This shift will lead to a modified import competition in Europe, as well. Over the last few decades, growing Chinese exports have lowered prices for consumers in the developed world. However, one of the more important consequences of rising Chinese exports has been the fact that it has also positively affected the pace of technical change by serving as an incentive for firms to become more innovative.⁸

⁶ Special medical practices are in different locations and usually hard to reach for people living in rural areas. ICT plays a very important role in the development of services in the health care. Internet and digital evolution enable new services in the medical telemedicine system – remote medicine.

⁷ See more on China’s transformation from production to consumption in Roach (2009).

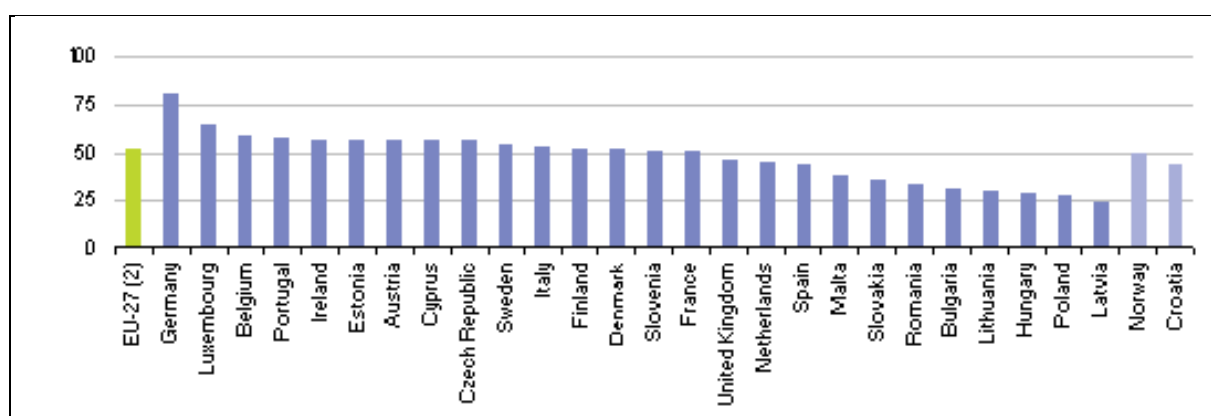
⁸ See for instance the major findings of Bloom et al. (2011). According to their study, „TFP and absolute levels of patenting, R&D and IT have risen in firms who were more exposed to increases in Chinese imports (the within firm effect)” (p. 32.).

1.2 Global trends in service innovation

Corporate innovations are widely analysed and evaluated not only in academic studies but also in the business press. Since 2005, Business Week has been attempting to identify “The World’s Most Innovative Companies” on an annual basis. One of the main characteristics of these annual rankings has been is the fact that the vast majority of the Top 25 companies were based the U.S. Nonetheless, there was a sudden change in 2010. Thus this feature proved not to be a persistent characteristic: in 2010, the Top 25 companies were dominated by companies outside the U.S, originating in particular from Asia.

But one thing has not changed: European companies are still in the minority on Business Week’s list. As far as the geographic distribution of innovative enterprises is concerned, the Eurostat Community Innovation Survey 2008 reports that the highest propensity to innovate in Europe in 2008 was recorded in Germany, followed by Luxembourg. Eurostat also added that “large enterprises tend to innovate more than small and medium-sized enterprises (SMEs) and as such these figures for the Member States may, at least to some degree, reflect the enterprise structure of each domestic economy.”⁹ In 2008, 39.8% of all European enterprises were considered technologically innovative (excluding Greece and the United Kingdom).

Exhibit 3. Proportion of innovative enterprises, 2008 (% of all enterprises)



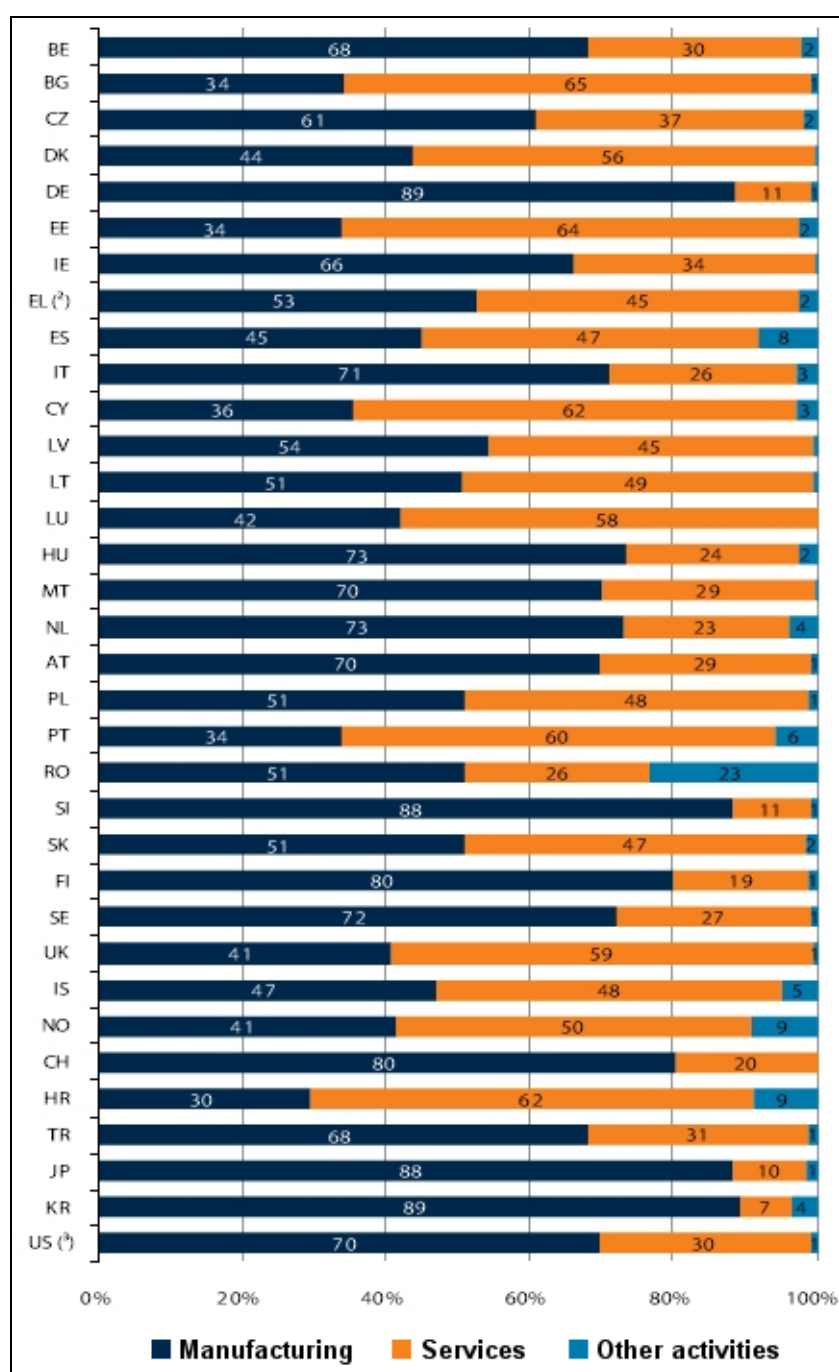
Source: Eurostat, Community Innovation Survey 2008

If we look at the data on business enterprise R&D expenditures by sector of activity as a percentage of total R&D expenditure (*Exhibit 4*), it is evident that the major proportion of R&D expenditure is predominantly found in the manufacturing industry.

Additionally, innovative enterprises in the EU-27 were more often engaged in applying in-house R&D rather than in promoting the use of external R&D. The empirical data illustrate that, due to the heterogeneous character of services, the service market is very fragmented, containing many, small enterprises whose focus is often on price competition.

⁹ See: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Innovation_statistics

*Exhibit 4. Business enterprise R&D expenditure by sector of activity (NACE Rev 1.1)
as a percentage of total, EU-27 and selected countries, 2007*



Notes:

⁽¹⁾ Exceptions to the reference year: 2006 (IT), 2005 (IE,EL), 2004 (CH) FR: breakdown according to the principle activity of the enterprises is not available.

⁽²⁾ Provisional data.

⁽³⁾ Excludes most or all capital expenditure.

Source: Eurostat (online data code: rd_e_berdind), OECD-MSTI for KR, JP and US

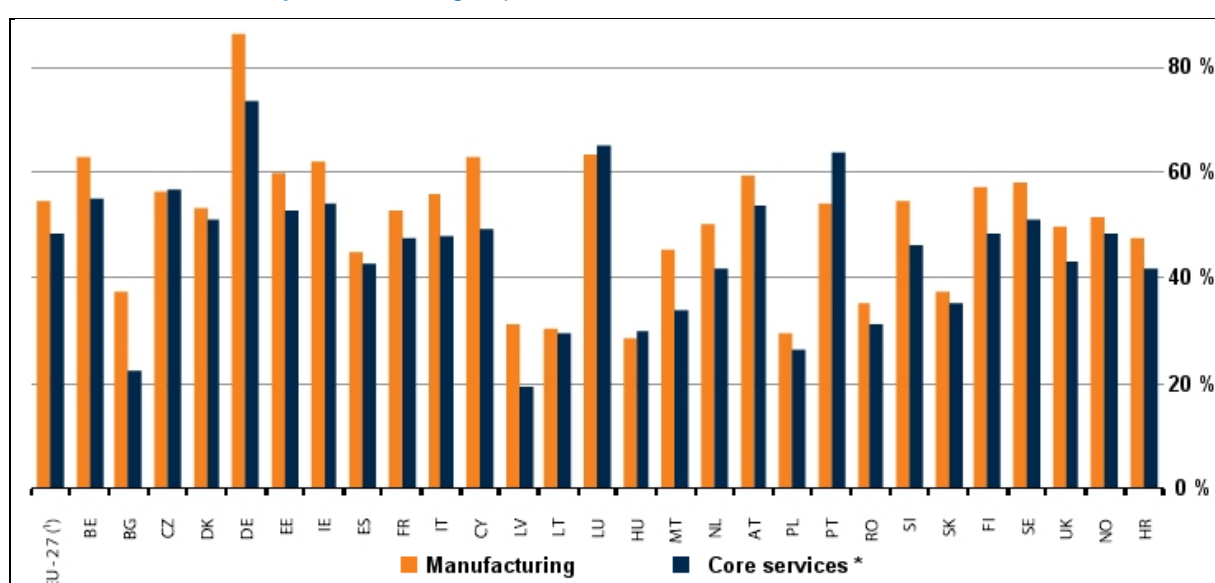
Focusing exclusively on the way these innovative EU27 enterprises manage their day-to-day interactions with other enterprises, universities or public research organisations, data suggest that two-thirds of these enterprises are more likely to rely on internal resources without building on significant cooperative interaction. Denmark, Cyprus, Belgium and Estonia can be ranked into the

group of countries whose proportion of cooperative interactions were the highest, while Romania, Italy, Bulgaria and Latvia exhibit the lowest innovation-related cooperative interaction between 2006 and 2008.

Regarding the motivation behind the innovation, the Community Innovation Survey 2008 survey conveys the message that the enterprises – whether in the manufacturing or in the service industry – pursue innovation because on the one hand they are aspiring to improve the quality level of their products and/or services.¹⁰ On the other hand, they would also like to extend the range of goods and services they offer.

The Eurostat (2011) Pocketbook on Science, technology and innovation in Europe considers core services in order to provide representation of what innovative enterprises looked like in 2008.

Exhibit 5. Innovative enterprises as a percentage of all enterprises, by main NACE group, EU-27 and selected countries, 2008



Note: * Core services activities include Nace rev. 2 codes: G46, H, J58, J61, J62, J63, K and M71.

EU27 excluding EL.

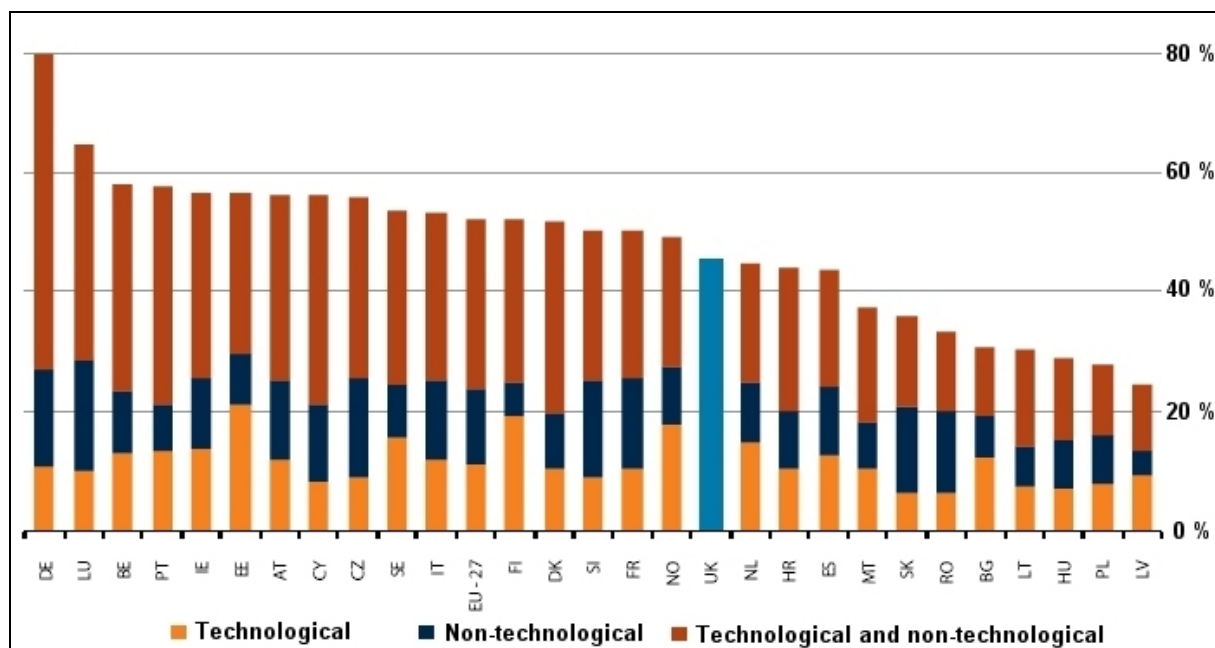
Source: Eurostat (online data code: inn_cis6_type)

Exhibit 5 reflects that in 2008 the proportion of innovative enterprises is predominantly larger in the case of the manufacturing industry than in core services. However, we can find countries where the proportion of innovative enterprises in core services exceeds the share in the manufacturing industry (e.g. Czech Republic, Hungary, Portugal). Moreover, the data also validate the principal message of the service economy literature: the distribution of technological and non-technological innovation activities (*Exhibit 6*) demonstrates to a large degree the dominance of the mixture of technological and non-technological innovations. As it is discernible, Bulgaria can be viewed as a country, merely, where the proportion of technological innovation dominates unambiguously.

With respect to policy development, we can conclude that the mixture can be considered relatively high even in countries that do not have any specific policies geared towards service innovation (e.g. Belgium, Portugal).

¹⁰ The Community Innovation Survey (CIS) aims at monitoring innovation activity in Europe. Its results are available in the Eurostat database.

Exhibit 6. Innovative enterprises by type of innovator, as percentage of all enterprises, EU-27 and selected countries, 2008



Note: EU27 excluding EL and UK.

Source: Eurostat (online data code: inn_cis6_type)

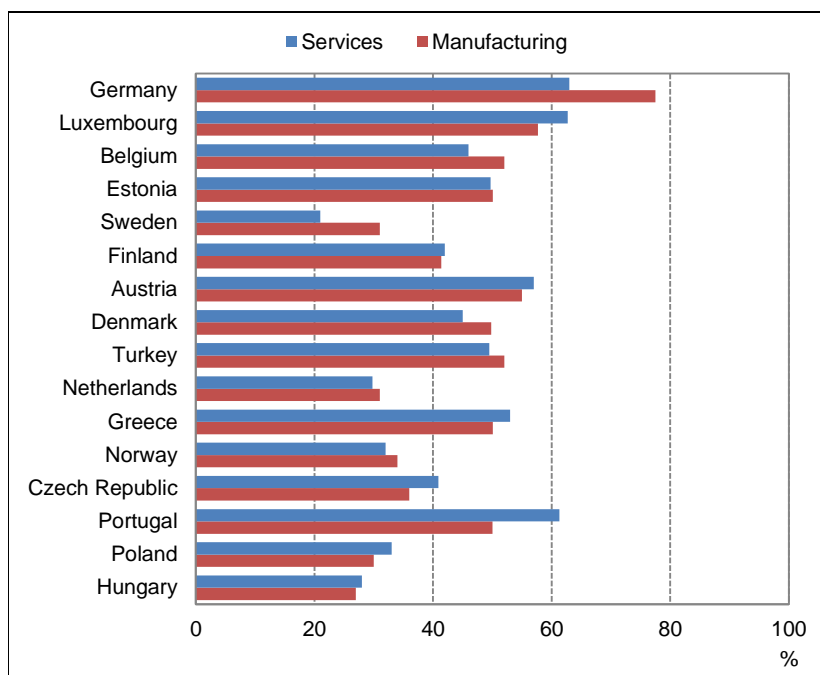
As Schmidt and Rammer (2007) pointed out, concentrating primarily on technological innovation – which is mainly associated with product innovation – means that we are not capturing the service innovation as well as its heterogeneous nature fairly.

The mentioned authors followed Flikkema et al. (2007) and made a distinction between technological and non-technological innovations, and they carried out an empirical investigation on Germany's CIS4 data suggesting that the combination of technological and non-technological innovation – especially organisational and marketing – is quite a frequent phenomenon. It is hardly by chance that the mentioned organisational innovations are considered as a key factor of service innovation in the literature.¹¹

The OECD's Science, Technology and Industry Scoreboard (2009) also lends support to the importance of non-technological innovations (such as organisational and marketing). As suggested in *Exhibit 7*, there is no substantial gap between non-technological innovators doing business either in the manufacturing or service sectors. This demonstrates that we cannot easily separate service sector service innovations (i.e. non-technological innovations) from those in the manufacturing sector. Furthermore, a given service innovation can contain elements of all the different modes (e.g. business model, organisational and technological innovations at the same time) posing problems for successful differentiation.

¹¹ As it was documented by CIS6 firm level data on Luxembourg (Mothe – Nguyen Thi, 2010).

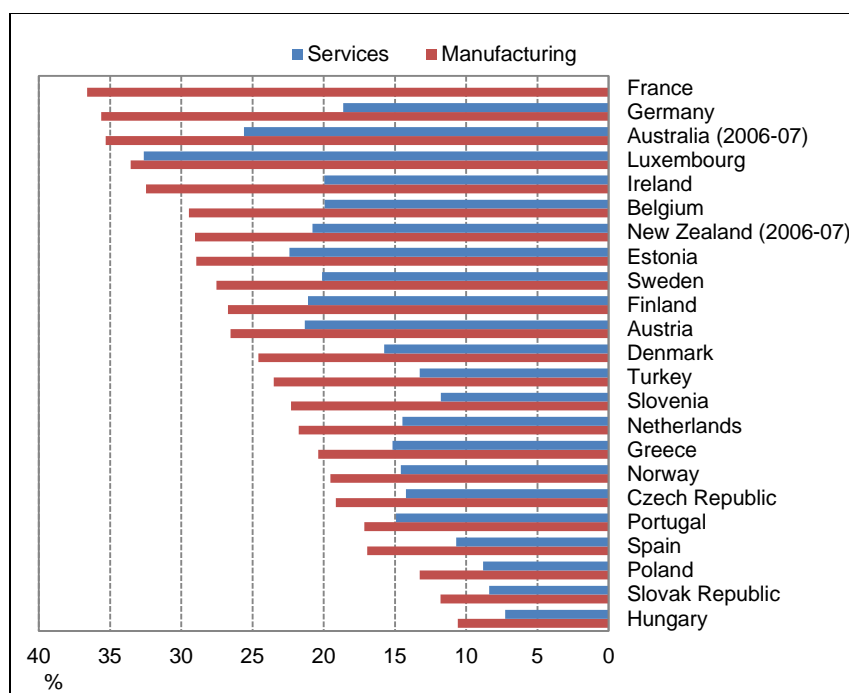
Exhibit 7. Non-technological innovators in selected countries (% of all enterprises, 2004-2006)



Source: OECD Science, Technology and Industry Scoreboard 2009

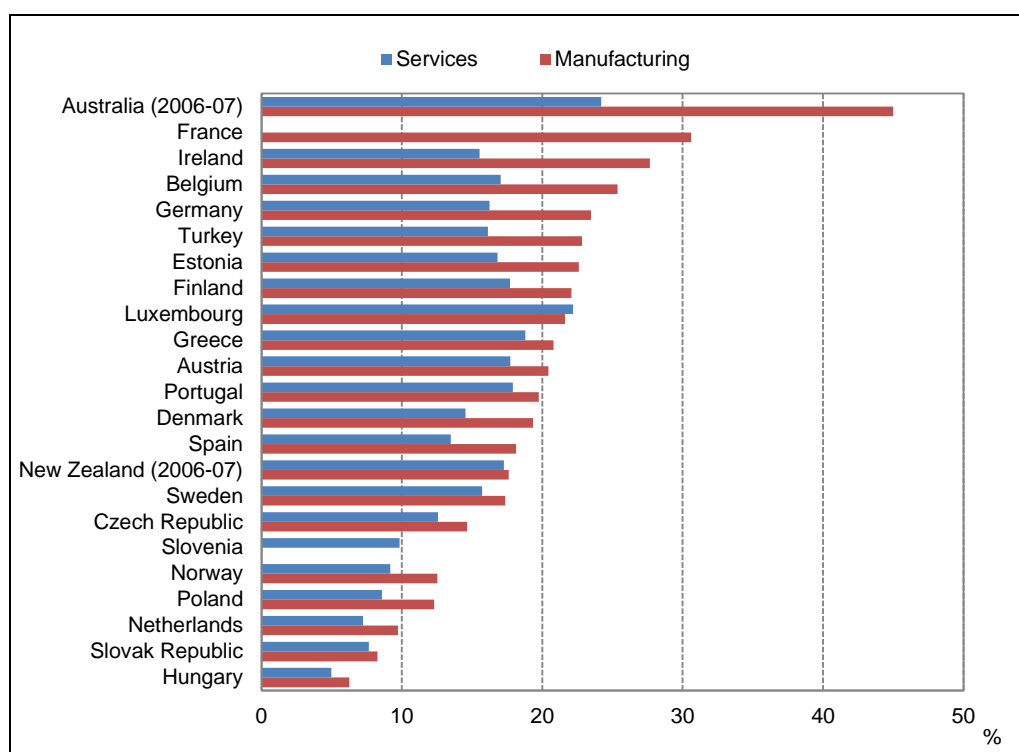
Moreover, we can also consider process innovation as part of the concept of service innovation. While there is a greater gap between the manufacturing and service sectors in terms of in-house (with-in firm) *product* innovations (*Exhibit 8*), in-house *process* innovations (*Exhibit 9*) do not illustrate the same pattern across sectors. This appears to support or confirm the heterogeneous character of service innovation.

Exhibit 8. In-house product innovators by sectors in selected countries (% of all enterprises, 2004-2006)



Source: OECD Science, Technology and Industry Scoreboard 2009

Exhibit 9. In-house process innovators in selected countries (% of all enterprises, 2004-2006)



Note: Manufacturing or services data are not available in case of France and Slovenia.

Source: OECD Science, Technology and Industry Scoreboard 2009

In order to confirm that the development of products and services is strongly intertwined, we consider another aspect that takes the issue of patenting into consideration. If we accept the view of Berg and Einspruch (2009) that patents can be considered as proxies for innovation, we can illustrate of what companies had a conspicuous value in their patent portfolios on an annual basis.¹² We use patent index data of 300 listed companies presented by Ocean Tomo (2010). In this approach we distinguish between goods and services. The service sector is characterised by the so-called CHIPI principle¹³, whereas goods are produced by manufacturing, mining, agriculture and construction.

Exhibit 10 reveals that the share of service companies in the total number of listed companies was 45 per cent implying that the goods sector is more inclined to innovate. However, though the dataset is not representative, it still illustrates the generally observable patterns. If we also take into account the innovation performances of companies (*Exhibit 11*) via using “The World’s Most Innovative Companies” list compiled by the BusinessWeek, the observable picture about companies in the service (21) and in the goods (29) sectors exemplifies on the one hand that innovation is skewed towards the goods sector, and on the other hand that the relationship between the production of services and goods is intertwined.

¹² The applicability of patents in measuring innovation activity is widely discussed. While one strand of economic literature suggests that patents are a weak measure of innovation, there are authors suggesting the further development of the patent based measurement of innovation activity by using the patent success ratio (the successful patent applications compared to total patent applications). See: McAleer and Slottje (2005).

¹³ CHIPI principle includes such factors as co-production, heterogeneity, intangibility, perishability and inseparability.

Exhibit 10. Patent index 2010/2011 (OceanTomo 300TM)

Business	Services	Goods
Consumer Discretionary	18	13
Consumer Staples	4	2
Energy	8	8
Financial	5	
Healthcare	30	30
Industrials	13	21
Information Technology	47	72
Materials		17
Telecommunication Services	5	
Utilities	3	
TOTAL	133	163

Source: OceanTomo 300TM Patent index 2010/2011 (additional classification by ICEG EC)

Exhibit 11. The World's most innovative companies in goods and services sectors, 2010

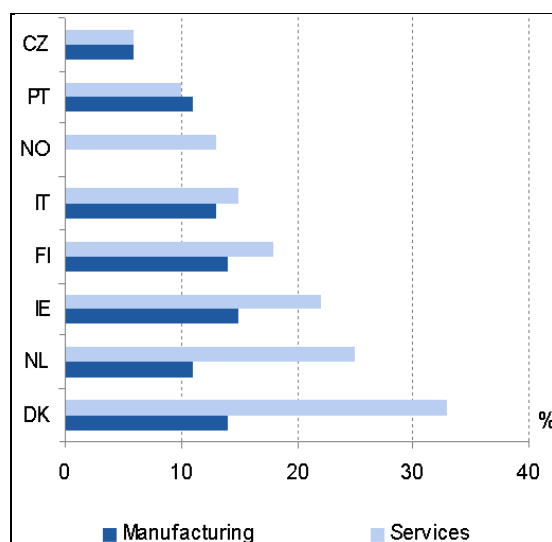
Companies in goods sectors	Main area of innovation:	Companies in service sectors	Main area of innovation:
1 Apple	product	1 Google	customer experience
2 Toyota Motor	process	2 Microsoft	process
3 Nintendo	product	3 IBM	process
4 Research in Motion	product	4 Hewlett-Packard	process
5 Nokia	product	5 Wal-Mart	process
6 Procter & Gamble	process	6 Amazon.com	customer experience
7 Tata Group	product	7 General Electric	process
8 Sony	product	8 McDonalds	customer experience
9 Reliance Industries	business model	9 Walt Disney	customer experience
10 Samsung Electronics	product	10 Vodafone	product
11 Volkswagen	customer experience	11 Infosys	process
12 BMW	customer experience	12 Telefónica	business model
13 Honda Motor	product	13 Verizon	customer experience
14 AT&T	product	14 Virgin Group	customer experience
15 Coca-Cola	customer experience	15 HSBC Holdings	process
16 LG Electronics	product	16 Iberdrola	customer experience
17 Daimler	product	17 Facebook	customer experience
18 Ford Motor	product	18 Banco Santander	business model
19 Cisco Systems	process	19 Southwest Airlines	customer experience
20 Intel	process	20 JPMorgan Chase	process
21 ArcelorMittal	business model	21 Target	customer experience
22 ExxonMobil	process		
23 Nestlé	product		
24 3M	product		
25 Nike	customer experience		
26 Johnson & Johnson	customer experience		
27 Lenovo	business model		
28 Fiat	product		
29 Royal Dutch Shell	process		

Source: BusinessWeek, April 8, 2010 (additional classification by ICEG EC)

It can also be observed that complementing the “goods” or product-driven business model with a service orientation can be advantageous for the individual companies, both in terms of increasing revenues as well as improving customer loyalty.¹⁴ The latter point supports the general observation that a stronger service orientation can result in qualitative impacts that positively affect customer perceptions of the goods and services sold by individual companies. As a corollary, more and more multinational manufacturing enterprises have decided to follow this line of development. *Exhibit 11* underlines the irrelevance of the distinction between goods vs. service companies. Apple, Nokia and Nintendo are good examples of companies that cannot easily be differentiated from companies like Microsoft or IBM.

Although the World’s most innovative service companies are large, studies emphasise that service innovation is also enhanced by these large companies creating a reasonable service innovation milieu at the level of SMEs and integrating them into their transnational networks. Good service innovation practices can serve as lightning rods for SMEs, for example, in terms of what kinds of wise management-view is needed in order to be innovative in the global value chain. As far as global value chains are concerned, in the case of European firms companies in the service sector have been exhibiting an increasing degree of outsourcing activity to Asia, in particular to China and India.¹⁵ The sourced support and in some cases core functions in the service sector indisputably exceed the volume observed in the manufacturing sector (See *Exhibit 12*). One of the most pivotal reasons why firms are willing to start, increase and maintain their service outsourcing activities in the international arena is the empirical evidence accentuating its positive impact on firm profitability and, just as importantly, innovation activity (Görg – Hanley, 2011). The type of services that are outsourced differ across time (e.g. though previously not the case, now the outsourcing of legal services is common practice) conveying the message that service innovation has a very changeable character.

Exhibit 12. Sourcing to India - Share of enterprises having sourced core and or support functions internationally, by sector (%), 2009



Source: Eurostat (2011): Global value chains - international sourcing to China and India.

¹⁴ Boxer and Rekettye (2011) point out that the service innovation can influence the customers’ perceived value of services by leading to significantly higher level of commitment to the given company.

¹⁵ The growing outsourcing activity reflects to a large extent the fact that India succeeded in liberalising its service sector since 1991. Myriad of studies emphasised that the liberalisation of service sector was followed significant rise in the productivity even in the case of manufacturing firms (Arnold et al. 2010).

1.3 Research focus and questions for the present policy brief

The objectives of this policy brief are threefold. First, it maps current innovation policies relevant for service sector innovation. Second, the brief identifies the main barriers and drivers of service innovation. Third, the policy brief contributes to the development of a more efficient service innovation policy (well-founded by economic theory, but at the same time firmly based on empirical evidence) in order to stimulate service innovation activity in the EU.

The policy brief analyses the need for specific policy interventions, e.g. identifying bottlenecks and inhibiting factors for the enhancement of service innovation in Europe. For this exercise, not only Member State level analyses should be prepared, but also an international comparison of the European case with other, highly competitive countries outside of Europe.

The framework in which the role of the EU level policy activity can be examined is that of recent and present EU level regulations and policies, most importantly the Services Directive, the Europe 2020 strategy and its relevant flagship initiatives. Parallel to this level, innovation systems and policy support schemes in individual Member States are also addressed.

The analysis focuses on the innovative services provided by the business sector, regardless of the recipients (other business, private individuals, public sector). This policy brief does not embrace the innovation within public services because policy brief 5 will deal with that domain in detail.

The following fundamental issues should be addressed:

- Characteristic types and examples of various service innovation success stories within and outside Europe;
- Existing EU and national, general and sector-specific policies in support of service innovation pinpointing positive and negative examples (successes and failures); measures that can be regarded as a support, or, on the contrary, as a burden for innovation.
- Policy lessons: conclusions and recommendations for European and national-level policy intervention.

Based on our knowledge of these fundamental issues, the specific fields requiring intervention can be identified and presented. We devote specific attention to measures (actions, regulations) with potential positive and negative effects on innovation in the service sector. In line with this, an analysis of the general economic policy framework, together with specific cases illustrating the positive and negative effects of intervention are provided.

Finally, in order to contribute to more effective policy learning and to provide policy suggestions at the EU level, the following questions are examined:

- From the lessons learned, what can be translated and applied and how at the European level of policy intervention? Taking into consideration the relationship between national governments and the EU, what are the relevant roles for EU policy?
- What can be tackled at European level and what should be addressed at the national level (specific local problems, for example, may not require European-level intervention)?

2 Methodological approach

2.1 Definition of key terms

2.1.1 Services

The OECD's "Oslo manual"¹⁶ accentuates that the distinction between products and services is quite often blurred. Numerous recent studies have summoned the emergence of a service science as a new research area for today's economy introducing a service-dominant logic into the approach (Maglio – Spohrer, 2007). According to this logic, a service is conceptualized as a process by focusing on dynamic resources (knowledge and skills) and taking into account that the value is a collaborative process between customers and providers (Lusch et al. 2008).

This approach is to a large extent in accordance with the understanding expressed in a paper initiated by PRO INNO Europe®, namely that "services can be defined as the result of a co-production between clients and suppliers" (Commission Staff Working Document, 2009:9). This policy brief follows this definition rather than interpretations or definitions that convey the message that services are residual activities identifiable only after first defining agriculture and manufacturing.

Knowledge intensive services can be portrayed as economic activities stemming from private sector organisations being fully pervaded by the combination of technology, knowledge and highly skilled employees in providing services. For example, knowledge-intensive business services (KIBS) provide intellectually complex and specialized services exclusively for firms (Muller – Doloreux, 2007).

Exhibit 13. Statistical classification of service activities (NACE Rev. 2)

Section G	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	LKIS
Section H	TRANSPORTATION AND STORAGE	KIS
Section I	ACCOMMODATION AND FOOD SERVICE ACTIVITIES	LKIS
Section J	INFORMATION AND COMMUNICATION	KIS
Section K	FINANCIAL AND INSURANCE ACTIVITIES	KIS
Section L	REAL ESTATE ACTIVITIES	LKIS
Section M	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	KIS
Section N	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	LKIS
Section O	PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	KIS
Section P	EDUCATION	KIS
Section Q	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	KIS
Section R	ARTS, ENTERTAINMENT AND RECREATION	KIS
Section S	OTHER SERVICE ACTIVITIES	LKIS
Section T	ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFFERENTIATED GOODS-AND SERVICES-PRODUCING ACTIVITIES OF HOUSEHOLDS FOR OWN USE	LKIS
Section U	ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES	LKIS

Note: Eurostat defines KIS (knowledge-intensive services) and LKIS (less knowledge ntensive services) as well.

Source: Eurostat (2008)

¹⁶ OECD/Eurostat (2005)

2.1.2 Innovation

According to the Oslo Manual, “an innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations” (p. 46). The minimum requirement for an innovation is that it must be new to or significantly improved by the firm. However, this policy brief targets innovations that are new on a broader scale – i.e. those that are new to an industry, to a country, or even to the world.

As a consequence, by innovation one could mean the adoption of an idea pertaining to a device, system, policy, program, process, product or service which is new to the firm or organization at the time of adoption. Ideas may be generated within an organization or may be purchased from outside (Damanpour – Evan 1984). Innovation has thus become a means of effecting change that is needed in order to meet new strategic challenges (Damanpour – Schnieder, 2006; Schumpeter 1934). What is more important is the fact that innovation can be measured only after the idea has been successfully implemented.

However, innovation in this definition often implies prior research and development activities – unless the firm purchases these from someone else – as well as the subsequent diffusion of the goods or services among private households, companies and public authorities. Therefore, any concept of innovation and innovation policy should consider aspects related to research, development and diffusion as well. All these elements together thus constitute the “*innovation stream*”. This is also the view of this policy brief. The message of the term of *innovation stream* is in broad agreement with development theories emphasising the strategic role of “growth poles”, “spillovers” and the “trickle-down” effects of aggregated economic activity (Myrdal, 1957; Hirschmann, 1958).

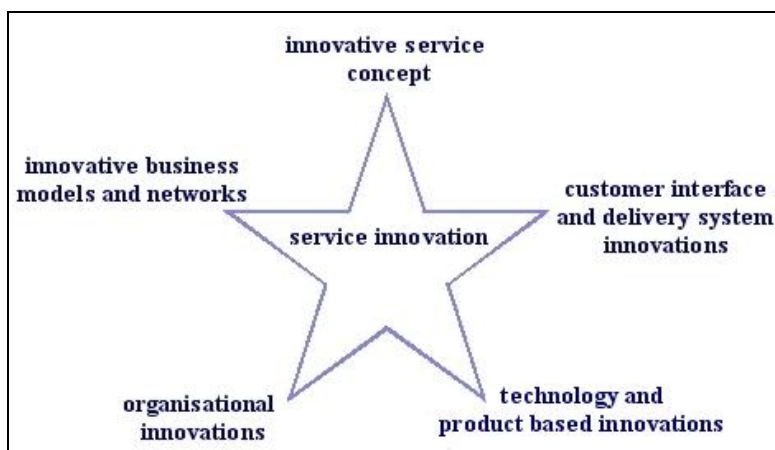
2.1.3 Service innovation

While services can be regarded as deeds, processes and performance, service innovations are more or less the result of a collective and comprehensive efforts of management, sales, IT specialists and others working within a company to respond to new and potentially emerging market needs. Applying Walter B. Stöhr’s innovation definition (Stöhr, 1988) to services, one can view service innovation as the first commercial utilisation of a formal and systemic entity of knowledge and skills within an enterprise to realise and to control complex service techniques.

This policy brief refers to service innovation as a new or significantly changed service concept, in which there is a combination of constant client interaction and the system of service delivery that is more likely to lead to one or more new/renewed service functions. These latter can be regarded as new to the firm, causing on the one hand a relevant modification in the service/good offering as well as requiring on the other hand structurally new technological, human and organisational capabilities of the service organisation (*Exhibit 14* illustrates the multidimensionality of service innovation).

This Brief further has to tackle the issue of **where the service innovation takes place**. The concept of service innovation encapsulates not only service innovations in the service sector, but also those service innovations taking place in other fields of the economy. “*Consequently manufacturing and services are increasingly intertwined: with the distinction between manufacturing and services becoming increasingly blurred and in some cases outdated.*” (Forfás, 2006:16)

Exhibit 14. Definition of multidimensional service innovation



Source: Kuusisto (2008)

Beyond the issue of “where it happens”, this policy brief also has to distinguish analytically between **various types of innovation in services**. This is accomplished by taking into account the Oslo Manual and Sundbo and Gallouj’s (1998a) suggestions regarding a potential typology of innovation: product, process, organisational, marketing and *ad hoc* innovation.

Product innovation should be distinguished from the narrow concept of service innovation. However, service innovation often happens in parallel with product innovation.

Although the OECD (2005) suggests that **process innovation** (such as innovation in procurement or production processes, in inbound or outbound logistics, or in supporting processes), is not a common phenomenon in services sectors, we depart from this view for two reasons: (i) process innovation embraces a whole series of different innovations (e.g. new modes for optimising transport through operational analysis); (ii) there is a significant difference between process innovations occurring in the manufacturing and the service sector, justifying different patterns between service and goods innovations (see *Exhibit 9*). The relevance of a given process innovation differs across different service sectors. Innovation in production processes is common among high-tech sectors and companies with a high propensity to R&D. Innovation in logistics processes are typical for companies in wholesale and retail trade, transport, storage and postal services. Supporting processes can be found in most sectors, but are particularly relevant for financial and insurance companies, in real estate, and business services (e.g. consulting). Last but not least, innovation in distribution methods is often linked with wholesale and retail trade, but also with computer services.

Organisational (e.g. creating multi-unit organisation, combining or integrating different services, involving employees and customers in co-production) **and marketing**¹⁷ innovations can be regarded as the most common forms of non-technological innovation, while so-called ***ad hoc*** innovations are mostly linked to knowledge-intensive services (such as computer services, telecommunications, transport, R&D and engineering services) where the service provider faces new challenging problems raised by the customer.

¹⁷ Marketing innovations often tend to pursue benefits through adapting the concept of ‘prosumption’ (i.e. significant involvement of the customer in the co-production and value co-creation). ICT has an enabling role in allowing customers to make evaluations (e.g. in case of Amazon; Apple Computer and Diesel) or even to take part in the customization process (e.g. in case of Nike; IKEA; Procter & Gamble and Vodafone).

In the context of this policy brief, there is no need to make a distinction between *incremental* and *radical (service)* innovations. Incremental service innovation would typically refer to cases where firms are focusing on existing services or processes with the aim of re-invigorating or refining the created value. Radical service innovations are breakthroughs with the potential to completely replace the former existing service(s).

2.1.4 Policies

For this study, a “policy” is defined as “*a deliberate act of government that in some way alters or influences the society or economy outside the government*”.¹⁸ Policies include, but are not limited to, taxation, regulation, expenditures, legal requirements and prohibitions, as well as the provision of consulting, coaching and training.

Regarding innovation policy, theoretical and empirical approaches converge to emphasise the importance of the role of innovation policy in supporting economic and social objectives, not only in the short but also in the long run. Innovation policy embraces the analysis of innovation programmes in order to provide credible advice to policymakers and other relevant stakeholders by considering both generic and sector specific policies.

This policy brief aims to link service innovation with the objectives of the EU 2020 strategy. On this line of argument, the rationale for stimulating service innovation would be to contribute to the achievement of smart, sustainable and inclusive growth. *Smart Growth* refers to the development of an economy based on knowledge and innovation. *Sustainable Growth* aims at promoting a more resource efficient, greener and more competitive economy. *Inclusive Growth* should stimulate a high-employment economy delivering social and territorial cohesion.

2.2 Methodological approach

This policy brief is based on different information sources and analytical methods. It started with a literature analysis, focusing on academic research, previous analyses and evaluations of service innovation and related policies. On this basis, seven case studies about innovative service companies were conducted, with the goal to identify the underlying success factors for their innovation, and how the policy framework (including innovation policy, but considering other policy areas as well) has possibly facilitated the innovation process. Summaries of these case studies (they were initially documented as more detailed background papers to this policy brief) are presented in Section 4.4. Exhibit 15 shows an overview of the main information sources for this policy brief. They are introduced in some more detail in the following paragraphs.

Exhibit 15. Illustration of various data sources for INNO-Grips policy brief 3

Quantitative focus	Qualitative focus
<ul style="list-style-type: none"> WTO, OECD, Eurostat, EUKLEMS databases Data from industry associations 	<ul style="list-style-type: none"> INNO-Grips case studies and case briefs Interviews with individual experts Existing case studies from various sources
<ul style="list-style-type: none"> Literature evaluation (desk research) 	

¹⁸ Deardorff's Glossary of International Economics, “policy”, accessed 12 February 2011.

Literature analysis

The literature review prepared for this policy brief is based on two types of sources:

- **Business environment:** studies on the level of enhancement of service innovation within and outside Europe. These studies cover the preconditions of service innovation (economic development, share of the service sector within the given economy, ICT-related technical and human infrastructure).
- **The policy environment:** assessment of existing policies (relevant examples of national policies of EU member states and their connection to the EU level policy framework). In addition, good policy examples should be collected from outside of Europe, as the final aim of supporting service innovation is not only to enhance the Single European Market but also to provide competitive European services on the global market.

In an effort to conduct a deep literature analysis, the following relevant sources have been used:

- Review of economic journals: International Journal of Service Industry Management; International Journal of Innovation Management; International Journal of Services and Operations Management; Journal of Service Research; The Services Industries Journal; Innovation: Management, Policy & Practice; Technovation; The Innovation Journal; Intereconomics; Contemporary Economic Policy.
- Research in literature databanks such as ACM Digital Library, Atypon, ScienceDirect, E-Journals Database (EBSCO), JStore, Wiley Online.
- Research in publications presented by highly qualified experts at prominent international organisations such as the OECD, the World Bank and the European Commission.

Case studies

In addition to the relevant and available case studies revealed by the literature, new case studies on service innovation activities and their drivers were conducted. The results were documented in papers of 8-10 pages on average, following a pre-defined structure. A short summary of six out of these case studies is presented in the brief. As policies are in the focus of the policy brief, all case studies have tried to devote special attention to this issue. The case studies assess the effects of relevant EU and domestic policy environments, considering both general and innovation-specific policies.

Guidance by an external expert

ICEG European Center invited **Prof. Dr. Slavo Radošević**, Professor of Industry and Innovation Studies at UCL School of Slavonic and East European Studies, to accompany the preparation of the policy brief, to monitor the content and to help tailor the research toward more sophisticated results. As a consultant, Prof. Dr. Slavo Radošević has extensive experience working with the OECD, UNESCO, UNIDO, the World Bank, the UNECE and the Asian Development Bank. His research interests embrace among other things the question of R&D and innovation policy in CEE countries, technology transfer, innovation systems, technology policy and catching-up.

3 Theoretical framework

3.1 Concepts for analysing policies for service innovation

Studying innovation in services is becoming more and more important as the world has now arrived at a new techno-economic paradigm, exhaustively described by Perez (2009). This concept converges on the thinking of Kondratiev (1935) and Rennstich (2002), who claim that, beginning with the Industrial Revolution in England at the very end of 18th century, the world economy has experienced technological revolutions every 40-60 years. Each technological revolution employs new or relatively new technologies via the method of smart combination. The new ICT-based techno-economic paradigm that emerged in the early 1990s not only provoked profound changes in the production process, it also tailored them to a more service-oriented economy.

Initially, most analyses were based on a “technocratic” approach, examining the impact of service innovations and, their sectoral technological trajectories. Drejer (2004) put more emphasis on the need for a service-based approach by differentiating between the major patterns of service innovation and innovations analysed by the “technocratic” approach. Three decisive theoretical paradigms emerged attempting to better understand and characterize innovation: (i) the technology-economic paradigm, which regarded innovation as a technological development; (ii) the entrepreneur-focus paradigm, which claimed that entrepreneurial action is the mainspring of innovation; and (iii) a third paradigm which placed the strategic actions of the firms in the central position.

Box 1. Rationale for service innovation policy

Recent literature and empirical evidence stress that the rationale for service innovation policy is not a question any more. This is due to the existence of systemic failures:

Insufficient use of external information sources: obstacles to knowledge flows, and the not sufficient level of cooperation with public research institutes and universities in case of service innovation represent significant barriers to service innovation. Moreover, the preparedness of companies to adopt greater openness – increasingly required by a constantly changing market – represents a further significant barrier. These factors may reduce the efficiency of policy efforts.

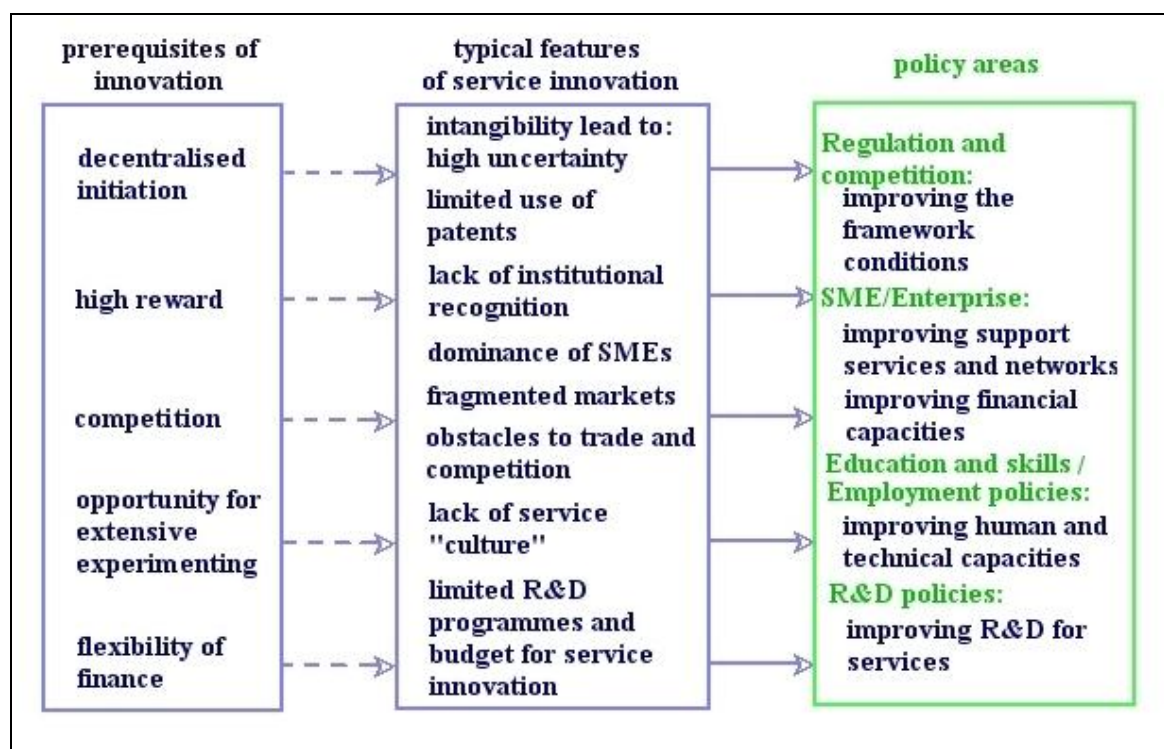
Anomalies during the deployment of conflicting incentives for market and non-market institutions: (e.g. overlapping private and public markets: energy supply, transport). Service innovation incentives should be in line with the objectives highlighted by the EU2020 Strategy. Since smart growth in our context refers to a “servicing the product” phenomenon, policy should support all forms of innovation, regardless of whether it is technological or non-technological. Sustainable growth is of great interest to the broad society. Thus policy should accordingly propose relevant initiatives. In order to foster inclusive growth, policy has to find a good proportion of job-creation in the private and public sectors.

Notwithstanding, innovation policy has –so far– not fully reflected the socio-economic importance of services. A high share of current policies have a significant bias towards manufacturing, while not conceptually considering the relevance of non-technological research and development.

As far as policies in support of service innovation are concerned, the progress of policies more or less followed the development of the above mentioned shift in paradigms. The recognition of the need for a well-functioning service sector appeared in an OECD report in 2005.¹⁹ This report argued that reforming the service sector would positively affect the latitude of policymakers to foster employment, productivity and innovation.²⁰

According to Kornai (2010), the major prerequisites of an impulsive innovation process in capitalism are the following: decentralised initiation, high rewards, competition, opportunity for broad experimentation and flexibility of financing. Decentralised initiation means that every business actor (e.g. an SME) can determine themselves what they want to invest in. Ultimately, the most successful innovations are accompanied by an enormous amount of financial reward, as well as a long-lasting reputation. The financial reward and the achievable fame are fundamental incentives for service innovators as well. However, the success of service innovation relies to a large extent on the availability of financial resources and the service “culture” of the society. The latter may offer a wide arena for extensive experimentation. To a large degree, this played a role, for example, in Nokia’s success in Finland.²¹

Exhibit 16. Necessity of service innovation policy – Building blocks of a potential policy framework



Source: ICEG European Center

Concerning the opportunity for wide experimentation, unnecessarily strict employment protection could be problematic, if for no other reason than because employers planning to innovate rely to a large extent on the opportunity to rapidly hire or fire employees before and after the planned innovation.

¹⁹ OECD (2005): The Service Economy in OECD Countries. OECD Science, Technology and Industry Working Papers No. 3.

²⁰ One should not neglect that it is still unclear to what extent and via what mechanism the employment is affected by the innovation. See these set of issues in case of manufacturing by Harrison et al. (2008).

²¹ See Tokumasu and Watanabe (2008)

(However, it is well known that companies need both flexibility in employment and stability of employment alike). If the innovation proved profitable, the outcome could potentially be beneficial both for the employer and for employees. But, if the innovation proved futile, the employer could be forced to reduce employment costs. Firing employees is much more difficult in Europe – where the flexibility of labour markets differs significantly across countries – than for example in the US. Accordingly, the opportunity for experimentation is more flexible in the US marketplace than in Europe.²²

Bearing in mind the productivity gap between Europe and the US, some studies suggest European countries with stricter employment protection are more likely to have less ICT-intensive and ultimately less knowledge-intensive sectors. As noted also by Sapir (2005), the Innovation Union Scoreboard 2010²³ also underscores this argument, demonstrating that the Mediterranean countries, which have traditionally stricter employment protection legislation, lag the EU27 in two respects: ‘Employment in knowledge-intensive activities’ and in ‘Knowledge-intensive services exports’. Consequently, the more protective the labour policy, the lower productivity levels remain (Bartelsman et al. 2010). This *per se* also calls the attention to the importance of horizontal innovation policy.

As mentioned above, service innovation has a multi-dimensional policy aspect, which can include a combination of both innovation and non-innovation related policies. For example, both regulation and competition policies can enhance incentives on both the demand and supply sides. SME and enterprise policies can foster inter alia the network building processes. Education likewise must guarantee the skilled labour force endowment for business services). Thus most research emphasises the importance of the **horizontal approach** which has to pervade the overall context of relevant economic policy. One of the principal reasons behind this argument is the simple fact that performance in the service sector cannot be isolated from economic growth in other sectors. While our fundamental prerequisites for innovation *per se* can be regarded as guiding principles for policymaking, policymakers should take the observable shortcomings – very often the features – of service innovation into account. As illustrated in *Exhibit 17*, the policy should move in the direction of broader perspectives and the horizontal approach in order to wield a positive influence on the service innovation process.

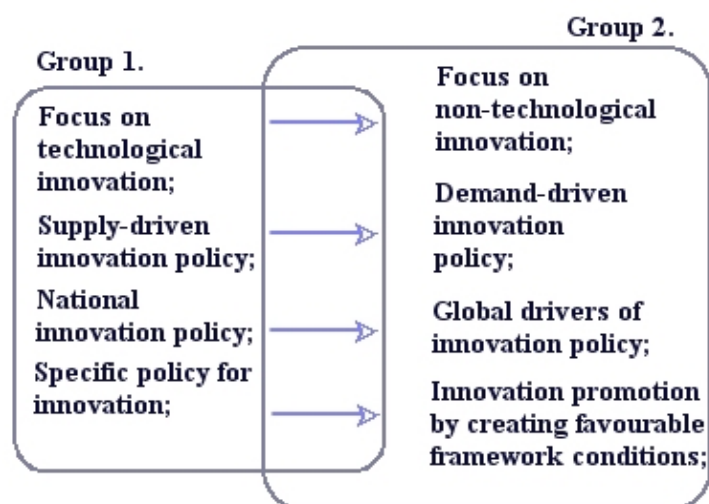
There are two essential ingredient groups with different dimensional focuses of horizontal service innovation policy. The characteristics of the first group are more in line with the traditional understanding of innovation; hence the second group has to pinpoint the need for a broader perspective.²⁴

²² Bartelsman et al. (2010) pointed out that European employment protection is much stricter than in the US. Let us add immediately that policymakers should be aware of the fact that labour policies differ across different European social models. As Sapir noted: „The stricter the employment protection legislation of a model, the lower its employment rate.” (Sapir, 2005:8). Plus, flexible labour markets reacted to the recent crisis in a much more vigorous way. On the case of Denmark, see: Andersen (2011), on the case of Germany, see: Möller (2010).

²³ See: Innovation Union Scoreboard 2010, Annex B. pp. 64. Available: http://ec.europa.eu/enterprise/policies/innovation/files/ius-2010_en.pdf Accessed on: 29.03.2011

²⁴ See more Kuusisto (2008)

Exhibit 17. Service innovation policy from a horizontal perspective



Source: ICEG European Center based on Kuusisto (2008)

3.2 Characteristics of service sectors

According to the OECD (2008) and the WTO (2010), services contributed to over two-thirds of the GDP of developed countries in 2005. Behind the curtain of this noteworthy data, a plethora of authentic studies have accentuated the significant role of economic development in the thriving service sector. While the productivity of manufacturing increased, a large share of the labour force became superfluous, and thus moved to the service sector. Furthermore, the rising demand for services led to intensified competition and dampened prices.

Since the service sector undoubtedly plays a key role in the generation and use of innovation, it would be instructive to shed light on the major typical features of the service sector itself. Let us add immediately that the **service sector encompasses extremely heterogeneous economic activities**. For example, *“the impact of factors like language, market size and relative stocks of human capital on modes of service delivery varies across sectors, indicating the heterogeneous nature of services”* (Christen – Francois, 2009:4).

In an effort to capture this aspect, the current policy brief goes beyond conventional studies on the **characteristics of services** which tend to consider them based on the so-called HIPI principle (i.e. heterogeneity, intangibility, perishability and inseparability). *Heterogeneity* means that even the same service can be heterogeneously provisioned at different places to different consumers. *Intangibility* refers to the immaterial character of service provision; though, the outcome itself can be physical. Since services cannot be stored, they are *perishable*. *Inseparability* means that the production of a service cannot be isolated from its consumption. Still, there are some services where these characteristics cannot be considered because ICT has made them storable, separable, and what is more, the tradability of services has changed (Skórska, 2009:5).

We complement these specific features with an additional characteristic that takes into account that the customer is a co-creator of value, a “prosumer”. Bearing in mind that services are results of co-production, i.e. the receiver and the service provider are both simultaneously involved at the instant of production, thus the so-called HIPI principle can be converted into the CHIPI principle. As a corollary,

the policy brief's view is compatible with the literature accentuating the trends of "servicizing product" or "productizing service".²⁵

As mentioned above, the service sector embraces heterogeneous economic activities; hence services can also be regarded as heterogeneous. This means that different patterns can be identified in the case of different service sectors (e.g. we can distinguish between repairing and telecommunication services with regard to their R&D activities).

Box 2. R&D activities in the services sector

European patterns demonstrate that stronger R&D activities are more likely especially in software development or in the case of service developments in connection with manufacturing products. These sectors are also more likely to conduct formalised R&D processes than other service sectors. R&D has predominantly an indirect effect on service innovation.

Typical service firms have infinitesimally low levels of full-time R&D staff.

Service firms often use public R&D sources to gain new skills and competences.

Source: Study on "R&D in Services review and case studies", prepared by DG Research in 2008.

The measurement of the service sector's productivity, compared to that of manufacturing, is rather difficult due to the specific features of service output which can be measured not only by quantitative, but also, to a significant extent, by qualitative indicators (e.g. the increased loyalty of customers through the emotional effect of service innovations). The results of relevant international studies call attention to the lower level of productivity growth of services compared to that of manufacturing. This is primarily explained by the higher rate of job creation in the service sector (D'Agostino et al. 2006; Szalavetz, 2008). However, this latter feature is not supported by the EU case, despite the fact that the Services Directive 2006/123/EC aims to unlock the economic and job creation potential of the internal market.²⁶

As regards the **quality of data**, scientific as well as policy analysis is made difficult by the fact that statistical data on services (including data on output, foreign direct investments, employment and trade) have many shortcomings. To name a few, first, services data are presented in a far less detailed manner compared to manufacturing. However, even complying with the level of aggregation prescribed by EBOPS²⁷ is difficult for many countries. Furthermore, the rapid emergence of new types of services has led to the rapid outdateding of existing classifications. Second, as the dividing line between manufacturing and services activities has become very thin, with more and more companies selling both goods and services, it is no longer straightforward whether a transaction should be classified as goods or service. Additionally, the dominance principle applied to deals involving both goods and services may result in inaccurate estimations of service activities. Moreover, the presence of multinational or global firms not organised along national lines but reporting to national agencies may lead to further reporting complications.

Another equally important and typical feature of the service sector is the various kinds of **knowledge-bases** involved. First and foremost there are services grounded on codified professional skills such as

²⁵ This term refers to the trend observable in manufacturing companies by showing a perceptible shift towards the more service-based business model (for example: Xerox). See: Howells (2003, 2007), Rothenberg (2007)

²⁶ The deadline for the implementation of the directive's provisions expired at the end of 2009.

²⁷ Extended Balance of Payments Services (EBOPS), see: <http://www.oecd.org/dataoecd/24/34/2507956.pdf>

legal services, accountancy etc. Secondly, there are services based on non-codifiable skills (tacit skills)²⁸, such as person-dependent services (fashion design, restaurants etc.). The nature of tacit skills makes the measurement of service sector productivity more difficult, pressing analysts to base more work on case studies.

3.3 Characteristics of service innovation

This section presents some specific features of service innovation in order to provide ammunition for differentiating between innovation in services and manufacturing as well as to call attention to the limitations of service innovation research.

First, the issue of recursive service innovation is discussed which alludes to the fact that service innovation mostly takes place through the permanent contribution of a multi-actor network. Second, the policy brief calls attention to the difficulty in differentiating clearly where any given service innovation stems from (the manufacturing or the service sector). Since service innovation is more likely to be associated with more qualitative outcomes, the issues of diffusion and protection also deserve attention. Furthermore, the perceptible shortcomings are also identified with what researchers regularly face.

The recursive model of service innovation

Instead of the prevailing linear innovation models (Schienstock – Hamalainen, 2001), this policy brief follows the approach of the recursive innovation model of Arnold and Bell (2001) and defines it explicitly for service innovation. There are two types of linear innovation models, the first one (the science push model) developed to serve as a guidance to innovation assumes that knowledge flows in only one direction. The fundamental source of knowledge generation is the basic scientific research embedded in innovation system institutions. It then arrives at the development phase, where thorough testing is conducted; finally, new knowledge is converted into new products and/or services and commercialized in the market. Another model which perceives innovation as a linear process is the market push model, in which the starting point is based on market needs rather than basic research.

Theoretical and empirical research has determined that these two traditional models of linear innovation are mainly the exception rather than the rule due to a typical feature of service innovation. Service firms generally do not have strong relations with traditional innovation system institutions (e.g. universities) (Miles, 2005).²⁹ Moreover, most innovations come to light via new and complex combinations of existing knowledge. Innovation is thus the output of permanent and intensive interactions and weaving relations between providers, partners, competitors, customers, suppliers, clients etc. utilising feedback mechanisms. This implies that one differentiating factor between service and manufacturing innovation is the fact that innovation activities are not centralised in R&D departments. Instead, innovation activities pervade the entire organisation.

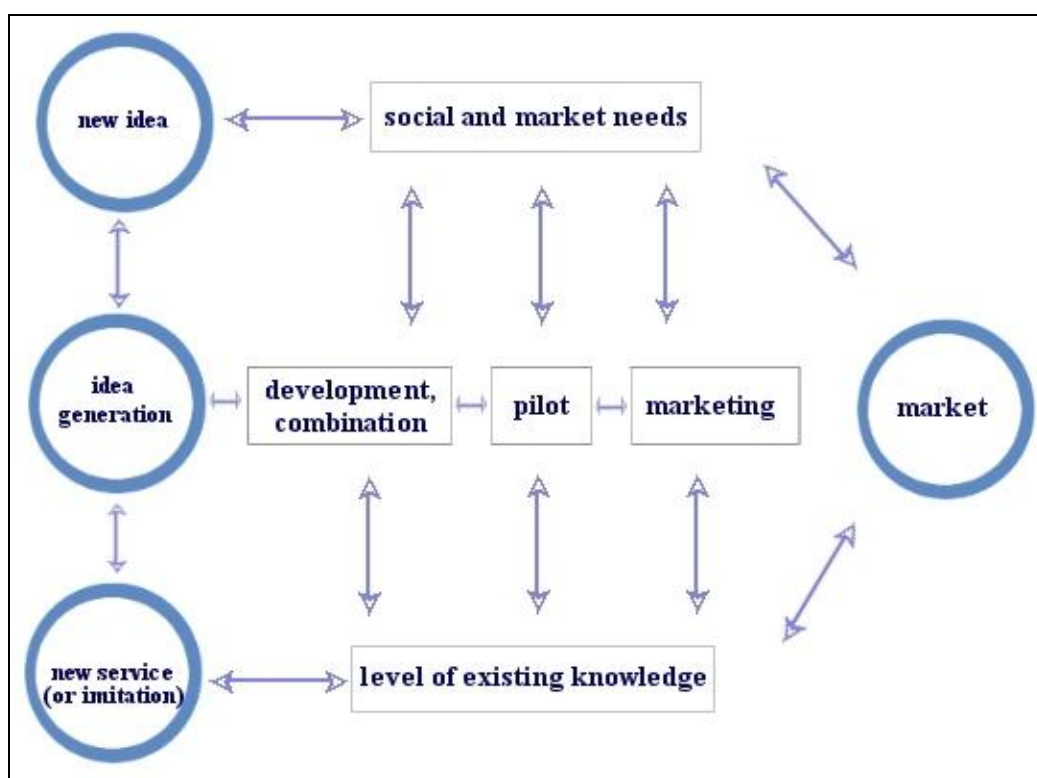
²⁸ See for example a very comprehensive paper on tacit skills, tacit knowledge by Lam (2000).

²⁹ More importantly, direct links between universities UK Innovation Survey 2005 revealed that UK service firms are less likely to use universities as part of their information sourcing strategy than manufacturing (Tether – Massini, 2007).

As a corollary, we use a **recursive model of service innovation** in order to capture these feedback mechanisms.³⁰ Furthermore, the widely accepted demand pull perspective (Schmookler, 1966) is incorporated in the recursive model, which states that innovation takes place when a given firm anticipates strong demand. The more useful information a firm has through feedback mechanisms, the more adequate anticipation will be. In this model, the market plays a crucial role. The market, as a framework or a selection environment, encourages innovative service exploration and the creation of new knowledge (Buchanan – Vanberg, 2002:127). Moreover, the level of existing knowledge also encompasses relevant technology. However, the intangible character of services seemingly signals that service innovations are of a more non-technical nature. In this regard, technology cannot easily be omitted from our model, especially if we also consider the non-negligible positive impetus of the development of ICT on the production and distribution of services. In other words, ICT plays an enabling role.

While service innovation *per se* can contribute to an increase in the profitability of firms, it should also be noted that the success of service innovation can be challenged if competitors can easily imitate innovation (Hurmelinna-Laukkanen – Ritala, 2010). The consequences of this are twofold. Since service innovation is easily copied, continuous service innovation is a must. Additionally, service imitation should also be plugged back into the recursive model of service innovation.

Exhibit 18. The recursive model of continuous service innovation



Source: ICEG European Center

³⁰ As regards the feedback mechanism that is of great importance, *Quadruple Helix Model* of innovation (Arnkil et al. 2010) suggests that innovation needs knowledge production which happens through multi-actor networks.

Service innovation in manufacturing and service industries

A perspective which focuses on service innovation and policy for service innovation as a generic area is fraught with serious limitations due to a wide variety of services activities ranging from highly personalized and immobile to highly industrialized and tradable services. The industrialization of services and the tertiarization of industries have progressed considerably in the last 10-20 years, driven by internet diffusion. This has led to the transformation of the nature of industrial systems which increasingly mix up services and tangibles across different functions within firms. It is thus increasingly difficult to classify firms as service providers or manufacturing firms.

Box 3. Why manufacturing industry tends to add services and spurs service innovation? From the stabilizing role of services to the potentially “labilizing” role.

Firms, especially SMEs operating in the manufacturing sectors and engaging in product innovation tend to add various kinds of services to their existing product offerings.

Explanations for this phenomenon can be linked to the stabilizing role of services:

- Adding services can lead to greater stability in terms of sales predictability and cash flow (e.g. especially in those sectors where cyclical industry fluctuations are relatively large: construction, automotive sector). Another factor that inspires SMEs to move in this direction is the need for more customised products in saturated markets.
- Due to globalization, the global value chain forces firms to strive for better and lower cost/price products. The need to differentiate a firm from competitors has become more pronounced and services can help in this process.
- Adding services often leads to increased loyalty and customer satisfaction, bringing greater stability to sales trajectories. This implies that, along with the differentiating role of the services, they can also bring firms closer to customers.

With the continued development of the service economy, e.g. services pervade more business activities than ever before, adding services has become less stabilizing than was previously the case, especially because market actors have begun adding services more and more frequently which led to an increased number of service alternatives. *People make choices in every occasion whether they go to the theatre or cinema, what is more, people are much easier to give up most services compared to the daily bread.* This has the effect of moderating their stabilizing role for some sectors. It is to a certain extent justified by studies emphasising that the impact of added services (or implemented service innovation) on the firm's financial performance is not so unambiguous.

The patterns move us towards the direction stating that continuous service innovation seems to be a must today in dampening the potentially “labilizing” role of services in some sectors and, eventually to make services nearly impossible to give up (e.g. Google applications and services could serve as prime examples in this regard).

The impact of ICT on services and their interaction with manufacturing is profound and service innovation changes our way of thinking about technological innovation in general. Intangibles, knowledge-intensity and open innovation models are changing the nature of mainstream innovation activities.

Changing the understanding of innovation and service innovation also implies that the role of value chains and networks of firms as well as the incorporation of service and manufacturing activities that correlate constantly with each other within the confines of the market as a social arena are not

negligible. This was apparent in the case of Norwegian firms, where an empirical study by Aas and Pedersen (2010a) – analysing 3575 Norwegian firms from the manufacturing industry to assess the effects of service innovation on financial performance – found that firms focusing on service innovation had more significant improvement in financial performance (higher operating results) than firms not focusing on service innovation. And what is more important is the fact that, this thesis was falsified in a corresponding investigation of 1132 Norwegian firms operating in the service sector (Aas – Pedersen, 2010b).³¹

There is no unambiguous evidence for the financial impact of service innovation in the wider economic literature. And there is no clear relationship between service innovation and their financial impact. This is not astounding since, in the presence of a variety of other elements influencing markets and the company performance, innovation is not the only factor potentially related to business success. Still, many studies argue that service innovation has a significant emotional effect, i.e. it promotes changes in the consumer perception of services offered individual firms. According to Aas and Pedersen (2010b), more qualitative impacts presumably moderate the financial effect of service innovation. This *per se* suggests that more research is required in order to unravel the impact of service innovation on financial performance.

As pointed out earlier in Section 1.2, innovation is skewed towards the goods sector. But a large share of innovative efforts in both the service sector (Berry et al. 2006) and manufacturing industries (Lu et al. 2005) is related to service innovation. Instead of claiming *ex cathedra* that service innovation is more likely to offer a higher rate of productivity and growth, in particular for firms doing business exclusively in service industries, we emphasise the need for further research.³² Numerous empirical studies argue that most leading manufacturing firms have added service innovation to their existing product offerings (Bryson – Monnoyer, 2004; Lu et al. 2005; Lusch et al. 2007; Sawhney, 2006).

Studies searching for potential answers to this phenomenon have mentioned that manufacturing firms on average seem to be more capable at successfully managing innovation projects than firms in service industries (Oke, 2004; 2007). One possible reason for this is the lack of formal practices regarding incremental innovation in the case of service firms (e.g. Barczak et al. 2009). Consequently, it is not surprising that manufacturing firms on average tend to implement radical innovation more frequently; its strong impact on their financial performance was documented as early as the 1990s (Kleinschmidt – Cooper, 1991). Recent studies have also pointed out that service innovation increases sales revenues in service firms. However, these additional revenues seem to be neutralised by increased costs, i.e. revenues from service innovation are not able to adequately compensate service innovation-related costs.³³

³¹ One should not neglect that Norway is one of the Nordic welfare states, where the institutional settings are not compatible with most European countries. According to the Global Entrepreneurship Monitor (2011), the share of nascent Norwegian firms in relation to the population is significantly higher than in the US. As a result of the extremely progressive income taxation accompanied with a relatively substantial amount of property tax, the state is able to provide the necessary skilled labour force for (starting) enterprises – that are not obliged to pay high corporate taxes – through free education. In this way, Norway can foster and maintain the soaring growth performance of the economy.

³² Uppenberg and Strauss (2010) showed that finance and business services have the strongest impetus on labour productivity among different type of service branches. They considered the following classification: trade and tourism; transport and communication; finance and business services and social services.

³³ See Aas and Pedersen (2009) or Schmidt and Rammer (2007) stating that the parallel use of technological and non-technological innovations is likely to lead higher costs than returns.

There are distinctive differences between manufacturing and service sectors regarding how companies innovate. Evangelista and Vezzana (2010) used cluster analysis to analyse four innovation modes (product-oriented; process-oriented; organisation-oriented and complex innovation). They found that – in line with Van der Aa and Elfring (2002) – organisation-oriented innovation is the most dominant innovation mode in the case of services and is a non-negligible prerequisite for the improvement of services. Although they also emphasised that complex innovation – when companies adopt both product and process as well as organisational innovation as a systemic approach – is more likely in the case of manufacturing, the relative proportions are close (manufacturing: 24.2%, services: 19%). Characteristically, firms that use complex modes of innovation are large companies whose financial base is above average in size.

Diffusion of service innovation

As the outlined relationship between manufacturing and service sector illustrates, mutually reinforcing processes can be identified in the course of service innovation. The question of service innovation diffusion arises at this stage which mostly depends on the firms' future expectations of when a given adoptable service innovation will be outdated. Importantly, if a firm can easily predict that point in time, especially if it will come relatively soon, the firm can decide not to adopt that service innovation.

Apart from future expectations, service innovation diffusion also depends on the trust environment. As shown by, among others, Neumann and Holzmüller (2007) and Eisingerich et al. (2009), inter-firm commitments and relationship trust are significant building blocks of innovation outcomes, and ultimately of service innovation diffusion.

The question of diffusion also calls policymakers' attention to improving the trust environment by creating better framework conditions on the one hand and, on the other hand, by considering the issue of speed and the extent of diffusion in a more elaborate way. If policy is about to increase the rate of diffusion in an excessive way it can become a double-edged sword. Beside its expected positive impact, there will also be negative repercussions due to the fact that the service inventor's revenue will decrease as more and more governmental financial resources are available for the followers to adopt service innovations. Consequently, this kind of policy could be counter-incentive for further service innovation in the case of the inventor. This suggests that policy should foster the diffusion of service innovation via fiscal support in order to moderate the costs of adoption, but in a way that provides an initial and time-limited burst of funding is progressively diminished over time, rather than by using a persistent and substantial fiscal incentive scheme. This kind of approach would also provide room for "future generations" of service innovation that are mostly in line with the requirement of smart, sustainable and inclusive growth.

The question of protection

Apart from the financial impact of service innovation on firms, the question of protecting service innovation outcomes also deserves attention, if for no other reason than because the use of patent instruments is different in the case of service innovations, i.e. patent protection is of only minor importance. As several reports reveal, both the propensity to patent and the quantitative volume of patent applications (e.g. registered designs, copyrights, trademarks) are spectacularly low in the service sector compared to the manufacturing sector (Fraunhofer, 2003; OECD, 2008). Service companies are more likely to use systems of protection (i.e. a variety of defensive methods) rather than to stick exclusively to single methods.

The reason for this difference is that beyond formal methods, service firms have the opportunity to use informal or to a certain extent strategic methods in support of protection (e.g. secrecy, confidentiality agreements, etc.). Despite these available methods, the intriguing observation is that on average innovative service firms use them less frequently than manufacturing firms. Since patents are by no means applicable to each case of a new service – whether tacit or codifiable knowledge – with regard to the efficacy of protection we can make a distinction between general product (or process) innovations and service innovations.

In this respect, recent studies have started to emphasise the role of the Internet as an effective incentive to maintain the development of service innovation. An OECD report stated that the development of Internet and electronic commerce are “shattering conventional communication networks and are providing the means for companies to engage in partnerships that would have been unimaginable several years ago. These new partnerships help to diffuse knowledge and to strengthen the international presence and competitiveness of firms, including start-ups and small and medium-sized firms.” (OECD, 2000:3). These studies therefore encourage the development of obligatory instructions for service innovator-follower to display the name of the originator whose service innovation was adapted.³⁴ According to Tether and Massini (2007), service firms are more likely to use a cohort of protection methods by creating a “system of protection” rather than relying on any single method.

Furthermore, the question of protection arises almost as soon as collaborative service innovation activities have been initiated. Companies must of course protect knowledge that provides competitive advantages. However, in parallel, they are inclined to foster knowledge-sharing, which may be in conflict with protective measures. As a result, “service innovators cannot rely solely on intellectual property right strategies, as their counterparts working with products might do, but the service element requires taking a wider look around, and utilizing means such as human resource management, lead time, and contracting.” (Hurmelinna-Laukkanen – Ritala, 2010:12).

Bearing the above points in mind, it is also worth noting that the question of open innovation – besides the manufacturing industry – in the case of services is as much considerable.³⁵ The outcome of service innovation can be the achievement of an open process, e.g. collective thinking involving several (internal/external) people and institutions. A service innovation can also be portrayed as an open service innovation if the outcome is not possessed exclusively by any one entity, i.e. there is free access to services. The latter consideration also implies that the role of traditional patent and property rights is infinitesimally small. Furthermore, service innovation can also be open if service firms maintain good relations between service developers and consumers.

³⁴ Traditional patent and property rights protect service innovations to a much more limited degree than in case of manufacturing. Because “[...] patenting services often does not benefit the public, adopting a pro-patent policy in service industries is inappropriate today” (Hatakama, 2010:2). Hatakama (2010) proposed a new intellectual property right, which would live with obligatory instructions for the followers by providing opportunity for the service inventors to develop more innovation. This proposal stipulates that the followers will have to display the name of the service innovation’s originator on their brochure and web page and will also have to add a link to the originator’s web page.

³⁵ The paradigm of open innovation can be defined as follows: “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. Open innovation is a paradigm that assumes that firms can and should use external ideas, as well as internal ideas, and external and internal paths to market, as they look to advance to technology”. (Chesbrough, 2006:1)

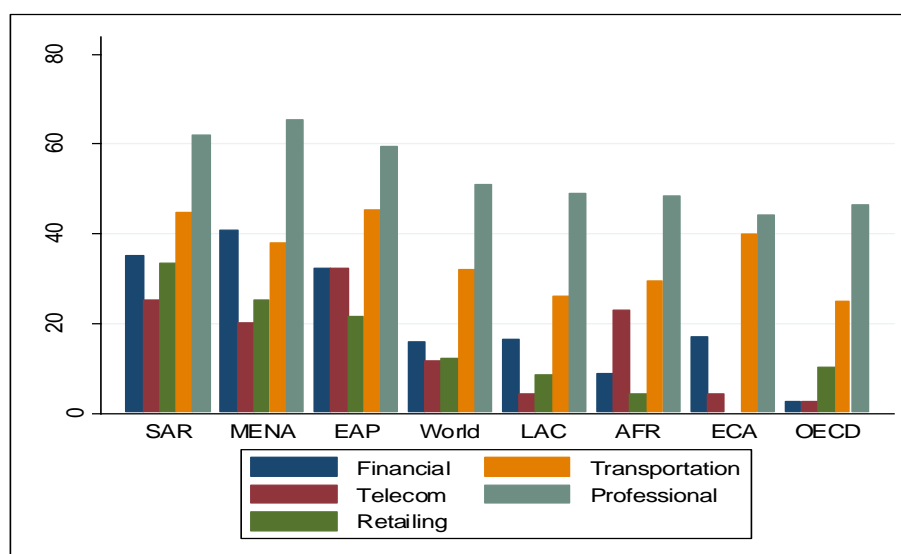
Trade in services

Obviously, services can no longer be seen as “non-tradable”. Therefore much attention is being given to trade liberalisation in services. According to Kox and Lejour (2006), reducing barriers and integrating national service markets into a single market could increase GDP and consumption by 0.5% to 1% on average throughout Europe.

The European service market can be viewed as fragmented owing to still prevalent regulatory barriers. While numerous studies argue that the liberalisation of trade in services by creating a single market for services has great economic potential, there is no consensus in the economic literature because trade in services has not been exhaustively explored. Still, recent research has revealed that existing regulatory barriers to services trade are more restrictive than in the case of goods (irrespective to developed or developing countries).³⁶ Let us add immediately that the restrictiveness of regulations varies across the World. For example, the most restrictive regulations are found in Asian, Middle Eastern countries and in regions throughout North Africa.³⁷

Measurement of the regulatory restrictiveness of services trade is widely debated. On the one hand, the OECD’s Services Trade Restrictiveness Index³⁸ seems to be robust with respect to professional and telecoms services, while its applicability and robustness raise questions in the case of construction, computer and similar services. On the other hand, the lack of valuable and consistent sectoral level trade data on services remains an important impediment.

Exhibit 19. Services Trade Restrictiveness Index by region and service sectors (2009)



Note: SAR: South African Republic; MENA: Middle East and North Africa; EAP: East Asia and Pacific; LAC: Latin America and the Caribbean; AFR: Africa; ECA: East and Central Asia

Source: Borchert et al. (2010)

³⁶ Recent study called the attention to the fact that „Doha negotiations are on average twice as restrictive as actual policy” (Hoekman – Mattoo, 2011:3). This recurring fact was also emphasised at World Bank DECTI Trade Seminar. See more: Borchert et al. (2011)

³⁷ There are doubts with respect to the reliability and comparability of data on trade in services. There are lots of different methods in use to capture the trade in services irrespective to the requirements of IMF’s Balance of Payments Manual.

³⁸ See more about STRI on: <http://oecd.org/trade/stri> or <http://www.oecd.org/dataoecd/31/15/47342418.pdf>

The OECD (2011) came to the conclusion that innovation by domestic firms is positively affected by better access to international trade in intermediate inputs. The study added that the effect of trade liberalisation depends on coexisting policy effects (e.g. access to finance, the availability of skilled labour and stable macroeconomic conditions). This coincides with economic theory and empirical evidence suggesting *inter alia* that better access to competitive markets and smoothly working backward and forward linkages in financial markets are also conducive to competition because they stimulate trade and investment as well as knowledge spillovers and, ultimately innovation. In this regard, diminishing barriers to services trade would be advantageous, because trade inefficiencies lead to higher than necessary costs of services and potentially endanger the access to services (transportation, distribution etc.).³⁹

Measurement as a challenge in service innovation

There are caveats regarding the appropriate use of innovation indicators in the case of the service sector. For example, the informal creative praxis such as software development, industrial design, technological consultancy etc. are not completely reflected in traditional R&D indicators. Miles (2005) noted that official statistics are less likely to suit the measurement of service sector innovation for two reasons.

(i) Surveys, developed to measure R&D statistics, are often based on manufacturing practices (Hipp – Grupp, 2005; Szczygielski, 2011) and processes; hence they are not fully adapted to the case of service innovation.⁴⁰ Moreover, statistics cover services through data provided in particular by firms in the service sector, and neglect the fact that, today, most manufacturing firms also offer numerous services to their customers. These services are thus essentially “hidden services” (Grönroos, 2007).

(ii) Despite OECD recommendations (Frascati Manual⁴¹), there is still a tendency to neglect social and behavioural research findings which are indisputably relevant to the analysis of service innovation. Service innovation typically affects customer behaviour toward companies by increasing satisfaction and loyalty (De Jong et al. 2003).

Some attempts have been made to capture cross-country differences in service innovation performance. One highly used indicator is the Service Sector Innovation Index (SSII) developed by Kanerva et al. (2006) composed of sub-indices (human resources, innovation demand, technological knowledge, non-technological change, sources of knowledge/ diffusion, commercialization and intellectual property). The calculated index illustrates a controversial picture about how different EU member states perform according to the European Innovation Scoreboard (Innovation Union Scoreboard) and SSII. Thus it draws attention to the necessity for additional research on how the SSII could be further elaborated.

Additionally, the principal author of this policy brief is aware of the widely used CIS2006 and CIS2008 surveys which, based on Oslo Manual 2005 definitions, do not rank service innovation into different

³⁹ In Europe, The Services Directive 2006/123/EC is to promote the reduction of such regulatory barriers which have been hindering the free trade in services throughout the EU.

⁴⁰ The inadequacy of some linguistic modifications to the questionnaires from the manufacturing sector was already justified in the study prepared by Statistics of Canada (1995).

⁴¹ OECD (2002): Frascati Manual: Proposed Standard Practice for Surveys of Research and Experimental Development (6th Edition, 2002)

types of innovation (product, process, marketing and organisation). Likewise, the CIS surveys fail to make any distinction between radical and incremental (service) innovations.⁴²

3.4 Drivers and barriers of service innovation

Information on the main barriers and driving forces of service innovation were prepared by the Secretariat for the Expert Panel on Service Innovation in the EU within the Mini-study supporting Workshop 2 in Copenhagen, 4th June 2010. The major barriers and drivers are drawn up on the basis of EU2020-objectives and emphasise the role of transformative service innovations in achieving smart, sustainable and inclusive growth.

Exhibit 20. Some drivers and barriers of service innovation

	Drivers	Barriers
Service innovation for smart growth	<ul style="list-style-type: none"> • awareness on service-based and demand driven innovation utility model by firms; • 'servicizing the product' phenomenon; • better integration of ICT into the services mindset of companies; 	<ul style="list-style-type: none"> • digital divide related problems; • ICT enabling investment needs more transformative service innovations; • hindrances to knowledge flow (external or internal sources);
Service innovation for sustainable growth	<ul style="list-style-type: none"> • enabling role of ICT; • increasing awareness on environmental side-effects; 	<ul style="list-style-type: none"> • institutional inertia, conflicting tendencies; • lack of market demand for sustainable transport;
Service innovation for inclusive growth	<ul style="list-style-type: none"> • more flexible labour market • permanently improving Internet culture; • training, coaching; 	<ul style="list-style-type: none"> • too strict employment protections; • low level of service culture; • lack of skilled workforce – poorly performing educational system;

Source: ICEG European Center

3.4.1 Service innovation in support of smart growth

Drivers

High-impact services are knowledge and technology intensive and occur in complex symbiotic organisational relationships between service suppliers and their customers. The key indicators and drivers for smart growth are the following:

- 1) First, the increasing organisational importance of the effective acquisition, analysis and use of information as ICT has begun to move from a model where firms made capital investments in hardware and software to a more service-based utility model. In this case, access to business management information and communications is purchased as a real time service, for a fee.⁴³

⁴² Recent research (OISTU - Observatory for Information Society Take Up in the Eastern EU Member States and Southeast Europe) prepared by ICEG European Center found that companies working in ICT sector are not always able to recognise and identify an innovation during their ICT service offering.

⁴³ BIS, 2010:8 Professional and Business Services a 2020 vision for growth, BIS, HMSO, London

- 2) Second, we have seen a shift to semantic analysis following the increasing sophistication of modern software infrastructure. This has now moved from the initial Web 1.0 model of providing information, to providing much more sophisticated user-generated content as well as shifting towards semantic analysis, and the potential provision of a full range of semantic web services. The amount of data that is being generated in the economy is now so vast that specialised service provision firms can provide semantic experimental services for customers.
- 3) Third, the convergence of a range of ICT technologies can now be seamlessly integrated. These relate to location, media, database, mobile, web and user-generated content and analysis that were previously either poorly integrated or provided on distinct platforms (i.e. web browsers on fixed computers, mobile phones for voice and SMS traffic and GPS devices for location). These diverse systems are merging to form a 'cloud' of distributed computing infrastructure.
- 4) Fourth, a shift in markets towards exploiting the 'long tail' where small numbers of distributed consumers are pooled and targeted to create high value-added services. The increased ability of ICT technologies to draw in consumers early on in the innovation process is seen as a shift from marketing based on pushing products and services toward consumers, to a new demand-driven process whereby consumers play a more active role in the co-production of goods and services.
- 5) Fifth, changes in ICT infrastructure – Many of these drivers are dependent on improved broadband penetration and Internet access. Thus, one might expect that countries with high levels of Internet access (based on 2009 Eurostat data), such as the Netherlands (90%), Sweden (86%), Denmark (83%), Germany (79%), Finland (78%) and the UK (77%) would have a advantage over countries with lower levels such as Bulgaria (30%), Greece and Romania (both 38%). This is particularly stark in relation to broadband coverage, given the higher bandwidth requirements of semantic analysis of large datasets. Consequently, countries with high-speed broadband connections such as Sweden (80%), the Netherlands (77%) and Denmark (76%) will be at a considerable advantage compared to Romania and Bulgaria (26 and 24% respectively). Penetration rates for firms are, not surprisingly, higher (Eurostat, 2009) with 100% in Finland and 98% in Denmark, Austria and Slovakia, but with lower rates in Romania (40%) and Poland (58%).⁴⁴ Given that the drivers towards exploiting the 'long tail' by integrating previously unprofitable market segments depends on ICT infrastructure there is a potential opportunity for public policy interventions in this area.

Barriers

While there are currently no indicators on EU-wide preparedness for transformative services, there is reasonably good data on key barriers to the uptake of digital services more generally.⁴⁵ These include:

⁴⁴ The percentage was less than 90% in only six Member States: Romania (72%), Bulgaria (83%), Latvia and Hungary (both 87%), Cyprus (88%) and Greece (89%).

⁴⁵ Key drivers for ICT based smart services are likely to be similar to the drivers of getting beyond the 'tipping point' in adoption of government eServices, given their similarities. These are: Heightening expectations from individuals for better services; their increasing involvement and participation in the service design and delivery process; the need to make Governments more open and transparent; business pressures to make Europe a more open and efficient market; economic motives for Administrations to collaborate and deliver efficiencies (European Commission DG Information Society and Media, Smarter, Faster, Better eGovernment 8th eGovernment Benchmark Measurement (2009))

- The digital divide – where some groups in society benefit less and some more from eServices.⁴⁶ Where groups benefit less, this will constrain the ability to integrate markets and exploit marketing opportunities in the ‘long tail’.
- Investment in ICT – overall expenditure nationally on technologies that provide the infrastructure needed for many ICT-enabled transformative services. This includes Internet usage and broadband access in both the workplace and in the households. This also implies that the growth of the European companies, particularly in the field of internet economic activity, is constrained by the lack of a Digital Single Market⁴⁷.
- Experience and readiness to use advanced ICT-based services.
- Educational levels of the workforce, measured by the proportion of the workforce with tertiary-level qualification in science, maths, or computing (excludes health-related and engineering courses). This provides a proxy for the technological sophistication of the workforce and the number of graduates with ICT capabilities. Given that the focus is on smart transformative services these skills are needed to both generate and use these services.

There is also a potential for policy intervention to address market failures in human capital generation, transfer and upgrading that is important for both the use and generation of transformative services. Transformative service firms typically combine knowledge and advanced technologies to generate new business models. The institutional, educational and technological pre-requisites that are required for this are present to differing extents across the EU Member States. There are also constraints that emerge because of IPR controls on data access, potential monopolies on certain types of data, issues about standards and data integration, as well as public policy issues related to privacy and the storing of large quantities of personal data.

The countries with the best performance in education (Ireland, the UK, Austria and Germany) have higher participation rates in science, maths and computing (>10%) than the countries with the lowest performance (Greece, Romania, Bulgaria). However, they generally spend slightly less on ICT than the leading countries (the UK is an exception). This snapshot reveals substantial differences between countries, but the general trend is towards improved Internet and broadband services.

Many of these drivers and barriers are subject to well-known market failures, particularly because of the knowledge-intensive nature of transformative services. As a result, socially sub-optimal investment in knowledge-related activities may provide a justification for public policy. There are also likely to be ‘network failures’ related to the lack of basic infrastructure and ineffective configurations between institutional structures, economic activity, regulation and intra-firm organisation. These are not strictly market failures, but have historically been important in driving public policy. Other barriers to innovative service provision include classic European problems related to access to capital, problems concerning the ‘investment readiness’ of SMEs and managerial and environmental problems that constrain the growth of high impact firms.

⁴⁶ The at-risk groups include those who are aged over 55; women; the less educated; those living in rural areas, the unemployed and inactive.

⁴⁷ See: European Policy Centre (2011)

3.4.2 Service innovation in support of sustainable growth

The drivers and barriers of service innovation in support of sustainable growth differ from other growth areas, as the achievement of this objective requires significant structural shifts affecting the entire systems of energy generation, use and transportation. This requires a more systemic approach to policy that recognises how techno-economic systems can become locked into socially suboptimal configurations.

Drivers

1. The enabling role of ICT: One of the recognized ways to reduce carbon emissions and support sustainable growth is to use the enabling potential of information and communication technologies (ICT). On the one hand, ICT is responsible for approx. 2% of global CO₂ emissions⁴⁸ and, on the other hand, not only does ICT deliver technologies that help other sectors become more energy efficient, ICT-enabled living and digitized services also point to new and innovative ways of living, working and collaborating that reduces energy consumption. ICT as a communication tool also has enormous potential for transforming behaviour and patterns when consuming energy. According to the European Commission, ICTs can, e.g., be expected to reduce total carbon emissions in Europe by up to 15% by 2020⁴⁹ by simply making citizens more aware of how they use energy in their homes, in traffic, when working, etc.
2. Coordination and optimal use of different modes of transport.
3. Ensuring a shift from less to more energy efficient transport modes. So far policy has been unable to reverse the decline in market shares of rail and bus transport, although there are indications that the rate of decline is slowing down.
4. Improvements within each mode of transport, including behavioural changes. There are examples such as eco-driving campaigns in local areas that have generated measurable benefits in the range of a few percentage points. But it remains to be seen if such measures can maintain their efficiency over time and can be scaled up from the local level to regional, national and EU level.
5. Technological advances in passenger cars and further improvements in efficiencies and technical know-how will speed up the transition.
6. High oil prices may push demand towards sustainable energy sources. It is becoming profitable for companies to develop new forms of energy, while the scarcity and polluting side effects of fossil fuels are forcing the discovery of alternative and cleaner energy solutions. Also, consumer patterns change. In January 2008, when the oil price passed USD 100 per barrel, consumption fell. Likewise, during the financial crisis, demand and numbers of cars on the roads fell. However, the changes in behaviour and the need for new services are difficult to foresee because they tend to depend on location of dwellings, places of work, institutions and shops. Overall, it is difficult to predict the long-term effect for instance on transport of high fuel prices.

⁴⁸ Gartner Symposium/IT Expo April 2007.

⁴⁹ Commission, DG INFSO, March 2009, Communication on mobilising Information and Communication Technologies to facilitate the transition to an energy-efficient, low-carbon economy.

7. Consumers and shareholders are increasingly becoming aware of environmental side effects related to products and services, thereby creating a new demand for responsible products and services (e.g. organic products)⁵⁰.
8. Increasing awareness among company CEOs is leading to the development of new products and services which are demanded by conscious business customers and individual consumers.
9. New markets related to issues such as cleaner energy and less pollution from transport are appearing, creating a demand for new products and services focusing on environmental responsibility.
10. Recent economic pressures have driven an increased interest in increasing efficiency among businesses, as firms take interest in potential savings that can be made on both utilities and waste expenditure. This, coupled with increased awareness of the broad benefits of environmentally responsible practices, is creating a market for new services that redefine and modify business practice to become more sustainable.

While there are a range of important social drivers for change, including an increasing public recognition of the problems of unsustainable development, there are substantial market failures and opportunities for public policy. Sustainable growth raises complex political questions as there is unlikely to be a single European pattern of sustainable growth. Service firms can play important roles in clarifying which sustainable solutions are likely to be socially, politically and economically viable.

Barriers

Many of Europe's current energy systems are locked in because they operate on such large scales, with capital intensive production and distribution systems and networks of supporting institutions and technology-specific standards that make alternative methods of energy production difficult to introduce. The market environment therefore suffers from institutional inertia, so that while many sustainable technologies operate in niches, they face substantial problems in growing to compete against well established but unsustainable alternatives.⁵¹

Lack of market demand for sustainable transport

Sustainable transport services would require that the private and public sector take into account not only the consequences of urbanization and motorization (e.g. the development of car ownership), but also the need for higher energy efficiency (e.g. shifting towards new and greener fuels) as response to the climate change. On the one hand, car ownership continues to increase. In 2005, the average car ownership level in the 32 EEA member countries reached 460 cars per 1 000 inhabitants, compared with 335 in Japan and 777 in the USA. On the other hand, the usage of cleaner fuels also has to be taken into account. There is progress toward cleaner fuels. The combined penetration of low and zero-sulphur fuels in the EU-25 increased from 50 % to 99.9 % between 2003 and 2005, meaning that the

⁵⁰ *News nature of innovation* (2009), Joint publication by FORA, OECD, and DK Ministry for Economic and Business Affairs.

⁵¹ Moreover, in some instances the technological options are simply not there. This is important as technologies provide important routes for social action. For example, the shift from using ozone depleting refrigerants was made possible by the development of a new technology that allows the competing interests of environmentalists, industrialists, and developing countries seeking effective refrigeration to coincide. Had the technology not been economically viable, or not been suitable for developing countries, it is very unlikely that a coalition of such diverse social groups would have been able to integrate their aims and agree to a ban on Hydro-Flouro-Carbons.

specifications for petrol and diesel in 2005 have been met. Many Member States have introduced incentives to promote the use of zero-sulphur fuels ahead of the mandatory deadline (maximum of 10 ppm "zero" in 2009).

Better usage of waste

The level of municipal waste per capita in western European countries has stabilised since 2000, but it is still at a very high level. Meanwhile the EU-12 has seen a steady decrease in per capita generation over the same period albeit with a slight increase between 2005 and 2006.⁵²

To sum up, institutional inertia creates conflicting tendencies that introduce obstacles to the necessary structural and behavioural changes which would lead to better conditions for sustainable growth.

3.4.3 Service innovation in support of inclusive growth

We see the following background conditions and influential factors for service innovation to promote inclusive growth.

Unemployment and skills

A report published by the European Commission in February 2010⁵³ shows that one in three Europeans of working age have few or no formal qualifications, making them 40% less likely to be employed than those with medium-level qualifications. Nearly a third of Europe's population aged 25-64 have no, or only low, formal qualifications and only one quarter have high-level qualifications. Moreover, workers who are trained do not always have the skills employers are looking for, thus creating mismatches in the labour market. Unemployment in the EU 27 has hit 9.6%, but skilled workers are significantly less likely to be out of work. Likewise, companies that train their workforce are 2.5 times less likely to go out of business compared to firms that do not.

As previously indicated, comparatively strict employment protection may be problematic because employer innovation plans are to a large extent reliant on the opportunity to rapidly hire or fire employees before and after introducing innovation. Despite substantial differences in employment protection practices across EU Member states, considering this issue in the context of stimulating service innovation activities could serve as a building block.

Computer skills

Regarding computer skills – for individuals who have carried out 1 or 2 computer related activities, Eurostat figures from 2009 for all the EU 27 countries suggest that 14% of the population have at least some level of computers skill. For the EU 13 the number is 13%. Countries with the highest levels of computer skills are Sweden (23%), Finland (18%), Belgium (18%) and Norway (17%). Countries with the lowest levels of computer skills are Cyprus (7%), Croatia (8%), Lithuania (8%) and Italy (9%).

Age and gender differences

There is a real gender gap in the Internet usage. For the EU27, for people between 16-24 years of age who use the Internet at least once a week, the share is 79% for men and 77% for women. For the age

⁵² EEA key indicators 2009

⁵³ *New Skills for New Jobs* report. Part of the *The New Skills for New Jobs* initiative launched in December 2008 to build stronger bridges between the world of education and the world of work. In spring 2009, the European Commission appointed a group of experts on training, skills and employment from around the EU to provide independent advice on the further development of the initiative in the context of the 'EU 2020' strategy.

group between 25-54 years of age, the figures are 61% for men and 55% for women; and for the age group 55-74, the percentage who uses the Internet regularly is only 31% for men and 19% for women.

Levels of education

According to Eurostat figures from September 2008, the proportion of students found in each level of education varied considerably between the Member States. The high proportion of pupils in primary education in Luxembourg (46 % in 2006) reflects the lack of a highly developed tertiary educational sector in this country, whereas in Ireland, Cyprus and Portugal, which also reported a relatively high proportion of students in primary education (upwards of 40%) – this reflected relatively high birth rates. At the other end of the spectrum, Greece, Slovenia, the Baltic States, Poland and Finland all had relatively high proportions (around one quarter or more) of their student populations within the tertiary educational sector. Most Europeans spend significantly longer in education than the legal minimum requirement. This reflects the choice to enrol in higher education, as well as increased enrolment in pre-primary education and wider participation in lifelong learning initiatives, such as mature (adult) students returning to education – often in order to retrain or equip themselves for a career change.

Household type and income group

Another indicator for barriers to inclusive growth is the distribution of the population by household type and income group. For example, single parents on low income with dependent children may experience more difficulties in participating fully in the economy and in the workforce.

In the EU 27.9% of the population have a household income that is 60% or less than the average (median) household and have a dependent child (Eurostat 2010 search). Looking across the EU, there are some very broad differences in the share of households experiencing these difficulties. In Ireland, 21.8% of the households have an income that is less than the average household and at the same time are households with single parents with dependent children. In the Czech Republic, that number is 18.9%, and the UK is in third place with 15.4% of households made up of single parents living below the average household. The countries with the smallest share of households living below the average household income and with single parents are Greece (1.6%), followed by Bulgaria (2.8%), Romania (2.9%), Poland (4.2%) and Italy (5.7%).

Rural population

A large share of the European population lives in rural areas, but relative density varies tremendously across the EU. The countries in Europe where the biggest proportion of the population lives in rural areas are Lichtenstein (78%), Slovenia (49%), Portugal (45%), Romania (45%), Ireland (40%) and Finland (39%). The countries where most citizens live in cities and urban areas and only small shares live in rural areas are Belgium (only 3% live in rural areas), Iceland (7%), Malta (8%), Luxembourg (8%), the UK (11%) and Germany (12%).

4 Policy framework and empirical evidence

4.1 Policy framework for service innovation at the EU level

Targeting policies by picking industries has a great past in economic history. Attempts to pick winners and especially industries through innovation and industry-related policymaking are clearly observable after World War II. Japan's MITI (Japan's Ministry of International Trade and Industry) can be viewed as an important player in the economic recovery of Japan. MITI was responsible for targeting industries (e.g. the semiconductor industry), funding and encouraging them through co-operative public intervention.⁵⁴ These undertakings took shape based on Hayek's thinking: "[...] planning and competition can be combined only by planning for competition but not by planning against competition" (Hayek, 1994:90).

Picking the services industry cannot be considered a traditional form of innovation policymaking. This analysis provides two propositions. On the one hand, there are still a number of governments which have not explicitly addressed service innovation-related concerns in their policies because they have generally overlooked its importance (See Annex 3).⁵⁵ On the other hand, in those countries that have targeted policies for service innovation, there is still room for improvement in terms of the integration of services innovation policy approaches into general innovation systems.

Many studies – predominantly in the first half of the 2000s⁵⁶ – have demonstrated the manufacturing bias in the distribution of public funding. Service innovation-awareness has emerged in a more dedicated way at the EU level. However, balancing between the manufacturing and service sectors is slow and requires explicit support from national innovation policies addressing service sector innovation.⁵⁷ The **Commission Staff Working Document** (2007) attempted to provide a comprehensive overview of the main challenges and barriers relevant to the support of service innovation. Its ten-point⁵⁸ summary calls attention to broad trans-national co-operation among innovation agencies and also among service providers and promotes the view that support measures should avoid a "one-size-fits-all" approach.

This recognition brought new *élan* to the development of service innovation policy. The **European Policies and Instruments to Support Innovation in Services**⁵⁹ (EPISIS) project of INNO-Net, based on the **IPPS** (Innovation Policy Project in Services) initiated by PRO INNO Europe®, also pursued this goal by contemplating policies and instruments to foster innovation in services. The EPISIS project

⁵⁴ See for example the very exhaustive work by Dosi (1984).

⁵⁵ In line with the findings of Commission Staff Working Document (2009:54).

⁵⁶ See: OECD (2005a,b); RENESER (2006).

⁵⁷ The Integrated Guidelines for Jobs and Growth (2005-2008) of the Lisbon Strategy did not address explicitly the importance of service innovation among the microeconomic guidelines. As the "To facilitate innovation and the take up in ICT" illustrated, it dealt with general innovation what should be promoted. Available: http://www.iefafgov.be/en/Guidelines_Lisbon_strategy_Steven_Costers_20061011_EN.pdf. Nowadays, the Integrated guidelines for growth and jobs (2005-2008) considers "To facilitate all forms of innovation." Available: http://europa.eu/legislation_summaries/employment_and_social_policy/community_employment_policies/c11323_en.htm

⁵⁸ For example, its seventh point emphasised that supporting fast growing firms (gazelles) in the services sector is of capital importance. As recent study pointed out, the highest share of services gazelles can be mainly found in the Knowledge Intensive Services (Mitsch – Schimke, 2011).

⁵⁹ For full picture about EPISIS project see: <http://www.proinno-europe.eu/episis>

established a forum for sharing knowledge and facilitating the emergence of lively discussion related to service innovation. The forum, or the **European Service Innovation Think Tank** as it is generally known, issued a statement to raise awareness about the fact that it is becoming more and more obvious that economic development and social cohesion in a knowledge-based society can only be reached through a pro-active co-operation across education, research and innovation. The goal of the EPISIS project, complementing the Think Tank, is to make policy recommendations that will provide a positive impetus to the implementation of the European Services Innovation Memorandum and the Europe 2020 Strategy.

The IPPS was followed by the **European Services Innovation Memorandum** – signed by nine European countries (Finland, Estonia, Ireland, Germany, the Netherlands, Norway, Slovenia, Sweden and Greece) in 2007 – and can be regarded as a European-level manifestation of mutual policy learning, i.e. it is tailored to the above mentioned requirement of co-operation.

Since mutual learning processes are complex, especially in the case of knowledge-intensive services (KIS), the nature of service innovation itself warns us that identifying the most promising service sectors is very difficult. Thus, designing a sectoral partnership based platform seems more instructive.

The **KIS Innovation Platform**, invoked to better serve practices in support of innovative service companies, contains seven sectoral partnerships and also includes stimulating elements such as “European KIS Venture Contests” or the “business club”. The latter picks 100 young innovative service companies across the EU with promising growth potential and focuses attention on the “best in class” start-ups. One of the seven platforms concentrates on the establishment of better framework conditions for the renewable energy sector. The **KIS-PIMS** (Knowledge-Intensive Services of the Planning, Installation, Maintenance and Scrapping of renewable energy systems) introduced a voucher scheme for service innovation which – according to the closing seminar in March 2011 – proved helpful for SMEs by expanding their funding opportunities, thus improving the flexibility of financing.

Since the EU’s broad-based innovation strategy⁶⁰ was replaced by the Innovation Union⁶¹ in October 2010, the EU innovation strategy has been influenced by changes that are more likely to enable the EU to keep abreast of new grand challenges. For example, the current European Patent system needs to be revised because its current form is relatively expensive and complicated. In 2011, the Commission proposed a **unitary patent protection mechanism**⁶², as part of the **Single Market Act**⁶³ with the aim of introducing a much cheaper and easier to use protection mechanism for businesses and inventors everywhere in Europe. The Single Market Act emphasised among others things the need for strengthened standardization in services. Hence, legislation on EU standardization also has to consider services and to make processes more effective, efficient and inclusive.

Simplifying formalities and procedures and removing the disproportionate regulatory and administrative hindrances to services are the key goals of the Services Directive adopted in 2006.

⁶⁰ COM (2006): Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions - Putting knowledge into practice: A broad-based innovation strategy for the EU.

⁶¹ COM (2010): Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Europe 2020 Flagship Initiative Innovation Union, SEC(2010) 1161

⁶² See: IP/11/470: Commission proposes unitary patent protection to boost research and innovation.

⁶³ See: IP/11/469: Twelve projects for the 2012 Single Market: together for new growth.

Furthermore, the Services Directive aims to promote establishment abroad and to stimulate cross-border service provision as well. While member states are required to transpose the Directive into national law by the end of 2009, implementation appears to have been slow. In 2011, BUSINESSEUROPE (2011) published a report revealing that governments were exceeding minimum requirements to significantly contribute to the evolution of the Single Market for services.

In April 2011, INNOVA opened its TAKE IT UP service innovation promotion pillar in the form of a new tender for drafting a mini-study on “**The tool box to promote service innovation through Structural Funds**”. This initiative invites experts to collect good policy practices from a wide range of policy experiences in order to help streamline and improve existing instruments supported by the Structural Funds. This is vital because 20 Member States have already emphasised they are about to establish new schemes for the support of specific service sectors.⁶⁴

In order to promote constant discussion on how the Commission could enhance service innovation policy, the Commission often organises events to nourish the dissemination of service innovation-related findings among a wide variety of stakeholders and public audience. In 2011, DG Enterprise and Industry is to **organise an awareness raising campaign** on the necessity of service innovation by using the major findings of the **Expert Panel on Service Innovation**. The High-Level Expert Panel was set up in February 2010 in order to provide new insights on service innovation and thus offer support to the implementation of the Europe 2020 Strategy, i.e. to reflect on the question; “What can service innovation and service firms themselves contribute to the concept of a smarter, sustainable, inclusive Europe, and what key policy measures might unleash the EU’s potential?”. Based on 23 case studies, the Expert Panel recommended *inter alia* that the message of the transformative power of service innovation should be disseminated across various actors.⁶⁵

In 2011, the Commission will provide more strategic support to service innovation through initiatives formed to enrich the exploitable potential of service innovation and to unlock its transformative power. The **European Creative Industry Alliance** and the **European Mobile and Mobility Industries Alliance** (EMMIA) initiatives aim at re-invigorating the competitive potential of the EU by addressing specific industries (creative industries, transport and logistics) and links with others with the view that co-operation among EU, regional and national levels are of key importance in fostering mutual learning processes and promoting persistent achievements. In the spirit of “we need more service innovation in Europe”⁶⁶, DG Enterprise and Industry opened a call for proposals, as part of the Grant Programme 2011, on “European Alliances for Mobile and Mobility Industries and Creative Industries” embracing both the above mentioned actions.

⁶⁴ According to Saublens (2011), 20 Member States stated that they are about to concentrate on specific service sectors in the future (mainly information and communications, software; creative industry; environmental services and tourism and culture). Saublens (2011): Supporting service innovation through Structural Funds: findings, results and outlook. KIS Partnering Forum 27-January Forum, Warsaw 28 2011

⁶⁵ For the report and collected case studies, see: <http://www.europe-innova.eu/web/guest/innovation-in-services/expert-panel/publications>

⁶⁶ Büscher (2011): Towards a “European Mobile and Mobility Industries Alliance”. Available: http://www.europe-innova.eu/c/document_library/get_file?folderId=307465&name=DLFE-10368.pdf Accessed on: 10.04.2011

4.2 National policies targeting service innovation

Only few countries have specific, targeted service innovation policies in place (see also *Annex 3*). The following paragraphs present some examples of such policies in different countries.

Policies in EU Member States

There are rather few programmes or other initiatives in EU Member States which explicitly address service innovation.

In **Finland**, the SERVE programme has been promoting innovation in services companies since 2006. There is a perceivable shift in its focus. While in the first years policy support was streaming to existing and already promising services companies, i.e. support for service ‘productisation’ was the dominant theme, the key theme recently has been to aid new companies that can be pioneers on the market. Another equally important policy development in Finland was the publication of the New Tekes Strategy in 2011.⁶⁷ This new strategy strives to rejuvenate Finnish industries by focusing both on new enterprises and forerunners. This new strategy selects six focus areas in which the services sector can play a crucial role (natural resources and sustainable economy; vitality of people; intelligent environments; business in global value networks, added value by solution-based services and intangible concepts, renewing services and production by digital means).

In the **Netherlands**, the Ministry of Economic Affairs, Agriculture and Innovation continues its efforts to improve the framework conditions of firms. The Programme for Reducing Businesses’ Regulatory Burden 2011 – 2015 attempts to diminish every unjustified regulatory and administrative burden that hampers the day-to-day running of companies. This positively affects service innovation activity. Studies have emphasised that burdens on businesses are non-negligible obstacles to innovation. This serves as a support to the Service Innovation & ICT programme, launched in 2010, which is intended to promote innovative services and start-ups and enhance the Netherlands’ knowledge-centre role. Additionally, The Dutch Ministry of Economic Affairs, Agriculture and Innovation has announced the so-called “Top Areas” policy initiative with specific focus on nine economic sectors, including services sectors such as logistics and energy.

In **Denmark**, Innovation Denmark 2007-2010 and the repeat performance Innovation Denmark 2010-2013 compose the main basis *inter alia* for the support of the service sector and its innovation activities. The Danish Innovation Strategy 2010-2013⁶⁸ contains references to services and, the established ICE project (Innovation, Customers, Employees) has been providing a service innovation awareness raiser function by publishing reports and articles in the field of service innovation. In an effort to promote service innovation, the *Servicinnovation 2011* conference was jointly organised by The Ministry of Science and the Council for Technology and Innovation and the Innovation Network Service Platform. The latter platform was established in November 2010 with the aim of distributing all available knowledge among relevant actors.

The **Swedish** government can be ranked among those who have most recently addressed service innovation. However, the Swedish public-sector demand innovation policy has a history. The strategy of the Swedish Competition Authority and its Direction for Procurement Issues addressed innovation procurement in 2007. This contributed, for example, to the procurement of innovative services in the energy sector (Vattenfall). As a result of long-standing discussions with stakeholders (companies,

⁶⁷ See: <http://www.tekes.fi/fi/community/Strategia/332/Strategia/627>

⁶⁸ See more about the strategy in Danish: <http://www.fi.dk/publikationer/2010/innovationdanmark-2010-2013/>

organisations, public institutions at national, regional and local levels) and by considering the fact that job creation heavily depends on the performance of the service sector, in 2010, the government adopted the Strategy for Greater Services Innovation. The Swedish institutes are supposed to expand the service culture mindset. Therefore, the Swedish Ministry of Enterprise, Energy & Communications, the Swedish Agency for Growth Analysis and the Swedish Agency for Economic and Regional Growth and VINNOVA, in cooperation with DG Enterprise and Industry, jointly organised an awareness raising event in April 2011. As reflected in national and local actions, Sweden recognised the importance of knowledge exchange and development. For example, the Entrepreneurial Quest pentathlon provides opportunities to young entrepreneurs to test their abilities and skills.

Since 2008, **Germany** has placed more emphasis on the support of service innovation. The “Innovation with Services”⁶⁹ programme, launched in 2008, aims at fostering service innovation and economic realisation by providing a maximum of 15 million euros per year for the service sector. The High-Tech Strategy 2020⁷⁰ also focuses on several service sectors (ICT related services, knowledge intensive services, biotechnology, nanotechnology, hybrid services, utilizing technology and innovative service elements).

While the UK government concentrates on various service sectors (such as creative industries, professional and business services sector, logistics, environmental services and construction), it also put emphasis on the importance of consultancy. The “**Better Business Services**”⁷¹ initiative offers free consultancy opportunity for firms by providing customer-focused advices.

Policies in Asian countries

Asia – which is catching up dynamically – focuses mainly on the ICT-sector, leaving much room for service innovation improvements to be addressed in a more vigorous way. Importantly, India, China and South Korea have been putting more and more emphasis on the service sector. Arnold et al. (2008) point out that Indian service sector reforms led not only to a perceptible improvement of productivity, but also to the enhanced performance of downstream manufacturing industries.

Since 2003 and 2008 respectively, **India** has a Science and Technology Policy and a National Innovation Act. However, there is no notable central government policy explicitly addressing service innovation.⁷² On the other hand, this federalist country grants relatively huge autonomy to its states, whose policies can serve the promotion of service innovation with their own resources.⁷³ **China’s** latest Five-Year Plan (2011-2015) explicitly demonstrates growing service-awareness by stressing the need for model change and by reflecting the intention of becoming a more labour-intensive service based economy in the near future. This shift should eventually entail many structural and ideological changes (Xiaoneng, 2011).

In **South Korea**, the Korean government introduced a service innovation policy action programme in 2010. Additionally, the Korean Industry Policy delineated its concept about 17 new growth engines in three sectors, including high-value added service industries. South Korea recognises the weaknesses

⁶⁹ For the „Innovation mit Dienstleistungen” programme see: http://www.bmbf.de/pub/innovation_mit_dienstleistung.pdf

⁷⁰ For the High-Tech Strategy 2020 see: http://www.bmbf.de/pub/hts_2020_en.pdf

⁷¹ See more: <http://www.better-business-services.co.uk/>

⁷² National Innovation Act, 2008 is much more about general innovation policy dealing with products and services at the same time. See the act: <http://www.dst.gov.in/draftinnovationlaw.pdf>

⁷³ As the example of Andhra Pradesh state illustrates. See more: Ghani – Kharas (2010)

and strengths of its service sector and has committed itself to the support of nine priority sectors by announcing the Service PROGRESS plan in 2009. The objective is to eliminate red tape and trade barriers in the case of services and thus to promote innovation. To this end, Korea boosts R&D spending towards the service sector by emphasising the enhancement of efficiency in the case of service delivery and organisational management rather than concentrating only on the promotion of new service concepts.

4.3 Assessing policies in support of service innovation

This policy brief uses two analytical approaches to assess the role and opportunities for policy in the field of service innovation. First, the analysis focuses on the macro level: it explores what kinds of existing policies are dedicated to service innovation in various countries (see also Section 4.2) and tries to assess their relative impact. Then study starts from the micro level, exploring the cases of individual service innovators, in order to find out the success factors for their innovation performance. What did they do and what kind of policy environment dominated their businesses? The results of these case studies are presented in Section 4.4.

The first approach is necessary because government intervention is important not only in the case of identifying systemic failures, but also in order to avoid government failures. The latter could emerge if policy measures are incoherent or entail more costs than tangible benefits. *“Measurement of innovation more generally is also an area where further work is likely to yield benefits, particularly in better understanding innovation in the service sector and better capturing the increasingly international nature of innovation activities. With efforts being made across the OECD, co-ordination is essential.” (Box, 2009:7).*

Regarding the first approach, the number of countries that have already introduced policy measures geared towards service innovation is very limited. Moreover, they have just recently decided to devote attention to the support of service innovation, particularly in the New Member States where service innovation policies are in an embryonic state. Consequently, the real effects of introduced policies are often not clear, if for no other reason than because policy interventions are often complex and may have non-linear effects. Further, this approach would require high quality data on service innovation which is currently not available. As a consequence, a critical mass of available empirical evidence and valuable evaluations on the impact of policies dedicated to service innovation is missing.

In consideration of the scope of this policy brief, the scope of the analysis was framed in the following way:

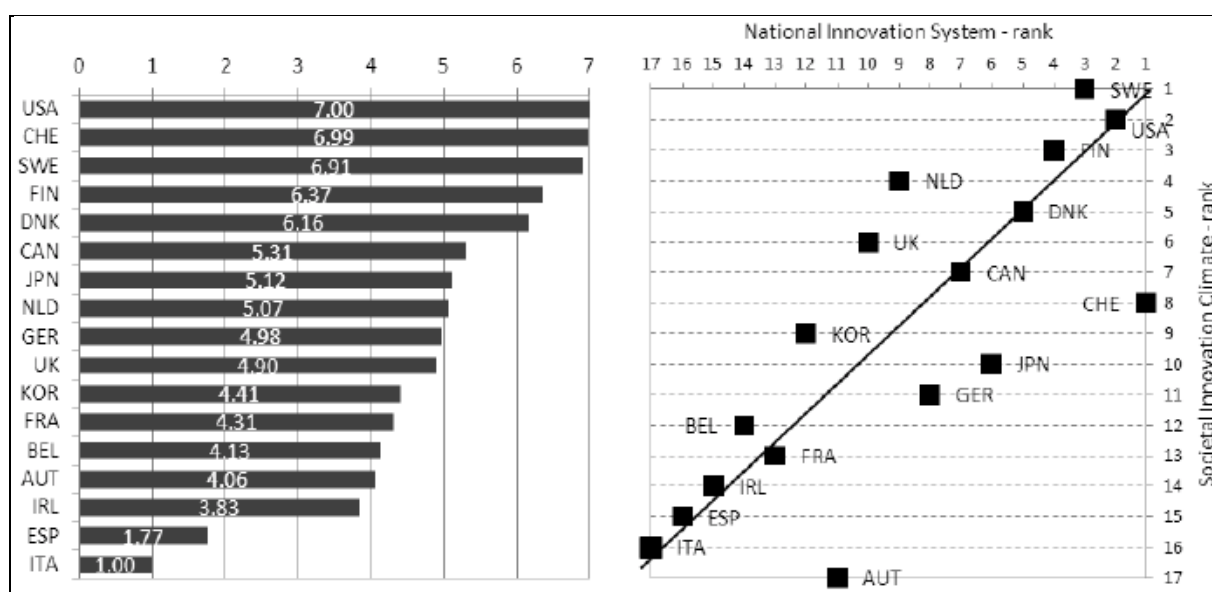
- broader evaluations of innovation systems, assuming that they may cover aspects (e.g. specific programmes or institutions) targeting service sectors;
- evaluations or impact assessments of specific policies in support of service innovation, focusing on policies in Finland and Denmark.

4.3.1 Evaluations of general innovation systems: the innovative capacity of European countries

Instead of carrying out comparative analyses of national innovation systems (NIS)⁷⁴ on the basis of their institutional settings, we present the major results of an analysis of Belitz et al. (2011) which assessed the performance of innovation systems by using a composite indicator of innovative capacity. This analysis relied on a composite indicator made up of hard as well as soft indicators and applied it to 17 industrialized countries over the period 2007-2009 in order to rank the innovative capacity of the countries.⁷⁵ Since the service culture is a decisive factor in the success of service innovations, this should be taken into account. World Value Survey data seem to provide a reasonable yardstick for capturing the relative openness of society to new technologies and services, while Eurobarometer data convey messages about the relative degree of trust towards science and technology policy.

The authors based their measure of innovation capacity on two pillars: innovation systems and the innovation climate. The latter was intended to measure societal willingness to innovate. The indicators used to capture the innovation system side (e.g. regulation and competition; R&D; education) correspond well with our building blocks for a potential policy framework for supporting service innovation policies. The innovation climate encompasses the innovation culture, current attitudes toward science and technology and the domain of social capital. This approach leads to the categorisation of countries into three groups: leaders, followers and lagging groups.

Exhibit 21. Ranking results of national innovation systems without (left graph) and with (right graph) innovation climate component (in 2009)



Note: the right-hand graph represents the comparison between the national innovation system ranking and the innovation climate ranking.

Source: adapted from Belitz et al. (2011:15).

⁷⁴ See for example: Nelson (1993), Intarakumnerd et al. (2002), Feinson (2003), Fagerberg – Srholec (2007)

⁷⁵ Hard data mainly stem from OECD statistics, Eurostat, EUKLEMS, Transparency International, whilst soft data were captured by World Economic Forum Manager Survey Data.

According to the analysis of Belitz et al. (2011), among the countries that were included in the investigation the US had the most competitive innovation system in 2009. *Exhibit 21* suggests the presence of three groups: (i) leaders (US, Switzerland, Sweden, Finland and Denmark); (ii) followers (Canada, Japan, the Netherlands, Germany, the UK, Korea, France, Belgium, Austria and Ireland); (iii) and the lagging group with Spain and Italy as representatives covered by the report. The right-hand graph contrasts the actual performance of the innovation system with the “societal climate” for innovation, which could be an indicator for the future dynamics in innovation. Looking at the changes in the ranking between 2007 and 2009, Belitz et al. (2011) note that Denmark continuously managed to catch up with and eventually reached a position very close to Finland. Among the leaders, only Denmark and, to a certain extent, Finland can be regarded as countries that are using policies dedicated explicitly to support of service innovation. Among the “followers”, the Netherlands, Germany and the UK have dedicated policies for service innovation.

Box 4. Service innovation policies in countries ranked as “innovation leaders”

USA: Although there were no explicit policies dedicated to service innovation in 2009, the recognition of the importance of the service sector increased in the national innovation strategy (A Strategy for American Innovation: Driving Towards Sustainable Growth and Quality Jobs). In 2011, the Strategy for American Innovation. Securing Our Economic Growth and Prosperity devotes special attention to healthcare and state-of-the-art communication services.

Switzerland: According to the INNO-Policy TrendChart – Switzerland (2009), there is no explicit policy dedicated to the stimulation of service innovation. In 2009, a pilot scheme was introduced to encourage cooperation between SMEs and knowledge sources (universities and public research institutions) by using innovation cheque to pay for services.

Sweden: According to the study prepared by VINNOVA (2007) on the Innovation Policy Project in Services Mapping study of Sweden, the service sector and the promotion of service innovation was an organic part of the general innovation strategy without any separate programmes. In 2010, the new strategy entitled The Strategy for Greater Service Innovation placed more emphasis on design and creative industries, the skills of entrepreneurs and financiers.

Finland: The Finnish government introduced the so-called SERVE - Innovative Services Programme for the period 2006-2010. In 2009, the government also highlighted service innovation in the National Innovation Strategy. The New Tekes strategy, formulated in 2011, also put special emphasis on service sectors with the view of that there is a need to stimulate the following fields: business to business services, financial services, trade, industrial services, knowledge-intensive business services and public sector services.

Denmark: The Danish government has been emphasising the role of the service sector and its innovation activities since 2007, the beginning of the investigation period. The Innovation Denmark 2007-2010 plan, initiated by the Danish Agency for Science Technology and Innovation, was one of the most widely recognized programs aiming at increasing the service sector's potential in value creation.

4.3.2 Distinguishing European service economies

Taking the analysis one step further by investigating whether there are any significant differences across service economies would provide a better understanding of the usefulness of policies in support of service innovation. In the previous section we saw that using policies in support of service innovation varies across European countries, suggesting to a certain extent that this has to do with the vagueness of generic policy for service innovation versus a rich but complex range of industry specific policies in different service sectors. The latter point implies that there are potentially different forms of service economy.

On the one hand, Sapir (2005) has emphasised that there are different types of European social model (Anglo-Saxon, Continental, Nordic and Mediterranean). On the other hand, the ServPPIN project has pointed out that service economies can also be clustered into these unravelled models (with a new group of countries: the Central and Eastern European countries) by investigating the knowledge-intensive business services in Europe.⁷⁶ We are therefore led to the conclusion that different social models exert differential influences on the nature of the given service economy. It *per se* confirms that the stimulation of service economies through service innovation policies requires contextual considerations.

The innovativeness of an economy is not an exogenous endowment. Rather it can be explained by the institutional structure characteristic of the country, in other words by the complexity of economic and social relations. Innovation policy is not just a task for policy-makers. It depends rather on the development of social relations. Everett (2003) points out that the given social model can influence the proportion of the population that can be viewed as innovative. Being in a given social model determines to a large extent what kind of service orientation is likely to emerge. Taking the social model into account helps policymakers in make decisions about what level of services should be supported in a more dedicated way.

Exhibit 22. Five models of service economies and their service orientations

Social models	Service orientations in employment
Anglo-Saxon	Highest level of private service orientation
Continental	Highest level of public service orientation
Mediterranean	Lowest level of mixed services orientation
Nordic	Highest level of mixed services orientation
CEEC	Lowest level of private services orientation, but highest annual growth rate along the 2000s)

Source: Adapted from ServPPIN (2010).

This as a whole raises one further point that, when it comes to the issue of promoting service innovation, European Commission should attempt to utilise synergies across different DGs by sharing knowledge and co-operating with each other in this domain. If DG Enterprise and Industry is about to enhance the innovativeness of European services, it should not neglect the multi-policy aspects of (service) innovation (e.g. DG Employment, Social Affairs and Inclusion should take into account the fact, indicated earlier in this Brief, about the problematic consequences of unnecessarily too strict employment protections with respect to the innovation activities).

⁷⁶ ServPPIN was among other things to map the European service economies (See more: <http://www.servppin.com>)

4.3.3 Impact assessment of policies in support of service innovation in selected countries

The former two sections indicate that a very limited number of countries have policies geared towards service innovation. As a consequence, the number of available policy impact evaluations is also limited. Moreover, the different types of social and service economies in Europe can also be grouped into three sets of countries with special respect to their innovative capacity: (i) leaders, (ii) followers and (iii) lagging countries.

In this section we analyse policy examples in two leader countries: **Denmark**, where specific innovation policies for service industries exist; and **Finland** where the basic concept is now broad-based innovation policy to which service innovations belong as one aspect – especially via perspectives which relate to user and customer driven innovation.⁷⁷

Due to the lack of robust indicators and, on the other hand, due to the nature of service innovation – i.e. with almost no visible or quantitatively measureable impact – no general yardstick is available for assessing the real impact of such policies on the service sector. What is more, these types of policies presumably have long term effects that require longer term investigation.

For these reasons, it is impossible to claim that there are a sufficient collection of service innovation policy evaluations.⁷⁸ The policies of Finland and Denmark target specific – often industry-specific – barriers, such as (among other things) the relatively low share of service enterprises with R&D and innovation activities compared to the manufacturing sector (Denmark), the lack of tradition of collaboration between service companies and research institutions/technology institutions (Denmark, Finland) and last but not least the lack of high-skilled workers (Denmark). The principal objective of these programmes is to bring an initial impulse into the economy (changing the behaviour of firms).

Relevant policies and their impact assessment in Finland

In Finland, the **SERVE programme** (Pioneers of Service Business 2006–2013) has supported approximately 200 R&D projects and more than 50 academic research projects by 2010. Since 2008, over half of the funding (managed by Tekes) has been allocated to service related issues. The final evaluation reports will be prepared for 2013. Tekes is responsible for the impact assessment. The evaluation will cover the following aspects: investments, results, direct effects and impacts on the national economy and society. However, neither the SERVE programme nor the tourism and leisure services programme have been subjected to an interim evaluation, following standard procedures (Tekes evaluates only at the end of the given programme, and a few years later in order to provide a broader picture of how certain programmes performed). Therefore, no results are available yet.

⁷⁷ The analysis of relevant policies in these countries was supported by discussions with Jaana Auramo, Adviser on service business and service innovations, TEKES, Finland, and Thomas Alslev Christensen, Head of Department for Innovation Policy, Ministry of Science, Technology and Innovation, Denmark.

⁷⁸ A search on the ERA Watch platform for support measures to services sector through (Targeted research and technology fields: „Services” and 18 matches were found, merely), finds that the number of support measures from different countries is very limited and that there are hardly any evaluation reports available.

Box 5.1 Innovation policy programmes and issues addressed in Finland

(i) Programmes also considering service innovation:

- SERVE – Pioneers of Service Business 2006–2013
- The Tourism and Leisure Services Programme 2006–2012
- Innovations in social and healthcare services programme (2008–2015)
- Demand and User-driven Innovation Policy 2010–2013 (and an Innovative Public Procurement Programme 2008-2010)

(ii) Programmes for specific sectors:

SERVE aims at fostering the development of more customer-driven and knowledge-based services. The following service areas are of great interest: retail, industrial and KIBS.

The Tourism and Leisure Services programme is to exhort companies to pursue the development of more customer-driven service concepts embracing the following sectors: sports, tourism, cultural and well-being services.

Innovations in social and healthcare services programme (2008–2015) aims to renew the social and healthcare production processes, improve the availability of services and their quality and effectiveness and promote new business opportunities in the area.

Demand and User-driven Innovation Policy 2010 among other things devoted special attention to the issue of public procurement to drive innovation on a demand and user-driven basis (to procure new service innovations).

(iii) Specific challenges addressed:

- the insufficient awareness of service innovation: therefore SERVE is a messenger of the importance of service innovation and organises seminars and industry specific forums;
- fostering networking: cluster development in services;
- growth through internationalisation and through a smaller but wider range of financial resources;
- public procurement: the Innovative Public Procurement Programme (2008-2010) introduced innovative pilot procurements and initiated a persistent communication network of city managers, experts and specialists;
- skill related issues such as service design and informal ways to protect the service are promoted within the action plan (Demand and User-driven Innovation Policy 2010–2013).

Furthermore, as a result of the still imperfect knowledge of service innovation, SERVE provides financial resources for universities and research institutions to conduct relevant researches in this domain.

Relevant policies and their impact assessment in Denmark

The Danish Agency for Science Technology and Innovation (2010) carried out a survey attempting to assess the impact of the **Innovation Network Programme**. The study found that about a third of the companies became knowledge-based institutions due to their innovation activities. About 90% of the companies took regularly part in innovation projects. The study also found that the likelihood that enterprises innovate increases 4.5 times one year after participating in activities of the Innovation Network Programme.

The **Innovation Consortium Programme** was evaluated by the Danish Ministry for Science, Technology and Innovation. The report states that the programme had a positive impact on SMEs in terms of gross profit and employment levels.

The final evaluation of the **Knowledge Coupon Programme** will be available in 2012. Preliminary data show that the volume of knowledge coupon projects that are addressing process, marketing and organisational innovation targets had increased by more than 30% by early 2011.

In the **Industrial PhD Programme**, the distribution of companies in approved industrial PhD projects illustrates a permanent increase of finance, insurance, service and consultancy companies, including GTS since 2002.

The evaluations do not contain any robust sectoral data about the impact of the various activities on labour productivity in services. Employment statistics indicate, however, that these programmes contributed to employment growth among the participating companies after the programmes had been implemented (after 2006 in the case of Finland and after 2007 in the case of Denmark).

Box 5.1 Innovation policy programmes and issues addressed in Denmark

(i) Programmes also considering service innovation:

- InnovationDenmark 2007-2010 Plan
- InnovationDenmark 2010-2013 Plan
- Danish Service Innovation Strategy
- The Innovation Network Programme
- The Innovation Consortium Programme
- The Knowledge Coupon Programme

(ii) Programmes for specific sectors:

InnovationDenmark 2007-2010 and 2010-2013 Plans aim at enhancing the general framework conditions for service innovation (e.g. making the labour market more flexible).

The programmes are more or less geared towards both the service sectors and manufacturing firms whose service content is substantial by containing wide range, but smaller support programmes for SMEs in a concentrated way.

(iii) Specific challenges addressed:

- the low level of participation of service firms both in international and domestic projects, therefore Danish innovation policy facilitates the cooperation and the creation of innovation networks (cooperation across multi-actors of service innovation such as firms regardless of whether they are in manufacturing or service sectors, private or public knowledge institutions);
- the insufficient level of available skilled labour force with the necessary competences: Knowledge Pilot Scheme, Industrial PhD Programme, Innovation and Competence Network Scheme are intended to minimize this problem;
- shortcomings in the access to academics in the workforce;
- bridging the gap on knowledge transfer: pursue the creation of new models and give chances to firms to purchase knowledge from universities through the Knowledge Coupon Programme. There is an intention to involve lots of SMEs through smaller amounts of financial resources.

4.4 Case studies of innovative service companies

This section summarises the results of case studies that have been conducted for this policy brief about service companies from different sectors that are broadly recognised as innovative. The case studies focused on the following questions:

- What did these companies do to become innovative, and what are the underlying success factors of their innovations?
- What kind of policy environment contributed to their business decisions, and in what ways did this policy environment enable or support their innovation activities?

Background considerations and existing evidence from case studies on service innovation

The great majority of empirical studies, including case studies, has concentrated on technological innovations. However, recently, papers have increasingly recognised the importance of various forms of organisational innovation (e.g. creating multi-unit organisation, combining or integrating different services, involving customers in co-production)⁷⁹ which seem unequivocally more relevant in the case of service innovation.

Service innovations are often categorised around five modes in case studies.⁸⁰ The first mode claims that innovations happen in the dimension of the business model. This mode alludes to the changed and new ways in which service firms create, deliver and capture value. The second mode can be viewed as service innovation which is triggered by organisations beyond the firm's boundaries (e.g. PPP, use of external knowledge). The third refers to service innovations arising from organisational and managerial changes (e.g. establishing project teams, innovation governance within the firm). This also implies inter-organisational co-operation that can be demonstrated across service firms, particularly in trade and distribution services (Tether – Tajar, 2008). The fourth embraces process innovation, which is close to the co-producing approach when the innovation can be seen as consumer-led. The last refers to technological innovation, for instance the use and introduction of ICT-enabled innovations.⁸¹

Case studies of service innovation often demonstrate that these modes cannot be fully isolated from each other. On the other hand, case studies also accentuate the importance of complementing conditions that are needed to make the service innovation successful. For example, service augmentation involving a service firm's reputation, marketing support as well as staff-customer interactions can make the imitation of service innovation more difficult (Storey – Easingwood, 1998).

⁷⁹ The capabilities of firms to combine different services, i.e. to integrate them, have a vital role in the success of innovation. It was clearly documented in case of Taiwanese communication industry (Hsien-Tang - Hsi-Peng, 2010) or in the case of the Irish based Serasa Experian Group when it stepped onto the Brazilian market (Meirelles – Santos, 2010). The role of co-producing can be observable in many ways in the service industry. For example IKEA which also provides different services in an integrated way.

⁸⁰ See more on concrete and comprehensive case studies in case of these five modes: SSMEUK (2010): Case Studies in Service Innovation. Centre for Service Research, Manchester Business School, The University of Manchester in collaboration with SRII Service Innovation SIG.

⁸¹ ICT enabled services innovations often have positive impetus on wealth and people's well-being. For example, the more information about the prices the buyers have, the lower the prices they get. It was clearly the case in Sri Lanka, where the vegetable-fruit prices were provided by mobile „more-than-voice“ service innovation called Tradenet. This service innovation reduced the vulnerability to price volatilities, provided increased knowledge of price trends and promoted the interaction among market actors. What is more, it led to an average premium of 6.4% on average daily market prices.

The case studies conducted for this policy brief also show that service innovation does not have to be totally new. It is enough if the innovation is unconventional in the service industry.⁸² Nonetheless, as interviews with service companies show⁸³, service innovations are often hindered by obstacles at different levels. One of the fundamental questions at the *policy level* – as Rubalcaba et al. (2010) emphasise – is whether and how regulation can play an influential role in service innovation. Not having a central cadastre of European service innovations makes it difficult for policymakers to fully assess the impact of their policies and the inter-linkages across different policies relevant to service innovation, as well (e.g. education, training policies). Political economic theory and empirical investigation also suggest that policies are influenced by and thus can depart from their intended targets.⁸⁴ This *per se* calls for strengthening the institutional background of innovation policy in general.

In many cases, service innovations are supported by regulatory measures at the *industry level* aimed at opening markets by diminishing existing and perceivable obstacles to the given service industry. The removal of entry barriers to markets was among the noteworthy regulatory interventions which supported service companies becoming successful innovators (e.g. the air transport market). While opening markets is essential for service industry growth, there are several barriers to service innovation at industry level such as the lack of financing and the relatively high costs of innovation (Pilat, 2007). As indicated previously, the latter barrier might originate from the nature of service innovation. Service innovation can be adopted or imitated by competitors far more easily than in the case of manufacturing and therefore the costs of innovations may be higher, eventually, the climate can be less conducive to risk-taking.

At *firm level*, numerous studies emphasise the importance of leadership that is influenced by the service culture. Case studies also suggest that skilled co-workers, reliable market information as well as organisational flexibility are additional factors influencing service innovation. Apparently, lots of firms (manufacturing and service companies) face shortcomings related to these points. The service culture within individual firms and the availability of a skilled labour force are inseparably linked with the broader social environment. The more society is willing to rapidly gain new service competencies through interactive learning and forgetting (Lundvall, 1999), the more successful service innovation may be if employees can contribute significantly. Taking the bad practices into account and draw some lessons from them also contributes to the improvement of a firm's service innovation (See for example two failed service innovations in *Box 6*).

Köhler et al. (2009) carried out an investigation on 5000 manufacturing and service firms from five European countries (Belgium, Germany, Greece, Portugal and Spain) and found that the emergence of radical and incremental innovation is associated with different levels of social capability for creating new knowledge. While radical service innovation (which is presumably new to the market and the world) requires a higher degree of novelty of external knowledge, incremental service innovation (which is new to the firm) is more likely to occur in the case of a lower degree of novelty of external knowledge (Köhler et al. 2009).

⁸² For instance, the multi-unit organisational form in the Dutch service industry was a relatively new phenomenon (e.g. in case of hairdressing) in the early 1990s, however, this form was a prevalent one in case of retailing. More examples on this kind of organisational innovation are Hertz, Cosmo, Van Hecke and IKEA.

⁸³ See for example: Pedersen and Nysveen (2010), the authors carried out a comprehensive literature review complementing it with 45 interviews conducted with companies, industry associations, innovation policy and government agencies, and universities and research institutions.

⁸⁴ Sanz-Menendez (1995) illustrated this aspect in case of Spain in the 1980s.

Hence, service innovation policy has a multidimensional character. Thus this type of policy should be inserted into a process of policy design horizontally complementing it with other competent policy areas (e.g. regulation, SME and enterprise, education and employment and R&D policies).

Box 6: Two examples of failed service innovations

Webvan

Webvan can be seen as a prime example of failure in service innovation. Webvan was a dot-com company at the end of the 1990s whose ambitious purpose was to harness the potential of the Internet by creating a new grocery infrastructure for shoppers in the spirit of setting up a new approach to the online retailing business. Webvan illustrates that service innovation can entail higher expenditures than one might expect. The firm's profitability faced gargantuan difficulties resulting in the fact that the firm was forced to announce bankruptcy in the summer of 2001. The reason behind the failure originated in the company's belief that the only way to increase market share and revenues was through the radical transformation of grocery infrastructure (warehousing and logistics by its own) by relying on investment in technology. Webvan invested a huge amount of money in the project, using venture capital (Benchmark Capital, Sequoia Capital, Yahoo! Inc.) to build a state-of-the-art storage facility and a huge van park. Though the venture capital seemed to be enough, venture capitalists became more and more risk-averse as competition increased in the online grocery market.

Consequently, Webvan's predictions about its fast expansion relied mostly on the promise of the growth rates required by the venture capitalists. Webvan did not adequately consider the issue of logistics. The infrastructure costs were too high for low margin products. Webvan also did not take customer preferences accurately into account, i.e. they offered a wide variety of goods without incorporating the importance of price levels. The groceries' online prices were more or less the same as those in the regular department stores and supermarkets. In addition, experienced supermarkets built on their already available infrastructure and were able to introduce delivery services at much lower prices. Another constituent of the service innovation failure was the fact that the company completely ignored the geographic circumstances Webvan faced. San Francisco cannot be treated as a haven for companies with delivery services due to hills and hard to reach places. All in all, the imagined service innovation was not able to increase the customer's loyalty by leading to higher effective commitment. Several firms learnt from the case of Webvan and became successful (e.g. albertsons.com, 1800flowers.com and Sephora.com)

Motorola's Iridium project


Motorola's Iridium project shows the importance of taking customer requirements into consideration in service innovation processes rather than just going to the technological frontier. At the end of the 1980s, Motorola decided to make it possible for its subscribers to make phone calls from any global location via satellites. The results were devastating. Only 10,000 subscribers were seized the opportunity, partly due to technical shortcomings (e.g. satellites perpetually required optical visibility with mobile phones, thus rendering in-door phone calls infeasible). Iridium proved fruitless, owing to the long realisation process (from idea to service) and to the development and diffusion of cellular systems, a disruptive innovation. Together, these rendered the Iridium-enterprise futile. Consequently, firms always have to consider the competitive landscape from a long-term perspective. From the regulation side, the Federal Communication Commission (FCC) was in charge of giving licenses to companies to use strictly defined spectrums. Iridium filed for its own spectrum allocation in 1991, but the FCC granted a license to Motorola only in 1995.

As indicated earlier, recent study of the Service Innovation Expert Panel⁸⁵ searched for service innovations that are fully in accordance with the requirement of smart, sustainable and inclusive growth, as outlined in the Europe 2020 Strategy. The following case studies conducted for the purposes of the present report also bear the stamp of this kind of approach.

Exhibit 23. Case studies conducted for the policy brief

	NACE rev. 2.	Type of the services innovation	Focus in the case study	Country	Company
C1	D – Electricity, gas, steam and air conditioning	product, process, organisational	Business model for smart and sustainable growth	Sweden	Vattenfall
C2	J – Information and communication	process, organisational	Software industry for smart growth	India	Infosys
C3	K – Financial and insurance activities	process, marketing, organisational	Financial services for smart growth	Spain	Banco Santander
C4	K – Financial and insurance activities	process, organisational	Mediation services for smart growth	HU	NetRisk
C5	N – Administrative and support service activities	process, organisational	Logistical services for smart growth	Taiwan	Quanta Computer
C6	Q – Human health and social work activities	product, process	Health services for smart and inclusive growth	USA	Asthmapolis

4.4.1 Vattenfall – smart and sustainable growth through smart grids

	<p><i>The internationally renowned Swedish energy company Vattenfall has been making great strides throughout the last decade in the field of service innovation in order to pioneer ways to be among the leaders in developing environmentally sustainable energy production. One of the most crucial service-related innovations was the installation of smart metering by which the electricity network became smart both for its customers and the environment. Vattenfall illustrates that demand-side innovation policy can propel service innovation for sustainable growth and influence its diffusion.</i></p>
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Company profile

Vattenfall AB, owned by the Swedish state, is one of the most renowned energy companies in Europe. It deals with electricity generation, transmission, distribution and last but not least sales. The company also provides heat production, distribution and sales. Vattenfall employs more than 31,000 employees and provides mixed energy services (biomass, coal, hydro, natural gas, nuclear and wind) for more than 6 million customers throughout Finland, Denmark, Germany, Poland and the UK. Additionally, the

⁸⁵ Meeting The Challenge of Europe 2020. The Transformative Power of Service Innovation. Case Studies. According to the definition of Expert Panel: *Smart Growth* refers to the development of an economy based on knowledge and innovation. *Sustainable Growth* aims at promoting a more resource efficient, greener and more competitive economy. *Inclusive Growth* is to stimulate a high-employment economy delivering social and territorial cohesion. Available: <http://www.growthstories.eu/2011/03/europe-2020-the-transformative-power-of-service-innovation/> Accessed on 01.04.2011

Vattenfall Group provides complementing services such as technical, environmental and management consulting to the energy industry worldwide.

Factors behind service innovation

Vattenfall's service innovation was preliminarily based on continuous R&D programmes and most importantly on the AMR (Automated Meter Reading) project, started in 2002, aimed at reaching more than 850,000 distribution customers in Sweden via a remotely managed smart metering system by the summer of 2009. Instead of the stipulated date, the project attained its goal by 2008 in terms of smart metering penetration. There were two essential ingredients of the motivation behind the service innovation related AMR project which eventually led to the consideration; "smart metering is not just kWh". On the one hand, the 'learning economy' requires having more focus on collecting and providing information in favour of customers from companies. On the other hand, the service innovation was also inspired by the obvious challenge of climate change, which summoned the intensification of environmental awareness in the life of companies and consumers, as well. Since Vattenfall can be considered a leading contributor to European greenhouse gas emissions, there is a practical – environmental – exigency to meet the above mentioned challenge in more ambitious ways. Beyond Vattenfall's smart metering service, carrying out environmental and social impact assessments and analyses has become a guiding principle.

But there is a supplier side to this strategy as well that was at least equally relevant. The proliferation of smaller scale energy generation devices (distributed generation) makes management of demand and supply on grid networks increasingly difficult and problematic. Smart metering is essentially the answer to this problem since it allows companies (grid network operators) to better manage available energy resources and bring supply and demand into greater balance.

Smart and sustainable growth through service innovation

The installation of smart metering offered the desired "exact billing" in monthly payments. Moreover, the new method was accompanied not only by the development of EnergyIP as a management platform, but also by various additional services for the convenience of the customers. Since the smart metering service makes the reading of consumption happen remotely, even on hourly basis, customers are thus able to control their consumption according to information provided by the web interface. Smart metering induced an increased level of services for customers and, at the same time, has a positive impact on Greenhouse gas emissions.

The positive effect of the introduction of this kind of service would not have occurred if Vattenfall had not committed itself to the re-invigoration of its business model by establishing a network-based service model.⁸⁶ Moreover, the regulatory framework in Sweden also contributed to the success of this type of service innovation in 2003 by enacting the rule 'no extrapolation is allowed from 2009' in the assessment of future demand. It was originated in the recognition of inaccurate – estimation-based – billing during the course of invoicing the electricity consumption.

Replacing traditional meters with smart ones – which include integrated radio frequency equipment, communication infrastructure and data collection engines – entails significantly improved energy

⁸⁶ For example, Vattenfall chose TeliaSonera as its Finnish contractual partner in the telecommunication industry in order to foster the roll-out of smart meters in Finland. TeliaSonera is responsible for the installation of AMR, furthermore, it provides readings for the information system functioning at Vattenfall. This type of cooperation resulted in an electricity grid operation. Another equally important project is a pilot project with regard to the implementation of smart electricity grids in Gotland (Sweden).


efficiency both on the side of energy supply and distribution via a conspicuously enhanced communication between the supplier and its customers. With smart meters, meter readings requiring a physical presence are no longer necessary. Thus smart meters make precise bills based on effective consumption possible. More importantly, the use of smart meters provides the opportunity to customers to track their energy consumption and bring it in line with energy efficiency requirements by becoming ‘prosumers’⁸⁷.

Various areas benefit from the use of smart metering. From the side of the supplier, the level of revenue protection and the quality of customer services are the main beneficiaries. Specifically, with the use of smart metering the frequency of thefts and failures is significantly reduced. The accurate and timely (hourly, monthly, yearly) remote reading offers customers increased control over their consumption. Thus they have the opportunity to adjust their consumption behaviour. On the supplier side, the number of bad debts can also be decreased. It is hardly by chance that investment and service-related costs exhibited a significant drop. In addition, the high volume of failed accesses has vanished and the accurate consumption data provides much better future estimations of energy demand. As a corollary of better estimations and understanding of customer demand, the company can intelligently decentralise its energy supply, tailoring it towards the effective needs of customers by building on smart grids as a new business model.

To sum up, this type of smart in-home-service is geared to demand side service innovation by promoting the development of smart grids as a channel for the better incorporation of renewable energy sources and to share knowledge, risks and funding in the future. Smart grids nourished the willingness of companies to cooperate in order to guarantee the safety of streaming messages from meters and it will also potentially facilitate the fulfilment of Vattenfall’s strategic objective to become carbon neutral by the middle of the century. Furthermore, it unequivocally helped the company to enhance customer relationship management, leading to an increased level of customer satisfaction. The policy level lesson that can be drawn from the development of smart grids in Sweden is that the emergence of smart and sustainable growth related ancillary service innovations through legislation depended on the involvement of the state, i.e. demand-side innovation policy can propel service innovation for sustainable growth and influence its diffusion.

⁸⁷ Since customers are able to consume electricity from the grids and to feed electricity into the low-voltage power grid in case of surpluses, this type of customer is often considered as a “prosumer”.

4.4.2 Infosys – smart growth through service innovation

	<p><i>The Indian Infosys exemplifies the well-documented fact that the liberalisation of trade in services leads to a better business climate, and eventually to productivity growth via increased service innovation capacity. Service innovation has transformed Infosys' existing business model into a modern one fully imbued with the principle of global delivery.</i></p>
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Company profile

Infosys Technologies Ltd. was founded three decades ago. These days, Infosys is doing business on a global scale with the aim of providing 'designed for future' IT products and comprehensive consulting services. The major 'products' span business and technology consulting, application services, systems integration, product engineering, custom software development, maintenance, re-engineering, independent testing and validation services, IT infrastructure services and business process outsourcing. In addition, Infosys can be regarded as a flagship within the flotilla compiled by firms operating in the offshore outsourcing market.

Factors behind service innovation

Nowadays, Infosys has more than 100,000 employees worldwide. At least three principal factors have supported service innovation in multiple ways. First and foremost, one should not forget that India's service sector was highly regulated up until the 1990s. The gradual liberalisation of trade in services from the beginning of the 1990s brought new élan into the service activities of Indian firms. The service sectors' liberalisation fostered the process of both wealth distribution and wealth creation. Wealth creation was not a real option during the highly regulated period because of the substantial shortcomings in the field of venture capital-availability and other external resources. In the aftermath of the liberalisation, Indian firms found themselves in much better business framework conditions.

Second, the leadership within the company has been pursuing permanent innovation by concentrating on a vivid and judicious combination of internal and external information born of the cooperation across employees, customers and partners. The introduction of the 'Voice of Youth' programme created an opportunity for young employees to take part in the management council and, what is even more important, to express their opinion on different kinds of business aspects and to make recommendations. Since younger employees are not wedded to the past of the company, this approach triggered the mutual learning process and reinvigorated the innovative milieu within the company.

Third, the traditional strategy of providing services to global clientele onsite proved to be extremely expensive. This feature of service supply provided the groundwork for significant incentives toward service innovation. The liberalisation process induced a higher level of competition as well, which served as one of the most important inducements to innovation.

Smart growth through service innovation

Infosys imagined and eventually set up a global delivery business model (GDM) at the end of the 1990s in order to enhance the distribution of its products and services in an integrated way. Infosys had to make up for a backlog resulting from the fact that there were not enough service providers at client locations. To this end, management decided to establish proximity development centres and change its business model.

Infosys emphasised that operation and service supply should be carried out in accordance with profitability criteria complemented by the principle of minimized risk. Infosys therefore decided to introduce its Global Delivery Model. Meanwhile, other major competitors, such as IBM, TCS and Accenture also adopted Infosys' GDM and challenged its viability. After mature deliberation, Infosys decided to develop its GDM further in order to avoid a situation where its business model would be seen as the prevailing and consequently standardised model, without any distinguishing characteristics. Infosys started to establish a framework for a reinvigorated GDM called the Collaborative Distributed Delivery Model (CDDM). Since achieving new competitive advantages via this revised model required an extended number of offshore development centres, Infosys seized the opportunity and acquired companies in strategically important locations. Importantly, Infosys contracted with local employees in order to bridge language and cultural gaps, of key importance for the success of service innovation. The establishment of these offshore centres also contributed to other service innovations. For instance, the so-called *Influx* service platform provides individualized support to suppliers, customers and partners in order to get a better understanding of their IT needs by assessing the potential impact of IT on their operations. Apart from Influx, cloud computing and knowledge management services can also be considered state-of-the-art services that are helping enterprises assess their needs, capacities and technologies.


Nowadays, more and more Indian SMEs have recognised that the only way to cope with international competition is to skew their efforts toward service innovation. The development path of India provides an explicit example in this regard. At the beginning of the trade liberalisation period,⁸⁸ the predominant share of productivity growth was determined by market-share reallocation (i.e. existing and well performing companies 'stole' the market share of other less productive firms). As time passed, this process has moderated because of the learning curve companies face regarding how to innovate. The emergence of new innovative firms started to put an end to the reign of the above mentioned phenomenon, leading to much more service-oriented innovation activity in Indian firms.⁸⁹ Service innovation provided new opportunities for firms' management familiar with innovation-related approaches to face global competition by strengthening firm responsiveness, reputation and thus customer loyalty.⁹⁰

⁸⁸ Significant cuts were introduced in the case of input and final goods. Moreover, the FDI liberalisation and the de-licensing also contributed to the improvement in the service sectors' potential. However, there are lots of fields that are not fully liberalised, e.g. banking, retailing, and accounting.

⁸⁹ Service innovation could offer support to the strategic positioning game of firms which is often a decisive factor behind the success. As the example of Siebel illustrated – it was a promising company in the field of informatics, especially CRM-systems –, a company is likely to fall if it has a bad position. Siebel positioned itself into a group in which it had to face SAP. The lesson what we can learn from its case is the following: If the company's position is bad, it may fall even if its market, product or service can be seen as relatively good.

⁹⁰ However, India should face shortcomings that are limiting the potential of service sectors. As Prasad and Sathish (2010) stressed there are still lots of regulatory restrictions on various services.

4.4.3 Banco Santander – smart growth through the global customer service approach

	<p><i>The case of Banco Santander can be portrayed as a success story based on the creation of permanent service and product innovation. The human factor, the perpetual intention of improving potential internationalisation and the efficient use of technology and creativity are the major building blocks of Santander's smart growth.</i></p>
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Company profile

Banco Santander was established in 1857 as a small local bank. These days, the Santander Group is one of the largest banks in the world in terms of profitability and stock market capitalisation. Banco Santander has committed itself to a customer-focused business model ever since its establishment. This approach pervades the whole range of service activities; commercial banking, global retail banking, insurance and asset management, and global private banking. Due to its stable and promising business performance, the recent financial meltdown and declining economic situation have not forced the Bank to change its basic stated intention of delivering a relatively huge level of recurrence continuously.

Factors behind service innovation

Three main factors have helped Banco Santander transform to become the number one bank of the Eurozone with around 180,000 employees. The first is the human factor. The history of Santander is tied to the Botín family whose members played a determinant role, guiding the bank through its 154 years. Santander is the only bank among the world's top ten in which three generations of a family have exerted a key influence over decisions concerning corporate governance and overall strategy. All this has happened despite the fact that members of the family own only 2.5 percent of the equity. The second factor is internationalisation. Well-planned strategic alliances, acquisitions, mergers and the establishment of affiliates have paved the way for Santander to enter the countries of Europe and Latin America. The business model of Banco Santander relies on its customer focus, efficiency, geographical diversification, risk-averse prudence and financial strength. The third factor is the efficient use of technology and innovation, relying on small innovation teams with individuals representing different countries, the integration of IT systems and the constant creation of innovative services and products. The application of service innovation has contributed to the smart growth of Banco Santander.

Smart growth through service innovation

In order to understand Banco Santander's smart growth performance, we first underline that cost efficiency and innovation in Spanish banks has been promoted by high levels of domestic competition. Over the last decade, Spanish banks were among the most efficient in the world measured by the cost-to-income ratio. Their operating system is modern and is constantly being improved. The electronic use of fund transfers and ATM's is widespread. To sustain its innovative edge, Banco Santander has made substantial investments in its IT capabilities, amounting to 3.3 billion Euros in 2008. The bank has its own telecommunications system connecting administration, training, product units and ATMs (Parada et al. 2009).

Innovation needs adequate human resources. Management training is seen as central to Banco Santander. It centralised its executive, talent management and training. Around six thousand employees have been moved to the Financial City of Banco Santander on the outskirts of Madrid.

International mobility is essential in training and Conference Calls are also popular. There are monthly international group workshops. One strategic Santander project is Universia, a unique network of information and cooperation with 1070 universities from 11 countries in Latin America and the Iberian Peninsula, representing 10.9 million students and professors. Its fundamental activities are in three areas: acting as a meeting point among university students; favouring employment and professional internships; and developing projects for technological innovation. It supports universities in training and helps students with their first work experience.

Banco Santander has a unique IT system called Partenon. It provides a “single customer view” by integrating all information in a unique database. All of a customer’s relationships with the bank are automatically linked and immediately visible to bank employees. Staff in any division can easily access customer data from another division, so the bank can assess credit risks more efficiently. Santander decided to implement Partenon in the whole group. In 2006 The Banker granted Santander the Core Banking Systems Innovation award for its Partenon system. Now Santander’s branches are adapted to the local environment but employ similar IT and banking systems across the group. Thus a single IT system (Partenon) is deployed across Europe and a comparable system called Altair is deployed in Latin America. The UK’s sixth largest bank, Abbey National was acquired by Santander in 2004. A particular challenge was posed by Abbey’s collection of 30-year old IT systems, which among other things did not provide global customer information files.

Santander’s solution, as in other deals, has been to replace it with Partenon – one of the first efforts in Europe to export a complete retail banking system across borders. By the end of 2007, the conversion had been completed satisfactorily. In 2010, Banco Santander integrated the IT systems of Abbey, Alliance & Leicester and Bradford & Bingley. The process encountered small problems, but by the end of 2010 the integration was complete. During 2011, data of the Sovereign affiliate in the USA will also be integrated into Partenon.

Banco Santander constantly develops innovative campaigns in order to attract and keep clients. The first one, Super Account “Supercuenta”, was introduced in 1989 accompanied by huge publicity. It paid 11% interest, more than double the interest rate of competitors. Other banks could only slowly follow this strategy and by then Santander had gained considerable market share in only a few months time. Other campaigns of this kind “superlibreta” and “superhipoteca” were launched later. In Spain, the “Queremos ser tu Banco” (We would like to be your Bank) plan has lasted for five years. Charging no commissions and other advantages has attracted 4 million clients. In the UK a similar project is the “Santander Zero Account” which eliminates commissions and gives free access to ATMs across the world subject to certain conditions.

Another innovative service is “Santander Secure”, certified by both Visa International and Master Card International, offering secure Internet credit card shopping. It lets customers add a personal password to the existing Santander client card. In case of online purchases, Santander Secure issues a receipt at the end of the process. The client signs the receipt using the personal password and submits it. In October 2010, Banco Santander launched “Santander Select”, a new personal banking model directed at clients with assets of more than 100,000 Euros. The goal is to raise market share in personal banking from 10% to 15% by 2013, which would expand the customer base of Santander Group to over 300,000. Santander Select will rely on a network of 350 agency advisers and 50 telephone advisers. A Formula 1 pilot is the ambassador of this service and participates in the campaign. Santander Select is the global level brand for the targeted clients in Spain, Latin America and Portugal.

One of the essential consequences of continuous service and products innovation is the fact that Banco Santander has become one of the most solvent banks in the world. The increased financial latitude creates a wider opportunity for taking part in financial support programmes towards SMEs in the form of loan and micro credit guarantees.

The main driving force of growth at Banco Santander is successful competition. On the one hand, domestic competition rose as a consequence of the deregulation process in the Spanish financial sector at the end of the eighties. On the other hand, competition increased due to much larger European rivals in the Eurozone. Deregulation and liberalisation policies thus contributed to the striving for growth and the push for innovative technologies. The task of the Spanish government and of the Bank of Spain was to set the ground rules and secure stability. Bank management supplied the important initiative.

4.4.4 Netrisk.hu – smart growth via linking customers to all potential service providers



The case of Netrisk.hu is a success story based on the introduction of a service based on the intensive use of ICT and on the provision of information to customers. The timing of the start and, later, the continuous development of the service provided are key factors in its success.

Company profile

Netrisk.hu started its activity in 2001 as Hungary's first online insurance brokering company. The company's activity can be considered an ICT-based service. Over the last decade, the company was able to preserve and even strengthen its leading position on the market. Despite the reinvigorated competition from companies that followed its example, Netrisk.hu has been able to defend and even to re-affirm its position as a market leader in online insurance brokering. In addition, for the year 2010 it has become the biggest actor (taking into account all actors on the market, not only online brokers) in car insurance brokering in Hungary.

On the basis of continuously improving, outstanding results – the company had a turnover of 5 million Euros in 2009 – Enterprise Investors (a company based in Warsaw and one of the largest firms managing private equity and venture capital funds in Central and Eastern Europe) bought 80 per cent of the company in June 2010. The previous owners still own the remaining 20%. Enterprise Investors paid 6.4 million Euros for its majority owner position.

Factors behind service innovation

The innovation – the product itself – is closely related to ICT in the sense that the activity of Netrisk.hu is ICT-enabled. Customers can change their existing insurance contracts (as well as conclude new ones) through the website of the online broker. For this, ICT is crucial. Without a certain level of ICT development as well as the "e-maturity" of the population, the product (the service provided by the online broker) could not exist.

The story of Netrisk.hu is rooted in the general environment of services, more precisely of insurance. The activity of the company is closely connected to ICT development, in particular with respect to Internet penetration in Hungary. This has much to do indirectly (relatively little directly) both with

innovation policies in general and with service innovation policies in particular. As the use of ICT and the development of Internet services were crucial for making this type of activity possible, policies aiming at the development of ICT, and particularly Internet access, have played an indirect – but very important – role.

The development of the e-business environment – notably the ability of large segments of the population to access the Internet – was crucial for the success of Netrisk.hu activities. The growth of the company illustrates not only the company's success, but also the development of its environment (which, of course, does not diminish the importance of the success of the company).

Important general policy elements include policies enhancing competition on the market. The competition between Internet providers has resulted in prices which make this service available to a large share of the population in Hungary. Without this development, the whole story of Netrisk.hu – based on widespread use of Internet – would have been impossible. The timing of the launch of Netrisk.hu coincides (of course, it's not simply a fortunate coincidence!) with the period when Internet access had become affordable for many Hungarian households.

One specific feature of the Hungarian third party car insurance market (by far the most important area of activity for Netrisk.hu) was particularly important. Until 2010, customers could change their insurance company (leave one insurance company for another based on price competition) only during a limited period (specifically, the month of November). This meant that new deals were concentrated every year into a one-month period. Parallel with the increasing competition between insurance companies, every year more and more people (hundreds of thousands) decided to change their contracts during this short period.

Such a situation meant, of course, an exceptional opportunity for an online broker specialising in this specific market and providing a simplified organisation of all the steps necessary for contract change. Providing customers the opportunity to compare all (or at least most) offers available on the market and also providing them the opportunity to choose between these offers further contributed to their success. The first such company in Hungary was Netrisk.hu. Over the last decade, Netrisk.hu's presence and activity has fundamentally transformed the market.

Parallel with the technical development that made online brokerage possible, the establishment of the regulation for online brokering was also of crucial importance. At present, as the company has ambitious plans for internationalisation. European (EU) regulation on this type of activity is now of key importance.

One additional factor contributed to the increasing competition between insurance companies, and thus to the success of Netrisk.hu. The general economic situation in Hungary (with relatively limited growth after 2002 and practically no catching-up to the EU average GDP/per capita since the country's EU accession in 2004) has made consumers particularly price-sensitive. Under these circumstances, Netrisk.hu's innovative approach logically attracted masses of customers. In this situation of increasing competition between insurance companies, the easily accessible comparison of different offers has become very attractive and has also contributed to the competition leading to the reduction of insurance fees.

Smart growth through service innovation

The present position of Netrisk.hu is based on the innovative choices made in 2001 – launching the first online insurance brokerage company in Hungary. Until recently – despite the gradual increase of contracts other than third party car insurance – we could speak more or less of a “one-hit” company.


Given the recent developments (reflected also in the change of ownership and the legal form of the company), this may change. Based on the results of the first “big hit” – which enabled the company to become a market leader in Hungary in the space of a decade – new activities as well as new geographical markets can be explored.

The innovation lies in the service provided: Netrisk.hu was the first online insurance broker in Hungary. In this sense, the product (an online insurance brokerage service) was new in the Hungarian market. If we take insurance as the product, Netrisk.hu offered its customers a new way of accessing an *already existing* product. This way was not only technically new: it also increased the real choices of customers.

An interesting – and, taking into account the special features of the Hungarian market, very important – factor is that no online payment is required from the customer. The insurance broker connects the customer and the insurance company (chosen by the customer thanks to the service of the insurance broker). For the actual payment, the already existing, traditional methods and insurance company channels are available. This is very important in a country like Hungary, where the readiness of people to pay via the Internet is still limited (it was even more so at the time Netrisk.hu started its activity).

There are some “extra” elements of the service provided by Netrisk.hu that made it very popular. One of them is the breadth of information provided by the service: offers from practically all insurance providers can be accessed and compared in one place in a couple of minutes. The service is also personalised: all extra allowances based on personal customer conditions permitted by the insurance companies are also available via Netrisk.hu’s website. This saves customers a lot of energy and time, while there are no accompanying losses or risks.

4.4.5 Quanta Computer – smart growth through smart logistics service innovation

	<p><i>The case of Quanta Computer cannot be viewed as an isolated success story in the history of Taiwanese ICT firms via logistics service innovation. Quanta has become an organic part of Taiwan’s integrated logistics hub, built heavily on cooperation among Taiwanese ICT firms (Compal, Wistron, Hon Hai and Inventec). Creating such a smart logistics service for HP, Dell and Apple proved to be the principal cause of Quanta Computer’s success story.</i></p>
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Company profile

Quanta Computer is one of the world’s largest notebook producers, offering state-of-the-art technology products and solutions. The company was established in 1998 and by now, it can be regarded as one of the biggest suppliers of top brands such as Dell, HP, Apple, Toshiba, IBM, Acer, NEC, Fujitsu-Siemens and Sony. Apart from its well-performing manufacturing activities, its services also bear the stamp of permanent innovation. This is especially evident in the field of logistics services. Belonging to a logistics network provides a unique opportunity to thrive and Quanta is thus able to employ more than 30,000 people worldwide.

Factors behind service innovation

Quanta’s success was determined by a constellation of at least two factors. First, the emergence of the JIT (Just-in-time) approach catalysed the need for the incorporation of logistics networks in a more

vigorous way, so that firms in the network could harmonise their activities and utilise synergies. Second, the relatively high number of competitors in the ICT sector forced companies to consider the creation of logistics hubs, if for no other reason than because Taiwan's geographic and economic features (a small and open economy) also offer incentives for the hub-building approach.

Another key influencing factor is one of the specific features of ICT products (e.g. notebooks) which often tend to be "*soon-to-be-obsolete*" products. Thus the convenient supply of top brands via smart logistics became even more attractive. This feature makes the role of services, i.e. logistics services, one of the core competitiveness factors beyond the production of state-of-the-art computers delivered only in two days.

Smart growth through smart logistics service innovation

Although Quanta focuses on design and product innovation by emphasising ODM (Original-design manufacturer), the company also concentrates on service innovation via accentuating the role of logistics services and after-sales services. By putting more emphasis on logistics services, Quanta was able to embed itself into the texture of transnational and world-renowned companies networked in a new and more spectacular way. As a consequence, the patterns of computer production have also changed.

Since the leading global computer manufacturers (e.g. HP, Dell and Apple etc.) have subcontracted the production and assemblage of their notebook computers to manufacturers operating especially in Taiwan, Taiwanese manufacturers – like Quanta – have subcontracted the manufacturing to China. Quanta has thus become a valuable creator and maintainer of the logistics hub that was originally formed in Taiwan. This also implied that Taiwanese ICT manufacturers including Quanta relinquished being merely OEM companies (Original Equipment Manufacturers), though this was originally their role. This transformation was to a certain extent the realisation of the transformative power of services innovation. Quanta became a logistics provider by integrating the client's supply and demand chains, gaining profits through a service innovation approach.

The case of Quanta lends support to the phenomenon of 'servicizing' products by concentrating more and more on service orientation. This has contributed to value creation in the eye of both customers and clients. Quanta first and foremost plays a key role as a components-innovator for the above-noted top marketers (focusing efforts on the development of individual components like Wireless LAN modules, LCD etc.). Similarly to the other ICT firms, Quanta has brought about a considerable de-linking of manufacturing by off-shoring a lot and relying on a further division of labour. Second, Quanta can be considered a major resource integrator, building and delivering requested equipment in two-days time. As noted, Quanta and other ICT firms compose a logistics hub whose shipments are compelling (registered annual notebook shipments have constantly increased for many years, reaching more than 13 million units in the first half of 2011)⁹¹.


Taiwanese government policy has also fostered the emergence of the transformative power of service innovation. Not only Quanta, but also in the whole ICT industry, are of key importance on the policy agenda. The government elaborates programmes and initiatives that are more likely to increase the economic potential of the Taiwanese ICT sector via significant diversification.

Additionally, the government recognises that the only way to achieve better competitiveness is through the persistent promotion of the embeddedness of Taiwanese firms in the international networks of

⁹¹ Shipments data stem from Digitimes (2011), available: <http://www.digitimes.com/index.asp>

multinational companies (MNCs). To this end, the Ministry of Economic Affairs intends, on the one hand, to increase the number of agreements with MNCs and, on the other hand, to enhance collaborative activities among different actors (private enterprises, universities and research institutes). Additionally, the government provides both financial *and* non-financial support for the business community in the interest of strengthening competitiveness. Quanta received government support with the blessing of the National Science Committee in the form of 100 acres, the land needed for the planned manufacturing plant.

4.4.6 Asthmapolis – smart growth through medical service innovation for inclusive growth

	<p><i>The case of Asthmapolis is best understood as an open service innovation for future health service innovation. Since more and more people around the Globe suffer from asthma and since health sciences have not explicitly understood its principal causes, collecting and assessing real time information about the circumstances (time and location) people face during an asthma crisis is instructive for achieving better asthma control and may potentially help future health service development regarding the treatment of asthma and other respiratory problems.</i></p>
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Company profile

Asthmapolis, a private company, started operation in the U.S. in 2009 with the purpose of delivering new product and service solutions for public and private companies doing business in the health sector. One of its latest service innovations aimed at achieving better asthma control via further technologically enhanced inhalers with ancillary services, Spiroscout.

Factors behind service innovation

The main reason the founders decided to innovate is the non-negligible fact that nowadays almost 300 million people (approx. 5% of the world population) are negatively affected by potentially life-threatening asthma conditions. Despite extensive medical science research, we still do not know with reasonable certainty what the basic elements of an asthma attack are. According to the basic idea, if current medical devices are only able to dampen asthma symptoms during the crisis, we should concentrate on more dedicated information collection concerning the specific circumstances individuals face when undergoing an asthma crisis. There has been a lot of support from US governmental agencies to use data driven technologies that improve patient outcomes. Asthmapolis recently presented at the Health Data Initiative Forum, which included a number of companies and governmental partnership aimed at developing tools and applications for harnessing health data. The service innovation was also facilitated by close cooperation with the University of Wisconsin-Madison (Department of Biomedical Engineering), where the founder was also conducted research. The outcome of this cooperation was the prototype for the above mentioned Spiroscout project.

Smart growth through medical service innovation

The major source of the service innovation was the lack of information about asthma-inducements and triggering conditions, coupled with the enormous number of people forced to live their lives coping with

asthma. Though medical science does not have exhaustive and explicit information about the factors that induce asthma attacks, we can make asthma rescue inhalers smart by GPS (Global Positioning System) enabling them and giving them wireless Internet connections. When someone feels a crisis coming on, the advanced inhalers automatically register the date and location in an electronic diary and send them to the data centre. The diary's information can also be made available to public health officials in order to obtain a better understanding of the emergence of an asthma crisis.

Since patients and medical researchers can have access to the electronic diary via smart mobile phones that track and map inhaler use, this type of learning process can be considered a smart mHealth service, as well. On the basis of the collected data, the centre carries out various calculations and analyses on the circumstances people face when experiencing an asthma crisis. The centre provides services by sending feedback and recommendations on a weekly basis to the patients and their doctors participating in the programme. Furthermore, it is also possible to share data with public health agencies, healthcare companies, and clinical as well as epidemiological analysts. In this sense, the Asthmapolis service innovation can be regarded as a potentially open one.

After collecting data from numerous patients using Spiroscout, the centre creates asthma maps and hot spots through data-mining and pinpoints when and under what circumstances asthma-crises occur. By sharing these asthma maps with the wider asthma community, asthma-tracking, management and research can become more transparent and advanced. In this way, Asthmapolis becomes even more integrated into the surrounding communities, which seems to be a key factor in its success.

Consequently, this service on the one hand provides opportunities to patients to have better control over their asthma conditions, and on the other hand creates the potential for future service innovation perspectives. For example, the collected data could be analysed taking other potentially important environmental data into account (e.g. air pollution exposure, dust concentrations, relative air humidity, etc.). The frequency of rescue inhaler usage provides information on the extent to which the patients' asthma is controlled and may also provide information about how frequency is influenced by other thus far non-identified factors. Consequently, patients and medical science will certainly have more relevant information about asthma-inducements and conditions.

The U.S. faces an underperforming health system which operates with the World's biggest volume of budgetary expenditure (as a share of GDP, approx. 17%). One of the major consequences of the impaired U.S. health system is the fact that Americans with asthma problems are forced to accept limited accessibility to care providers – who would be their principal informant on asthma conditions – because providers lack the time to devote adequate attention to individual patients.

The case of Asthmapolis illustrates that smart service innovation in the private sector can be advantageous to public healthcare systems and ultimately to the broader society, as well, by bridging the innovation and information gap in the patterns of asthma-crisis and triggering conditions. Nonetheless, Asthmapolis also calls attention to the importance of joint innovative collaboration between higher education and the private sector which may also have a positive impact on public services. Localising asthma hot spots that are more likely to induce asthmatic problems is a key factor in order to have better understanding of where employers should improve the work conditions to reduce workplace-associated symptoms, and thus to enhance the living conditions of people with asthma leading to the promotion of inclusive growth.

5 Conclusions and strategic responses for policy

5.1 General implications for policy

This section proposes some conclusions that can be drawn from the policy and case study evidence presented in Section 4. The evidence points to some factors and shortcomings that can hamper innovation activities of service companies, but also challenge the development of appropriate policy measures to support innovation in services (such as a lack of robust data on service innovation and of policy impact evaluations).

Paying more attention to service innovation, recognising different needs and settings

Services are an important part of the economy, in particular in advanced economies, accounting for a significant share of employment and growth. As processes and activities of service companies are quite different to those of manufacturing companies, their innovation needs are different as well. This policy briefs concludes that general innovation policy should pay more attention to the importance of service innovation, which is not always adequately addressed with traditional schemes such as support for RTD-focused innovation activities. Ideally, service innovation should become an organic part of general innovation policy.

The case studies conducted for this policy brief, and the policy analysis, find that the following characteristics of services and service innovation are particularly relevant to be considered by innovation policy:

The role of customers in innovation processes. Service innovation activities are usually not centralised in R&D departments. Instead, innovation can pervade the whole organisation by using feedback mechanisms which, on the one hand, underpin the multi-actor and multi-dimensional aspect of service innovation, and on the other hand illustrate that the extended usage of ICT has made the output of service innovation more customised. This implies that the direct involvement of customers in innovation process, often coined as “customer-driven innovation”, is more important in the service sector than in manufacturing.

The different character of innovation outcomes. Service innovation has typically a more *qualitative outcome* than in manufacturing (e.g. increased loyalty of the customers). Innovation is often related to “servicizing” a product, rather than inventing a new product or introducing a new process. It is the new combination of products and related service processes which constitutes the innovation. Another important aspect is the *macroeconomic impact* of service innovation on labour productivity, employment and economic growth. Apart from some service branches such as finance and knowledge-intensive business services, service innovation tends to have a smaller direct impact on labour productivity. Also, service innovations often do not result in new brands (at least when compared to product innovations in manufacturing) – again, it is rather the new combination or bundling of existing products and services. The case studies also show that organisational innovation is particularly relevant in service sectors.

Different investment practices – but indirect impact of R&D. Due to the more qualitative outcome of innovation, in-house R&D investments are less important in service innovation than in manufacturing. Still, R&D affects service innovation indirectly. R&D influences product innovation, which can provide an impetus for service innovation.

Different information sources. Service innovation is more likely to entail the use of both external and internal information sources and practices. The role of social capital and trust are much more important in this respect and also for the diffusion of service innovation, because the exchange of tacit (or even codified) knowledge requires stable and trust-based relationships and constant interactions. Apart from some sector-dependent cases, service innovation activities tend to be less connected to the research system. Cooperative or outsourced research, involving universities, private or public research institutes, is less common in services.

Different patterns in the protection of intellectual property. Since service innovation can often be easily imitated or adopted, traditional forms of protection are less common. This increases the pressure to innovate continuously.

Measuring innovation in services is still a developing field. The intangible character of services makes measurement of innovation activities and outcomes more difficult than in the manufacturing sector. There are no widely used indicators specifically for services. Hence, measurement is prone to being highly subjective. Moreover, analysing the internationalisation through service innovation is challenged by a lack of harmonisation in methods used for measuring trade in services.

Focus on removing barriers

A general conclusion that can be drawn from the case studies is that service innovation policy should focus primarily on removing (or reducing) existing barriers for service innovation, rather than aiming to directly support or promote innovation activities of individual companies. Challenges for direct support measures include the heterogeneous character of services, and the difficulty to exactly define the innovation outcomes, which can be less tacit than in manufacturing (see above). This policy brief supports the view that service innovation policy should become an embedded part of the innovation system.

The case studies (see Section 4.4) show that the role of organisational innovation (e.g. creating multi-unit organisation, combining or integrating different services involving employees and customers into co-production) can be very important in the case of service innovation. The following major success factors behind organisational innovation were identified:

1. **leadership** that is committed to enhancing the innovation culture which can be promoted by the involvement of young employees in the decision-making process (see, for instance, Infosys);
2. **concentration on and anticipation of customer needs** in fields that have not yet been exploited (see, for instance, Asthmapolis);
3. **learning by example:** consider both successful and less successful examples, because continuous service innovation requires a persistent learning process (e.g. Webvan's failure with respect to the importance of the incorporation of local circumstances and customer needs);
4. make use of **internal sources of information:** to facilitate internationalisation, innovation teams consisting of people from different regions or backgrounds can be an effective means to find strategies how to deal with cultural differences (e.g. Banco Santander).

The case studies are also evidence of the heterogeneous character of service innovation and the different barriers to innovation that result from this. The analysis suggests that policy could focus on addressing persistent barriers to service innovation in a more dedicated way. In a nutshell, the main conclusions and lessons learned from each of the service innovation case studies are:

Vattenfall (*product, process and organisational innovation*): R&D had an indirect effect on service innovation through the introduction of smart metering. This led to a more sustainable and reliable energy supply on the basis of real customer needs. The case demonstrates the enabling role of ICT as a solid driver of service innovation. The Swedish public sector recognised the importance of the use of public procurement as a useful tool for demand-driven solutions geared towards sustainable growth.

Infosys (*process and organisational innovation*): the objective of a new and integrated service delivery required a significant change of business model by creating a global delivery business model. This can be considered an organisational innovation. Since it was easily imitated, Infosys was required to further develop it, indicating that one of the relevant drivers of the service innovation is adaptive capacity. This was also recognisable when Infosys employed local employees to bridge the cultural/language problem, which is one of the main barriers to service innovation.

Banco Santander (*process, marketing and organisational innovation*): due to the nature of financial services that can be easily adopted by others, permanent service and product innovation are needed in order to have the chance to utilise the white spaces in customers' needs. As a consequence, one of the most important drivers of service innovation is deep knowledge of customer needs.

Netrisk.hu (*process, marketing and organisational innovation*): the service innovation combines elements of product and process innovation: a new distribution channel (the internet) and a new logic were combined to provide better access to an already existing service. The company recognised earlier than its competitors the rise of a new technology and how it could improve service delivery. The innovation depended on a critical mass of users and the "e-readiness" of the society (in terms of e-skills, e-awareness and access to ICT).

Quanta Computer (*process and organisational innovation*): smart logistics service innovation safeguarded a better embeddedness in the logistics hub of Taiwanese ICT firms.

Asthmapolis (*product and process innovation*): the main driver was the ICT-based open service innovation which provides a way for the public health system to procure and drive innovation from the demand side as well as for future service innovation in health care services.

5.2 Strategic responses

This section proposes strategic responses for policy how to best address the innovation requirements of service companies. The recommendations are based on the literature review (Sections 1 and 3), the review of evaluations of service-oriented innovation policy programmes (to the extent that such evaluation reports exist – see Section 4.3), the case studies (Section 4.4) and the general conclusions drawn about trends and features of service innovation (Section 5.1). The proposed responses consider that innovation processes and outcomes in service sectors are very heterogeneous and have multi-dimensional aspects. Many actors and stakeholders can be centrally involved in innovation processes, often including the customers.

The main conclusion of this policy brief is that the best way to encourage innovation in services is by **removing (or at least reducing) identified barriers** to service innovation, as well as to the related policy design, rather than introducing direct support measures for companies or other specific programmes for innovation in services. In short, the evidence suggests that policy –at least at the European level– should concentrate on **optimising the framework conditions** for service innovation. This cannot be achieved by innovation policy (in the narrow sense) on its own, but will inevitably require a coordinated approach involving different policy domains such as economic, competition, education, labour and social policy.

This recommendation is linked with the basic observation that service innovation has a horizontal character which cannot be simply captured by focusing on R&D activities. With a view to the role of the European Commission, this implies that different Directorate Generals would have to get involved to further improve the framework conditions for service innovation. The following sections aim to break down this general recommendation into some specific areas that could be addressed by Commission services (Section 5.2.1) or the Member States (5.2.2). We see the main role of the Commission (i) in facilitating the exchange of experiences and best practices (both in innovation and innovation policy), acting as a coordinator of relevant activities, and (ii) in creating the right framework conditions through regulatory measures where needed, for example with regard to specific aspects of intellectual property protection. Direct support measures, such as programmes providing incentives for service innovation activities, should –if at all– be planned and implemented by the Member States or regions, as such the measures should be adapted to the local needs (e.g. in terms of sectors to be targeted). Service innovation as a whole is probably a too broad and heterogeneous field for being reasonably promoted through over-arching, unspecific programmes.

5.2.1 Strategic responses for the European Policy

Raise awareness: be a messenger of best practice and communicate the importance of service innovation

The Commission could further develop the service innovation policy dimensions in the Inventory of Research and Innovation Policy Measures of the ERA Watch European initiative. Using policies dedicated directly in support of service innovation is not a prevalent practice. The developed economies have only recently started to commit themselves to support service innovation in a more pronounced way.

As the EC plays a role in coordinating policy developments in several domains (e.g. service innovation policy), it is important to have reliable information on what the Member States are doing in this

domain. Collecting and disseminating information on the one hand (including policy measures with publically available evaluations) on service innovation policy within the ERA Watch platform in a more vigorous way could serve as a basis for DG Enterprise and Industry to gain a better understanding of what is really going on in the Member States regarding service innovation policy developments. On the other hand in the future, the extended ERA Watch should also be much more firmly integrated with the TrendChart (www.proinno-europe.eu/trendchart) so that policymakers will have information on observable trends that might be useful for assessing the efficiency of the existing supporting measures. A more integrated ERAwatch and TrendChart could provide information about service innovation policy opportunities on the basis of collected evaluations (e.g. about best practices and failed initiatives) and survey results (e.g. CIS or the 'Monitoring the Innovation Union' survey conducted by the Technopolis Group).

Strengthen cooperation between different EC services responsible for regional as well as enterprise and industry policies to promote service innovation through the use of EU Structural Funds

In cooperation between DG Enterprise and Industry and DG Regional Policy, the Commission could aim to promote service innovation through the use of EU Structural Funds (especially because most of the Structural Funds transfers are destined to less developed regions). This implies that encouraging cooperation between relevant EC services and national ministries that are responsible for the management of Structural Funds would also be informative, perhaps making it possible to improve the use of these resources and their support for service innovation. This collaboration should recognize that there is no clear evidence on whether it is necessary to create specific R&D programmes (if at all) for the promotion of service innovation in different kinds of services. Due to the more qualitative outcome of service innovations, investments in R&D are not equally important for the various types of efforts made.

Consider innovative ways to ensure IP protection in online services

Patents and other formal measures for protecting intellectual property are used to a much lesser extent in the case of service innovations than in manufacturing (e.g. for exploiting product innovations). Instead, the "service culture" is more and more linked to the internet. Companies use web applications and provide services online, making use of the increasing digital literacy of a large part of the population. The importance of the internet for service innovation cannot be overestimated, as the case studies in this document demonstrate. Policy could have a role in this context. DG Enterprise and Industry, jointly with DG Information Society (or other DGs), may want to encourage the development of new mechanisms how formal IP protection schemes can be applied to the internet in favour of innovators in service sectors. This could drive further innovations in online services (including product, process, marketing and organisational innovations), with a high potential for productivity increase.

This recommendation refers mainly to the development of internet-based methods that **support the lead time** of service innovators. If, for instance, an innovation follower has to display the name of the original innovator on its website where the same concept is used, with a link to the originators' site, this would be a significantly different method than the use of other approaches (confidentiality clauses, HRM, contracting methods) which are traditionally emphasised in literature in the case of collaborative service innovations. The recommendation should not be misunderstood, however, as a call to increase the usage of the classical ways of IP protection in the case of service innovation.

Set specific objectives and targets for service innovation to encourage the debate and steer actions in the right direction

DG Enterprise and Industry should **lead the way in setting specific objectives and targets** for service innovation. Although the interest in service innovation has significantly increased, the debate is often not well structured. It should be further specified what the main objectives to be achieved in case of promoting services innovation are. While a document on the „Challenges for EU support to innovation in services” (Commission Staff Working Document, 2009) outlines general objectives, these could be further broken down into more specific targets to be achieved, and the relevant instruments could be identified and selected to meet the challenges.

Proposing specific objectives and measurable targets can be a powerful vehicle for structuring and encouraging the debate on specific issues, and for steering actions into the right direction. DG Enterprise and Industry could consider using this instrument for this purpose, i.e. to encourage the further debate on service innovation and related policy. Targets which are broadly agreed by the stakeholders could be adapted and further broken down for individual Member States, depending on the respective state of play and economic and social contexts. A Communication could be useful instrument for this purpose. The instruments that will be subsequently applied to reach the targets will differ between the Member States, depending on their situation and specific objectives (e.g. five types of service economy with different needs).

It is also important to make, as much as possible, use of existing initiatives as to address the specified objectives and targets. Again, this may require **raising awareness among policy** for the importance of service innovation (see also above), and providing guides how existing programmes can be used for addressing related objectives. Some indicative examples are: using CIP for putting research into practice, INTERREG for exchanging good practice, Programmes for Territorial Cooperation (such as CEE, MED or SEE) for promoting a transnational strategic approach and focusing on remote, rural, less advanced regions. An important aspect in this context is to make the participation in these programmes as easy as possible (facilitate and accelerate administrative procedures, reduce complexity) so that SMEs are more motivated to participate in the programmes.

Improve the statistical base: policy needs more and better comparable data about service sectors and service innovation

The literature review conducted for this policy brief clearly shows that the data base about service innovations and their impacts need to be improved. There are hardly any substantial evaluations of service innovation programmes, and internationally comparable data about service innovation are scarce. Even if it is fully acknowledged that the measurement of service innovation is a big challenge (heterogeneous character of services, qualitative / embedded character of innovation outputs), DG Enterprise and Industry should consider to make an effort to address this challenge, e.g. in cooperation with DG Research. Two specific aspects are particularly relevant here:

- **Trade in services:** the EC should urge Member States to pursue the adoption of the instructions for the IMF's Balance of Payments Manual in a more dedicated way, and aim to achieve a significant harmonisation of the various methodologies used for measuring trade in services and the estimation of missing data.
- **Service innovation in the CIS:** the EC should promote knowledge exchange between the Expert Panel on Service Innovation and the CIS team in order to establish ways in which service innovation activity could be captured by the Community Innovation Survey in a more rigorous way.

5.2.2 Strategic responses for Member States and regions

Increase efforts at carrying out evaluations of innovation programmes

Making decisions about service innovation policies would be greatly facilitated if there was more and better empirical evidence about the experience with previous programmes. It would be very helpful if those Member States that have already introduced policies in support of service innovation carried out systematic **mid-term and final evaluations** of their various programmes, ideally in a comparable way. The European Commission could possibly urge Member States to do so and even provide some support. The Commission could also aim to create European added value, for example by commissioning a comparative (meta-)study about the impacts of such programmes, with the goal to identify good policy practices and success factors. Monitoring and re-assessing such policies, for example in the extended ERA Watch platform, would offer a more reflexive and calibrated way to inform and improve policymaking.

Promote collaborative research and innovation networks

Member States and regions should think about new and innovative ways of encouraging the cooperation between new and “old” companies –irrespective of whether they are operating in manufacturing or service sectors– and the collaboration of companies with public research and technology institutions.

An indicative example of an innovative approach in this context is the “network contract” to foster innovation and competitiveness in the biomedical sector in Italy. This contract involves Esaote, a large producer of medical diagnostic systems, SMEs which are part of its value chain, the Tuscany branch of the Italian Industry Association, and a bank (Banca CR Firenze-Gruppo Intesa Sanpaolo). This contract goes beyond the usual ways of cooperation among firms in the same district. It aims to leverage the leading role of a large enterprise to the benefit of the whole network. The rationale is that the smaller companies which are part of the network are highly innovative and skilled, but too weak to compete on global markets on their own, and too small to effectively negotiate with big suppliers and banks. Under the “umbrella” of Esaote, SMEs shall enhance their competitiveness – on the market and in negotiations with banks.⁹²

Another, more established means, would be the exchange of best practices. Since service innovation has an intangible character with outcomes that are not easily quantifiable. Exchanging tacit or codified knowledge on experiences is therefore an instrument to make the results “visible” and encourage the cooperation of firms. The promotion of Europe-wide initiatives (e.g. similar to the Swedish Entrepreneurial Quest) for young and old manufacturing and service firms could facilitate the sharing of knowledge, the building of formal or informal networks, and help companies in deepening or widening their supply chains. Innovation support programmes such as the Danish Industrial PhD-programme, and cluster and network programmes, have proven to be efficient tools in meeting these objectives.

⁹² For more information, see news section of the INNO-Grips website: “Italy: “Network contract” to foster innovation and competitiveness in the biomedical sector”, 21 June 2011 (<http://www.proinno-europe.eu/inno-grips-ii/newsroom/italy-network-contract-foster-innovation-and-competitiveness-biomedical-secto>)

Contribute to the fulfilment of normative requirements for good governance with regard to service innovation

Improving the framework conditions for a wider range of spontaneously emerging service innovations: Innovation pioneers / leaders always have followers; diffusion is an essential part of the innovation stream. The innovative services must reach critical mass in order to create a societal benefit. Thus, the role of the followers and their business environment is important. The innovation framework should make it possible, however, for entrepreneurs to bear the sunk costs related to the failure of innovation activities. Improving framework conditions (preserving the opportunity for decentralised adoption and initiations, competition, extensive experimenting and the flexibility of financing etc.) seems to serve as a good solution in order to obtain better climate that is conducive to risk-taking.

Service innovation policy should foster the diffusion of service innovation. In this phase of the innovation process, fiscal support may be required to decrease the costs of adoption. However, such schemes should only provide an initial and time-limited burst of funding, which is then progressively diminished over time, rather than using persistent and substantial fiscal incentive schemes. Importantly, the initial impulse is more likely to engender significant changes in the behaviour of firms compared to permanent supports which does not make additional changes in behaviour.

Support small business: Since services normally, to a large extent, interoperate with tangible products, picking up the right method or framework (i.e. identifying what measures seem to be more conducive to service innovation) is more important than picking up e.g. service gazelles. Since small businesses are vulnerable to weaknesses of the educational system and inefficiencies in physical and institutional infrastructure, and as they are unlikely to be in a position to afford major consulting and legal firms, supporting training and coaching opportunities could be useful (e.g. “Better Business Services” promoted in the UK to offset the costs of consultancy services by providing grants and customer focused advices in different ways).

Beyond these recommendations, some further issues emerged which should be dealt with predominantly at the **national level**.

Take into account the importance of the economic policy framework

Specific policies can only be effective if they are embedded into a stable, long-term overall economic policy framework. Many examples (including the ones presented in the case studies) suggest that success stories in innovation in general, and service innovation in particular, are related to different elements of the industry-wide or sector-level regulation of economic activity. A stable regulatory framework, reducing uncertainty for businesses with regard to investment decisions, is a very important condition and driver of innovation.

Apply regulation where needed and use public procurement to drive innovation

Since the diffusion of service innovations associated with **sustainable growth** depends heavily on regulatory incentives, governments should consider the promotion of that kind of service innovation in the supply of public goods via enacted laws and regulatory efforts, in the interest of the current and future generations. This implies there is a need for more dedicated forms of demand-driven innovation policy for which, as the policy case of Finland and the company case study of Vattenfall (or even the one of Asthmapolis) illustrate, the **public procurement** could serve as an important driver of innovation, as it can be used to reach critical mass by guaranteeing demand. Furthermore, the public sector can act as a pilot user, creating demonstration effects that entail demand in the private sector.

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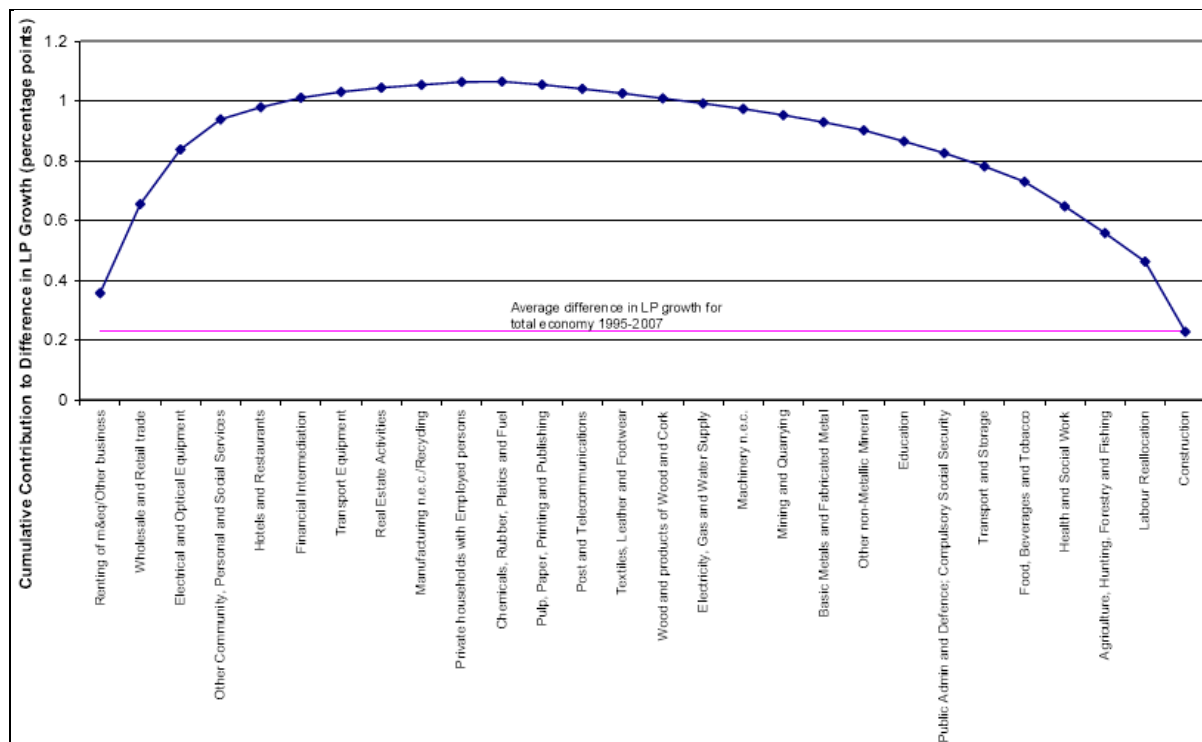
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Annex 1)

Labour productivity growth gap – contributions to the gap between the EU25 and the US by sectors in the period 1995-2007



Source: O'Mahony et al. (2010)

Annex 2)

Journal articles on service innovation 2008-2011

Top level innovation journals	Public policy journals
1 International Journal of Innovation Management (IJIM) 2 International Journal of Innovation and Technology Management (IJITM) 3 International Journal of Services and Operations Management (IJSOM) 4 The Service Industries Journal 5 Journal of Service Management 6 Innovation: Management, Policy & Practice	1 Cato 2 Journal of Public Policy and Management
Level 2 innovation journals	
1 Journal of Product Innovation Management 2 Technovation 3 Journal of Service Research 4 IBM Systems Journal 5 Economic Inquiry 6 Journal of the Academy of Marketing Science 7 Journal of Universal Computer Science	

Exhibit A-1 lists articles in top level or level 2 scientific service sector and innovation-related journals dealing with service innovation in 2008-2011.

Exhibit A-2: Articles on service innovation in various journals 2008-2011

Year	Author(s)	Journal / Article title
		Top Level
		<i>International Journal of Innovation Management (IJIM)</i>
2011	Adams et al.	A taxonomy of innovation: configurations of attributes in healthcare innovations.
2011	Colombo et al.	New product development (NPD) service suppliers in open innovation practices: processes and organization for knowledge exchange and integration.
2011	Korhonen/Kaarela	Corporate Customers' Resistance To Industrial Service Innovations
2010	Aas	Implementing a value assessment tool for service innovation ideas.
2010	Aas/ Pedersen	The firm-level effects of service innovation: A literature review.
2010	Zhao et al.	Innovation as clusters in knowledge intensive business services: taking ICT services in Shanghai and Bavaria as example.
2009	Bessant/Maher	Developing radical service innovations in healthcare – the role of design methods.
2009	Liu	Organizational culture and new service development performance: insights from knowledge intensive business service.
2008	Ramsey et al.	Factors that impact technology innovation adoption among Irish professional service sector SMEs.
		<i>International Journal of Innovation and Technology Management (IJITM)</i>
2011	Chang	The creation of novel and marketable service ideas.
2010	Omachonu/Einspruch	Innovation: implication for goods and services.
2009	Cunha	Convergence and innovation in telecommunication services: an assessment from the perspective of the complementary assets and dynamic capabilities theories.
		<i>The Service Industries Journal</i>
2010	Aas/ Pedersen	The Impact of Service Innovation on Firm Level Financial Performance.

2010	Rubalcaba et al.	The case of market and system failures in services innovation.
2009	Toivonen/Tuominen	Emergence of innovations in services.
		International Journal of Services and Operations Management (IJSOM)
2011	Zhu et al.	Measuring Service Quality using SERVQUAL and AHP: an application to a Chinese IT company and comparison
2011	Ulkuniemi/Pekkarinen	Creating value for the business service buyer through modularity
2010	Berggren et al.	The influence of banks' advice to SMEs on customer satisfaction: the case for regulation
2010	Uzkurt	Customer participation in the service process: a model and research propositions
2009	Franceschini et al.	Service quality monitoring by performance indicators: a proposal for a structured methodology
		Journal of Service Management
2010	Hsien-Tang/Hsi-Peng	Measuring innovation competencies for integrated services in the communications industry.
2010	Hurmelin/Laukkanen /Ritala	Protection for profiting from collaborative service innovation.
		Innovation: Management, Policy & Practice
2010	Potts	Innovation by elimination: A proposal for negative policy experiments in the public sector.
2010	Foster	Productivity, creative destruction and innovation policy: Some implications from the Australian experience.
2009	He/Wong	Knowledge interaction with manufacturing clients and innovation of knowledge-intensive business services firms.
		Level 2
		Journal of Product Innovation Management
2009	Barczak et al.	Perspective: Trends and drivers of success in NPD. Practices: Results of the 2003 PDMA Best Practices Study.
		Technovation
2009	Berg/Einspruch	Research note: intellectual property in the service sector: Innovation and technology management implications.
		Journal of Service Research
2009	Eisingerich et al.	Managing service innovation and inter-organizational relationships for firm performance: To commit or diversify?
2008	Tokumasu/Watanabe	Institutional Structure Leading To The Similarity and Disparity In Innovation Inducement in EU 15 Countries – Finnish Conspicuous Achievement Triggered By Nokia's IT Driven Global Business.
		IBM Systems Journal
2008	Glushko	Designing a Service Science Discipline with Discipline.
2008	Lusch et al.	Toward a Conceptual Foundation for Service Science: Contributions from Service-Dominant Logic.
		Economic Inquiry
2011	Görg/Hanley	Services Outsourcing and Innovation: An Empirical Investigation.
		Journal of the Academy of Marketing Science
2008	Maglio/Spohrer	Fundamentals of Service Science.
		Journal of Universal Computer Science
2010	Nam	Typology of Service Innovation from Service-Dominant Logic Perspective.
		Research Policy
2008	Tether/Tajar	The organisational-cooperation mode of innovation and its prominence amongst European service firms.

Annex 3)

Policy initiatives for service innovation in selected countries

Country	Aims or policy targets on specific types of services	Policy documents
Australia	<i>not explicit</i>	
Austria	<i>not explicit – as part of general innovation policy</i>	2011: „The Way to Become a Leader in Innovation”
Canada	<i>not explicit</i>	
China	Develop service trade, raise the share of services in percentage of GDP	2011: 12th Five Year Plan
Japan	Health, childcare, tourism, business support services and distribution services	2010: 100 Actions to Launch Japan's New Growth Strategy; 2011: Realizing the New Growth Strategy 2011;
South Korea	Healthcare, green financing, education, logistics, telecommunication and broadcasting, consulting, design, MICE and tourism related industries	Industry Policy - 17 New Growth Engines in 3 Sectors 2009: Service PROGRESS
U.S.	Healthcare, state-of-the-art communication service	2011: A Strategy for American Innovation. Securing Our Economic Growth and Prosperity.
Belgium	<i>no explicit</i>	
Czech Republic	Business support services	2010: ICT and Business Support Services Programme
Latvia	<i>not explicit</i>	
Lithuania	<i>not explicit</i>	2010: Lithuanian innovation strategy for the year 2010-2020
Denmark	Intelligence on service companies, promoting service innovation via innovation networks. Improve public services through labour saving technologies.	2010: Innovation Denmark 2010-2013; 2009: Danish PWT Foundation – Investments in Public Welfare Technology 2009-2015; 2007: Innovation Denmark 2007-2010;
Finland	<i>not explicit – as part of general innovation policy:</i> Business to business services, financial services, trade, industrial services, knowledge intensive business services, public sector services	2011: New Tekes strategy; 2009: National Innovation strategy; 2006-2010: SERVE - Innovative Services Programme;
France	<i>not explicit</i>	
Germany	ICT related services, knowledge intensive services, biotechnology, nanotechnology, hybrid services, utilizing technology and innovative service elements	2010: BMBF (Bundesministerium für Bildung und Forschung): Hightech-Strategie 2020 2006: “Innovation with services”
Hungary	<i>not explicit</i>	
Iceland	<i>not explicit</i>	

Ireland	Encourage the development of new business models, customer-interfaces and service-products.	2006: Services Innovation in Ireland – Options for Innovation Policy;
Poland	<i>not explicit</i>	2009: Programme Innovative Economy (Priority Axis 4., Priority Axis 5.) 2006: Innovative Entrepreneurs' Club
the Netherlands	Creative industries, financial logistics, information and media services, realisation of innovative services and start-ups	2011: „Top Areas” innovation strategy 2010: Service Innovation & ICT (SII);
Norway	Promoting networks and knowledge diffusion among service sectors	Governmental whitepaper No. 7 (2007-2009); Norwegian Research Council, SIVA
Slovakia	<i>not explicit</i>	
Slovenia	<i>not explicit</i>	
Sweden	Design and creative industries, skills of entrepreneurs and financiers	2010: The Strategy for Greater Service Innovation;
Switzerland	<i>not explicit</i>	
UK	Creative industries, professional and business services sector, logistics, environmental services, construction	2010: Professional and Business Services: a 2020 Vision for Growth; 2008: Supporting Innovation in Services; 2008: NESTA Innovation in internet content services report; 2008: Innovation in construction services 2007: NESTA Innovation in environmental services report; 2007: NESTA Innovation in the logistics sector report; 2007: NESTA Innovation in the UK retail sector report;

Source: ICEG European Center