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Towards a European strategy in support of innovation in services: Challenges and key issues for future actions

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1. INTRODUCTION

The Communication on Business Related Services[1] highlighted the importance of these services in the European economy, and pointed out that service companies indeed show a high level of innovation, and are often the leading edge users of advanced technological developments. The Communication "More Research and Innovation – Investing for Growth and Employment: A Common Approach"[2], announced that *"by the end of 2006, the Commission will define a strategy to promote innovative services in the EU"*.

This direction towards services in innovation policy is supported by the **Council's conclusions** on "A broad-based innovation strategy: strategic priorities for innovation action at EU level" of 4 December 2006[3] which invites the Commission "*to prepare by April 2007 an overall assessment on innovation in services, evaluating e.g. the related needs for policy adjustments, where appropriate. The Commission is also invited to take into account the various forms of non-technological innovation*".

This Staff Working Document responds to the request of the Council and develops, for the first time, elements of **a policy framework aiming at better supporting innovation in services**, taking into account the report of an Expert Group[4] that was set up in its preparation. This framework will be further developed in consultation with stakeholders, taking also into account the most recent analysis of new policies developed in the Member States in support of service innovation.

Services are becoming more and more a driver of productivity and growth in developed economies and are the only sector of the European economy that has resulted in net job creation in the last two decades. This Document addresses innovation aspects of commercially provided services, mainly based on statistical evidence from the Community Innovation Survey (CIS).

Innovation in the public service sector is not subject to this Document. The public sector represents in Europe 41%[5]of the Gross Domestic Product (GDP) and there is a wide scope for innovation, which calls for a pro-active policy in order to be fully exploited, in particular by promoting the use of Information and Communication Technologies (ICTs) to make public administrations more efficient and effective[6].

The boundaries between services and manufacturing are increasingly blurred, as services are becoming more and more a core element to the production processes of

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1 COM (2003) 747 The competitiveness of business-related services and their contribution to the performance of European enterprises

2 COM (2005) 488 final, of 12.10.2005

3 Council of the European Union (2006), 2769th Competitiveness (Internal Market, Industry and Research) Council Meeting Brussels, 4 December 2006, Conclusions point 8.

4 See: http://www.europe-innova.org/servlet/Doc?cid=7550&lg=EN

5 Statistical Annex to European Economy, The statistical annex. Spring 2007, http://ec.europa.eu/economy_finance/publications/european_economy/statisticalannex_en.htm

6 See: http://ec.europa.eu/information_society/activities/egovernment_research/index_en.htm#Action_Plan

manufacturing companies and a driver of productivity growth. On the one hand, **manufacturing industry is an important user of business-related services**, as nearly 30% of the intermediate output from the sector is consumed by manufacturing companies. Approximately two-thirds of the manufacturing production value is accounted for by manufacturing purchases of services. However, productivity growth in services lags behind that of manufacturing, and is also lower than in corresponding service sectors in the US. This causes concern since the scale of the service sector, coupled with low productivity growth, is widely seen as putting a brake on economic growth overall.

On the other hand, **manufacturing companies are also important providers of services that are in some way related to their product**. The term "product related services" is increasingly used to denote those services which are provided by manufacturing companies in close association with the "product" which is regarded as their "core business". Service packages covering installation, maintenance, updating, training, become an integrated part of delivery. In this way - connected to the outsourcing of traditional production to low-cost countries - many European companies concentrate on service development. In many cases the attached services become the main products.

Furthermore, many services which were previously considered non-tradable are being increasingly codified, standardised, and suitable for delivery at a distance. From a policy perspective, industry and services have been dealt with as though they were independent. The **Communication on the mid term review of Industrial Policy**[7], adopted on 4 July 2007, announced a new initiative aiming at ensuring the best possible framework conditions for the supply and demand of high quality services closely linked to the performance of important sectors of industry. This includes services like retail, distribution and logistics, Knowledge Intense Business Services (KIBS) and industry related services with high growth potential, such as recycling and waste disposal, environmental services, and facility services.

Services have long been perceived as being non-innovative. But in reality they innovate as well, although often in a different manner than manufacturing[8]. Recent surveys show that R&D expenditures in services are increasing rapidly and modern technologies, like information and communication technologies, also drive innovation in services. But there are **strong sectoral differences** in both the R&D intensity and the innovation profile between service sectors. In particular, Knowledge Intense Business Services (KIBS), such as computer services and R&D services, are among the innovation leaders, with high levels of R&D intensity and innovation patterns similar to those of manufacturing firms. On the other hand, other services are far less innovative or tend to innovate in a more continuous and incremental way, not based on technology. This heterogeneity of the service sector calls for a cautious approach when drawing general conclusions about the innovativeness of the services sector and the actions to be taken.

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7 COM (2007) 374, of 4 July 2007

8 For further analysis of innovation patterns in services, see, in particular: Innovation in services: Issues at stake and trends, by J. Howells and B. Tether, 2004

Despite the importance of services for the European economy, most policy instruments and measures in support of innovation are still mainly oriented towards technological innovation. Only in recent years, have some Member States started to recognise **the need for supporting also non-technological innovation,** thus taking into account not only the specificities of service innovation but indirectly also the needs of many SME in manufacturing which are characterised quite often by similar innovation patterns as services. Clearly, non-technological innovations are as important for innovation as technological innovations, which starts slowly to be recognised[9]. In this respect, service innovation is less different from innovation in manufacturing than sometimes assumed.

As services have so many different facets and are closely intertwined with manufacturing, it is not a trivial task to foster their innovativeness. In any case, this calls for a broad-based approach that combines improved framework conditions for services in general with more specific action in certain policy areas. In preparation of such a broad-based strategy, this document argues in favour of a gradual approach that is based on **four elements**:

First, the need to better understand the specificities of innovation in services

Sound statistical analysis is the prerequisite for effective policy development. The Fourth Community Innovation Survey (CIS-4) offers the most comprehensive statistical data to capture the specific innovation patterns of business services. However, more efforts are still needed to better measure innovation in services and to draw meaningful comparison between services and manufacturing.

Secondly, the need to support all forms of innovation, not only technological innovation

To foster service innovation, a broad-based innovation strategy must be followed which supports all forms of innovation. Innovation in services may take many different forms, which makes it difficult to design specific support instruments and measures. However, a first analysis shows that many policies in support of innovation are currently mostly focused on technological innovation. To adapt them to the needs of services innovation is a must, offering a fast track to short-term improvements.

Thirdly, the need to develop specific support mechanisms for innovative services with high growth potential

Framework or horizontal policies may not always be sufficient to address the specificities of service innovation, and in such cases specific measures are needed to foster innovation in services. Evidence suggests that existing innovation support schemes favour more often industrial over service sector SMEs. Therefore, better suited instruments need to be developed, tested and widely implemented that facilitate the creation and growth of innovative services companies in Europe. It is the role of Community policies to act as a catalyst for the development and testing of

[9] The Innobarometer 2007 will provide further insight by looking into the drivers of non-R&D innovators.

new policy approaches in support of innovation in services and to identify and further disseminate, as widely as possible, good practice in this field.

Fourthly, the need to foster trans-national cooperation on "better policies" in support of innovation in services in Europe

Services are increasingly recognised as a driver for growth and innovation and addressed by national innovation policies. However, only few innovation policy measures exist so far that explicitly target innovation in services. In most cases, existing innovation support programmes were just extended to services, which may not always provide optimal solutions. On the basis of the first results of the "Innovation Policy Project on Services" (IPPS)[10] it can be concluded that there is scope for trans-national cooperation to promote the service innovation agenda and to develop new ideas for a long-term strategy and new tools and instruments in support of innovation in services.

This document addresses the four challenges and will be followed by **a wider consultation with stakeholders in the second half of 2007**. At the same time, the Commission's services will continue to develop policies to support innovation in services, including under the Competitiveness and Innovation Programme, the 7th Framework Programme for Research and Development and the Cohesion Policy.

[10] See: http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=73&parentID=55

2. INNOVATION IN SERVICES: THE STATISTICAL PICTURE

While the relative economic contribution of manufacturing to the total economy declined by 2.5% between 1999 and 2004 and the share of all business service value added decreased by 0.3%, the relative economic contribution of KIBS to the total economy increased by 6.8 %. In 2005, KIBS accounted for 6.6% of total added value in the economy and for 12.5% of that generated in the business services sector. Based on these trends and the larger contribution of services to the economy, **KIBS are likely to be one of the main engines for future growth** within the European Union.

The economic importance of services means that improvements in European living standards are likely to depend more and more on **productivity improvements in business services** than in manufacturing[11]. This has been demonstrated in the United States, where business services contributed three-quarters of the increase in productivity after 1995. Much of the productivity increase is due to different types of innovation, developed both in-house by service firms and from service firms adopting productivity enhancing innovations, such as ICT.

Although both the economic weight of business services and the importance of service sector innovation to economic prosperity have been recognized for well over a decade, there has been a **lag in the collection of European innovation statistics for services**. There are partly good reasons for this. For instance, the manufacturing sector is the source of many of the technical product and process innovations that are adopted by business service firms. However, due to the growing awareness of the role of non-technological innovation, software, and logistics in the service sector, it can no longer be considered as only a passive adopter of manufacturing innovations.

The following sections are mainly based on the most recent results from the Community Innovation Survey (CIS)[12], as well as on further economic analysis carried out under the umbrella of INNO-Metrics[13].

2.1. The specific innovation patterns of services

Firms can innovate through technological innovation (product and process innovation[14]) and via non-technological innovation (organisational and marketing innovation[15]). **Examples of innovation in services** vary from location based services offered by mobile network

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11 For further analysis of productivity measurement in services, see: EU KLEMS project at: http://www.euklems.net/

12 Innovation Statistics for the European Service Sector, A. Arundel, M. Kanerva, A. van Cruysen, H. Hollanders, May 2007,
See: http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=275&parentID=51

13 See: http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=5&parentID=51

14 A "product innovation" is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics. A "process innovation" is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.

15 An "organisational innovation" is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations. A "marketing innovation" is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

operators for the identification of the nearest restaurant or plumber to the particular location of the subscriber, to portable bar code readers in supermarkets for fast check out at tills. Often, the innovativeness consists in the integration of existing services and technologies in different ways. Retailers integrating child care, canteens and other customer services in their outlets may be perceived as offering additional value by certain target customers. For instance, the combination of web-based mapping systems and GPS positioning enable network operators to better plan and monitor their complex mesh systems. The combination of voice-controlled satellite navigation systems and speech recognition and text-to-speech conversion capabilities may help drivers to keep their eyes on the road and hands on the wheel while accessing directions, news and music in virtually any car. What these examples have in common is the increase in the value offered to either businesses or end users.

Based on the most recently available data from the **Community Innovation Survey (CIS-4)**, Table 1 presents the statistical picture for technological innovation in services, while Table 2 gives results for non-technological innovation. As was expected, **a lower percentage of all service sector firms (34.0%) as opposed to manufacturing firms (39.3%) are technical innovators**. The difference is similar for product innovation (22.1% versus 26.8 %) and process innovation (25.7 % versus 29.9 %). The **exception are KIBS firms, which are more likely than manufacturing firms to introduce either a product or process innovation (51.5 %).** On the other hand, services excluding KIBS are much less likely than manufacturing firms to introduce either a product or process innovation (30.2%). There is also a notable difference in the percentage of all KIBS firms versus manufacturing firms that introduced a product innovation (42.0% versus 26.8%) or process innovation (35.3% versus 29.9 %). The patterns for innovative firms only are similar, although the difference between manufacturing and service sector firms is narrower.

Table 1: Percentage of firms that introduced a product or process innovation

	Product and/or Process innovation	Product innovation	Process innovation
A. All firms:			
Manufacturing[16]	39.3	26.8	29.9
All Services[17]	34.0	22.1	25.7
KIBS[18]	51.5	42.0	35.3
Services (excl. KIBS)	30.2	17.9	23.6
B. All novel product and process innovators:			
Manufacturing	-	68.2	76.1
All Services	-	65.1	75.6
KIBS	-	81.5	68.6
Services (excl. KIBS)	-	59.2	78.2

Coverage EU-27, data not available for 3 countries
Source: Eurostat, Community Innovation Survey 4[19] data, available at http://epp.eurostat.ec.europa.eu/

Table 2 gives the percentage of all firms (part A) and enterprises with innovation activities (part B) that introduced two types of non-technological innovations: organisational and marketing innovations. Part A shows that there are **no substantive differences in the percentage of all industrial and service sector firms that introduced either an organisational or marketing innovation, an organisational innovation, or a marketing innovation**. However, KIBS firms were far more likely to introduce either type of innovation while service firms, excluding KIBS, were slightly less likely than manufacturing firms to introduce either type of non-technological innovation.

For enterprises with innovation activities, a higher percentage of service firms introduce either type of non-technological innovation, with the difference greatest for organisational innovations. There is little difference in organisational innovation rates within the two services sub-sectors, whereas a higher percentage of innovative service firms excluding KIBS (37.2%), introduced a marketing innovation compared to KIBS service firms (31.3 %).

16 Manufacturing includes the following NACE class: Manufacturing (D)

17 All Services include the following NACE classes: Wholesale trade (G-51), Transport, storage & communications (I), Financial intermediation (J), Real estate, renting and business activities (K)

18 KIBS include the following NACE classes: Computer and related activities (K72), Research and development (K73), Architectural and engineering activities and consultancy (K74.2) and Technical testing and analysis (K74.3). K73 (Research and development) was included on a voluntary basis in CIS-4, therefore it is not available for all countries.

19 The Community Innovation Survey 4 data covers the period 2002 to 2004

Table 2. Percentage of firms that introduced a non-technical innovation

	Organisational and/or Marketing innovation	Organisational innovation	Marketing innovation
A. All firms:			
Manufacturing	26.2	22.7	13.3
All Services	26.0	23.7	13.0
KIBS	41.5	38.3	17.7
Services (excl. KIBS)	22.7	20.6	12.0
B. Enterprises with innovation activities:			
Manufacturing	63.4	55.1	32.3
All Services	71.3	64.9	35.6
KIBS	73.6	67.8	31.3
Services (excl. KIBS)	70.4	63.8	37.2

Coverage EU-27, data not available for 5 countries
Source: Eurostat, Community Innovation Survey 4 data, available at http://epp.eurostat.ec.europa.eu/

The conclusion from this statistical analysis is that **services companies, generally, do not innovate less than manufacturing companies but great differences exist between knowledge intense and other services.** Innovation in other services tends to be a continuous process consisting of a series of incremental changes, contrary to innovation in manufacturing which is often more radical. On the other hand, KIBS firms show similar innovation patterns with manufacturing firms. This is supported by the fact that the R&D intensity of this type of services is even above the average of manufacturing companies.

The real distinction to be made is not between service companies and manufacturing companies in general, but between **R&D intense and non-R&D intense companies**, independently of whether they are service companies or manufacturing companies. This confirms that the service sector is very heterogeneous and the specific needs and policy implications depend on the specific service sector and are not the same for all service companies.

2.2. Improving indicators for services innovation

The size and diversity of the services sector represents an important challenge in terms of analysis, indicators and policy formulation. Services represent an increasing share of the economy, evolve fast and are embedded pervasively in the economic fabric. Current **innovation surveys, including the Community Innovation Surveys, only capture certain aspects of innovative activity in services**. This situation is unlikely to change in the near future, also because current definitions of R&D in the **Frascati Manual**[20] mainly cover technological R&D to the exclusion of other forms of services R&D. Therefore, revisions of

[20] The Frascati Manual is the basic international source of methodology for collecting and using research and development statistics in countries that are members of the OECD

the Frascati Manual with a view of better capturing knowledge creation in services need to continue.

Innovation statistics are still biased towards technological innovation. Research on service sector innovation (and on innovation in the manufacturing sector) would be considerably improved, if the results to the CIS-4 questions on product and process innovation would be available at a disaggregated level. Currently, firms are asked whether or not they introduced new or significantly improved goods and new or significantly improved services. Results for these two options could be used to obtain a better measurement of the types of new products, introduced both by manufacturing and service firms. Another important question of the CIS survey is if firms introduced new or improved methods of manufacturing or producing goods or services, new or significantly improved logistics, delivery or distribution methods, and new or improved supporting activities such as maintenance systems or purchasing operations.

Many other **new indicators** could be constructed using existing CIS data, such as a better indicator on "new to market innovations" that takes better into account the large differences in what constitutes a 'market'. Work to develop new indicators using existing CIS questions is currently underway through a joint OECD-Eurostat project. Results should be available in the autumn of 2007. There is also the possibility that the future CIS will include new questions of relevance to service sector innovation. However, future statistical work on innovation in services will have to respect **the principle of proportionality**. CIS coverage needs to be improved, as CIS data are missing for far too many countries. Every effort needs to be made to ensure full country coverage for existing CIS questions and to make sure that any new questions do not increase the administrative burden on enterprises.

Furthermore, improvements in the measurement of non-technological innovation, which are currently being discussed, will help to better capture the specificities of service innovation.

2.3. The role of services for national innovation performance

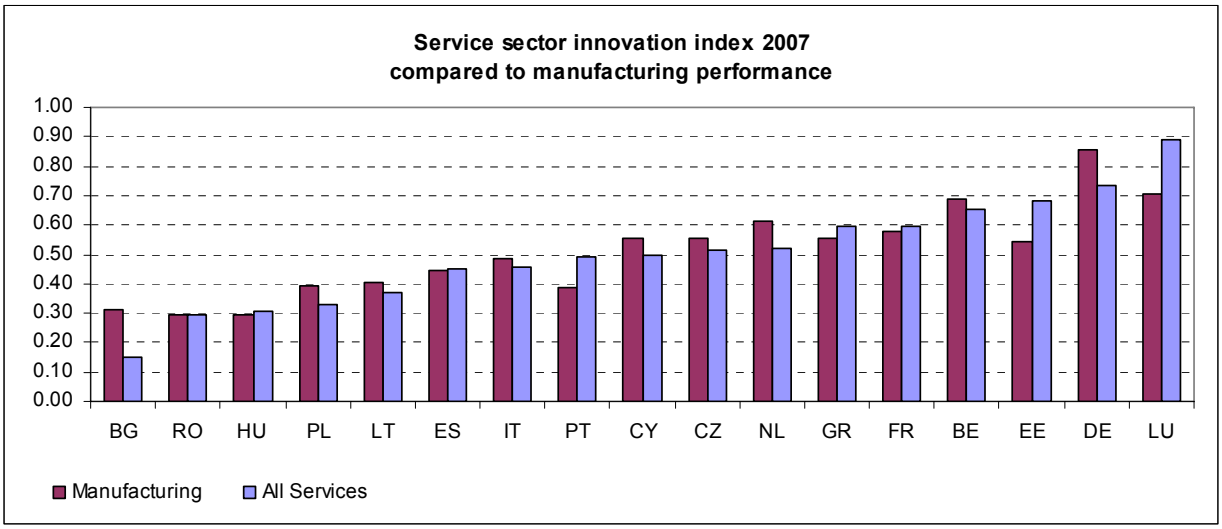
Current efforts to measure and characterise innovation in services have hinted that **innovation in the services sector does not depend as much on the stock of accumulated capabilities as innovation in manufacturing**. This may have strong implications for economic development and innovation policy, as modern economies may be able to grow faster and leap-frog by investing in services. Still, a comparison of innovative performance across countries based on current indicators is not completely reliable.

The hypothesis is that it is easier for firms to develop and implement non-technological innovations than technological innovations. Since non-technological innovation is more common in services, this suggests that innovative performance in the service sector in less developed European economies could improve more quickly than in manufacturing. Another hypothesis to be further tested is that innovative performance in the most knowledge intensive services sectors could spill over into general innovative performance in both services and manufacturing, which would be positively associated with national innovation performance.

Figure 1 compares the innovation performance of Member States in services, as measured by a selected number of service related indicators, with an index for manufacturing constructed with an identical set of indicators. On average, the national difference in innovation performance between the two major sectors is highly correlated, although there are a **few differences between performance in manufacturing and services**. For example,

Luxembourg and Estonia perform better on services than on manufacturing, which is explained by the fact that the economy of these countries mainly relies on services. On the other hand, Bulgaria, Germany, the Netherlands and Poland perform better in manufacturing.

Figure 1 – Service Sector Innovation Index (SSII) 2007[21]



Coverage EU-27, data not available for 10 countries

The **economic weight of KIBS has been increasing in many countries**. For the EU-25 countries, employment in KIBS increased by 7.9% between 1999 and 2004. As the KIBS sector includes many R&D intensive firms that provide services to other firms, such as R&D and software development, one possibility is that growth in the KIBS sector could drive innovation throughout an economy. If true, the size of the KIBS sector should be positively associated with national innovation performance and the rate of growth in KIBS should be positively associated with the rate of growth in innovation performance.

Based on the results of the European Innovation Scoreboard (EIS) 2006, it can indeed be shown that the **KIBS value added and employment shares are positively correlated with overall innovation performance**. This is because countries where KIBS has a relatively high economic weight, such as UK, Denmark and Sweden, have better innovative performance than countries where KIBS has a low economic weight, such as Poland, Portugal and Greece. KIBS therefore appears to be a component of innovative performance, but we do not know if KIBS drives economic performance throughout the economy. A better measure of this is if growth in KIBS improves growth in innovative performance.

Due to different development patterns in the new Member States and in the other EU countries, the new Member States have experienced rapid growth, particularly in manufacturing and business services, but their overall innovation performance is nevertheless much lower than in the older EU Member States. Therefore, **higher investments in KIBS are not automatically leading to better innovation performance**.

[21] The SSII 2007 uses CIS-4 data. For the detail of how it is calculated, see "Innovation statistics for the European Service Sector", A. Arundel, M. Kanerva, A. van Cruysen, H. Hollanders, May 2007, at: http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=275&parentID=51

The results of the analysis of the role of KIBS provide therefore **no strong statistical evidence in support of a key role of KIBS in driving overall innovative performance**, as measured by the change of national innovation performance. However, KIBS as a share of total employment or value-added is positively correlated with the overall innovative performance. This is probably because of the high level of innovative activity within KIBS itself, such as in software development. More and deeper analysis on the impact of different sectors on innovation performance will be carried out under the umbrella of INNO-Metrics in the next months. The results will be presented and further discussed by the European Innovation Scoreboard 2007, with the objective to better understand which economic sectors are driving innovation in Europe and why.

3. TOWARDS MORE FAVOURABLE FRAMEWORK CONDITIONS FOR INNOVATION IN SERVICES

Although innovation in services contributes to a large extent to overall innovation performance, more political attention is still given to technological innovation than to other forms of innovation. The new broad-based innovation strategy of the Commission aims at broadening support to innovation, by mobilising all relevant policies that could create more favourable framework conditions for innovation. However, this also requires that such policies be better adapted to the specific needs of services in order to ensure their neutrality between different forms of innovation.

A large number of policies have, directly or indirectly, an impact on innovation in services. The following chapter analyses, in particular, the impact of horizontal policies, such as the Internal Market, IPR, public procurement, skills and R&D. The role of standardisation in support of innovation in services will be subject to a Communication, to be adopted later in 2007.

3.1. Fostering the potential of the Internal Market for services

The Internal Market is a key enabler for the development of new innovative services in Europe. Despite progress in some specific service sectors such as financial services, telecommunications and broadcasting, the overall Internal Market for services is not yet functioning properly. **Barriers to trade in services penalise, in particular, small and medium sized enterprises (SMEs)** which are disproportionately affected by complex administrative and legal requirements, and therefore more likely than larger firms to be forced to turn down cross-border business opportunities. Given the predominance of SMEs in service operations, this has clearly acted as a considerable hindrance for innovation in services.

A constant concern for innovation policy is that **poorly designed regulations may inhibit investment in innovation**. The effect of regulation on the innovative activities of industrial firms has been widely studied, but a lot less is known about the impact of regulation on the service sector. Following the results of the Flash Barometer Survey on innovation (FBS) of 2004[22] (table 3) it can be concluded that a lower percentage of service sector SMEs as opposed to industrial SMEs report that national regulations on product and process

[22] For more information on this survey, see: Innovation statistics for the European Service Sector, A. Arundel, M. Kanerva, A. van Cruysen, H. Hollanders, May 2007, at: http://www.proinno-europe.eu/index.cfm?fuseaction=page.display&topicID=275&parentID=51

innovations place them at a competitive disadvantage. According to the respondents, only consumer protection rules seem to affect service sector SMEs more than industrial SMEs. This may be due to the fact that the category "service SMEs" also encompasses retailers of goods engaged in business-to-consumers transactions. These results also point out the need for further research on consumer demand as a driver for innovation, which will be carried out under the PRO INNO Europe initiative.

Table 3 Percentage of innovative SMEs that report that national regulations for product and process innovations place their firm at a competitive disadvantage compared to their competitors.

	Type of regulation			
	Environmental	**Consumer protection**	**Safety**	**Product design**
Product and service innovations				
Industrial firms	**26.2**	12.1	**25.5**	**17.9**
Service firms	15.8	15.0	19.4	12.1
P value	*< .000*	*ns*	*0.001*	*< .000*
Process innovations				
Industrial firms	**22.2**	9.6	**25.2**	
Service firms	16.4	**14.4**	21.6	
P value	*< .000*	*< .000*	*0.04*	

Source: Flash Eurobarometer (Innobarometer) November 2004, analysed by UNU-MERIT.

This supports the view that a reduction of administrative and regulatory burdens is beneficial to all sectors. From an innovation policy point of view, there is **no need to preferentially favour service sector firms in efforts to reduce the regulatory burden on firms**.

Nevertheless, still existing restrictions to the creation of an effective and true internal market for services represent a significant barrier to service innovation. The **restriction to national markets for services makes investments in service innovation more risky and less profitable**. A service provider will have a greater incentive to develop innovative services if there is effective competition in the market, and when there are significant economies of scale and scope. A well-functioning Internal Market for services will result in cheaper, more specialised and more innovative services, thus making the European services sector more competitive in the international marketplace. Improving access to information on high quality innovative services can also increase European citizens' demand for such services, creating an additional incentive for service companies. Therefore, stepping up efforts to improve the functioning of the internal market for services is a prerequisite for a more innovative European services sector.

The Services Directive, which was adopted by the European Parliament and the Council in December 2006[23], is a crucial step forward in this respect. The freedom of establishment and the freedom to provide cross-border services will be facilitated by cutting red tape, removing barriers and improving legal certainty. In addition, the rights of recipients of services will be strengthened through the introduction of a general non-discrimination clause and information

[23] Directive 2006/123/EC

rights. Moreover, the Directive provides for: (i) a horizontal framework for Member States to cooperate amongst themselves and with the Commission (ii) a dynamic process of simplification, screening and modernisation of national legislation and administrative practices applicable to service providers and (iii) a number of flanking measures, including measures to improve the quality of services.

The **Service Directive must be implemented by the Member States by the end of 2009**. The Commission will carefully monitor the implementation process and will prepare, by end 2011, a report on the application of the Directive, which may also consider the need for additional measures for matters excluded from the scope of application, with a view to completing the Internal Market for services.

A **true Internal Market for services also requires free movement of workforce between Member States**. The free flow of service professionals, such as engineers and designers, is a key element to the complete and proper functioning of an internal services market in Europe and further helps foster the free flow of ideas, work practices and models. All these aspects are important in supporting creativity and innovation within knowledge intensive service activities. To facilitate workforce mobility, specific legislation[24] has been adopted for the recognition of professional qualifications, including academic qualifications, professional training and experience. This is a key issue for knowledge intense firms and their international expansion.

3.2. Ensuring an effective IPR framework for service innovations

Services are characterized by their high information content and their intangible nature and service innovations are multidimensional and often of an incremental nature. **Many service sector innovations do not meet the requirements for protection through patenting**. This might be due to the fact that the type of knowledge they generate, such as business methods, can not be protected through patents.

Table 4 gives the percentage of CIS-4 respondent firms that report an application for each of four types of intellectual property (IP) in the preceding three years. Following this survey, approximately **twice as many industrial than service firms applied for a patent and more industrial than service firms applied for a trademark**. A much lower percentage of firms in KIBS apply for a patent than industrial firms (12.0% versus 20.1%) and KIBS firms are also less likely to apply for a trademark.

The **percentage of service and industrial firms that registered an industrial design is similar** (16.3% versus 18.7%). **Service sector firms are slightly more likely than industrial firms to claim copyright** (5.9% versus 5.3%). However, this is almost entirely due to KIBS firms, where 12.5% of firms claim copyright versus 3.2% of other service firms. This is probably due to the use of copyright by computer software firms.

[24] Directive 2005/36/EC

Table 4: Percentage of innovative firms that applied for a patent, registered a design or trademark, or claimed copyright between 2002 and 2004

	Patents	Design	Trademarks	Copyright
Manufacturing	20.4	18.8	18.7	5.4
All Services	8.3	16.3	9.8	5.9
KIBS	12.0	17.6	8.7	12.5
Services – excluding KIBS	6.7	15.5	10.0	3.2

Coverage EU-27, number of reporting countries by IP are: patents 12, design 16, trademarks 15, copyright 13
Source: Eurostat, Community Innovation Survey 4, available at http://epp.eurostat.ec.europa.eu/ .

Therefore, registered IPRs (patents, trademarks and registered designs) are less widely used by service firms than by industrial firms. This would raise specific concerns if the lower use of these forms of IP was due to a lack of information or experience with using IP. However, it may also be that the **lower use rate is due to fewer eligible inventions, designs, and trademarks within the service sector that can be protected using IP**. The large gap for trademarks suggests indeed a lack of information or experience by service sector firms, since trademarks should be equally relevant to both industrial and service sector firms. On the contrary, the lower rate of product innovation in the service sector suggests that a smaller percentage of service firms have inventions or designs that could be protected by such registered IPRs. More research is needed to determine the cause of the lower use of registered IPRs by service sector firms.

Generally, effective IP protection is a significant motivation for innovation. The **increasing investments in service R&D suggest the need to protect evolving IP** also by service companies. This calls for specific measures to raise awareness on how to effectively protect intellectual property in the service sector rather than promoting specific forms of IP protection**.** There is a need to better support the optimal use of IPRs by SMEs in the service sector, providing neutral information on the costs and benefits of the various options that different forms of IPRs can provide for innovative service companies. This also includes mechanisms, such as confidentiality, database protection or digital rights management. Awareness raising activities should not only focus on a more active use of existing IPR, but also on strategies and practical options on how to deal with the rights of other companies.

Further to the need to improve awareness about the best use of existing IPR mechanisms, it is a challenge to assess their suitability for the service sector. As a first step, the Commission is working on digital services, progressively examining the copyright acquis with a view to ensuring that both the legal framework and its application are conducive to the development of new products, services and business models. Work began in autumn 2005, with a recommendation on the management of copyright for online music services and will continue in 2007 with an evaluation report of the Directive on copyright in the Information Society[25], which will review the implementation of copyright legislation in view of technological developments, including the application of Digital Right Management and Technological Protection Measures.

[25] Directive 2001/29/EC

The **most difficult question remains whether to protect new business models and technologically driven forms of organisational innovation.** For example, marketing innovations and new distribution channels which represent an important form of service innovation cannot be protected by patents where they qualify as business methods "as such", which are excluded from patentability under the European Patent Convention. The potential economic and societal benefit of such a patenting, as for example possible in the US, still needs to be demonstrated.

Following the results of the Community Innovation Survey (CIS), it seems that a **majority of service firms do not consider the lack of effective intellectual property protection as a major barrier to innovation**. This may reflect the fact that service innovations are often more associated with tacit knowledge that is more difficult to copy. On the other hand, there is strong evidence that service firms use more often than manufacturing firms informal methods of protection to protect their innovations. In the service sector, informal IP protection is often the only way to secure a lasting commercial success of an innovation.

According to a recent study[26], the **informal IP protection methods** present great variations in terms of their nature and purpose of use. An example is "secrecy", which aims at keeping key knowledge secret either inside the firm or from external collaborators. Another example is "publishing", whereby a new idea or working practice can be published and the initial developer of the idea will become known as the innovator, thus preventing competitors from claiming patents in the same field. Informal protection practices can also be used in order to transform tacit knowledge into more explicit forms, e.g. into written documents, tapes or databases ("documentation"), to enable effective gathering and sharing of knowledge inside the company, thus decreasing dependency on individual employees. Informal methods of protection are simple, easy to control, economical to use, and often they are embedded in daily working routines of the business.

According to this study, the results of a recent survey confirm that businesses in KIBS industries have adopted a variety of formal and informal ways to minimise the misuse or loss of their intellectual property. Besides formal protection methods, informal practices are also seen as an effective way to protect and manage IP. Moreover, individual KIBS businesses are found to use multiple methods to protect their intellectual property rather than relying on one particular practice. It seems that **informal and formal protection methods are not mutually exclusive or even competing** but rather supporting each other. It can be argued that systematic use of formal and informal methods may provide an optimum level of protection for the firm. However, respondents perceive that both informal and formal protection practices have some positive and negative aspects. The key weakness of informal protection practices is related to the fact that they do not usually offer legal forms of protection as many informal methods are not valid in a juridical sense.

Despite the importance of informal IP protection practices for service innovations there is very limited knowledge on what these informal protection methods are and how they are used by service companies. Therefore, there is a need for further research work to improve knowledge and understanding of the role and nature of informal IP protection methods. In addition, there is a **need to include awareness raising on informal IP protection and management strategies among the business community into national and Community IP support actions**. Innovation support services on IP protection should be broadened to include

[26] Informal ways to protect intellectual property in SMEs, SC-Research, 2006

awareness activities on informal IP protection as well as identification and dissemination of good practice examples on IP strategies which successfully combine IPR and informal IP protection.

3.3. Encouraging public procurement of innovative services

Public procurement plays a major role also for services**.** It is estimated, that public procurement of services (including construction) accounts for about two thirds of the estimated value of all procurement published in the Official Journal. The **Aho Report on "Creating an innovative Europe"**[27] suggested that "if Europe cannot offer innovation-friendly markets for the creative outputs of its business, then these will go elsewhere". It called upon governments to "use public procurement to drive demand for innovative goods while at the same time improving the level of public services". The Communication on a broad based innovation strategy for the EU[28] also stressed the importance of public procurement in driving demand for innovative products and services while raising the quality of public services in markets where the public sector is a significant purchaser.

The Community Innovation Survey (CIS) includes two questions on the effect of **low demand as a reason not to innovate**. In the analysis given below, the results to the first question (A in Table 5) are limited to innovative firms that report that uncertain demand is an important factor hampering their ability to innovate. The results for the second question (B) are for all firms that state that they did not innovate because of a lack of demand.

According to CIS-4 results, a **higher percentage of innovative industrial firms (13.4%) than service sector firms (10.7%) report a lack of demand as a problem**, although there is little difference between KIBS and manufacturing firms. For all firms, the problem is most prevalent in the KIBS sector, although this could be because of new start-ups that by definition face uncertain demand.

Table 5: Percentage of firms reporting a lack of demand for innovative products and processes

	A Percent innovative firms giving high importance to 'uncertain demand for innovative goods or services' as a factor hampering innovation	B Percent all firms (includes non-innovators) giving high importance to 'no need to innovate because of a lack of demand for innovations'
Manufacturing	13.5	2.7
All Services	10.7	2.8
KIBS	13.1	3.7
Services (excl KIBS)	9.4	2.6

Coverage EU-27, 21 reporting countries for column A and 13 for column B
Source: Eurostat, Community Innovation Survey 4 data, available at http://epp.eurostat.ec.europa.eu/

[27] "Creating an Innovative Europe": report of the independent expert group on R&D and innovation appointed following the Hampton Court Summit and chaired by Mr Esko Aho

[28] COM (2006) 502 final, of 13.9.2006

Industrial firms could be more sensitive to demand conditions than service sector firms, with a higher percentage of them reporting that low demand hampers their ability to innovate. KIBS firms are more similar to industrial firms than other service sub-sectors. According to the Flash Barometer Survey of 2004[29], a higher percentage of industrial firms also report that the public sector demands higher innovative content in their goods and services than service sector firms. There could be room to encourage innovation in service firms through more demanding government procurement conditions. This would help to better reflect demand-pull measures in support of innovation in services.

The public procurement Directives[30], which were adopted in 2004 and entered into force in 2006, offer sufficient scope for innovation-oriented tendering. Properly applied, they allow the purchase of innovative products and services, without compromising competition. The recently published **Guide on dealing with innovative solutions in public procurement**[31] aims at helping procurers in the Member States to take full advantage of the possibilities offered by the public procurement Directives. The guide identifies a number of principles and good practice examples on how public procurement can promote innovation. The principles described in the guide are not only suitable for products but also apply to the procurement of innovative services.

The approach is the same whether the issue at hand is procurement of products or procurement of services. **Rather than specifying what the competing enterprises should supply, the procurers should invite them to provide innovative solutions**. For example, instruments such as the "technical dialogue[32]", which allows the Contracting Authorities to engage - even before launching a procurement procedure - in a dialogue with potential bidders on their needs and the most efficient ways of meeting them, can also be applied to the purchase of innovative service concepts. In addition, the possibility of drawing up "technical specifications" in a broad and functional way, rather than prescribing a concrete solution, allows the bidders to propose creative service concepts to the problem to be solved. The "design contest", which is typically service-related and where the procurer can acquire the plan or design selected by a jury, can be a powerful means of developing and testing new ideas giving firms room to develop solutions making optimum use of the market's creativity.

Another clear link between services and public procurement occurs when the procurer of a product takes full account of the **possibility to include a package of after-sales services** (e.g. maintenance services). If correctly applied, this broadened perspective on procurement is likely to spur innovation among service providers. When applying this **"life cycle concept"**, it is important to make sure that procurers have the necessary skills to assess the innovativeness of such services.

Member States are therefore in a unique position to support service innovation by acting as launch customers. The **Guide on dealing with innovative solutions in public procurement** is only a first step to raise awareness on the legal opportunities. On the other hand, a wider use of public procurement for setting new quality standards for services should not result in a further fragmentation of the market. To avoid this risk and to contribute to the further

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29 Innovation Statistics for the European Service Sector, UNU-MERIT 2007, p. 13-14

30 Directives 2004/18/EC and 2004/17/EC

31 SEC (2007) 280, see : http://www.proinno-europe.eu/doc/procurement_manuscript.pdf

32 The initial consultation of the market would have to be done under the condition that the seeking or accepting of advice does not have the effect of precluding or distorting competition (see recital 15 of Directive 2004/17/EC and recital 8 of Directive 2004/18/EC

development of an Internal Market for services, **better trans-national cooperation between regional and national procurement agencies at European level is needed**. This will be supported under the Europe INNOVA initiative[33], by promoting networking activities between different procurement agencies in support of the creation of new "lead markets" in Europe.

3.4. Fostering skills and organisational innovation for services

The human factor plays a key role in the provision of services and consequently for innovation in services. The quality and innovativeness of services depends considerably on the knowledge and skills of the people involved in the process of the production and further improvement of services.. According to results from the Community Innovation Survey (CIS), investments in machinery and equipment, R&D, design and related activities are considered to be most important for manufacturing whereas services, with the exception of the knowledge intense, invest more in training, bringing new products to the market and the acquisition of knowledge.

Well-trained, knowledgeable personnel is essential to both the ability to develop innovations in-house and to adapt innovations acquired from external sources to the needs of the firm. Within the service industry there is **a double challenge regarding skills**. New innovative services require, first, highly skilled staff to develop the new concept, but in order to implement it in the day to day activity of a service firm, the executing workforce also needs to be better skilled. For example, replacing the "man with the broomstick" with a "cleaning service concept", requires also new methods for monitoring and control as well as new tools and cleaning material. This calls for training of the staff and may thus lead to higher qualified and better paid jobs also for the group of previously unskilled labour force.

The Community Innovation Survey (CIS) asks innovative firms about the importance of a **'lack of qualified personnel'** as a factor hampering their ability to innovate. More industrial than service sector firms report this factor as of high importance (11.8% versus 9.6%). There is little difference within the service sub-sectors, with equivalent percentages of 9.7% for KIBS and 9.4% for all service sectors excluding KIBS.

Two different types of skills are relevant for service innovation: The first type is **workforce skills**. As the service provision process is characterized by high degrees of interactions and interrelations within a company and with a customer, service innovation requires a multitude of skills with a specific emphasis on competences such as communication skills, skills to interact with clients, creative thinking and problem solving. Entrepreneurial mindset, supported from a young age, is considered necessary for a more innovation-friendly society. There is a need to better adapt curricula in education and training schemes to the demands of the service economy, as well as to recognize non-formal and informal learning so as to increase the attractiveness of continuous training for employees. The **forthcoming Green Paper on education and innovation**, to be adopted later this year, will address these issues.

Another important skills requirement for service innovation is **management skills**. It has been argued that a key weakness in many European firms is the poor quality of management[34], in particular, innovation management. This has a negative impact on the capacity of enterprises

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33 See http://www.europe-innova.org/index.jsp

34 See, for example, in UK situation, Finegold, D. and Soskice, D. (1988) 'The failure of training in Britain: analysis and prescription' Oxford Review of Economic Policy 4, 21-53.

to deal in a pro-active manner with change. Only few entrepreneurs and managers receive any formal training in **innovation management**. Innovation management requires a broader mix of skills, addressing all aspects of innovation. Innovation managers in service industries need a particularly good understanding of the importance of organisational changes and what types of new working structures can best enhance the skills, competences and motivation of service workers, as organisational innovation is more dominant in services than in manufacturing.

Innovation in services depends on the skills and competences acquired through formal education and training, but also relies to a large extent on the skills developed by employees "on the job" through on-going problem solving in testing, producing and marketing new service concepts. The development of these kinds of skills depends on the setting up of the **right organisational structures and working environments** which further develop and valorise the knowledge and skills of the employees. The development of systems for validation of non-formal and informal learning, enable workers to receive recognition for the competences they have acquired at work, by undergoing a process of assessment and validation to obtain a formal qualification, without necessarily undertaking a full course of training. It is expected that this trend will be facilitated by the growing development of National Qualifications Frameworks which are used to promote the recognition of skills acquired at work or elsewhere but not formally validated through the issuing of a qualification. Policies to foster skills for innovation should focus on a balanced promotion of both sources of knowledge and skills development to enhance services' capability to innovate.

Service innovation relies on employee know-how that is frequently tacit, resulting from intense interactions within a firm and with customers. Organisational structures that promote internal knowledge sharing and autonomy of employees, such as through empowerment of self-managing teams, are considered to be supportive to service innovation. Similarly, innovation is fostered by the **pro-active involvement of employees in innovation processes**. As innovations in services are more difficult to protect than in manufacturing, commitment and loyalty of employees play a crucial role, which is a challenge for innovation management. Organisational innovation has the task to create favourable working environments that valorise in a better manner the skills and competences of service workers.

There is scope at European level to better identify the specific skills required for service workers as well as promoting modern innovation management approaches that better support creativity and autonomy of service workers. As a first step, the **IMP³rove on-line self assessment tool**[35], as developed under the Europe INNOVA initiative, will offer enterprises a clear understanding of their strengths and weaknesses in innovation management for each innovation management dimension, including the management of human resources. This should enable enterprises to address their weaknesses in a more targeted manner. Further support will be offered by the forthcoming "European Innovation Platform for Knowledge Intense Services" that will include specific service packages to better identify the skills requirements of service firms with a high growth potential.

The **new framework for State aid for research, development and innovation**[36] allows, for the first time, organisational innovations to be financially supported through State aids. This is a major breakthrough which acknowledges the great importance of organisational innovation

[35] http://www.europeinnova.org/index.jsp?type=page&lg=en&classificationId=4958&classificationName=Innovation%20Management&cid=5128

[36] OJ C 323 of 30.12.2006, p. 1

in services. Such aid is restricted to a number of conditions ensuring that only real organisational innovations are supported. For example, a condition that must be met is that the supported organisational innovation should be enhanced by the use and exploitation of information and communication technologies (ICT). To ensure that State aid will have an impact on the economy as a whole, it is furthermore required that the organisational innovation is new and that it results in the development of a standard, business model methodology or concept which can be systematically reproduced, certified or patented. This reflects economic reality, as organisational innovation is often driven or facilitated by ICT, such as in the case of e-business.

As these State aid rules in support of organisational innovation are new and not yet supported by broad practical experience on how to use and apply them, there is **scope for better transparency and guidance**. The Commission is prepared to support such work under the PRO INNO Europe initiative[37], as part of the efforts to improve the efficiency of innovation polices in Europe and to reduce administrative burdens.

3.5. Promoting R&D for service innovation

Business expenditure on R&D tends to be much lower in services than in manufacturing. In manufacturing, expenditures on R&D typically amount to at least 2% of value added, while in services this share does on average not exceed 0.5% of value added. However, in contrast to R&D in manufacturing, which has shown little growth in recent years, **R&D in services is growing rapidly in most countries**. In the EU-15, services R&D increased by around 9% per year during the years 1987-1999, compared with only about 1% for manufacturing R&D.

However, there are considerable **differences between services sectors**. Services with high levels of technological opportunity, such as computer services, telecommunications, and R&D and engineering services invest more in R&D than, for example, transport and distribution services. In addition, financial services and certain technical business services, such as computer services and engineering consultancy services are found to be more likely to innovate than manufacturers, while trade, distribution and communication services show lower rates of innovation[38]. Therefore, it would be wrong to associate technological innovation mainly with manufacturing firms, as many service firms invest in technological R&D more than other service industries and even more than most firms in manufacturing industries.

In this context it is important to note that there are a number of issues that obscure the measurement of services R&D. In particular, there is an increased service orientation of manufacturing firms which implies that quite substantial services R&D is attributed to manufacturing firms. Therefore, part of the R&D deficit seems to be a matter of better labelling services R&D in manufacturing within the EU. In addition, **underreporting of services R&D** further complicates the picture, as many services may be engaging in R&D activities but failing to recognize these activities as R&D, as they do not have R&D or innovation departments. As a result, these investments are missed by surveys of innovation and R&D. **There is a need to increase awareness of service companies on what constitutes R&D activities** and encourage them to more actively report on such activities.

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[37] See http://www.proinno-europe.eu/

[38] Research and Development Needs of Business Related Service Firms (RENESER report), Dialogic, September 2006

R&D and innovation programmes need to be better aligned with the specific requirements of service innovation in both services and manufacturing firms. In addition, service firms need to be more directly involved in formulating and developing national and European research agendas and R&D and innovation programmes. The 6th Framework Programme for RTD supported socio-economic research that addressed the service economy. This research is continuing in the 7th Research Framework Programme (2007-2013). Results make clear that further research in relation to the service sector would be desirable. Recently, the Scientific and Technical Research Committee (CREST)[39] set up a working Group on "R&D in Services" during its third cycle of the Open Method of Coordination. This working group will present its finding towards the end of 2007. CREST is encouraged to suggest new research activities supporting service innovation.

Another challenge is **to improve the links of service companies with the research and science base**. When innovating, both manufacturing and service firms tend to draw largely on internal sources of information and from 'close sources', such as customers, suppliers and competitors. Universities and public research institutes are less widely used as input for innovation. The Community Innovation Survey contains several relevant questions based on the percentage of firms that collaborate with public science and the percentage of firms that give a 'high' rating to the importance of public science as a source of information to their innovation activities (see Table 6). Results are available separately for universities/higher education institutes (UNIV) and for government/public research institutes (GOV). The question on collaboration also asks respondents to indicate which collaboration partner was 'most valuable for their innovation activities?'

Table 6: Use of public science by innovative firms

	Collaboration			Information source of high importance	
	UNIV	GOV	Univ/gov most important collaboration partner	UNIV	GOV
Manufacturing	9.8	6.4	3.9	4.8	3.6
All Services	7.4	5.7	3.2	2.7	2.4
KIBS	16.3	11.5	8.1	5.4	4.3
Services – excluding KIBS	4.0	3.4	1.4	2.3	5.7

Coverage EU-27, data not available for 9 countries
Source: Eurostat, Community Innovation Survey 4 data, available at http://epp.eurostat.ec.europa.eu/

As shown in table 6, **a higher percentage of innovative manufacturing firms (9.8%) than service sector firms (7.4%) collaborate with universities**, although the difference is less for the percentage of firms that report that collaboration with public science was the most valuable for them (3.9% versus 3.2%). However, **almost all collaboration with public science in the service sector is due to KIBS**.

[39] This Committee is the main advisory body to the Council and the European Commission regarding the Research and Technology sector. The Committee is composed of high level officials form the Member States and associated countries involved in the Research Framework Programme.

With the exception of KIBS, service sector firms are considerably less likely to collaborate with universities than manufacturing firms. Whether or not this is due to a bias in favour of manufacturing in collaboration programmes is not clear from the limited data available. **Service sector firms outside of KIBS could have little to gain from university research results, which are often far from the market**. The fact that the gap between manufacturing and services declines for collaboration with government and public research institutes, which tend to focus on applied research, suggests that part of the lack of collaboration with universities is due to research results that are not of use to service sector firms. However, this may change in the future, as more service-specific research programmes are launched.

The pattern of differences between manufacturing and service firms **is more accentuated for the percentage of firms that give public science a high rating as an information source** (right side of Table 6), **and it is larger than it is for collaboration**. This is particularly noticeable for universities, where 4.8% of manufacturing firms give this source a high rating versus 2.7% of service firms – a difference of 78%. Again, a higher percentage of KIBS firms give public science a higher rating than other service sectors, although the difference is lower than for collaboration.

Therefore, **although services are becoming more R&D intensive, service firms are still poorly linked with the science and knowledge base**. One possibility is a mismatch between the type of knowledge that is needed by service companies and that being generated by universities and research institutes. Whereas strong knowledge transfer mechanisms from research to industry have been created over time, no such effective mechanisms exist for knowledge relevant to service companies. A specific problem is that such knowledge, for example on research of new business models or work organisation, can only exceptionally be synthesised and transferred in a codified manner, as is more often the case for technological knowledge. Therefore, **new forms of knowledge transfer between universities and services companies need to be developed and experimented**, in order to better exploit academic research for innovation in services.

Enterprises searching for technological solutions will find many organisations, research institutes and innovation intermediaries willing to help them, whereas **service firms find it much more difficult to find academic support**, within the science base for resolving problems that they are facing. Service industries should be encouraged to articulate more actively their R&D and innovation needs, and to be better involved in the drawing up of research agendas. This is another challenge to be addressed by the forthcoming "European Innovation Platform for Knowledge Intense Services".

4. SPECIFIC SUPPORT MECHANISMS FOR INNOVATION IN SERVICES

Innovation is driven by entrepreneurship. Although it is above all a matter of entrepreneurial responsibility to innovate, many policies have been developed to support innovation by enterprises, in particular with a view to enhancing the innovation capacities of SMEs. Such policies cover a broad range of objectives, ranging from the promotion of technology transfer to coaching and training of SMEs to facilitate access to finance. The main beneficiaries are in most cases high technology companies in the manufacturing sector, whereas other forms of innovation are less often supported. This needs to be changed if innovation in services shall receive the same kind of political attention as technology driven innovation in manufacturing.

4.1. Need for specific support actions for innovative service companies

Entrepreneurship and the **creation of new firms is a key factor in driving service innovation**. There is evidence that new service firms represent a larger share of innovative firms in the service sector than in manufacturing. For example, in Sweden around 10% of innovative service firms were established after 1998, whilst only 5% of innovative manufacturing firms were as young. Similarly, in Denmark 8% of innovative service firms were newly created compared to only 1% for manufacturing firms. In countries with lower rates of new firm entry, such as Austria, Italy and Portugal, the difference between the service and manufacturing sectors is however smaller or even reversed. This suggests that service companies are indeed a revitalising element for the economy resulting in better overall innovation performance. However, this still needs to be further demonstrated by using micro-data from the Community Innovation Survey to better analyse the economic development of innovative start-ups.

Despite the increasing role of services, there is evidence that **innovation in services is less supported than innovation in manufacturing.** In particular, large manufacturing firms receive public and private support in terms of credit capital and grants, twice as much as large service firms. This reflects the fact that most innovation support programmes are still designed to foster technological innovation. As a result, knowledge intensive business services (KIBS) are considerably more likely to receive support than are other services.

The available CIS-4 data only permit an evaluation of the percentage of all innovative firms that receive public support; only access to the micro-data would allow a more in-depth analysis of the percentage of R&D performing firms that obtain public support. Table 7 presents the CIS-4 results for the percentage of innovative firms that report any public support for innovation and the percentage that report support from the European Union.

As could be expected, **a substantially higher percentage of industrial firms (28.3%) than service sector firms (16.1%) report that they received public support**, although KIBS firms (23.4%) perform almost as well as industrial firms. Although a higher percentage of industrial than service firms are receiving support from the European Union, the ratio is in this case less skewed towards industry.

Table 7: Percentage of innovative firms that receive public support for innovation

	Any public support[1]	European Union Support
Manufacturing	28.5	5.3
All Services	16.1	3.9
KIBS	23.4	7.1
Services (excl KIBS)	12.9	2.6

(1): Support from local/regional authorities, central government, or the European Union.

Coverage EU-27, 17 reporting countries for any public support and 14 for EU support
Source: Eurostat, Community Innovation Survey 4 data, available at http://epp.eurostat.ec.europa.eu/

It is interesting to note that public support is apparently differently used by manufacturing and service firms. Following the Flash Barometer Survey on Innovation of 2004 (table 8), the most frequently cited result of public support for industrial SMEs, other than 'no notable

effect', is to 'reduce innovation costs'. This is cited by 23.9% of eligible industrial SMEs compared to only 16.6% of eligible service SMEs. Conversely, the most frequently cited result for service sector SMEs (excluding 'no notable effect') is to 'improve the quality of innovations'. This is significantly more frequently cited by service sector SMEs (22.7%) than by industrial firms (13.6%).

Table 8: Main result of public support for innovation. Percent respondents stating that public support helped to:

	Industry	Services	Total
Improve the quality of innovations[1]	13.6	**22.7**	18.3
Reduce innovation costs[1]	**23.9**	16.6	20.1
Speed up the innovation process	12.1	10.9	11.5
Reduce risks	7.6	7.7	7.6
No notable effect	26.3	26.5	26.4
Other	2.7	3.5	3.1
Don't know	13.8	12.1	12.9
Total	*100*	*100*	*100*

(1): Difference between the industrial and service sectors is statistically significant ($p < 0.05$).

Source: Flash Eurobarometer (Innobarometer) November 2004, analyses by UNU-MERIT. `

These are intriguing differences, which suggest that **manufacturing and service firms have different expectations to public innovation programmes**. There is no difference in the percentage of industrial and service sector SMEs that find public support to be crucial to at least one innovation project, but the types of benefits differ with a higher percentage of service sector SMEs reporting quality improvements and the industrial sector SMEs reporting reduced costs. This supports the **need for redesigning innovation support programmes to remove any bias towards favouring industrial over service sector SMEs**.

Service firms have different needs that need to be addressed by public innovation support actions. A **"one size fits all" approach is not appropriate for specific support instruments**. This applies most notably to incubation programmes that offer a wide range of business support services for young innovative companies helping them to succeed in the market. Generally incubators do not focus on specific industries and are therefore formally open to service companies. However, in most cases they are located in research organisations or science parks and are targeting the incubation of high tech companies from specific sectors such as ICT, biotechnology, automotive, space, where the business idea is predominantly built on technology exploitation rather than on a new service concept. As a result, the service packages offered by most incubation programmes are more tailored to the needs of technological innovation and are thus often not suitable for service companies.

There is therefore **a need to reorientate business incubation programmes more to the needs of service companies**. For example, in the area of IPR, support mechanisms should take into account the fact that registered forms of IP protection, such as patents, are not necessarily suitable for service innovation while informal methods of protection may be better adapted to the needs of services. In addition, training for innovation management should focus on a broader mix of skills, addressing all aspects of innovation including non-technical skills, such as communication skills, problem solving and creative thinking as well as the

importance of organisational changes in enhancing the skills of service workers. This is a challenge to be addressed by regional and national incubation programmes that are invited to be more open to the needs of service companies. The Commission will support the **dissemination of good practise examples and encourage the development of better tailored solutions** for young innovative service companies.

4.2. Need for improving access to finance for service companies

Another challenge to be addressed is **to facilitate the access of service companies to risk financing**. Although access to venture capital does not appear to be such a critical issue for innovative services as it is for manufacturing, due to less heavy capital investments compared to technological innovation, innovative services that are growing very rapidly do need venture capital type of financing. Knowledge asymmetries combined with the inherently risk nature of innovation can result in sub-optimum private sector investments in innovation. Part of the solution is healthy venture capital markets combined with expertise in assessing risk and management needs. It is possible that this expertise is more developed for manufacturing sectors than for service sectors. If true, this would create greater difficulties for service sector firms to raise external capital, particularly if innovation projects are costly.

Table 9 gives CIS-4 results for three relevant questions on financial constraints for innovation. The first question asks about a shortage of funds within the firm. A slightly higher percentage of manufacturing than service sector firms report problems, which could be related to higher innovation costs. As shown in column C, a higher percentage of manufacturing than service sector firms give a high rating to the constraints imposed by high innovation costs. In terms of external financial sources, a higher percentage of manufacturing than service sector firms report difficulties (17.9 % versus 13.5 %). The **KIBS firms are no exception**. Even though they have a lower percentage of firms that report that innovations costs are too high when compared with the whole industry and manufacturing, 16.6% report a lack of external finance as a serious barrier to innovating. Since many KIBS firms are likely to be new start-ups that could produce products relevant to either services or manufacturing, this implies a lack of venture capital in general, rather than a bias in supply towards manufacturing.

Table 9: Financial constraints for innovation: percent innovative firms giving a high' importance rating for financial barriers to innovating

	A	B	C
	Lack of funds within enterprise	Lack of finance from external sources	Innovation costs too high
Manufacturing	22.9	17.9	26.1
All Services	17.6	13.5	20.8
KIBS	22.4	16.6	22.2
Services – excl. KIBS	15.9	12.4	20.3

Coverage EU-27, data not available for 2 countries
Source: Eurostat, Community Innovation Survey 4 data, available at http://epp.eurostat.ec.europa.eu/

Although there may be no evidence for a general bias towards manufacturing in innovation policies to support financing of innovation activities, there is nevertheless **a need to specifically address the issue of access to finance for service companies, particularly for**

high growth KIBS firms. This is supported by the strong demand for equity funding under the Multi Annual Programme (MAP) 2005-2006 financing mechanisms by service companies, which account for 72% of total equity funding. KIBS firms alone represent 97% of this funding, reflecting the need to specifically address their financing requirements.

There are **specific challenges associated with the funding of service companies**. The true value of a service company and its growth potential are very difficult to assess, which makes the due diligence process long and costly. In addition, the risk for investors is higher, if the company only has little or no IP protection as this will exclude a licensing strategy as an alternative option to building a company. The risk is also perceived higher if the entrepreneur and the key staff members can easily "walk away" and start the same type of business in case of a failure or disagreement with the investor. As a result, higher risks go hand-in-hand with expectations for higher rewards. The risk/reward ratio in many service sector projects is often not attractive enough for investors compared to other investment opportunities. On the other hand, it may also be the case that the companies are just not able to find the right investor, due to information imperfections or because investors and entrepreneurs simply do not understand each other.

A great number of initiatives have been developed in recent years to provide a better bridge between the financing needs of young innovative firms and the expectations of investors. An important lesson to be learned from that experience is that most investors are specialised on specific sectors and that service companies are not really at their focus. To improve access to risk funding for them, specific actions would be needed to lower the communication barriers and to bring investors together with promising service companies. On the other hand, there is also **a need to better coach companies to make them investment ready**, to improve tools identifying the most promising investment projects and to facilitate the exchange of experiences between investors in order to facilitate the due diligence process.

4.3. Need for new innovation support mechanisms for high-growth service firms

As confirmed by several empirical studies, **high-growth firms play an important role for economic development and job creation**. Many of these so-called "gazelles" are located in the service sector. To address their specific needs, existing innovation support schemes need to be packaged in a more user friendly way and offered through a single entry point addressing more specifically the issue of high growth.

Most existing innovation support schemes fail to address the issue of growth. A specific characteristic of "gazelles" is that their needs for support are different from other SMEs and change over time. A reorientation of innovation support schemes towards the needs of fast growing companies is not only recommended for the service sector. However, as new and better adapted support mechanisms for innovative service companies need to be developed in any case, this should be combined with the objective to create better practice rather than only including services into existing support mechanisms that were originally designed in support of manufacturing and technological innovation.

Existing tools and instruments in support of innovative enterprises follow predominantly the logic of intergovernmental responsibilities rather than addressing the needs of enterprises at different stages of their development. As a result, innovation support is offered by many different programmes, all following their own administrative rules and procedures and thus creating **large administrative costs for companies** who would like to benefit from them. This constitutes in particular a problem for fast growing innovative enterprises, as they would

have to apply for different support actions in a relatively short time frame. This calls for a more integrated and user-driven approach that brings together different services packages and offers these to innovative SMEs in a "one stop shop" mode.

In addition, **most public support policies focus on technology sectors** almost to the exclusion of other sectors, such as knowledge intensive business services. While a number of initiatives at least include them, not a single initiative has yet been successfully implemented in Europe that would pay special tribute to this very promising area. Therefore, there is a need for more dedicated policy measures in support of high growth start-ups in knowledge intense services.

5. FOSTERING TRANS-NATIONAL COOPERATION IN SUPPORT OF "BETTER INNOVATION POLICIES" FOR SERVICES

An analysis of the recent National Reform Programmes (NRP) shows that only few Member States have so far developed specific policies or measures in support of innovation in the service sector. Noticeably, **most national innovation strategies appear to be of a horizontal nature and sector-neutral**. Whereas it seems reasonable not to favour specific sectors over others ("picking the winners"), all forms of innovation should indeed be effectively supported. This is currently not the case.

Innovation in services is less driven by research and costly innovation projects, which calls for different types of innovation support mechanisms. At the same time, there is the **challenge to better address the needs of fast growing innovative companies and to reduce administrative costs of public support programmes**. These themes will have to be added to the European innovation policy agenda in order to provide effective support to innovation in services, but also to improve the overall efficiency of the innovation systems in Europe. The identification and further dissemination of "good practice" is not good enough. What is needed, is the search for better practice, in particular to better promote innovation in services, which should become a matter of high political priority. Trans-national cooperation may help to foster this process.

5.1. National and regional measures in support of innovation in services

Following the **INNO-Policy TrendChart Inventory** on innovation policy measures and recent surveys[40], Germany and Finland are currently the only EU Member States that showcase broad horizontal strategies specifically in support of innovation in services. Also some third countries, such as Japan and Australia, have acknowledged in policy documents the importance of promoting service innovation as an engine for economic growth and have started to implement concrete measures facilitating innovation in services. The Commission services **will further analyse the new policy trends and take the main lessons to be learnt into account in the preparation of the future policy framework** in support of service innovation.

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[40] See INNO-Policy TrendChart Database at http://trendchart.cordis.lu/tc_policy_measures.cfm, Input report for Trendchart workshop on innovation in services, by Paul Cunningham at http://www.trendchart.org/ws_paper.cfm?ID=11 and Innovation Policy Project in Services (IPPS) synthesis report, by Dr Jari Kuusisto, April 2007.

In **Germany**, there is a tradition of offering public support for innovation in services, dating from the mid-1990s, when a new initiative "Services for the 21st Century" was initiated by the Federal Government. From 1998 to 2003, support was focused on research in management methods and methods to increase innovative capacities in specific clusters, such as handicraft, health, facility management and financial services. In March 2006, it was announced that €70 million would be made available as part of the programme **"**Innovation through Services**"** until 2010 for offering grants to firms and research institutions in order to perform research in favour of services.

In **Finland**, innovation in services has been recognised in high level policy documents since the late 1990s, and currently receives extensive policy attention. Tekes, the Finnish Funding Agency for Technology and Innovation, is the leading policy actor in developing and implementing service innovation measures. Examples are "FinnWell", a healthcare technology programme (2004-2009) with a clearly identified service aspect, and the innovative services technology programme "Serve"(2006-2010). The latter aims to simultanously encourage the development of innovative service concepts and service business models in companies, and to boost academic research in the area of service innovation and services.

Awareness of the importance of innovation in services is increasing among policy makers also in other Member States (e.g. **the Netherlands**, **Belgium and Ireland**), but nevertheless most Member States have not yet adjusted their national innovation policies to ensure that services are adequately covered by them. This adaptation process has only just begun. A few Member States mention, for example, IPR as an area that is currently being reviewed with the aim of broadening the scope and utilisation in favour of service companies. This is the case in the **UK** and **Ireland**.

One explanation for the lack of all-comprising strategies in support of innovation in services may be the size, heterogeneity and unclear delimitations of the service sector. Measures in support of **innovation in specific service sectors are more frequent**, often targeted at service industries that play an important role in the national economy. An example is the support to innovation in tourism in **Italy**, **Portugal**, **Slovenia** and **Cyprus**. Another example is the support to public service innovation in **Sweden**, a country where a major part of the service sector is public, e.g. education, health care and transport.

Regional clusters of interlinked industries, organisations and institutions are a fertile ground for innovation, entrepreneurship and competitiveness among firms. Such clusters involve both manufacturing and service industries. Some clusters have service industries at the core - e.g. financial services in the City of London, tourism in Southern Spain - while others are more traditional manufacturing clusters involving service industries to a larger or lesser extent. Several Member States support innovation by way of their regionally-focused cluster programmes, sometimes targeted at specific service industries. This is, for example, the case in the **UK**, where the Regional Development Agencies (RDAs) have launched cluster policies which include services of the software, digital content and the creative industries. In **Finland**, the Finnish Centre of Expertise Programme supports centres dedicated to innovation in tourism, chamber music and the experience industry. Other examples include **the Netherlands** and **Belgium**, where the regional cluster and innovation programmes include specific service industries such as transport and logistics.

As part of the INNO-Policy TrendChart initiative, the Commission will continue to systematically collect information on existing specific measures in support of innovation. The

collection of information has recently also been extended to third countries, including the US, India, China, Japan, Brazil and Canada. In the future, more emphasis will be given to a better identification of direct or indirect measures in support of innovation in the service sector. This requires **a new taxonomy or categorisation of innovation policy measures** that will be progressively implemented. A first step is the introduction of subcategories for services, for example for cluster policies or policies in support of specific service sectors. Furthermore, measures to support innovation in services, for example by applying the new State aid rules for process and organisational innovation in services, will be included. Secondly, the overall definition of measures in support of innovation may have to be broadened, in particular to better capture support schemes in favour of organisational innovation, such as in support of e-business or new forms of work organisation.

5.2. Towards more trans-national cooperation in support of innovation in services

Innovation in services is a relatively new topic in European policy discussion. A lot still has to be learned about the potential of services and successful policy approaches. The **Open Method of Coordination** offers the tool and the right environment to contribute to the learning process by sharing information on future trends, exchanging good practice and jointly developing new policy approaches.

To further explore the scope for trans-national cooperation in the field, the **Innovation Policy Project in Services (IPPS)** has been launched under the PRO INNO Europe initiative. The final report will be available by August 2007, proposing concrete ideas on how to facilitate trans-national cooperation in support of innovation in services. In close cooperation with national and regional innovation agencies, the Commission services will further validate these recommendations and consider how specific trans-national cooperation schemes can be supported, under the Competitiveness and Innovation Programme (CIP).

Taking into account that the development of service innovation policy is still at an early phase and most national and regional organizations in Europe are only beginning to implement activities and programmes supporting service innovation, it may be too early to expect in the short term joint initiatives at programme level. This creates a need and opportunity to establish efficient platforms for transnational policy design and learning.

Member States are invited to share conceptual views on the further development of national strategies in support of service innovation, in order to adapt their innovation policies towards the needs of a service oriented society. It should be in the common interest of Member States to improve their innovation governance and to develop, as soon as possible, new or better instruments in support of innovation in services. Examples of such cooperation, at a more practical level, may include the development of guidance on how to effectively use the new State aid rules for process and organizational innovation or the informal methods of IP protection.

Awareness of the importance and increasing urgency of support to innovation in services needs to be raised among European policy makers. As called for by recent Commission and Council documents on innovation, a **rethink of European innovation policy is necessary**, as is an evaluation of the steps to be taken in the short and medium term perspectives. Innovation in services is a main enabler for the creation of the knowledge-based economy and therefore also a priority for future community action in support of the Lisbon agenda.

5.3. The European Innovation Platform for Knowledge Intense Services

In the Communication "Putting Knowledge into practice: A broad based innovation strategy for the EU" of 13 September 2006, the European Commission announced "a more pro-active approach in the creation and support of young innovative SMEs in the service sector". As a follow-up it has been decided to establish **a European Innovation Platform for Knowledge Intensive Services (KIS-platform)**. A call for proposals has been launched in May 2007[41], with the objective to start the project at the beginning of 2008. This call covers Knowledge Intensive Services defined as economic activities conducted by private sector organisations that combine technology, knowledge (such as R&D) and highly skilled employees to provide a service to the market.

KIS companies are generally highly innovative and have a high potential for growth. They act as catalysts of innovations also in other sectors. By disseminating knowledge to other sectors of the economy, including manufacturing, important spill-over effects are produced and are rightly considered as the driving force of the knowledge economy. The proposed KIS-platform will focus, as a start, on KIS enterprises that "rejuvenate" industrial sectors and contribute to the development of new "lead markets". The **ultimate objective is to facilitate the creation of European innovation champions** in these areas. Therefore, special attention will be paid to the interests of young innovative service firms with high growth potential.

The **KIS-platform is a pilot action that will test new forms of integrated support mechanisms for knowledge intensive services with high growth potential**, thus combining two important policy challenges that still need to be addressed. The idea is to encourage innovation programmes from different fields to work together in a "one stop shop" mode by creating stronger links between knowledge creation, knowledge transfer, incubation, finance, skills and clusters, through networking and cooperation of all relevant players. This is a practical experiment that will show the way for better innovation policies in Europe and at the same time contribute to efforts of reducing administrative burdens for young, innovative enterprises.

[41] For information and further material on the call see : http://ec.europa.eu/enterprise/funding/grants/themes_2007/calls_prop_2007.htm

Figure 1: The European Innovation Platform for Knowledge Intensive Services

The overall objective of the KIS-Platform is **to foster technological as well as non-technological innovation (organisational innovation) in services**, taking into account the dynamic interconnections between research, skills, entrepreneurship, finance and clusters. To achieve this objective, a number of specific support services and networking activities will be designed and tested as well as horizontal activities to ensure the establishment of an integrated platform. As a result, many SMEs will directly benefit from this initiative as will policy makers at regional and national level by better understanding how to further develop their innovation policies.

Previous European innovation policy initiatives helped to identify good practice in support of innovative companies, including knowledge transfer from universities to enterprises, incubation services and access to finance. The KIS platform will allow **to practically implement such good practice examples and to further develop them in support of knowledge intense services**. In this sense, it follows an evolutionary approach, building upon well proven concepts developed under the Gate2Growth initiative and Europe INNOVA financing networks. If successful, this concept will be further developed and applied to other fields of actions supported under the Competitiveness and Innovation Programme (CIP).

With the creation of a KIS-Platform, the European Commission aims to offer an **operational learning platform** where such new policy approaches in support of innovation in services can be tested and geared towards the specific needs of fast growing young enterprises. In this sense, the KIS-Platform aims to test and implement a number of recommendations identified under the different chapters of this Staff Working Document and should be considered as a

laboratory for better innovation policies. This new approach should be followed and further supported by enhanced **trans-national cooperation between innovation agencies from different regions and Member States**, in particular with a view to promoting the internationalisation and the growth of innovative enterprises in Europe also in the service sector.

6. THE FUTURE INNOVATION POLICY AGENDA: CHALLENGES AND KEY ISSUES

The future challenges and key issues to be addressed in defining a European strategy in support of innovation in services can be summarised in the following **ten points**:

- First, building upon the results of the Community Innovation Survey (CIS-4) there is a need to better understand the **specific innovation patterns of services** and their relevance for innovation policy strategies. Work to improve indicators which better capture the specificities of service innovation needs to continue.

- Second, the internal market for services needs to be further completed. The full implementation of the **Services Directive** will lower barriers for market entrance and stimulate new forms of service innovations.

- Third, service companies use registered **IPRs** less than manufacturing companies. This may call for specific support actions and awareness raising, helping service companies to protect their IPR in an optimal manner, including informal forms of protection.

- Fourth, services would particularly benefit from **more innovation-friendly public procurement**. Further actions need to be taken to promote the use of the Guide on dealing with innovative solutions in public procurement, for both products and services.

- Fifth, innovation in services depends critically on the right **skills and innovation management capabilities**, which need to be better identified and promoted at all levels.

- Sixth, **R&D and innovation programmes** need to be better aligned with the specific requirements of service innovation. Innovation in services is less driven by technological research projects than by organisational innovation and new business models. This should be better reflected in research priorities, as well as by developing new forms of knowledge transfer from research to the business community, taking into account the recommendations of the CREST Working Group on "R&D in Services".

- Seventh, it is not enough just to open existing innovation support schemes for services. More emphasis should be given to the **specific needs of fast growing innovative firms in the service sector**. This requires new forms of support services, bringing together different business support services (knowledge transfer, incubation, finance) in a more consistent and less bureaucratic manner.

- Eighth, the Commission will support under the Competitiveness and Innovation Programme the **development and testing of new tools and instruments** in support of innovation in services that follow a more integrated approach and are less bureaucratic than existing support mechanisms, with a view that ultimately they will be used and implemented on a large scale by regional, national and European service providers.

- Ninth, in defining and implementing new ways of supporting innovation in services, Member States should work closely together and learn from each other. Scope for **trans-national cooperation** in this field exists, particularly in sharing information about future trends and developing new tools and instruments in support of innovation in services.

- Tenth, innovation in services is an important pillar of the **Lisbon strategy**, which aims at supporting all forms of innovation in the best possible manner. The Commission's services will improve the collection of information on relevant policy initiatives and facilitate the identification and further dissemination of good practice in this field.

These orientations will be further elaborated by the Commission's services as a matter of priority and implemented as part of the Lisbon strategy. **To be effective, these priorities need to be supported and further strengthened by complementary efforts at regional and national level.** In this respect, the new initiative "Regions for Economic Change"[42]will be instrumental in addressing a number of challenges related to the development of service innovation, such as "Brining innovative ideas more quickly to the market" and "Helping to Restructure Regions most heavily dependent on Traditional Industries".

A Communication on this issue, together with a detailed action plan in support of innovation in services, may be considered for 2008, taking into account in particular the **further consultation of stakeholders** which is planned for the second half of 2007.

[42] COM(2006) 675 final of 8 November 2006