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COMMISSION OF THE EUROPEAN COMMUNITIES

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COMMISSION STAFF WORKING DOCUMENT

Challenges for EU support to innovation in services – Fostering new markets and jobs through innovation

EXECUTIVE SUMMARY

This Staff Working Document presents the latest available statistical information on the drivers, barriers and potential impact of services innovation and identifies a number of policy challenges.

The lesson learned from the statistical analysis is that **service companies, generally, do not innovate less than manufacturing companies but differently**. Furthermore, great differences exist between knowledge-intensive and other services. Innovation in other services tends to be more of a continuous process consisting of a series of incremental changes rather than being radical. However, KIBS firms show similar innovation patterns to those of 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. Overall, the percentage of service companies developing internal R&D activities is, on average, still much lower than in manufacturing or KIBS firms. Following the findings from a recent Swedish survey the **most important sources for new ideas in service companies are employees and customers**. Almost 50% of the new ideas stem from interactions with users, whereas external research only accounts for about 3%.

In recent years, the interest towards services innovation policy has been increasing simultaneously with the growing economic weight and significance of services. At the same time, **policies in support of services innovation have remained relatively underdeveloped in many Member States and regions**. As innovation in services is less driven by research and publicly funded innovation projects, effective innovation support calls for different approaches than those for technological innovation. There is also the challenge to better address the needs of fast growing innovative companies and to create a more favourable business environment for services in general so that services innovation happens at all levels more easily. Europe lacks innovative service companies with a global reach.

The European economy will obviously look different once the economic crisis is over, and innovative services will inevitably play a major role in this restructuring process. Services innovations can and need to be supported at different levels and by different instruments.

- At **activity level**, the main challenge is to broaden the knowledge base for services. This not only calls for more and better research on new service concepts, but also for the development of new skills that better address the needs of service companies. Furthermore, new forms of knowledge diffusion and better networking between the research and the business community need to be developed so that research results can spread more easily and be turned into new service applications.

- At **firm level**, innovation support mechanisms need to be better adapted to the specific needs of service companies, allowing for more customised advice and greater flexibility. As services innovation is predominantly user-driven, innovation support must be provided more directly and in different form, in particular with the view to facilitate the growth and internationalisation of service firms so that more innovation leaders are created in Europe. The current economic crisis would call for even stronger support for entrepreneurship and risk taking. This is the time to test as many new business ideas as possible in order to lay down the foundations for later recovery.

- At **sectoral level,** innovation clusters can help create entirely new service sectors, in particular by developing and promoting new technology-based services in close partnerships between larger firms, universities, innovative SMEs and local user groups. Such service clusters often need different forms of support, as users play a much stronger role in them and they are more often at the crossroads between different sectors, technologies and professions. Building strong "eco-systems" favouring services innovation needs to happen first at regional level, making regions attractive to creative people and linking them with strong knowledge institutions, investors and innovative SMEs.

- At **market level**, services innovation can best be stimulated by activating demand for innovative service concepts and removing barriers for their practical use. Building trust for consumers, and using public procurement as a catalyst for services innovation, helps develop the innovation potential created by technological development and innovative enterprises, supported by strong "eco-systems" at regional level. At European level, this approach is best represented by the LMI which aims to bring together relevant policy instruments in a more strategic manner in order to create more favourable conditions for new markets to emerge. This concept could be applied to services innovations more specifically, particularly where there is a societal challenge requiring a systemic response.

The main policy challenge is to bring these different elements together in a more consistent and strategic manner.

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INTRODUCTION

This **Staff Working Document** has as its main objective to provide further arguments on the needs and opportunities to strengthen services innovation in Europe as an enabler for growth and new jobs. It presents the latest available statistical information on the drivers, barriers and potential impact of services innovation and identifies a number of policy challenges which should be addressed at European level as a matter of high priority in order to fully valorise the potential of services innovation in Europe. From this analysis it becomes evident that only an approach, which combines support to all forms of innovation – including services innovation – with a more strategic vision of how to create conditions that facilitate the emergence of growth champions and innovative service markets, can make a substantial difference.

The current global economic crisis is expected to also trigger changes in the field of innovation policy. In particular, it may accelerate the search for more effective innovation support mechanisms in Europe. The global economic crisis will lead to increasing pressure on public budgets, forcing governments to review the allocation of scarce resources and find new and better ways to support innovation. Services have long been considered as a driving force for competitiveness and innovation but the question of how to support innovation in services in the best possible manner has rarely been addressed. Part of the response to the global economic crisis and to driving the European economy will have to be found in the service sector, where most of the new jobs are expected to be created in the future. Consequently, the **Presidency conclusions of the European Council of 12 December 2008** called for the launch of a European plan for innovation, encompassing all of the conditions for sustainable development and the main technologies of the future, including new services deriving from them[1], in particular space-based services which represent an important potential market.

The Council's conclusions of December 2006[2] set out that all forms of innovation must be taken into account, including innovation in services. However, there is evidence that still more could and needs to be done in support of services innovation. It seems that **current innovation support mechanisms are still predominantly biased towards technological innovation**. Following a public consultation on the Staff Working Document "Towards a European strategy in support of innovation in services: Challenges and key issues for future actions"[3], as published in July 2007, it can be concluded that current innovation support mechanisms in Europe are not neutral with respect to all forms of innovation. Removing the strong bias towards the still dominant "technology-push" approach must be the starting point for a renewed innovation strategy which aims at valorising the full innovation potential in Europe.

As services innovation is found in all sectors, both in services and in manufacturing, it seems necessary to address this challenge in a horizontal manner, as part of a **broad-based innovation strategy** combining different policies, such as Internal Market, Cohesion Policy, competition, industrial policy, research, education and labour market policies. It would be important to consider the role of services in each of these policies, framework programmes and specific measures in order to ensure a more balanced support to innovation in manufacturing and services, respectively. However, there is also broad consensus that

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[1] Council of the European Union (2008), Brussels European Council 11 and 12 December 2008, Presidency conclusions (17271/1/08 REV 1).

[2] Council of the European Union (2006), 2769th Competitiveness (Internal Market, Industry and Research) Council Meeting Brussels, 4 December 2006

[3] European Commission (2007d), SEC (2007) 1059 of 27 July 2007

supporting services innovation may call for different types of innovation support, taking into account their particularities and responding to specific market and systemic failures in this area. What is at stake is the effectiveness of innovation support in general, and in this respect better addressing the needs of services innovation may pave the way for more effective innovation support in general.

Service sectors are important drivers of competitiveness and growth which gives raise to the question of which **sectoral policies** should be followed to unlock their full innovation potential. The discussion on how to best support services innovation for the creation of new markets and jobs has until now suffered from confusion on terminology. Whereas services innovation may happen in all sectors, both in manufacturing and services, it is also important to recognise that totally new service sectors and markets are emerging based on innovative service concepts. Quite often, these new service sectors are technology-driven, in particular by Information and Communication Technologies (ICT) but also by new satellite navigation systems, like Galileo, or new testing methods based on bio-technology or nano-technology. It would be a fatal mistake to assume that services innovation is "non-technological" by nature. However, what matters is not only the technology as such but also how it is used to better address customer needs. In this respect, innovative service concepts most often make the decisive difference between "invention" and "innovation".

The work done so far to improve the **European policy approach in support of services innovation** has shown that this is a challenging but nevertheless worthwhile task**,** taking into account the increasing importance of services in the knowledge-based economy. Clearly, further efforts are needed to define a European policy approach that addresses the right issues in the right manner. Without doubt, services innovation matters economically but it is not a trivial matter how to unleash its potential and proactively stimulate its take-up. To start with, the framework conditions for new service concepts need to be improved.

Part 1 of the document provides statistical evidence demonstrating that services are becoming increasingly knowledge-based, thus playing an important role for innovation and growth in Europe. This section is mainly based on available statistics on the role services play in driving the economies in Europe. Specific attention is paid to the further analysis of the economic role and impact of knowledge-intensive services. Furthermore, regional specialisation patterns in services are presented, suggesting that some regions in Europe seem to be in a better position to take advantage of specific emerging services than others.

Part 2 discusses the concept of innovation in services in some more detail and presents the latest available statistical results from the Community Innovation Survey[4] which shows that services innovate differently from manufacturing. However, the borderlines between innovation in services and in manufacturing are increasingly blurring, and it would be erroneous to consider innovation in services as "non-technological". From this analysis it can be concluded that services innovation indeed contributes to higher innovation performance. What is worrying, however, is that there are indications that innovation leaders in Europe seem to improve their innovation performance in services more rapidly than others which, in the medium term, could undermine the convergence in overall innovation performance as observed by the European Innovation Scoreboard 2008. This provides further evidence of the

[4] The Community Innovation Survey 2006 data covers the period 2002 to 2004

need to strengthen the services dimension in the future European innovation policy as, otherwise, the risk exists that innovation gaps within Europe will deepen further.

Part 3 analyses the main policy rationale for better support to innovation in services. It identifies, as far as possible, specific market and systematic failures to be addressed in order to unlock the full potential for innovation in services.

Part 4 describes new policy initiatives in support of innovation at regional, national and European level. It seems that service firms generally receive less innovation support than manufacturing firms. However, many policy initiatives exist to support services innovation in specific sectors, such as ICT, construction or tourism, which also receive strong support from the Cohesion Policy Funds. The bias towards support for technological innovation is less important at European level, as services are included in almost all Community initiatives in support of research and innovation. However, strategic initiatives in support of emerging service sectors or markets are not often found at all levels.

Part 5 identifies the most pressing challenges to be addressed in order to better support innovation in services.

TOWARDS A KNOWLEDGE-BASED SERVICE ECONOMY IN EUROPE: FACTS AND FIGURES

This section provides some key figures illustrating the importance of services for European economies. In 2007, services represented 69.2% of total employment and 71.6% of the gross value added generated by EU27[5]. Market-driven services are particularly dynamic and have contributed to the stabilisation of employment in Europe in the last two decades, thus compensating for the loss of employment in agriculture and manufacturing.

There is a strong positive correlation between GDP per capita and services share in total employment. Countries with high income levels – such as Luxembourg, Netherlands, Sweden or Denmark – are also characterised by high services shares in employment within their economies. In contrast, income and shares of services in employment in Romania, Bulgaria, or Poland are relatively low.

The statistics presented in this chapter may explain why the topic of services innovation is higher on the political agenda in some countries than in others. However, they leave open the question of causality. Although there are strong arguments why services should benefit from a high level of income, services – and in particular knowledge intense services – may also be considered as a strong driver of innovation and competitiveness, thus offering the chance to catch-up faster with the economically leading countries. In this respect, the concept of clusters offers particular insights into the "eco-system" needed to support the strengthening of service industries in Europe.

1.1. What are services?

Traditionally, services have been considered as residual activities: the remaining part of the economy after defining agriculture and manufacturing. This is a negative definition as it focuses on what services "are not": not tangible, not transportable, not storable, not durable, etc. As a result, services are composed of a large variety of heterogeneous activities, the characteristics, problems and needs of which are difficult to outline and address all at once. In a more positive way, **services can be defined as the result of a co-production between clients and suppliers.** In this sense, services innovation can be considered as the most prominent example of "user-driven" innovation.

The official statistics on services in Europe are based on the **NACE classification**.[6] This classification makes it difficult to fully capture the phenomenon of the rapidly growing service economy because it does not adequately reflect the role of services in the economy and their increasing interactions with the other sectors. According to Eurostat, the terms "service industry", "service sector" or simply "services" are generally used to refer to economic activities covered by Sections G to U of NACE revision 2 (see Figure 1). This approach covers those service companies for which services constitute their main activities

[5] Eurostat 2007

[6] The statistical classification of economic activities in the European Community (commonly referred to as NACE) according to revision 1.1 from 2002 and revision 2 from 2006. Both are available at Eurostat's metadata server RAMON at http://ec.europa.eu/eurostat/ramon

but it does not include the large number of service activities produced within manufacturing or other industrial firms.

Figure 1: Broad correspondence between sections of NACE Revisions 1.1 and 2

NACE Rev. 1.1		NACE Rev. 2	
Section	**Description**	**Section**	**Description**
G	Wholesale and retail trade: repair of motor vehicles, motorcycles and personal and household goods	**G**	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Hotels and restaurants	**I**	Accommodation and food service activities
I	Transport, storage and communications	**H**	Transportation and storage
		J	Information and communication
J	Financial intermediation	**K**	Financial and insurance activities
K	Real estate, renting and business activities	**L**	Real estate activities
		M	Professional, scientific and technical activities
		N	Administrative and support service activities
L	Public Administration and defence; compulsory social security	**O**	Public administration and defence; compulsory social security
M	Education	**P**	Education
N	Health and social work	**Q**	Human health and social work activities
O	Other community, social and personal service activities	**R**	Arts, entertainment and recreation
		S	Other service activities
P	Activities of private households as employers and undifferentiated production activities of private households	**T**	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
Q	Extraterritorial organisations and bodies	**U**	Activities of extraterritorial organisations and bodies

Source: Eurostat

Until recently, services did not have sufficient sectoral breakdown and were not singled out in many major international statistics, for instance, some indicators of national accounting, foreign commerce, price indexes, innovation and technology did not specify services. Gaps still exist today in the field of statistics, but the situation is improving gradually. Service firms

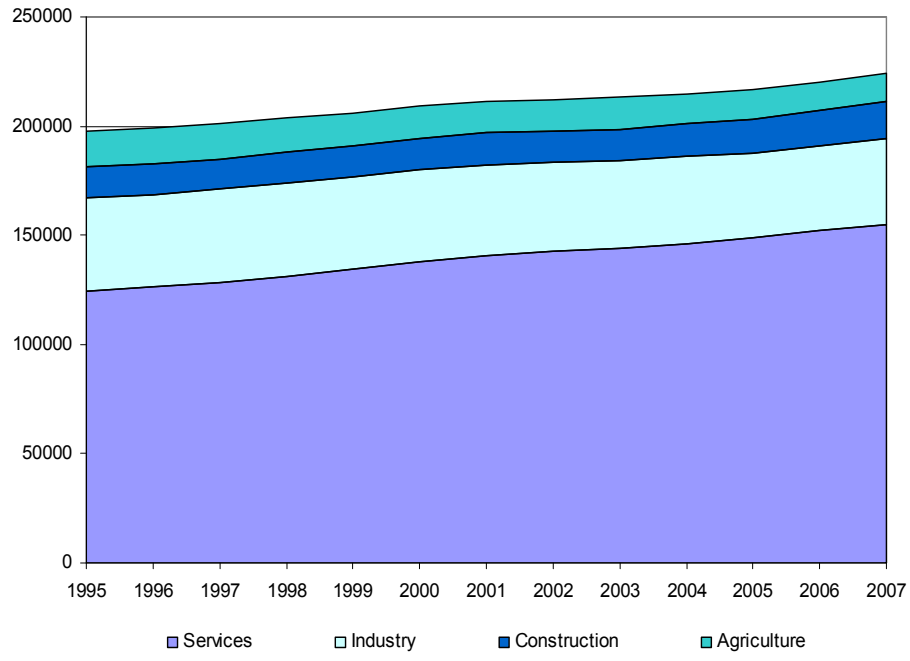
were, for instance, included for the first time in the third Community Innovation Survey (CIS-3) capturing innovation performance in 1998-2000. One reason for this improvement was the adoption, at the beginning of the 1990s, of the NACE Rev.1 in Europe, which provided a more positive classification of services (for the first time, some services such as computer activities or telecommunications took more important positions). The new revision (Rev.2), which has been in use since January 2008, pays greater attention to services, especially in the area of business services where the previous version of NACE contained too many additions and simplifications.

Figure 1 summarises the main changes between the two latest NACE classifications with regard to service sectors. The new NACE Rev. 2 will provide new data in the coming years. This document, however, still refers to the NACE Rev. 1.1 classification, because it has been used as the basis for all the statistics presented here.

1.2. The economic relevance of services in Europe

Services have become the most important economic sector in Europe. Figure 2 shows that nearly all of the employment growth between 1995 and 2007 was due to services alone. In 2007, more than 155 million persons were engaged in service activities, representing 69.2% of total employment and producing 71.6% of the gross value added generated by EU27, as stated above. Therefore, from a statistical point of view the European economy can be described as a "service economy".

Figure 2: Total employment (thousand) by sectors, EU27, 1995-2007

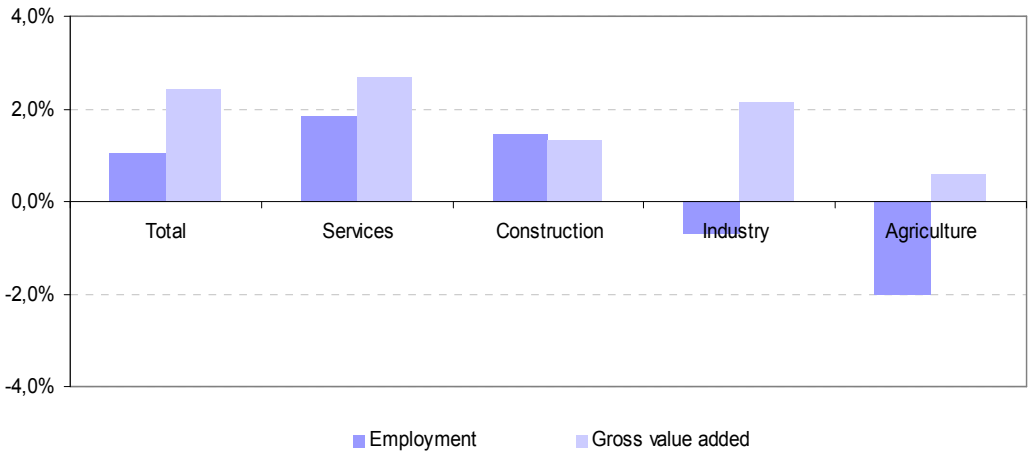


Note: Agriculture comprises NACE categories A and B, Industry refers to NACE codes C to E, Construction refers to NACE category F and Services comprises NACE codes G to P.
Source: Based on Eurostat.

However, **strong intra-sectoral differences exist within services.** Out of the 155 million persons engaged in service activities in 2007, 65 million were employed in public-related services (NACE codes L to P) and 90 million in market-driven services: 56 million in transport and communications (G to I) and 34 million in financial services and business services (J and K). Therefore**, market-driven services generate most of services value added** (€5.400 million in 2007), while the value added by public-related services sums up €2.450 million.

Services were demonstrated to be the **driving force of employment creation as well as of value added expansion** during the last 12 years (see Figure 3 below). While total employment grew by 1% per year, employment in service activities rose by 1.8%. The service sector also surpassed the average growth of total value added. At the same time, other economic sectors have been loosing economic importance. As Figure 3 illustrates, employment contracted particularly in primary activities such as agriculture (by -2% per year during 1995-2007) but also in industrial sectors (by -0.7%). In fact, these sectors have decreased their share in total employment quite substantially, by 3.1% in agriculture and 1.7% in industry. However, employment creation in services still depends, to a large extent, on a strong and competitive industrial sector, in particular for business services.

Figure 3: Annual growth rates of employment and gross value added, by sectors, EU27, 1995-2007



Note: Value added at constant prices 2000. Agriculture comprises NACE categories A and B, Industry refers to NACE codes C to E, Construction refers to NACE category F and Services comprises NACE codes G to P.
Source: Based on Eurostat.

The **drivers behind the "service economy" are predominantly SMEs**, even more so than for manufacturing. For instance, the Commission Staff Working Document accompanying the European Competitiveness Report 2008 shows that services have the highest share of micro-enterprises.[7] The share of micro-enterprises is 94.9% of service enterprises in Europe,

[7] See table on page 67 of the European Commission (2008g), available at http://ec.europa.eu/enterprise/enterprise_policy/competitiveness/1_eucompetrep/eu_compet_reports.htm

representing 34% of employment compared to manufacturing with a 79.4% share of micro-enterprises representing 13.4% of employment.

There are several factors that have supported the trend towards a service economy in Europe. The most important reason for services growth is the increase of income levels in the high income countries. There is **a strong positive correlation between GDP per capita and services share in total employment**. Countries with high income levels – such as Luxembourg, Netherlands, Sweden or Denmark – are also characterised by high services shares in employment within their economies. In contrast, income and shares of services in employment in Romania, Bulgaria, or Poland are relatively low. Other factors include the more flexible specialisation of the production systems, such as increased outsourcing and the blurring boundaries between goods and services in combination with new technologies and the liberalisation of global markets.

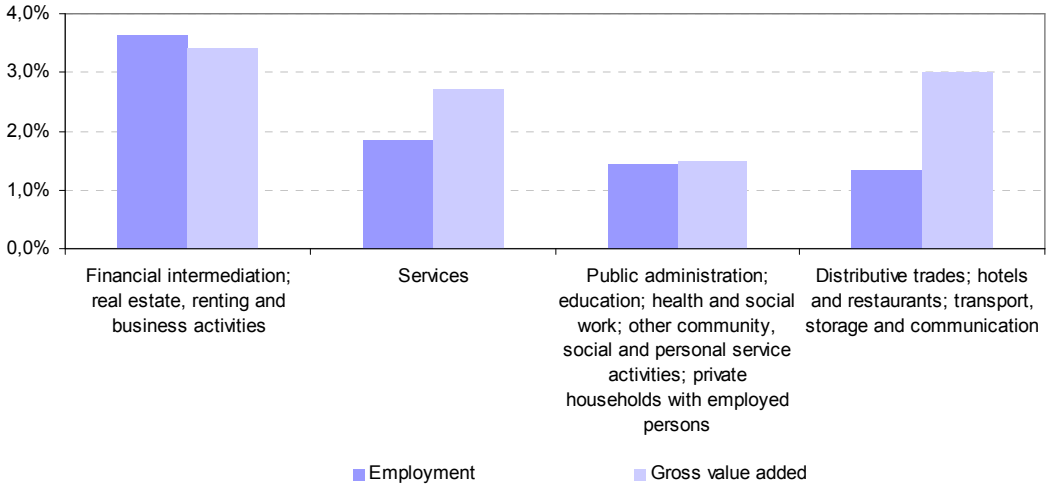
1.3. The growth of services in Europe: sectoral and national differences

Services are increasingly becoming a driver of growth and jobs in developed economies and are **the only sector of the European economy that has resulted in net job creation** in the last two decades. The economic importance of services means that improvements in European living standards are likely to depend more and more on productivity improvements in services rather than in manufacturing.[8]

Financial intermediation, real estate, renting and business activities (NACE J and K) proved to be the most dynamic service sectors in terms of employment as well as value added. Figure 4 below shows that both growth rates are higher than the overall rates for all services. In 1995-2007 they have experienced annual growth rates higher than the service sector as a whole, thus increasing their share in services employment (from 17.5% in 1995 to 21.7% in 2007) and value added (from 35.7% in 1995 to 39.2% in 2007). In contrast, public-related services (NACE L to P) have been loosing positions during the last 12 years.

[8] European Commission (2007d)

Figure 4: Annual growth rates of employment and gross value added, by service sectors in the EU27 (1995-2007)



Note: Value added at constant prices 2000.
Source: Based on Eurostat.

Based on the EU KLEMS database[9], a more disaggregated statistical picture can be presented as summarised in Figure 5. "**Business services"** (NACE codes 71 to 74) were the most important service category in terms of value added in the European economy in 2005, while it ranked second in terms of employment after distributive trades. This sector has increased its share in EU25 value added by 2.6% in the last decade, and by 3.3% in the case of employment. Luxembourg, Netherlands, United Kingdom, Belgium, France, Germany and Italy are the most specialised countries in business services employment relative to EU25, while Cyprus, Estonia and Latvia are lagging behind.

"Other business activities" (NACE 74) represent the category that contains the bulk of business services, both in terms of value added and employment. This category comprises very heterogeneous activities, ranging from operative services, such as security activities or industrial cleaning to intensive services requiring highly qualified human capital, including advanced consultancy services. More than 18 million people were engaged in such service activities in 2005, and their share in employment increased from 6.4% to 9.0% out of all employment. This is important to bear in mind when reflecting on how and in which sectors innovation could best contribute to more jobs and value creation in Europe.

[9] March 2008 release, last EU25 data available for the year 2005. This project is funded by the European Commission, Research Directorate General as part of the 6th Framework Programme, Priority 8, "Policy Support and Anticipating Scientific and Technological Needs". See also http://www.euklems.net

Figure 5: Employment and value added of services in the EU25 (1995 – 2005)

Sectors	NACE REV 1.1	Value added			Employment		
		Thousand million Euro (*) 2005	Relative % 1995	Relative % 2005	Thousand 2005	Relative % 1995	Relative % 2005
Total		10.297,0	100,0	100,0	202.950,5	100	100
Agriculture	AtB	146,9	2,3	1,4	10.015,0	6,5	4,9
Manufacturing	CtF	2.725,9	29,4	26,5	50.641,9	28,8	25,0
Distributive trades	G	1.030,3	10,0	10,0	30.688,2	15,0	15,1
Hotels and restaurants	H	230,1	2,0	2,2	9.352,1	3,9	4,6
Transport	60t63	542,2	4,6	5,3	8.807,8	4,3	4,3
Communications	64	262,1	2,3	2,5	2.938,6	1,6	1,4
Financial services	J	631,4	5,2	6,1	5.672,5	2,9	2,8
Real estate, renting and business activities, of which:	K 70t74	2.210,2	19,8	21,5	24.797,6	8,7	12,2
Real estate activities	70	1.100,2	11,7	10,7	2.174,6	0,9	1,1
Business services	71t74	1.109,9	8,2	10,8	22.623,1	7,8	11,1
- Renting of machinery and equipment	71	120,0	0,8	1,2	552,7	0,2	0,3
- Computer and related activities	72	189,9	1,0	1,8	3.058,8	0,9	1,5
- Research and development	73	37,2	0,4	0,4	768,0	0,4	0,4
- Other business activities	74	762,8	5,9	7,4	18.243,6	6,4	9,0
Public administration	L	730,9	7,6	7,1	13.562,1	7,2	6,7
Education	M	702,9	6,7	6,8	13.866,2	6,6	6,8
Health and social work	N	664,3	6,5	6,5	18.668,8	8,5	9,2
Social and personal services	O	376,0	3,3	3,7	9.518,6	4,2	4,7

Notes: * Current prices.
Source: Based on EU KLEMS database, March 2008 release.

Box: What are business services?

Business services cover a broad spectrum of services principally traded in business-to-business transactions. These intermediary services range from software development to temporary-labour agencies, from equipment rental to economic consultancy, and from translation services to accountancy. These activities are intermediary inputs into the value chain of companies. Therefore external business services contribute to the competitiveness of companies by complementing or substituting in-house service functions. Part of this contribution comes from quality and innovation gains resulting from the interaction between suppliers and clients.

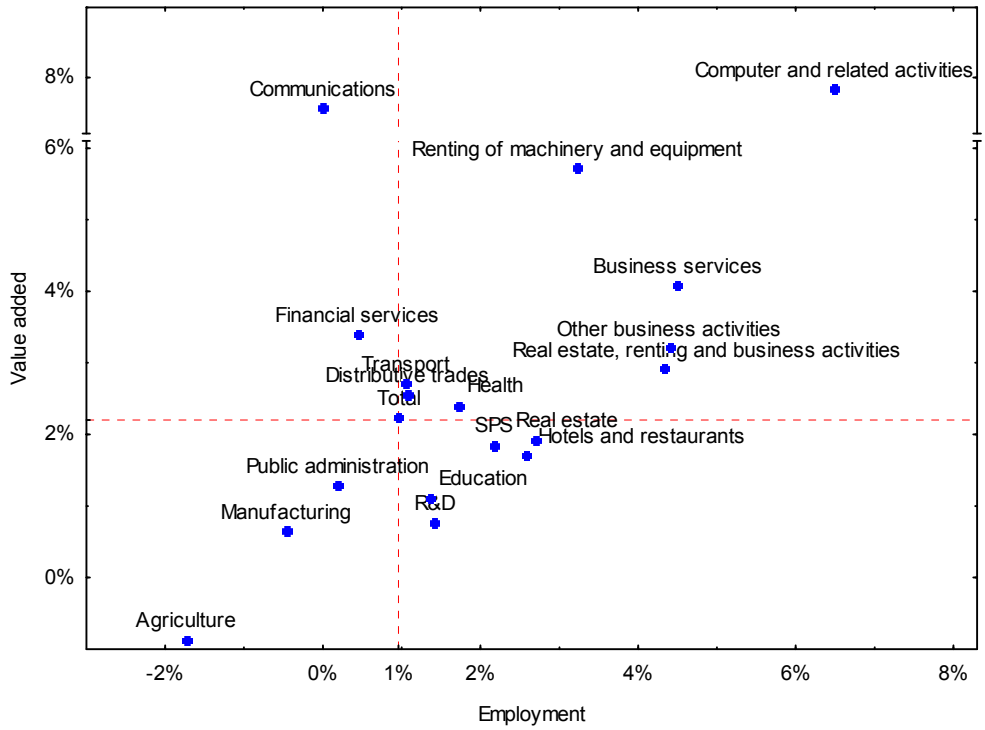
From a statistical point of view, most of the business-services sub-sectors are included in Section K of the NACE classification (Rev. 1.1). It consists of five main categories at 2-digit level, namely, Real Estate activities (70); Renting and Leasing (71); Computer and related activities (72); Research and Development in terms of contract research (73); and Other Business Services (74). Nevertheless, the group of business services is normally understood to consist only of the NACE categories 71, 72, 73 and 74. The latter comprise most business services firms in terms of employees and number of firms.[10] Statistical classification problems concerning business services are much greater than for services as a whole. The novelty of the sector, the continuous development of new activities, the proximity of one activity to another and the lack of research in this sector resulted in a multiplicity of statistical classifications and to a lack of criteria for the study of business services. The fact that most business services nowadays can be found in the residual category Other Business Services (NACE code 74) exemplifies the relatively short history of business services as an independent economic sector.

Source: Rubalcaba and Kox (2007)

As Figure 6 shows, all business services categories (except R&D services) have grown faster than total EU25 in employment and value added during the last decade. In particular, **computer and related activities** (NACE code 72) have been a real driving force for job and wealth creation in EU25 from 1995 to 2005, representing 6.5% of annual increase in employment and 7.8% in value added. In contrast, agriculture, manufacturing and public administration were the least dynamic activities in the period under analysis. **Communications services** registered the second largest increase in value added (7.6% per year) but at the same time one of the lowest employment growth rates within the service sector. However, labour-intensive service sectors such as **hotels and restaurants**, education and social and personal services have experienced larger employment growth rates than the EU25.

[10] In NACE 74, most of the typical business service activities can be found at 3 or 4-digit level, namely: 74.1 Legal, auditing, market research, management consulting, etc.; 74.2 Architecture and engineering; 74.3 Technical analysis and tests; 74.4 Advertising; 74.5 Selection and supply of personnel; 74.6 Investigation and security activities; 74.7 Office Industrial Cleaning; 74.8 Other business activities (not elsewhere classified).

Figure 6: Employment and value added annual growth rates in EU25 (1995-2005)



Notes: Agriculture comprises NACE categories A and B, Manufacturing refers to NACE codes C to F. Value added at constant prices, 1995. SPS: social and personal services. The red lines represent the respective EU25 average.
Source: Based on EU KLEMS database, March 2008 release.

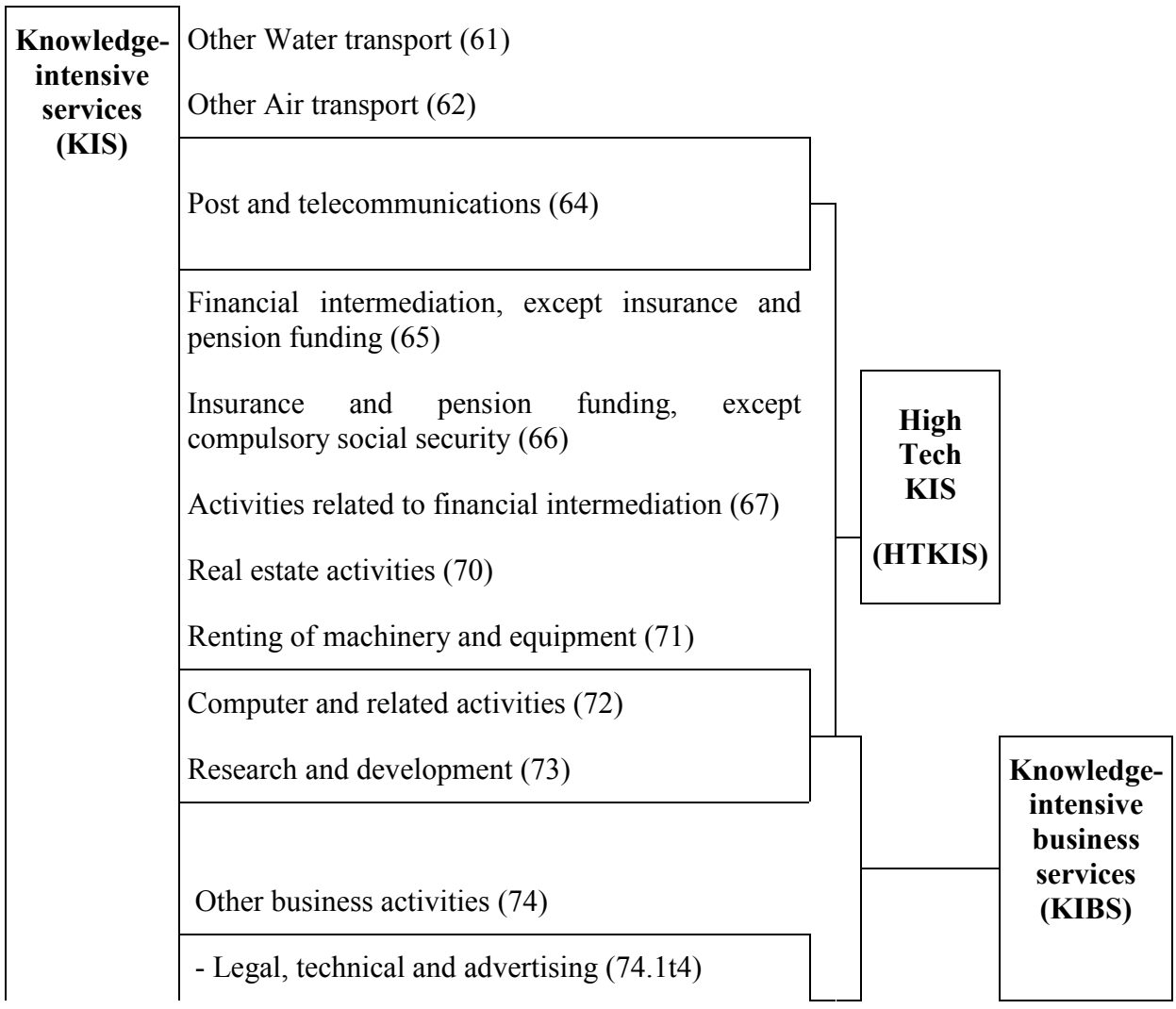
From this analysis follows that service sectors representing high employment growth are not necessarily those with high value added growth, even though they often go hand in hand. Further analysis is needed to assess how innovation affects both. The **most dynamic service sectors** in EU25 in terms of the growth rates for value added and labour productivity (measured by value added per hour worked) are communications, renting, financial services, computer activities, energy, transport and distributive trades. However, public administration, education, R&D, real estate, hotels and restaurants, construction, social and personal services and domestic services are lagging behind.

However, this picture may vary from one country to another, reflecting specialisations and comparative advantages differentials. Furthermore, the growth rates presented in this section relate to the last decade and it remains to be seen whether these growth rates will continue following the global economic crisis, which may affect some service sectors differently from others.

1.4. The role of knowledge-intensive services in Europe

Knowledge-intensive services (KIS) are generally characterised by their knowledge intensity[11], relative capital intensity and high degree of specialisation. However, the definition used by Eurostat[12] is different, referring to the economic activities covered by the following NACE sections: water and air transport (I.61 and I.62); post and telecommunications (I.64); financial intermediation (J); real estate, renting and business activities (K); education (M); health and social work (N); and recreational, cultural and sporting activities (O.92). Based on this broad definition, **high-tech KIS (HTKIS)** as well as **knowledge-intensive business services** (**KIBS**) may be defined as further sub-categories. The relation between these different concepts is further illustrated in Figure 7.

Figure 7: Classification of knowledge-intensive services



[11] The knowledge intensity reflects the integration with a generic or service-specific science and technology base. It can be seen as a combination of knowledge embedded in new equipment, personnel and, sometimes, R&D intensity.

[12] The classification of KIS and high-tech KIS following NACE Rev. 1.1 is outlined in Eurostats's *Statistics in focus* 18/2008, Science and technology, available at http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1073,46587259&_dad=portal&_schema=PORTAL&p_product_code=KS-SF-08-018

	- Other business activities, nec (74.5t8)
	Education (80)
	Health and social work (85)
	Recreational, cultural and sporting activities (92)

Source: Rubalcaba (2009)

The value added created by KIS is often used as an **indicator for the overall knowledge intensity of an economy**.[13] This sector accounts for 46% of the total EU25 value added in 2005, against 42.5% in 1995 (see Figure 8). The specific sub-sectors of HTKIS and KIBS represented 4.8% and 7% of European value added, respectively. Furthermore**,** more than a third of the EU labour force is employed in KIS**,** while HTKIS and KIBS account for 3.3% and 6%. It is worth noting that the share of KIS in total EU value added and employment has grown persistently during the last decade.

Figure 8: Main data regarding knowledge intensive services in the EU25 (1995 – 2005)

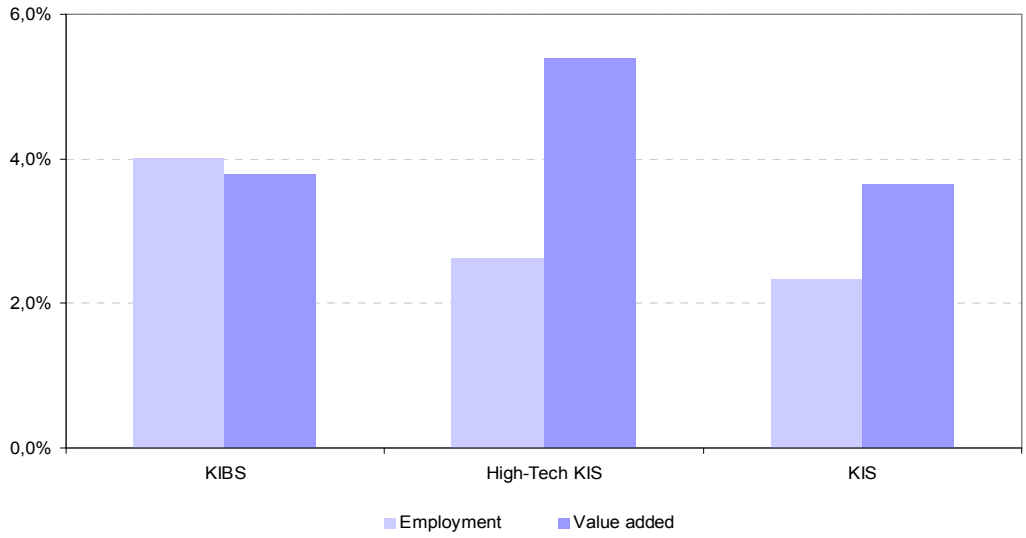
Sectors	NACE	Value added			Employment		
		Thousand million Euro (*) 2005	Relative % 1995	Relative % 2005	Thousand 2005	Relative % 1995	Relative % 2005
Knowledge intensive services (KIS)	61/62/64/J/K/ M/ N /O.92	4.729,2	42,5	45,9	70.688,4	30,3	34,8
High-tech knowledge intensive services (HTKIS)	64/ 72/73	489,3	3,7	4,8	6.765,4	2,8	3,3
Knowledge intensive business services (KIBS)	72/73/74.1t4	711,4	5,4	6,9	12.259,7	4,5	6,0

Source: Based on EU KLEMS database, March 2008 release.

[13] From this does not follow that countries with large shares of high-tech manufacturing cannot also be very knowledge-intensive.

The **KIBS sector has been the main source of job creation in Europe** in terms of recent annual growth rates of employment, while the HTKIS has contributed most to the growth in value added (driven mainly by the expansion of telecommunications), as shown by Figure 9.

Figure 9: Annual growth rates of employment and gross value added in KIS sectors, EU25 (1995-2005)



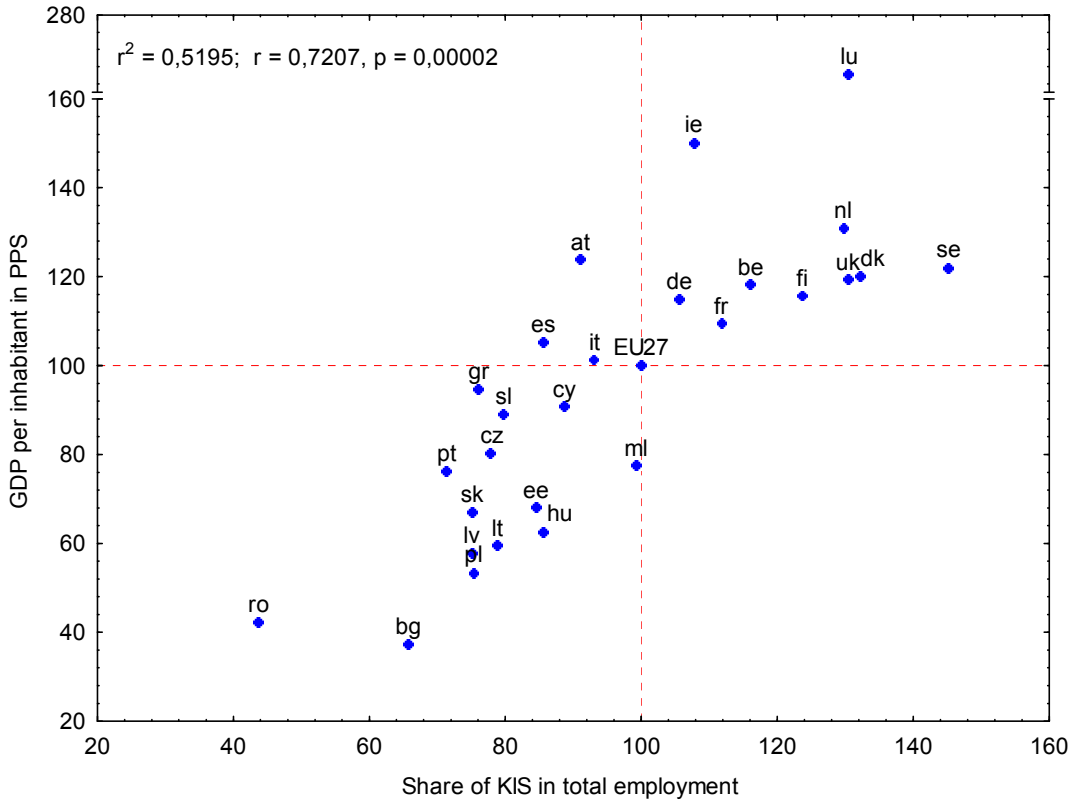
Notes: Value added at constant prices, 1995.
Source: Based on EU KLEMS database, March 2008 release.

As illustrated by Figure 10 below, a strong positive correlation exists between GDP per capita and the KIS share in total employment. This may suggest that **the development of the KIS sector is closely linked to the wealth of a country.** Member States with high income levels – such as Sweden, Luxembourg, Netherlands, Denmark or United Kingdom – are also characterised by a high KIS share of employment.

A possible reason for this positive correlation is that **countries with higher income may demand more knowledge-based services**, in this way expanding the share of KIS in total employment.[14] However, the empirical evidence is more conclusive regarding the positive impact that the use of KIS has on production, productivity and innovation which, in turn, improve the competitiveness and economic performance of countries.[15] The Commission's mid-term review of industrial policy under the EU's Growth and Jobs Strategy (known as the "Lisbon Strategy") already noted the key role played by KIBS: "*The cost, quality and productivity of certain service sectors, in particular Knowledge Intensive Business Services, have an impact on the competitiveness of industry*".[16]

[14] The question of causality remains to be answered
[15] Kox, H. and Rubalcaba, L. (2007)
[16] European Commission (2007c)

Figure 10: GDP per capita and KIS share in employment (2007)



Note: The red lines represent the respective EU27 average.
Source: Based on Eurostat

Kox and Rubalcaba (2007) show the major contribution of KIBS to aggregate economic growth in terms of employment, value added and labour productivity over the past two decades.[17] They assert that KIBS firms have a role in conceptualising and disseminating tacit forms of production and market knowledge, selecting good practice information with regard to different competence areas. Such knowledge is subsequently used for dissemination, thus helping other firms to get closer to the efficiency frontier in those competence areas. Camacho and Rodriguez (2007) consider that by creating and diffusing knowledge**, KIS are real drivers of innovation in many industries**[18]. The authors estimate that the use of inputs from high-tech KIS and KIBS positively affects production and productivity of client industries for a number of EU countries.[19] They also find evidence of knowledge spill-over related to the use of knowledge-intensive services. Tomlinson (2000) analysed the impact of KIS on production and productivity in Japan and the United Kingdom.[20] Windrum and Tomlinson (1999) demonstrate that those countries with strong links between KIBS and other industries obtain higher spill-over from services innovation.[21] In line with the conclusions reached by

[17] Kox, H. and Rubalcaba, L. (2007)
[18] Camacho, J. A. and Rodriguez, M. (2007)
[19] The study is carried out for Denmark, Germany, Spain, the Netherlands and the United Kingdom.
[20] Tomlinson defines KIBS as communications and business services. See Tomlinson, M. (2000)
[21] The study is carried out for the United Kingdom, the Netherlands, Germany and Japan. KIBS are defined as post and telecommunications and most of the industries included under business services. See Windrum, P. and Tomlinson, M. (1999)

previous studies, it can therefore be concluded that the use of KIS has a positive impact both in terms of production and in terms of productivity which, in turn, enhance economic growth and performance.

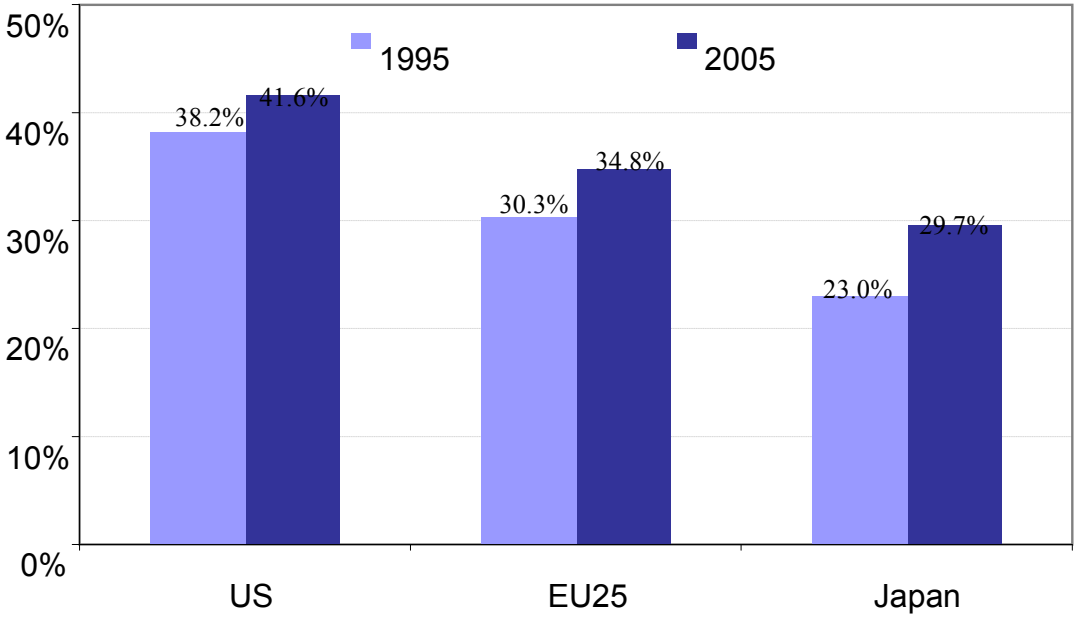
KIBS firms play an important role in national innovation systems, through original innovations, knowledge diffusion and through their role in overcoming the problem that it is difficult to employ less than a full person. In performing these functions, KIBS are a driver of any type of services innovation and an essential element of regional and national innovation systems. **When a country or region is specialised in the area of KIS, comparative advantages may arise** that may give rise to or attract other similar firms to locate and cluster in the same region. The capability of producing technology and knowledge is often considered as a "trademark" that creates a positive image for other products and services from that country or region. Around 90% of regions have experienced an increase in the share of employment in these activities in 2000-2007. This reflects the important role these activities are playing in the European economy in recent years.

In addition to national disparities**, regional asymmetries** exist in the geographical distribution of services across Europe. The share of services in total employment is highest in regions located in the United Kingdom, Belgium, Sweden, France, Germany, Luxembourg and the Czech Republic. However, the weight of the service sector is much less important in regions of Romania, Poland, Greece and Portugal. Most regions with a high share of **employment in KIS** are either capital city regions or regions hosting an important urban area[22]. For those regions, KIS sometimes account for more than 50% of employment with Inner London topping at 59.7%[23]. However, the share of employment in KIS is much lower in Romania and Bulgaria where, for some regions, it is slightly above 11%. These large regional disparities can be mostly explained by differences in GDP per capita.

[22] See also page 20 of the European Commission (2008e), available at http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/interim5_en.htm

[23] Eurostat 2007

Figure 11: KIS share in total employment in the US, EU and Japan (1995-2005)

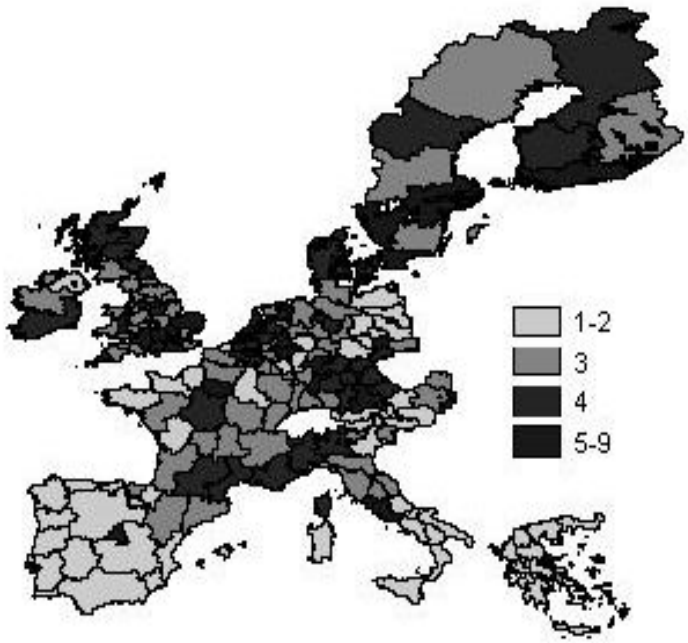


Note: The KIS classification follows Eurostats's definition and covers the following NACE Rev. 1.1 codes: 61, 62, 64, J, K, M, N , 092

Figure 11 compares the share of KIS in total employment in the EU, the US and Japan. It shows that in 2005 the KIS share in employment in EU-25 of 34.8% was lower than in the US (41.6%) but higher than in Japan (29.7%). Between 1995 and 2005, the EU-25 share has risen from 30.3% to 34.8%, representing an increase that was stronger than in the US but weaker than in Japan.

KIBS can mostly be found in advanced European economies, such as Sweden, Denmark or the United Kingdom, but also in urban centres in other countries (see Figure 12). In this respect, the high level of KIBS concentration found also in Central Europe (Czech Republic and Slovakia) and in Southern Europe (Portugal and Spain) is remarkable. This seems to confirm the view that the more knowledge intensive an economic activity is, the more this activity tends to concentrate geographically.

Figure 12: Employment in KIBS as a % of total employment in NUTS2 regions (2006)



Source: Based on DG REGIO database.

These national and regional disparities may affect the further convergence of KIS across Europe. In fact, in this dynamic sector the catching-up of the least advanced economies has not been enough to reduce the overall gaps across EU countries. Since these activities are considered to be the motor of European growth, special attention may have to be paid to measures attempting to reduce national as well regional disparities.

1.5. Services and the concept of innovation clusters

As shown in the previous section, a number of service sectors can be defined, depending on the "packaging" of different NACE categories. The so-defined service sectors are, however, often very dispersed and cover a broad range of sometimes unrelated activities, as for example in the case of KIS or KIBS. This raises the question whether it makes sense to group different service categories together so that they form "clusters" of economic activities. Based on the "Gini coefficient"[24], the geographical dispersion of service sectors in Europe can be measured, by comparing the average and extreme results for the service sectors with other sectors.

[24] The Gini coefficient is a statistical measure of the unequal distribution as value between 0 and 1. Whereas a value of 0 corresponds to a perfectly equal distribution – meaning that services are allocated evenly across all regions –, a value of 1 corresponds to a perfectly unequal distribution, where all services (in a particular sector) are concentrated, i.e. clustered, in one regions alone.

An analysis by the European Cluster Observatory for twenty countries[25] clearly suggests that, in general, **service sectors are more dispersed across regions than non-service sectors**.

Figure 13: Service and other non-service sectors according to geographical dispersion

NACE Section (Rev. 1.1)	Description	**Service sectors** (Gini coefficient)			Other non-service sectors (Gini coefficient)		
		Average	Min	Max	Average	Min	Max
B	Fishing				0.87	0.86	0.89
C	Mining and quarrying				0.87	0.38	0.99
D	Manufacturing				0.69	0.27	0.99
J	Financial intermediation	0.66	0.31	0.91			
E	Electricity, gas and water supply				0.63	0.45	0.78
I	Transport, storage and communications	0.58	0.27	0.99			
L	Public Administration and defense; compulsory social security	0.55	0.40	0.90			
H	Hotels and restaurants	0.50	0.21	0.63			
O	Other community, social and personal service activities	0.49	0.20	0.82			
K	Real estate, renting and business activities	0.48	0.18	0.85			
F	Construction				0.45	0.22	0.84
M	Education	0.44	0.31	0.50			
G	Wholesale and retail trade: repair of motor vehicles, motorcycles and personal and household goods	0.44	0.16	0.93			
N	Health and social work	0.31	0.24	0.40			
G-O (incl. 22)	**All service sectors**, including publishing (count: 225)	0.49	0.16	0.99			
B-F (excl. 22)	All non-service sectors (count: 273)				0.69	0.22	0.99

		Average	Min	Max
All (B-O)	**All sectors (**excluding Agriculture, hunting and forestry (A), Activities of households (P) and Extra-territorial organisations and bodies (Q).	0.60	0.16	0.99

Source: European Cluster Observatory

[25] The 20 countries analysed comprise 17 EU Member States (AT, BE, BG, DE, DK, EE, FI, FR, IE, LT, LU, LV, MT, PT, SE, SI, UK) as well as Iceland, Norway and Switzerland, where the majority of data on 4-digit level were available. The definition of services follows the broad NACE letter categories G-O (i.e. the numerical 50-93) with addition of publishing (NACE category 22).

Figure 13 summarises the results showing that most of the non-service sectors are characterised by high average "**Gini coefficients"** and hence are highly concentrated. Conversely, the only service category that is highly concentrated is finance (J). The categories on transportation (I) and public sector/defence (L) show a moderate concentration, while the rest of the service sectors are either less concentrated, such as in the case of hotels/restaurants (H), social/personal services (O) and real estate/renting/business activities (K), or dispersed as in the cases of education (M), wholesale/retail (G) and health/social work (N). The general conclusion from this analysis is that although the distribution of services overall is geographically much more normally distributed than in the case of industry, but some services, like transportation, financial services and publishing, are nevertheless geographically concentrated and "cluster" in particular locations, whereas retailing and public services are very dispersed and clustering effects must be assumed to be weak.

The cluster concept is, in a way, a further development of the sector concept in that it takes into account the interactions within and between sectors and provides thus a better understanding of how the economy works[26]. The **relevance of service sectors for clusters** is twofold: First of all, clusters usually consist of both manufacturing and service firms and services are often the nucleus of traditional manufacturing-led clusters. Knowledge-intensive services, for instance, play an important role as drivers of clusters[27]. KIS often provide external knowledge and accelerate knowledge dynamics within and beyond particular clusters. This can be particularly important, for instance for sustaining the competitiveness of mature manufacturing-led clusters. Furthermore, new technologies such as ICT are increasingly blurring the traditional boundaries between services and manufacturing. An example is the "Mobile Heights" cluster in Sweden that aims at developing new services based on ICT.

Box: The "Mobile Heights" cluster in Sweden

Mobile Heights is a triple helix-based cluster initiative in the field of mobile communications in Southern Sweden founded by Sony Ericsson, Ericsson Mobile Platforms, TeliaSonera, Lund Technical University, University of Malmö and the Region of Skåne[28]. It brings together world-class organisations from industry and academia as well as institutions from the public sector with the aim to turn Southern Sweden into an internationally leading region in research, innovation and entrepreneurship in mobile communications, hardware, software and services. Their collaboration concerns using existing resources in a smarter way and attracting companies, people and capital to the region.

Within the framework of Mobile Heights, three industrial centres of excellence have been established: EASE (Embedded Applications Software Engineering), SOS (System Design on Silicon) and the third centre focuses on the development of mobile services and applications. Together they form a carefully designed chain consolidating the region's strong position in the field. This enables the region to be place for the complete development of a mobile phone: from the hardware till the innovative content and applications. Mobile Heights smartly exploits the "white fields of innovation" through cooperation with other clusters such as Medicon Valley, the Food Cluster or the Healthcare Cluster, which creates further competitive advantage.

[26] *Clusters* are defined as a group of firms, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialised expertise, services, resources, suppliers and skills. See page 5 of the European Commission (2008f) that accompanied the European Commission (2008c). Both documents available at http://ec.europa.eu/enterprise/policies/innovation/documents/index_en.htm

[27] Draft 'Report on Cluster Alliances and Networking between KIS-Enterprises and Clusters', pages 17-18 by the *Achieve More* project under the European Innovation Platform for Knowledge Intensive Services (KIS-IP), available at http://www.europe-innova.org/

[28] For more information on the Mobile Heights cluster initiative, see www.mobileheights.org

But services are not only a key element of research or manufacturing-led clusters; they also form their own **specialised service clusters** with services as the core**.** Based on the analysis of the European Cluster Observatory a total of 38 traded cluster sectors have been identified for which detailed European cluster maps have been published, indicating where to find the strongest clusters in Europe.[29] Among them, there are also a number of service sector clusters with a global reach, such as financial services, film and TV, telecom operators, shipping, healthcare, waste management, and software programming. Four cluster categories, namely business services, distribution, education and finance can be regarded as pure service cluster categories. A further five cluster categories have a service share of well above 50% and thus are considered as service clusters, namely hospitality & tourism, transportation, entertainment, publishing and IT. However, a large part of employment in services can be found in locally active service sectors, such as local retail and local public services, which are not considered as clusters since they are neither viewed as being exposed to direct competition across regions nor as tending to "cluster together" as they are extremely dispersed.

However, this analysis only provides a first approach to capture the phenomenon of service clusters. Currently, the methodology of the European Cluster Observatory is limited to employment data due to a lack of further data at regional level with a sectoral break-down. The reliance on employment data is a particular restriction for services. In many cases, the economic relevance of **service clusters could be better measured by data based on value added**, taking into account that some services are characterised by high productivity levels. Furthermore, many service firms are relatively small and often represented by a comparative higher share of self-employed people. In fact, the Commission Staff Working Document accompanying the European Competitiveness Report 2008 shows that services have the highest share of micro-enterprises.[30]

The current cluster mapping methodology used by the European Cluster Observatory, however, only considers clusters with a minimum of 1000 employees. Hence, a small fashion cluster with a high value added but low absolute employment may not appear on the cluster maps even though it might be as important to a region as a textile cluster with high employment but low value added that would appear on a map. Another example are service firms organised as "creative industries clusters", which are also often micro-firms creating high value-added. For example, the nearly 750 design firms in Norway that each employ only around five or fewer people[31], would thus not be covered by the cluster mapping of the European Cluster Observatory. However, if grouped together under a mega-cluster for

[29] The 38 traded *cluster sectors* currently covered by the cluster mapping of the European Cluster Observatory are Aerospace, Instruments, Apparel, Automotive, Building Fixtures, Business Services, Chemical, Communications, Food, Agricultural, Distribution, Education, Entertainment, Heavy Machinery, Finance, Fishing, Footwear, Forest, Furniture, Construction, Hospitality, IT, Jewellery, Leather, Lighting, Constr. Materials, Medical, Metal, Oil and Gas, Biopharma, Plastics, Power, Production Tech., Publishing, Sporting, Textiles, Tobacco, and Transportation.. The cluster mapping analysis covers 31 *countries* comprising the EU-27 and the four countries of Iceland, Norway, Switzerland and Turkey. A description of the different cluster concepts and the statistical methodology applied, together with European cluster maps, can be found at http://www.clusterobservatory.eu

[30] See table on page 67 of the European Commission (2008g), available at http://ec.europa.eu/enterprise/enterprise_policy/competitiveness/1_eucompetrep/eu_compet_reports.htm

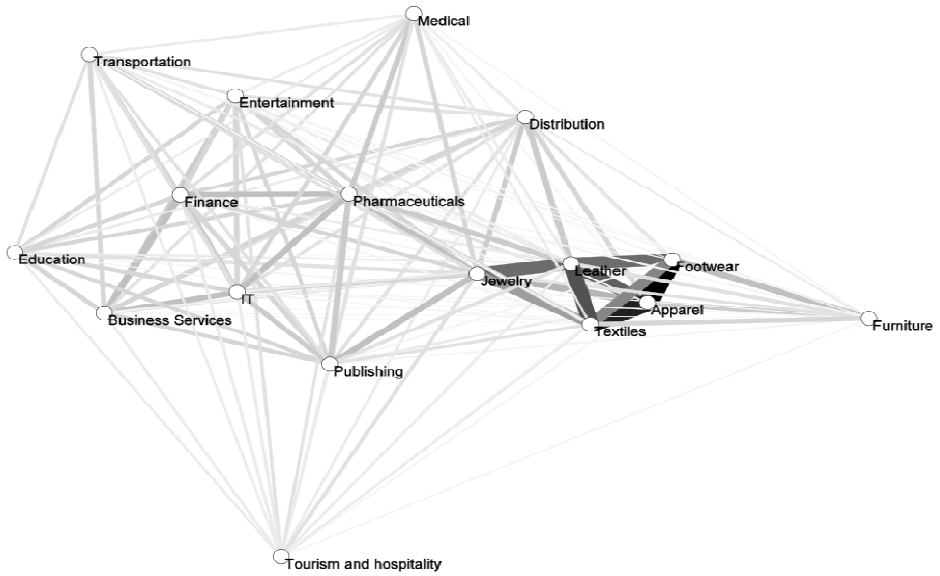
[31] Designium Innovation Centre of the University of Art and Design Helsinki UIAH (2006), page 137.

"creative industries", including publishing, advertising, research and experimental development, entertainment and artistic activities, these related services could be captured.

In order to better capture the links between different cluster categories, the **concept of "mega-clusters"** has been developed, reflecting the fact that some of the cluster categories are more related than others.[32] This concept is still based on statistical employment data according to NACE categories but provides a more sophisticated picture by bringing together those clusters that form part of a broader family. The mega-cluster approach tells more about the interaction between different sectors and reveals many important features. This approach will be further developed by the European Cluster Observatory, with the objective to better capture economic realities. A major step forward would be to calculate such cluster mapping also on the basis of value added. This would show that many service clusters produce even higher value than would be expected from employment data.

Figure 14 describes the **links between different cluster sectors**, as resulting from a further analysis of co-location patterns used by the European Cluster Observatory. In this figure, the thickness and darkness of the link indicates the strength of co-location, i.e. the likeliness or tendency of different clusters to appear in the same location. In other words, a strongly presented link (thick and dark) indicates that one cluster also features a high employment share of another cluster category. The distance between clusters in the figure takes into account all co-locations and closely related clusters end up close to each other. However, the relative position cannot be displayed perfectly and should only be interpreted together with the thickness and darkness of the links.

Figure 14: Links between different cluster categories



Source: European Cluster Observatory (2009)

[32] The Danish Enterprise and Construction Authority's Division for Research and Analysis 'FORA', for instance, has identified 13 Danish "mega-clusters" following expert panel meetings that grouped together the cluster categories of the European Cluster Observatory. See presentation entitled 'Cluster Mapping in the Baltic Sea Region' [BSR INNO-Net Project] given by Jørgen Rosted from FORA, during the Europe INNOVA expert workshop on 'Better Metrics for Clusters' on 29.01.2009 in Barcelona.

From this analysis it can be concluded that **"business services" and "financial services"**, despite being close to each other, only have marginally stronger co-location patterns than those with pharmaceuticals, IT and education. Therefore, the analysis does not provide a strong argument that these services are forming a "mega-cluster"[33]. The location of the **tourism and hospitality** cluster far away from all other clusters indicates that this cluster is not strongly co-located with any of the others and thus should be considered as a particular case, probably due to its specific characteristics.

Instead, Figure 13 provides an argument for a **fashion & design** mega-cluster as a strong co-location is evident between sectors with perhaps similar creative or handicrafts working processes such as Textiles, Footwear, Apparel, Leather and Jewellery, while Furniture should be excluded from such a grouping due to its distance to the other clusters of this mega-cluster[34]. In any case, the lack of available data for service functions, like design, does currently not permit to fully capture fashion & design clusters.

The concept of "mega-clusters" also seems particularly interesting for assessing the economic importance of **"creative industries"** in Europe, which can be considered as an important emerging service industry in many European regions. Together, the creative industries service sector accounted, for instance, for 7.3% of the UK' gross value added (GVA)[35]. This is twice as much value added as tourism and comparable in size to the financial service industry; the latter is usually considered as the main driver of jobs and wealth. The 2005 UK Innovation Survey also tentatively suggested that the creative industries were more innovative compared to many other sectors.[36] Creative industries can be defined differently, depending on regional differences and statistical purposes. In order to assess the relative strength of creative industries clusters in Europe, the European Cluster Observatory used the classification illustrated in Figure 15 based on NACE codes:

[33] Similarly, the location patterns for the two knowledge-intensive manufacturing sectors with a high share of research – Medical Devices and Pharmaceuticals – were found to be different and hence did not provide evidence for a suggested Life Sciences mega-cluster. For instance, Pharmaceuticals were more likely to co-locate with Finance and IT than with Medical Devices.

[34] The exclusion of Furniture is, for instance, a difference to the fashion & design mega-cluster grouping that was identified in Denmark by FORA.

[35] The Work Foundation (2007), available at http://www.culture.gov.uk/reference_library/publications/3672.aspx/

[36] The 2005 UK Innovation Survey sampled around two-thirds of sectors that make up the creative industries. According to that survey, around 70% of creative businesses had been involved with some form of innovation activity over the period 2002–2004, compared with around 55% of businesses in other industries. See page 35 of the above mentioned report by The Work Foundation (2007).

Figure 15: Classification of creative industries

Sector	**NACE code** (Rev. 1.1)[37]
Publishing of books	22.11
Publishing of newspapers	22.12
Publishing of journals and periodicals	22.13
Publishing of sound recordings	22.14
Other publishing	22.15
Publishing of software	72.21
Other software consultancy and supply	72.22
Other computer related activities	72.60
Research and experimental development on natural sciences and engineering	73.10
Research and experimental development on social sciences and humanities	73.20
Architectural and engineering activities and related technical consultancy	74.20
Advertising	74.40
Motion picture and video production	92.11
Motion picture and video distribution	92.12
Motion picture projection	92.13
Radio and television activities	92.20
Artistic and literary creation and interpretation	92.31
Operation of arts facilities	92.32
Fair and amusement park activities	92.33
Other entertainment activities	92.34

Note: This classification of creative industries was inspired by – but does not fully correspond to – the definition found in the Annex to the Work Foundation's 2007 report entitled 'Staying ahead: the economic performance of the UK's creative industries', published by the UK government Department for Culture, Media and Sport (DCMS), available at http://www.culture.gov.uk/reference_library/publications/3672.aspx/

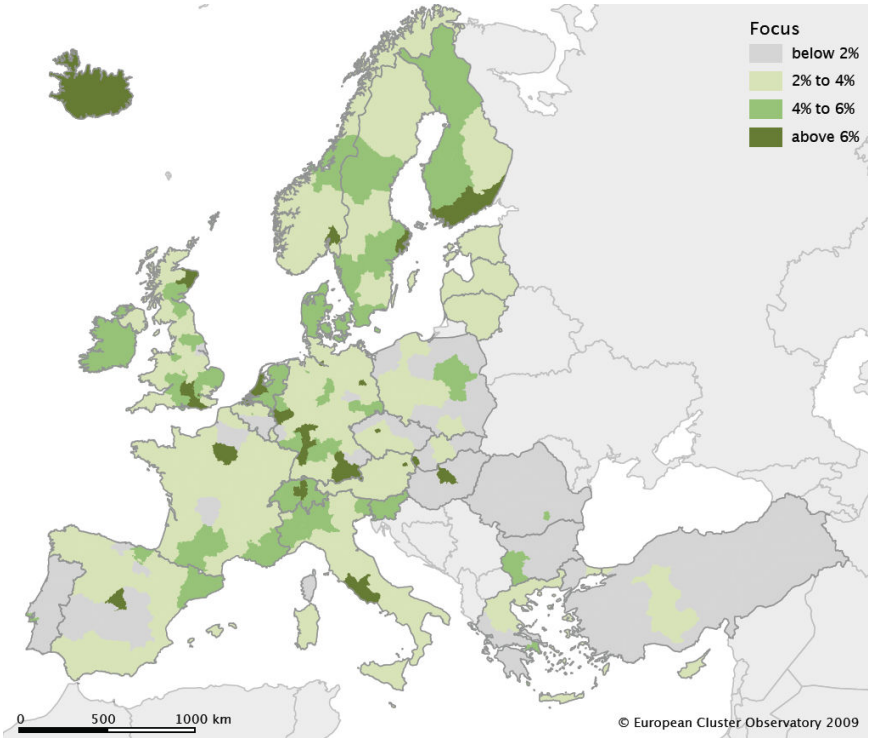
[37] Available at Eurostat's metadata server RAMON at http://ec.europa.eu/eurostat/ramon

Source: European Cluster Observatory.

Figure 16 below provides a map of **creative industries** clusters across Europe that was calculated on the basis of the regional employment share – or focus – in this cluster category compared to the region's overall employment. The results show that specialised creative industries clusters are rather dispersed in Europe and that the strongest concentration of them is to be found in capital regions, while the "sunbelt" as well as regions and countries with a high GDP also feature many creative industries clusters.[38] In order to draw meaningful policy conclusions, further analysis would be needed on the basis of regional or national specialisation patterns. However, the general analysis confirms that creative industries play an important role in many regions, offering scope for cluster policies to further "strengthen the strengths".

[38] This is even more evident when localisation quotients (LQ) are compared, which measure the extent to which a region is more specialised compared to the industry's average share of total employment in all regions.

Figure 16: Creative industries clusters in Europe with a large employment share



Overall, the cluster concept offers a better understanding of the "eco-system" in which innovative services may flourish best. For example, correlation analyses by the European Cluster Observatory show that **cluster strengths in services are highly correlated with GDP per capita**[39]. This is most evident for clusters in business services, financial services and information technology as well more moderately and less strongly correlated also for distribution services, entertainment and publishing & printing, and transport & logistics.[40] As could be expected, tourism is the exception, since this sector is not correlated with GDP per capita.

Strong service clusters are overall **not strongly related to patent applications** to the European Patent Office (EPO), with the notable exception of IT and financial services, while much weaker correlations apply to business services, publishing & printing and transportation & logistics. Obviously, no correlation can be found in several service sectors here, namely for distribution services, entertainment and tourism. Most of the service industries also show a **high but less strong correlation with education levels** in terms of the share of population with tertiary education (among people older than 15 years). In this respect, business services are very strongly correlated, while entertainment, financial services, IT, publishing & printing and transport & logistics are less strongly correlated. Only distribution services and tourism are clearly not correlated with education levels.

[39] Cluster strength is measured in terms of a location quotient.

[40] Less strongly here means that the R squared value of the quality of model fit was found to be of 0.32 or less. This value measures the strength of the relationship between the two variables, which means, in a simplified way, that the results are less reliable and thus less conclusive as they tend to vary to a higher degree.

These first results from the **European Cluster Observatory** give indications about which framework conditions for service clusters matter most. Clearly, this differs from sub-sector to sub-sector. It cannot be assumed that service clusters are driven by the same institutional links as research or manufacturing-led clusters. The quantitative analysis carried out by the European Cluster Observatory therefore needs to be further developed and complemented by a more qualitative analysis of the drivers of service clusters, in particular of those relevant for innovation.

INNOVATION IN SERVICES: STATISTICAL MEASUREMENT AND ITS IMPACT ON NATIONAL INNOVATION PERFORMANCE

Measuring innovation is a challenging task, both for manufacturing and services. This section further analyses the concept of services innovation and describes main approaches to measure innovation performance at sectoral and national level. The statistical analysis is mainly based on the results from the Community Innovation Survey and, at an aggregated level, the European Innovation Scoreboard.

Further efforts need to be undertaken to better capture the specificities of services innovation, taking into account the limitations imposed by the availability of data and the cost of collecting more and better information about existing innovation patterns of firms. It is equally important to improve the knowledge about the relevance of services innovation for regional and national innovation performance in general in order to identity policy challenges based on clearer economic evidence. In this respect, it has to be noted that the relative strengths in services innovation as well as their dynamic evolvement differ greatly between Member States. It needs to be further analysed whether the current trends as statistically observed indeed give rise to political concerns.

1.6. Concept and measurement of innovation in services: The Oslo Manual

Innovation in the service sector has long been rather neglected. However, there is a **wide scope for innovation in services**, not only in service concepts as such (i.e. new or improved service products) but also as service process innovation, service infrastructure innovation, customer process innovation, business model innovation, commercialisation innovation (sales, marketing, delivery), and hybrid forms of innovation serving several user groups in different ways simultaneously, and service productivity innovation.[41] Recent studies published by the European Commission (2008) demonstrate the importance of innovative business models for sustainable product-service concepts.[42]

Approaches to conceptualise and ultimately measure innovation activities in services face many problems. While concepts to identify and measure innovation in manufacturing have been elaborated in detail for some decades, it is still controversially discussed what innovation in services is about and how to interpret and include service peculiarities. The **Oslo Manual**[43] is the most used international source of guidelines for a standardised collection and use of data on innovation activities. The third edition from 2005 has been updated to take account of the progress made in understanding the innovation process and the experience gained from the previous round of innovation surveys as well as from the extension of the field of investigation to new sectors of industry and services.

According to the Oslo Manual, innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external

[41] Adriana van Cruysen and Hugo Hollanders (2008)
[42] EU Commission (2008a)
[43] OECD/Eurostat (2005)

relations".[44] Whereas the first Oslo Manual (1992) focused on technological product and process innovation in manufacturing, the second edition (1997) expanded coverage to include also service sectors. However, there is a growing consensus that much of **innovation in service sectors is not adequately captured** by the technological product and process innovation concept. In response, it was decided to include marketing and organisational innovation as new types of innovation in the third edition published in 2005. Although these concepts were not new, they had first to be tested in many OECD countries before including them into the Oslo Manual.

Besides product and process innovations, the Oslo Manual also highlights organisational change, non-R&D innovation as well as delivery and design as main determinants of dynamics in service industries. However, it looks at organisational and other institutional change only under the aspect of technological product and process (TPP) innovation as the **measurement of intangibles still appears to be very difficult** at this stage. The manual highlights, for example, that organisational change can only be included if supported by a technological process innovation. It is argued that the introduction of just-in-time systems, which is also an organisational innovation in manufacturing, should be treated rather as process innovation since it has a direct effect on the production of products for the market. However, it is not always easy to draw the borderlines between the different types of innovation nor to define them properly.

Business expenditure on R&D tends to be much lower in services than in manufacturing. In manufacturing, expenditure on R&D typically amounts 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 service 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[45]. Therefore, it would be wrong to associate technological innovation mainly with manufacturing firms, as many service firms invest in technological R&D and some even more than most firms in manufacturing industries.

[44] 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. 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.

[45] RENESER (2006)

Collaboration with public science institutions – such as universities and public research institutes – is still less widely used as input for innovation in services (see Figure 17). For instance, a higher percentage of innovative manufacturing firms (13.8%) than innovative service firms (11.2%) collaborate with universities. Only KIBS (20.1%) collaborate more with universities than innovative manufacturing firms.

These different patterns between manufacturing and service firms are less evident though when considering the percentage of innovative firms that rate public science as the most important collaboration partner and as a highly important information source. Despite the lower collaborating share, service enterprises report, for instance, slightly more often than manufacturing firms that a university was the most valuable collaboration partner for them (2.9% versus 2.7%) and that universities are an information source of high importance (5.8% versus 4.6%). However, this pattern is reversed for public research institutes (GOV), which are more valued by manufacturing firms – again with the difference that KIBS firms stand out with a higher share for both.

Figure 17: Use of public science by innovative enterprises

	Collaboration				*Information source of high importance*	
	UNIV	**GOV**	**University most important collaboration partner**	**Government most important collaboration partner**	**UNIV**	**GOV**
Manufacturing[46]	13.8	9.4	2.7	1.7	4.6	4.2
Services[47]	11.2	7.8	2.9	1.2	5.8	3.5
KIBS[48]	20.1	12.6	4.8	2.9	10.1	7.5
Services, excl. KIBS	9.4	7.0	2.7	1.2	4.8	2.5

Note: Coverage EU-27, data not available for 8 countries

Source: Eurostat, Community Innovation Survey data (CIS2006), available at http://epp.eurostat.ec.europa.eu/

With the **exception of KIBS**, service enterprises are 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 enterprises 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

[46] Manufacturing includes the following NACE class: Manufacturing (D)

[47] 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)

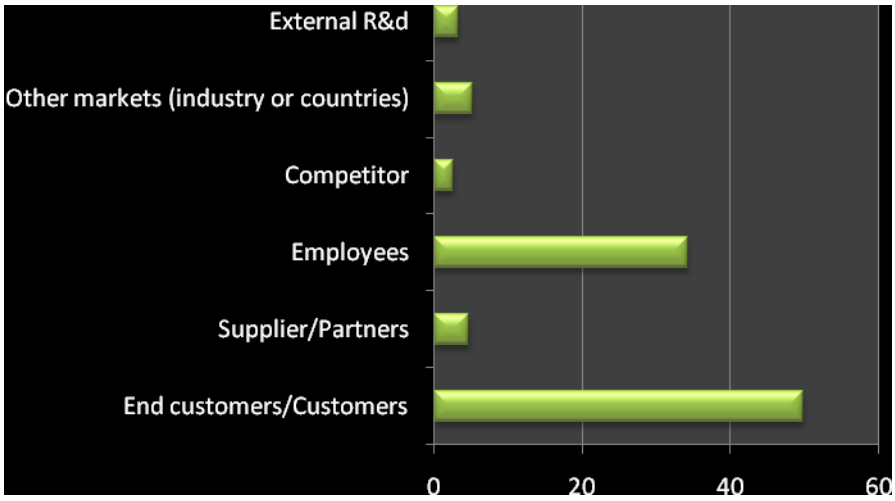
[48] KIBS include the following NACE classes: Computer and related activities (K72), Research and development (K73), Architectural and engineering activities and consultancy (K74.2) and Technical testing and analysis (K74.3). K73 (Research and development) was included on a voluntary basis in CIS-4,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

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 enterprises. However, this may change in the future, as more service-specific research programmes are launched.

Therefore, although services are becoming more R&D intensive, **service firms are generally still less collaborating with the science and knowledge base**. One possibility is a mismatch between the type of knowledge that is needed by service enterprises 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 enterprises. 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.

As shown above, the percentage of service enterprises developing internal R&D activities is, on average, still much lower than in manufacturing or KIBS firms. Following the findings from a recent Swedish survey the **most important sources for new ideas in service enterprises are employees and customers**. Almost 50% of the new ideas stem from interactions with users, whereas external research only accounts for about 3% (see Figure 18)[49]. This shows that new demands of small target groups, new trends or stronger shifts in markets need to be fully understood by service enterprises in order to develop services innovation. This study suggests that although research is increasingly important for services, it is not the dominant factor of innovation in services. This means that measuring innovation mainly through indicators based on R&D rather than on other forms of knowledge input may lead to a bias towards manufacturing innovation and an underestimation of services innovation as **Innovation in services is more driven by users and tacit knowledge than by research**.

Figure 18: Enterprises most important sources of new ideas



[49] ALMEGA: "Innovation in service companies, a survey of 778 Swedish service companies on innovation and research", 2008

Note: Question asking 'What is the most important base for new ideas? (Percentage of enterprises)
Source: ALMEGA (2008): "Innovation in service enterprises, a survey of 778 Swedish service enterprises on innovation and research".

This raises the question of how to better define and measure **user-driven innovation,** which seems to be more pertinent for measuring services innovation than innovation in manufacturing. As shown by the Swedish study, new services are often the result of client-supplier interfaces. This concept is not strictly limited to services innovation as it increasingly applies also to manufacturing. However, services innovation is predominantly described by user-interaction and the challenge is to better address this phenomenon. New indicators to better capture these client-supplier interfaces could, for example, examine the intensity of common research, the number of joint innovation projects, or the use of different supporting tools and instruments – like idea generation games, open innovation platforms, lead user workshops, etc.

A main weakness of the measurement of services innovation is that it is measured in sectors, whereas the **borderlines between services and manufacturing are increasingly blurring**. It would therefore be more precise to measure service activities both in the services and manufacturing sectors, as there is an increased service orientation of manufacturing firms which implies that substantial services R&D is performed in 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 recognise these activities as R&D, as they do not have R&D or innovation departments. Furthermore, the sectoral approach followed by innovation surveys also neglects the differences between the various types of innovations within service industries. Not only are services different from manufacturing, but even larger differences exist between different sub-sectors of services, as shown above.

The **Community Innovation Survey (CIS)** is the most comprehensive European-wide approach to measure innovation based on surveys. The CIS uses the Oslo Manual as a basis for its surveys, and it has been improved over time to better feature services innovation. As discussed above, further improvements may be necessary to better address the user-driven nature of services innovation, employee-driven innovation and different measurements to capture informal protection of IP. However, before proposing new indicators to be included into the Oslo Manual and followed up by wide-ranging surveys such as the Community Innovation Survey (CIS), these new indicators would have to first be tested under real conditions in order to demonstrate their robustness. Furthermore, a fair balance needs to be achieved between the objective of gaining a better measurement and insight into services innovation and the costs of collecting such surveys, in particular to keep the response rate of firms at a reasonable level.

1.7. Measurement of services innovation: Main results from the Community Innovation Survey

The Oslo Manual recognises four ways that firms can innovate: through product, process innovation, organisational and marketing innovation. The Community Innovation Survey identifies such different innovation types through surveys addressed to enterprises. Based on the most recently available data from the **Community Innovation Survey (CIS2006)** covering the period 2004-2006, the following trends can be observed:

As could be expected, a lower percentage of all service sector enterprises (33.1%) as opposed to manufacturing firms (42.1%) are **"technical innovators"** (see Figure 19). The difference is similar for product innovation (22.2% versus 30.2%) and process innovation (23.8% versus 31.3%). The exception are KIBS enterprises, which are more likely than manufacturing firms to introduce either a product or process innovation (46.8%). This pattern applies to both product innovation (37.2% versus 30.2%) and process innovation (33.0% versus 31.3%).

Figure 19: Percentage of EU enterprises that introduced a product or process innovation

	Product and/or Process innovation	**Product innovation**	**Process innovation**
		All enterprises	
Manufacturing	42.1	30.22	31.3
Services	33.1	22.2	23.8
KIBS	46.8	37.2	33.0
Services, excl. KIBS	29.9	19.7	22.6
		All product and process innovators	
Manufacturing		69.9	71.2
Services		63.6	71.7
KIBS		78.0	71.4
Services, excl. KIBS		60.7	74.2

Note: Coverage EU-27, data not available for 3 countries
Source: Eurostat, Community Innovation Survey data (CIS2006), available at http://epp.eurostat.ec.europa.eu/

Figure 20 illustrates the share of all enterprises that introduced two types of **non-technological innovations**: organisational and marketing innovations. It shows that there are no substantial differences in the percentage of all industrial and service sector enterprises that introduced either an organisational or marketing innovation (44.2% versus 42.7%). However, KIBS enterprises were far more likely to introduce either type of innovation (53.9%).

Figure 20: Percentage of enterprises that introduced organisational and/or marketing innovation

	Innovative enterprises	All enterprises
Manufacturing	71.9	44.2
Services	75.4	42.7
KIBS	79.4	53.9
Services, excl. KIBS	74.6	40.8

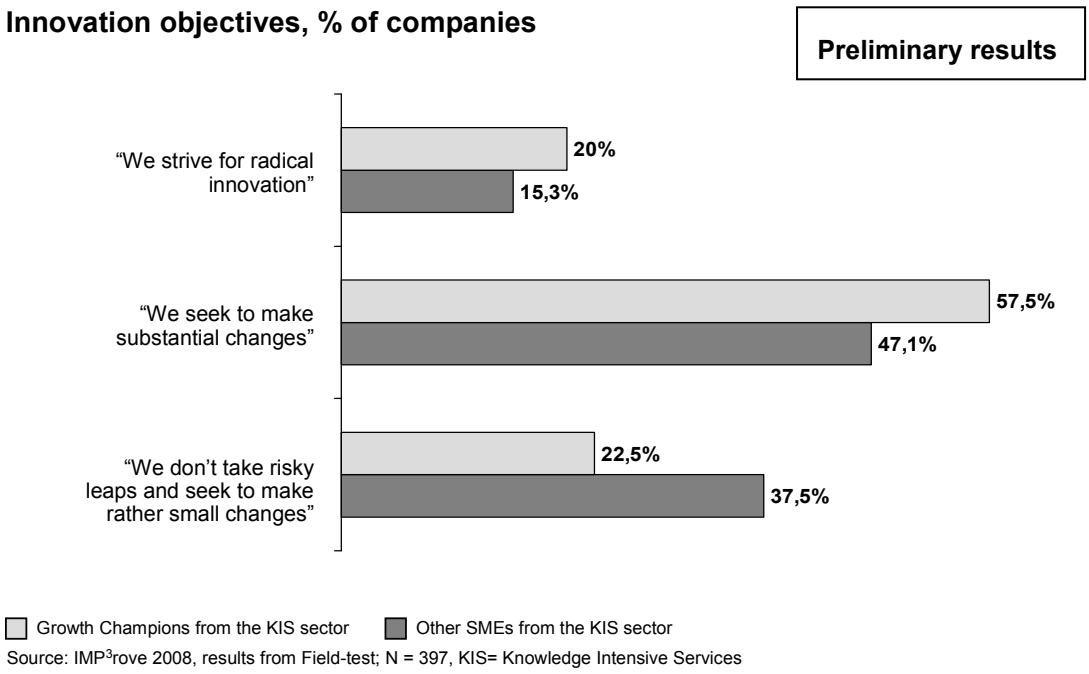
Note: Coverage EU-27, data not available for 7 countries
Source: Eurostat, Community Innovation Survey data (CIS2006), available at http://epp.eurostat.ec.europa.eu/

The conclusion from this statistical analysis is that **service enterprises, generally, do not innovate less than manufacturing enterprises,** but great differences exist between knowledge-intensive 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. However, KIBS enterprises show similar innovation patterns to those of manufacturing enterprises. This is supported by the fact that the R&D intensity of this type of services is even above the average of manufacturing enterprises.

However, the **type of innovation** addressed and the innovation pattern among knowledge-intensive business services has an impact on the overall enterprise performance and growth value added. Although innovation in services is usually perceived as being more "incremental", the most successful service enterprises differ with regards to their innovation objectives and "risk profile". When analysing innovation objectives and the intended type of innovations of KIS enterprises, there is a significant difference between the growth champions (i.e. KIS enterprises that have the highest growth rate in income, profit margin and employment) and "other" KIS enterprises. For instance, the IMP³rove database provides figures for "radical innovations", "substantial changes" and "rather small changes".

The results summarised in Figure 21 show that 20% of growth champions indicate they strive for radical innovations compared to 15% of other KIS enterprises. However, only 22.5% of growth champions "seek to make rather small changes" compared to 37.5% of the average KIS enterprise. Accordingly, 57.5% of growth champions seek to make substantial changes while 47% of average KIS enterprises focus on this type of innovation.

Figure 21: The innovation posture and risk profile of "Growth Champions" and "other KIS enterprises"



Source: IMP³rove 2008, results from Field-test; N = 397, KIS= Knowledge Intensive Services

These results indicate that a **more "entrepreneurial" and radical approach in innovation management drives the long-term success**, not only in manufacturing but also in the KIS sector. On average, KIS could improve their performance in implementing their innovation objectives and generating income from "radical" and "incremental" innovation. However, growth champions seem to successfully leverage their "entrepreneurial" capabilities and generate a higher income from "radical" innovations. On average, growth champions generate 4% of their income from radical innovations in comparison to only 2% among the other KIS SMEs.

1.8. The Service Sector Innovation Index (SSII)

Measuring innovation performance in services at national level is a challenging task. It is however important to identify national strengths and weaknesses in this area in order to base the design and further implementation of future-oriented industrial policies and the necessary restructuring of the economies as much as possible on robust facts and figures. The **Service Sector Innovation Index (SSII)** is a first attempt to define an aggregate index of the innovation performance in the service sector. Using a selection of 12 indicators of the 29 innovation indicators used in the 2008 European Innovation Scoreboard (EIS) a separate composite indicator measuring innovation performance for services and industry was constructed and tested.

Figure 22: The Service Sector Innovation Index (SSII) 2008

Indicators for services and industry:

- EIS 2.1.1 Business R&D expenditures (% of GDP)
- EIS 2.1.3 Non-R&D innovation expenditures (% of turnover)

- EIS 2.2.1 SMEs innovating in-house (% of SMEs)
- EIS 2.2.2 Innovative SMEs collaborating with others (% of SMEs)
- EIS 2.2.3 Firm renewal (SME entries plus exits) (% of SMEs)
- EIS 3.1.1 SMEs introducing product or process innovations (% of SMEs)
- EIS 3.1.2 SMES introducing marketing or organisational innovation (% of SMEs)
- EIS 3.1.3 Resource efficiency innovators, unweighted average of: Share of innovators where innovation has significantly reduced labour costs (% of firms) and Share of innovators where innovation has significantly reduced the use of materials and energy (% of firms)
- EIS 3.2.5 New-to-market sales (% of turnover)
- EIS 3.2.6 New-to-firm sales (% of turnover)

Indicators for services only:

- EIS 3.2.2 Employment in knowledge-intensive services (% of workforce)
- EIS 3.2.4 Knowledge-intensive services exports (% of total services exports)

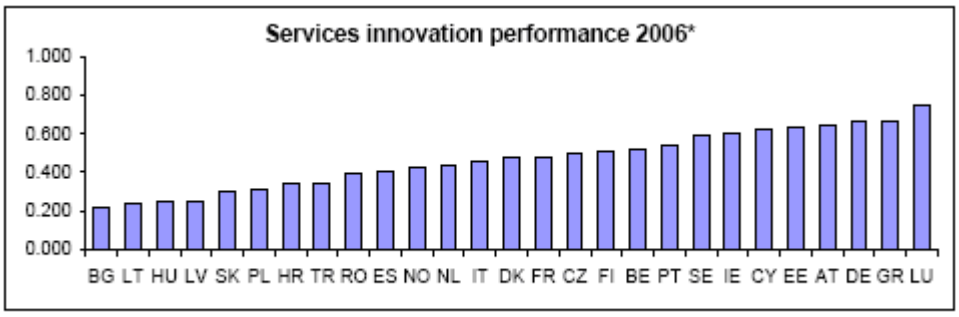
Indicators for industry only:

- EIS 3.2.1 Employment in medium-high and high-tech manufacturing (% of workforce)
- EIS 3.2.3 Medium and high-tech manufacturing exports (% of total exports)

Source: Hollanders, H. and Kanerva. M. (2009)

Not included in the **EIS indicators** were "enablers" measuring framework conditions as they are not specific to individual industries. The EIS indicators measuring "throughputs", such as patents, trademarks and Community designs, were also not considered as it would be difficult to break them down into services and manufacturing. In addition, the interpretation of "throughputs" is quite different between services and manufacturing. Unfortunately, the results are not always directly comparable between countries, and the fact that 8 out of 12 indicators use CIS data might seriously hamper the comparability of values of the composite indexes between countries.

Figure 23: Services innovation performance 2006*



* Performance levels for France (FR), Italy (IT) and Sweden (SE) for 2004.

Source: Hollanders, H. and Kanerva, M. (2009)

As illustrated by Figure 23, the **best overall innovation performer in services is Luxembourg,** followed by Greece and Germany. Some of Europe's better performers in the European Innovation Scoreboard, such as the Netherlands, do not achieve comparable results in the SSII. On the other side, some new Member States that present lower levels as regards

the overall EIS perform relatively well in terms of service sector innovation. Greece is also performing quite well, but it should be noted that despite improvements in the CIS survey, CIS data are not yet fully able to capture innovation performance in services. There seems to be a national bias in firms responding to the survey, limiting the international comparability of CIS data. The results shown here should therefore be interpreted with care.

A comparison between the **relative importance of innovation performance in service and manufacturing sectors** (Figure 24) shows particular differences between European countries. In this respect, for some particular services-driven economies, such as Luxembourg and Greece, innovation performance in service firms ranks higher than that of the manufacturing industry. In other countries, like Austria and the Netherlands, innovation performance in services and manufacturing is about the same. In a number of countries, including most notably Slovakia, Belgium and Finland, innovation performance in manufacturing is remarkable higher than in services.

Figure 24: Innovation performance in service and manufacturing sectors at national level

Country	**Services SSII**	Rank Services SSII	**Manufacturing SSII**	Rank Manu-facturing SSII
Luxembourg	0.75	1	0.45	12
Greece	0.67	2	0.47	11
Germany	0.66	3	0.84	1
Austria	0.64	4	0.63	2
Estonia	0.63	5	0.51	9
Cyprus	0.62	6	0.57	5
Ireland	0.60	7	0.57	5
Portugal	0.54	8	0.49	10
Belgium	0.52	9	0.60	4
Finland	0.51	10	0.61	3
Czech Republic	0.50	11	0.55	7
Denmark	0.47	12	0.53	8
Netherlands	0.44	13	0.44	14
Spain	0.41	14	0.37	16
Romania	0.39	15	0.44	14
Poland	0.31	16	0.35	18
Slovakia	0.30	17	0.45	12
Hungary	0.25	18	0.37	16
Latvia	0.25	18	0.09	21
Lithuania	0.24	20	0.35	18
Bulgaria	0.21	21	0.30	20

(*) Note: the calculation of the Services SSII and the manufacturing SSII are very different, therefore a direct comparison cannot be made. Bulgarian service enterprises do

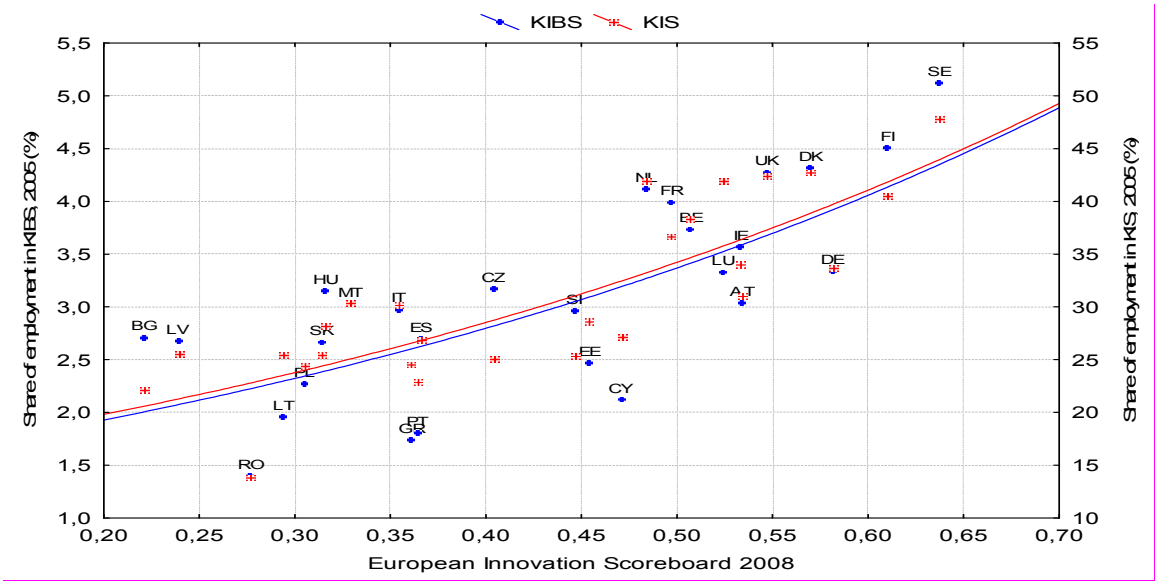
not report any value for non-technological-related indicators. Data is not available for the following Member States: France, Italy, Malta, Slovenia, Sweden and the UK

Source: Based on European Innovation Scoreboard (2008) and Hollanders, H. and Kanerva, M. (2009)

However, the **results from the SSII are not always easy to interpret**. A high score on the SSII does not necessarily mean that a country has a particularly high, overall level of innovation performance in the service sector, as some indicators may only indicate which advances have been achieved rather than measuring the level of innovation performance. Thus, national comparisons regarding innovation performance should be treated with great caution.

In general, services innovation correlates quite well with overall innovation performance**,** as measured in the EIS 2008. The different levels of innovation performance in Europe can be very well explained by the **different roles that knowledge intensive services are playing in the economies**. As follows from Figure 25, the relationship between the share of employment in KIBS and KIS is significantly and positively correlated with the innovation performance ratios attained by the various Member States. Northern European countries such as Sweden, Finland and Denmark represent important levels both in innovation attainment and in rates of knowledge-intensive activities in their respective economies. However, the countries performing more poorly in terms of innovation performance are mostly Member States that are also characterised by a weak position of KIS in their economies. The relatively weak role of KIS within the German and Austrian economies could be an indication that advanced services are still provided more "in-house" rather than through specialised service providers in these economies.

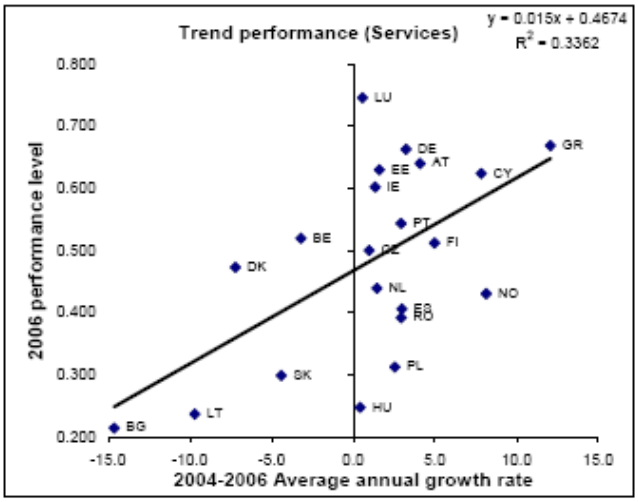
Figure 25: Correlation between the 2008 EIS rate and the employment in KIBS and KIS as share of total national employment



Note: Correlation factor EIS_KIBS: r = 0.7235; p < 0.001. Correlation factor EIS_KIS: r = 0.8271; p < 0.001.
Source: Based on European Innovation Scoreboard 2008 (2006 data) and labour-market statistics (2005 data), Eurostat

Another interesting result from this analysis is that differences in services innovation performance may, in future, result in a **deepening of the innovation gap in Europe**. In recent years, the trend analysis of the EIS 2008 report provided strong evidence of a convergence process in Europe, with countries with weaker innovation performance showing higher rates of improvement. However, for services innovation a reverse trend can be observed in the SSII, with the best performing countries improving at a faster rate than the lower performing countries (see Figure 26).

Figure 26: Trend performance (Services)



Source: Hollanders, H. and Kanerva, M. (2009)

This result is in clear contrast to the EIS 2008 that shows a convergence in overall innovation performance. Further analysis is needed to better understand whether this is a statistical artefact or a matter of serious political concern. In any case, it provides further evidence of the relevance of good performance in services innovation for growth in overall innovation performance. However, due to data limitations this conclusion should be considered with caution.

THE POLICY RATIONALE FOR BETTER SUPPORT TO INNOVATION IN SERVICES: AN ANALYSIS OF EXISTING BARRIERS

Innovation in services is, like almost all forms of innovation, market driven and the main responsibility for it lies with enterprises. In this sense, it is misleading when it is often said that all forms of innovation should be supported. What is meant by this is that innovation support should not discriminate between different types of innovation. This is based on the assumption that there is still a bias towards supporting technological innovation. However, whenever innovation support is provided it should be based on a clear policy rationale.

This chapter analyses which specific market and systemic failures exist that could justify public intervention in support of innovation in services. This analysis is supported, as much as possible, by empirical evidence that shows which specific barriers exist that may hamper a wider take-up of services innovation by enterprises. Based on this analysis, the potential role of European policies and measures in support of innovation in services will be further discussed, taking into account the results from the public consultation of the effectiveness of innovation support in Europe. From this analysis it becomes evident that only a mix of different policy measures has the potential to successfully address market and systemic failures hampering services innovation.

1.9. The concept of market and systemic failure: the case of services innovation

The market and systemic failure approach focuses on how to allocate resources for knowledge production and innovative activities in an optimal manner. The concept of market failure is associated with risk and uncertainties, whereas the systemic failure approach focuses on the efficiency of the innovation system as a whole. The latter recognises that actors have different motivations when engaged in knowledge creation and diffusion. This approach is broader in nature, even though, the relationship between the two is not always clear, and not always mutually exclusive. In some ways they may overlap. The **main goal of both approaches is to lay down a sound methodology for actions facilitating innovation activities,** by removing barriers for those actors that are considered to be constrained. In terms of policy intervention, the market failure approach leads to more specific types of intervention, while the systemic failure approach rather calls for horizontal measures having a broader impact.

Different types of market failures may hamper innovation activities in the service sector[50]. "**Market power failure"** refers to a lack of adequate competition in markets and to goods and services pricing as a result of the dominant influence of few market players. Thus, marginal costs of production are not affected by competitive pressure, which may result in the refusal, or slowdown in the adoption of innovative business concepts. This may be the result of high sunk costs, natural monopoly, low transparency or high switching costs that mainly refer to industry market structure. Firms with market power may use their market position to hamper competition, restricting production, manipulating offers (which may lead to shortages) and setting higher prices. Since competition forces firms to constantly enhance and innovate, offering better quality and lower prices, the lack of competition may lead to inertia in terms of innovation activity and, therefore, to a diminution of potential business investments.

[50] Cruysen, A. van and Hollanders, H. (2008)

Firms in the service sector that provide more **standardised services** with limited differentiation and a less important role of pricing can gain some economies of scales. This may lead to a situation with a reduced number of large international firms, who together have a significant market share (between 20 to 50% of the market). The concentration of these sectors in the hands of a few large firms may lead to collusive behaviour or oligopolistic strategies. However, firms that offer more standardised services have a certain degree of transparency, making it easier for authorities to detect collusive behaviour.

Markets for **client-specific services**, however, tend to be more fragmented. Firms in the service sector that provide client-specific business services are usually characterised by smaller firms with smaller combined market shares when compared to those providing standardised services. In this case, markets are not as transparent in terms of tariff structure or real quality of the services provided but more segmented, and prices may not play a significant role in competition. Moreover, demand for client-specific business is not perfectly price-elastic, possibly leading to market failure. Firms in fragmented markets tend to compete in terms of specific knowledge-based inputs, which may result in localised monopolies. In addition, the localised nature of much service activity can imply that markets in service sectors are more geographically fragmented than in manufacturing sectors.

The **lack of competition can discourage innovation**. As many services operate in quite segmented markets with a high monopolistic power, this type of market failure may affect services innovation in a highly significant manner. Thus, public intervention may be required to remove market barriers through control of entry barriers, merger regulation, competitive tendering, and monopolistic or strategic oligopolistic behaviours. However, under specific circumstances market power could also facilitate certain types of innovation, for example by creating the necessary critical mass and scale advantage for large R&D projects. In such cases the lack of competition would even facilitate innovations, especially if the monopolistic power is based on strong and positive reputation. There are also cases where too much competition has a negative impact on innovation in service activities; however, this is rather the exception, since evidence suggests that most service activities benefit from free and open competition.

Competition has proven to be highly positive for innovation and has triggered competitive gains, as can be observed in liberalised service markets or in international markets for KIBS. Access to larger markets generally offers **"economies of scale"** and thus helps service firms to recuperate investments in innovation activities in a shorter period of time. In most cases, the opening of markets would create more competition, thereby forcing firms to compete in terms of better quality and novel offerings and, consequently, they would have more incentives to innovate. Such a pro-competitive approach may be fostered by specific support measures helping services firms to internationalise their activities and, specifically, to facilitate access to high growth markets.

The **lack of a European common market for services** and the existence of national markets restricting market access within the EU still constitute a major barrier for services innovation in Europe. The reduction, if not elimination of such barriers would create incentives for firms to invest more in innovation. When resources cannot move freely across borders, innovation activities are mainly occurring within national borders, not fully exploiting the potential to tap knowledge and skills developed elsewhere. Access to larger markets implies that EU firms

would be able to make better use of economies of scale, and recuperate investments in innovation activities over a shorter period of time.

Moreover, **slow productivity development** seems to be a serious obstacle for the service sector in general. Because services represent a large share of the economy, productivity problems in the sector can affect the whole economy and hamper economic growth. Business services generally perform badly in terms of their own productivity growth rates, but can contribute to raising the productivity of their clients. However, it is important to distinguish between manufacturing-based and service-based approaches to productivity and competitiveness analysis. As indicated earlier, service delivery requires, to a greater or lesser extent, an amount of "co-production" on the part of the client. Some service activities (e.g. standardised cleaning services) are mainly judged by their "efficiency", whilst others (e.g. professional services) are largely judged by their "effectiveness", namely the achievement of a desired outcome, with less regard for the amount of resources needed to reach the result[51]. Low productivity in the service sectors is passed down as an intermediary input to other sectors through high prices. Negative externalities in the form of lack of competition and poor incentives to innovate also "travel downstream", thus reducing competitiveness and innovation in other sectors. However, growth in business services has proved to create positive externalities outside this sector. For example, business services contribute directly to technological innovation, for example in software and engineering, as well as to non-technological innovation in client industries.

"Externalities" occur when enterprises are involved in transactions where they cannot achieve the expected profits from their innovation actions. Whenever societal returns to innovations exceed the private returns, firms may innovate too little, because **innovations may 'leak' to competitors** due to imitation or employees switching jobs. This may happen much more often and more easily in service industries than in manufacturing firms, since services innovations tend to be less well protected by IPR instruments. Approximately twice as many manufacturing as service firms apply for a patent and more manufacturing than service firms apply for a trademark. The share of service and manufacturing firms that have registered an industrial design is similar (16% versus 19%). Service firms are slightly more likely than manufacturing firms to claim copyright (6% versus 5%). However, this is almost entirely due to KIBS, where 13% of firms claim copyright. This is probably linked to the use of copyright by computer software firms[52].

In response to the risk of externalities, service firms seek to protect, more often than manufacturing firms, knowledge through industrial secrecy and other informal ways of protecting intellectual property rights. Due to their intangible nature, the results of services innovation are generally less visible than those arising from product innovation[53], and they may therefore be more difficult to defend.[54] Although service firms may face even greater appropriability problems than manufacturing firms, they may find it more difficult to effectively protect their intellectual property.

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[51] An extensive discussion of productivity issues relating to services can be found in Ecorys (2008)
[52] Cruysen, A. van and Hollanders, H. (2008): 58

[53] Gallego, J. and Rubalcaba, L. (2008)

[54] Green, L., Howells, J. and Miles, I. (2001)

"Information asymmetry" occurs when economic agents interacting within a particular market are not sufficiently informed or when information is not equally distributed among participants. This may hamper the demand for new services requiring public action to enhance market transparency and information. There is no reason to suppose that competitive knowledge-markets would always appropriately price such risks and allocate resources for knowledge production efficiently.[55] Therefore, information asymmetry may have a negative impact on innovation activity, as less-informed parties tend to avoid risk by reducing exposure.[56]

Uncertainty is a key characteristic of many innovations, as expectations and information are often distributed in a very asymmetric way.[57] For example, the intangible nature of services makes it difficult for consumers to evaluate the quality before purchase and consumption. Furthermore, service firms may generally be less informed than manufacturing firms, taking into account that a much larger share of them are SMEs.[58] However, in this respect great differences exist between standardised and more client-related services.

Many **services are "credence goods"**, meaning that it is often not possible to evaluate the quality of the services before they have been purchased and consumed. There are higher risks involved when acquiring credence goods. One way to reduce these risks is to buy from reputable firms. However, building up reputation takes time and involves brand recognition and brand awareness. Once consumers can make the link between credence goods and a brand name, they tend to repeat sales and reject alternative providers. In this case, the use of trademarks in the service sector functions as a differentiating factor. Moreover**, culture and language** are also important factors affecting mobility and efficient allocation of resources in the sector.

A specific form of information asymmetry applies to **finance and intangible assets**. The lack of tangible assets is often offered as an explanation for the lack of bank lending and venture capital investment to services innovation. Moreover, new service concepts are often difficult to assess with respect to their market potential, resulting either in over-investments ("Internet bubble") or in too cautious investment strategies. This has important policy implications, for example, when trying to promote new service concepts based on advanced technologies. For this purpose, more specific actions to support awareness raising and market intelligence about the commercial and investment potential of services innovations among the investment community may be required to support a more balanced evaluation by experts, fund managers and investors of the market potential of an innovation. At the same time, more focus should be given to building the capacity of entrepreneurs to exploit this potential to attract investment ("investment readiness") and to ensure that effective investment decisions are made.

Beyond these arguments, the current world-wide economic crisis aggravates the problems resulting from information asymmetry in the financial markets, as the overall **availability of**

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[55] Kane, A. (2001)

[56] This argument is also useful to partly understand the lesser tradability of services versus goods. Information asymmetry prevents many services to export but encourages the use of foreign direct investment as an internationalisation source. FDI in services is a way to be closer to the client and to reduce those information asymmetries hampering business and diffusion of innovative efforts.

[57] As considered by Dosi (1988) and Stiglitz, J.E. (1991) among others.

[58] Van Cruysen, A. and Hollanders, H. (2008)

risk capital is reduced whilst investors are becoming more risk-averse and likely to focus on more traditional areas of innovation. Thus, it may be seen that specific measures are required to stimulate investment in service innovators, including the opportunity to identify new funds dedicated to their investment and growth needs, potentially drawing on the capacity of the European Investment Fund (EIF) to put in place a specific KIS fund.

Box: Impact of the current economic downturn on KIS ICT ventures – A case study by the ACHIEVE MORE project[59]

The ACHIEVE MORE Partnership believes that KIS enterprises are particularly vulnerable in this economic downturn because of the collaborative nature of a knowledge-intensive service based business and especially because of the direct dependence of such enterprises on networks within their value chains.

Many mainstream enterprises are failing on a daily basis across Europe. The failure of large enterprises in any sector is having a trickle-down effect on everyone around them, especially on service enterprises. This is because the first thing every company does during an economic downturn is cut costs, and the first costs that get cut are usually services. This typically starts with marketing, design, recruitment and professional services (i.e. lawyers and accountants), but very soon ICT services also become affected.

The ACHIEVE MORE Partnership feels that under the current economic conditions the little funding that was available for non-technological innovations is now quickly drying up. There is a clear and urgent need for novel support mechanisms dedicated to KIS ventures, which are able to recognise and evaluate the full range of potential of non-technological innovations and which can take into account the interests of public and private investors in the current economic climate.

Not only markets can fail to deliver optimal results but so can the lack of a favourable business environment for innovation which is referred to as **"systemic failures"**. Beyond simply addressing market failures that lead to underinvestment in R&D and innovation, this concept aims at ensuring that the innovation system as a whole works effectively, for example by removing blockages that hinder the effective networking of its components. This raises the question whether the existing innovation systems in Europe are well adapted to the specific needs of services innovation. Systemic failures refer to structural, institutional and regulatory deficiencies which lead to sub-optimal investment in knowledge creation and other innovative activity. Actors not only perform at individual levels but they interact and exchange knowledge. Consequently, firms establish links with other firms, universities, and government. If these interactions are poor, they will have a negative impact on the pace of innovation activity. There is evidence that innovation performance is best, if a country follows a systemic or "triple Helix" approach, which suggests that a strong knowledge base must be supported by strong entrepreneurship and finance as well as by favourable framework conditions. However, it is still a wide open question under which conditions different types of innovation flourish best. This makes it extremely difficult to identify systemic failures for services innovation.

The most obvious systemic failure for services innovation in the EU is the **lack of a European common market for services.** The opening of markets is necessary to create more competition, giving firms the possibility to compete in terms of better quality and novel offerings and, consequently, giving them more incentives to innovate. The full

[59] The ACHIEVE MORE Partnership is a collaboration of early stage investors, business and technology incubators and ICT clusters funded under the Europe INNOVA initiative. The case study is available at http://www.europe-innova.org/index.jsp#

implementation of the Services Directive by end 2009, which will remove a wide range of legal and administrative barriers to services trade, is expected to have a positive impact in terms of innovation, growth and creation of new jobs.

"**Capability failure"** may be considered as another important systemic problem, referring to the inability of firms to adapt freely to structural changes, new technologies or new organisational concepts. The lack of innovation management capability, for example, is among the most cited obstacles for innovation in Europe. According to the IMP³rove database, less than 30% of the KIS enterprises set objectives for their innovation management[60]. Within average KIS enterprises, less than 25% focus on the development of their innovation capabilities. According to these sources, KIS enterprises are also more reluctant to generate and record new ideas in a structured and formalised way. Only 55% of the KIS enterprises compared to 75% of enterprises in the biotech/chemical/optical sector or to 61% in the food/beverage sector confirmed a systematic approach in managing the innovation funnel systematically.

Due to a lack of capabilities in managing the idea generation and selection, KIS enterprises usually draw upon a rather unstructured approach. Manufacturing firms can rely on a number of tools and methods for idea generation, selection and concept development as engineering builds upon systematic and structured approaches. For idea generation, service firms do not apply, in the same manner, tools and methods systematically. For the development and engineering of new service concepts, hardly any methods and tools are available as services innovation is still a relatively young discipline. As a result, even the high performing KIS firms achieve below average revenues from sales of incremental and radical innovations when compared across all industry sectors. KIS growth champions achieve only 4% compared to 7% on average from radical innovations and 10% compared to 11% from incremental innovations. All this may imply that the managerial skills of service firms still offer wide scope for improvement.

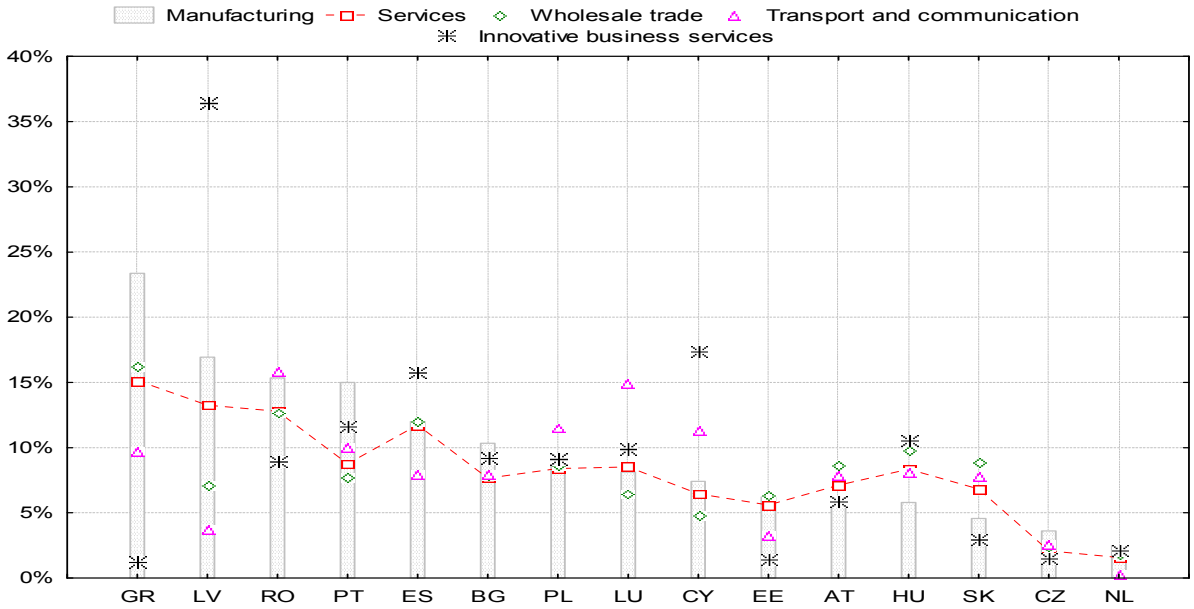
"Network failures" relate to the interactions between different actors in the innovation system, suggesting that the flow of information and the cooperation between them is sub-optimal. A well-functioning innovation system relies on strongly positive and reciprocal external economies, which tie together users, suppliers, competitors and related firms. Market interactions persist over time and involve inter-firm cooperation in the development and design of new products and services. Formal and informal **networks are important routes for the transfer of knowledge** and the resulting interactions from a particular innovation system, including firms, research centres, public institutions and specialised knowledge-based organisations, are a key aspect for the successful performance of the innovation process. Technological accumulation and non-technological advances are increasingly more experience-based, since communication as well as knowledge transfer take place primarily via inter-personal relationships.[61] This is particularly relevant for services innovation, where tacit knowledge and intangible developments are even more relevant than in the industry sector.

Thus, network failures may also apply to service sectors, particularly to knowledge-based activities such as computer and research and development services. As shown by Figure 27 below, **great national differences** seem to exist in this respect. Service firms from Spain,

[60] MP³rove, March, 2008, results from Field-test; N = 397; KIS= Knowledge Intensive Services
[61] Carlsson, B. and Jacobsson, S. (1997)

Hungary, Slovakia and Austria put a higher emphasis on this issue as an important factor hampering innovation, in comparison to results reported for manufacturing firms. Whereas in Greece, Latvia, Romania and Spain more than 12% of both manufacturing and service firms report problems with finding cooperation partners for innovation, this share is less than 4% for firms located in the Netherlands and the Czech Republic. This could reflect, in the first case, either a lack of mutual trust or an overconfidence in own capabilities. At the other extreme, the Dutch and Czech innovation systems are probably more flexible and more open to cooperation between firms and other innovation actors.

Figure 27: National differences in the difficulties of finding cooperation partners hampering enterprise's innovation activities, (2004-2006)



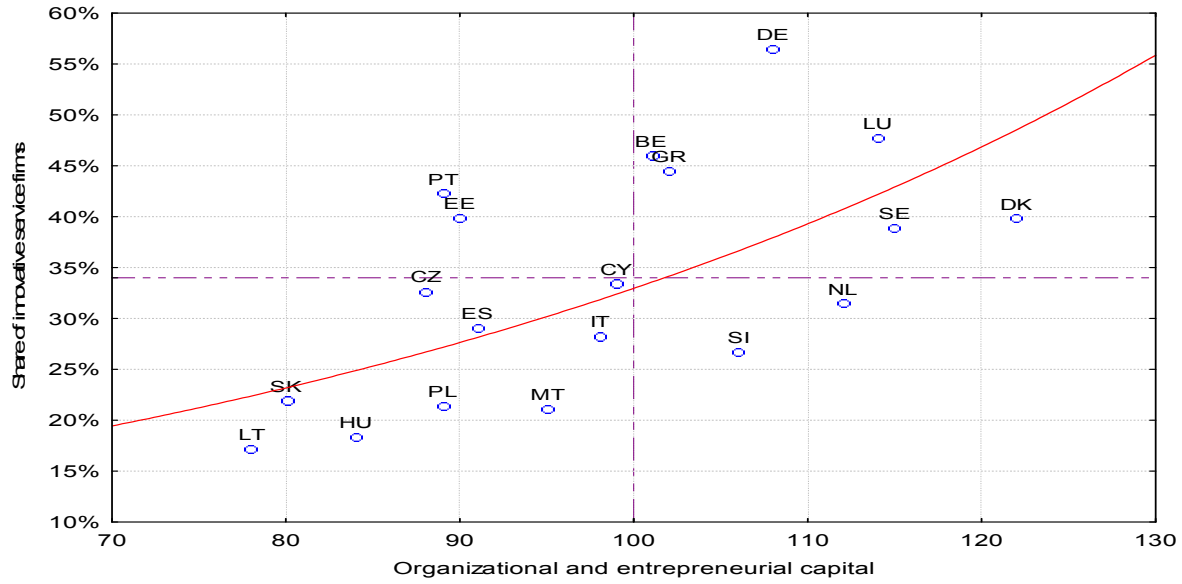
Note: The figure presents the share of innovative firms that report the difficulty in finding cooperation partners for innovation as a highly important factor of hampering innovation activities (2004-2006). Full available data on this indicator at activity-disaggregated level refer only to those fifteen countries included in the analysis. Services refer to NACE sections I and J and NACE divisions 51, 72, 74.2 and 74.3.
Source: Based on the Eurostat database, CIS-5.

"Institutional failures" relate to the fact that effective innovation also depends on favourable regulatory frameworks, health and safety rules, as well as on sophisticated consumer demand. Under this label, a number of potential barriers for innovation can be summarised, including the lack of fiscal incentives that would encourage entrepreneurship, environmental regulation or market regulation. Such institutional failures may be divided into hard failures and soft failures.[62] The "hard" institutional failures refer mostly to labour laws, the legal and regulatory framework, health and management rules and the legal contractual system. "Soft" institutional failures refer to social and cultural values, implicit business interaction patterns or political, cultural and institutional non-written conducts, which have evolved mostly spontaneously. However, more analysis would be needed to assess whether such factors are indeed hampering services innovation in Europe.

[62] Carlsson, B. and Jacobsson, S. (1997)

According to the results of a survey on **socio-cultural determinants of innovation** conducted among key stakeholders, societal, cultural and entrepreneurial factors are important determinants of the innovativeness of different sectors.[63] Almost 90% of the enterprises in the ICT sector, including important innovative service sectors such as telecommunications, IT services and software activities, consider these factors as significant elements for their innovation potential. It seems that such socio-cultural determinants to a large extent can explain differences in the innovation performance of service firms in different countries, as suggested by Figure 28. Although no strong conclusions can be drawn from this correlation analysis, it seems interesting to further look into this issue, which is related to the discussions on "eco-systems" in the context of clusters.

Figure 28: Correlation between the level of organisational and entrepreneurial capital and the share of innovative service firms at national level



Note: Correlation factor: r = 0.6009; p = 0.0065.
Source: Based on CIS-5 data and The Sectoral Innovation Watch, Bruno et al. (2008).[64]

These statistical findings are complemented by the so-called **"Euro-Creativity Index"** developed by Florida and Tinagli[65], which shows that there is a strong correlation between the innovation capacity of a region and its overall capacity to develop, attract, and retain innovative, talented people required by knowledge intensive industries, in particular. The Creativity Index measures a region's ability to harness the creative capacity within a region, as reflected by the proportion of the workforce comprised of "knowledge workers", the strength and growth of the high-tech industry, the level of innovation as measured by patents

[63] Bruno, N., Miedzinsky M., Reid, A. and Ruiz-Yaniz, M. (2008). They distinguish between four different types of values: cultural capital indicator, social capital indicator, human capital indicator, and organisational and entrepreneurial capital indicator.

[64] The cultural capital and consumer behaviour indicator has been measured according to the following variables: Interest in science and technology; Attitude towards science; Attitude towards risk from new technologies; Attitudes towards future; Attitudes towards environment; Attitudes towards other cultures and Customer responsiveness. See Bruno et al. (2008).

[65] Florida, R. and Tinagli, I (2004)

per capita, and demographic diversity of all kinds. The social environment is considered to be conducive to produce new ideas and to facilitate networking. To assess where the growing industries will locate in the future, it is therefore necessary to understand and better analyse the creative environment and the social milieu of geographical areas in Europe. This is also a useful complement to the cluster approach based on co-location, as followed by the European Cluster Observatory.

"Infrastructural failures" refer to problems to provide innovative firms with the necessary human resources and knowledge base.[66] In this respect, systemic failures apply most clearly to services that depend on the proximity to public knowledge institutions, like ICT. As services are generally becoming more research intense, this failure may play an even greater role in the future.

Infrastructure failures may also include the lack of broadband or ICT resources, railways, roads and air transport facilities. **High-quality ICT infrastructures**, for instance, are of great importance in the field of innovation, since for enterprises to succeed, they need a reliable infrastructure to enable their everyday operations and support their long-term developments. As shown in chapter 1.5, KIS are predominantly located in agglomeration areas which suggest that proximity matters also for many services innovations.

1.10. The policy rationale for better support to services innovation: Some first conclusions from the analysis of market and systemic failures

The concept of market and systemic failures offers a conceptual framework for assessing the need and scope for policy intervention. However, it does not always lead to straight conclusions, as policies may follow different objectives, with innovation just being one of them. Furthermore, the existence of market and systemic failures is often only stated at a general level. If correctly applied, they would have to be demonstrated, case by case, empirically, which may often be difficult.

It is a general concern that innovation policy is not adequately responding to the needs of service enterprises. In the following, some preliminary conclusions from the previous analysis on market and systemic failures are drawn for **selected policy areas** that are considered to be of particular relevance for services innovation. Most of these policy areas are part of the "broad based innovation strategy" and, as such, addressed in one way or another. The Staff Working Document "Community policies in support of innovation: "Assessing progress in the period 2005-2009"on the results of the "broad-based innovation strategy" will also specify this[67].

Intellectual property[68]**:** Two possible market failures may be present with respect to the protection of intellectual property. The first one relates to externalities. It is commonly agreed that the service sector has a positive impact on other sectors. Certain services sub-sectors,

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[66] Smith, K.Smith, K. (2000)

[67] SEC XXX (2009) "Assessing Community Innovation Policies in the period 2005-2009".

[68] In 2008, the European Commission adopted an industrial property rights strategy for Europe, see European Commission (2008d), available at http://ec.europa.eu/internal_market/indprop/docs/rights/2008_0465_en.pdf

such as business services, contribute directly to technological innovation (software and engineering) and impact on other industries that make use of the sub-sector outputs. Even though the service sector, in general, is less dependent on R&D investments in comparison with manufacturing, the protection of intellectual property is an issue.

Whenever services innovation involves technology, protecting intellectual property becomes relevant for service enterprises to safeguard the results in order to recuperate R&D costs. This is particularly important for innovative SMEs, due to their limited market power and financial constraints. Developing strong systems that would prevent appropriation of intellectual property by competitors would encourage investments in the service sub-sectors that are strongly investing in R&D, with positive spill-over effects on other sectors. The second potential market failure is related to asymmetric information or lack of transparency on how to protect intellectual property effectively. A possible way to avoid that less informed service firms are under investing in innovation is to raise the awareness of the best possible means of protecting intellectual property rights.

Many knowledge intensive business services are considered, as described above, as credence goods, where reputation is fundamental. The large gap between manufacturing and service firms with respect to the use of trademarks suggests a lack of information or experience of service firms, since trademarks should be equally relevant to both industrial and service firms. Generally encouraging them to make wider use of intellectual property may not be the best policy approach, taking into account the heterogeneity of the service sector. What seems necessary is more targeted awareness raising campaigns that are specifically designed for certain sub-sectors. In particular, there is no apparent reason for service firms not to make more use of trademarks, considering the relevance of reputation and, consequently, the need for brand recognition.

Public procurement: According to CIS2006 data a higher percentage of innovative manufacturing enterprises (14%) than service enterprises (11%) report a lack of demand as a problem although there is, in this respect, little difference between KIBS and manufacturing enterprises[69]. In particular, public procurement can stimulate the development of new services in IT-related fields, such as eGovernment, eHealth, and eEducation. The expert group for 'pre-commercial procurement of innovation' has furthermore recommended that national administrations should come together to share the risks and the benefits of pursuing novel services and products with the providers themselves. Such a European dimension on pre-commercial procurement would build critical mass on the demand side, stimulate competition and exploit economies of scale and scope for the benefit of innovative services[70].

Different types of market failures may exist that are related to public procurement, including asymmetric information, lack of transparency and market power. An open, competitive and efficient public procurement mechanism would stimulate services innovation, by allowing for alternative solutions and replacing the purchase of goods through the provision of services. To be open, all participants should have access to information. To be competitive, markets should not be dominated by monopolies or few large players. Market power should be spread, so more firms are able to participate. These principles were further described and elaborated in

[69] The Community Innovation Survey 4 data covers the period 2002 to 2004

[70] European Commission (2006c), available at http://ec.europa.eu/information_society/tl/research/key_docs/documents/procurement.pdf

the Guide on dealing with innovative solutions in public procurement – 10 elements of good practice[71]. Furthermore, the wider use of quality standards in public procurement would help raise the trust in innovative services, taking into account their nature as credence goods[72].

Skills: The CIS asks innovative firms about the importance of a "lack of qualified personnel" as a factor hampering their ability to innovate. According to CIS2006 data, more manufacturing than service enterprises consider this factor of major relevance (12% versus 10%)[73]. There is little difference within the service sub-sectors, with equivalent percentages for KIBS and other service sectors. Moreover, according to the FBS survey, there is no difference between the two main sectors in terms of satisfaction with the qualifications of university graduates[74].

These findings suggest that there might be no reason to preferentially favour service enterprises over manufacturing enterprises in innovation programmes to improve the supply of trained personnel. However, the nature of the skills needed for services innovation may differ from manufacturing. In particular, knowledge intensive services depend on highly qualified personnel, but other qualifications, such as language skills and intercultural competences, are also needed more often than in manufacturing. Services innovation would therefore benefit from all kinds of policies that aim at better qualified personnel, including vocational training and life-long learning.

Public research: Due to the complexity of modern sciences and the need to combine knowledge in new ways, service enterprises frequently source knowledge from other enterprises and institutions. The results from CIS2006 suggest that with the exception of KIBS, service enterprises are considerably less likely to collaborate with universities than manufacturing enterprises. A possible explanation could be that most service enterprises would have little to gain from university research results, which often lack market orientation. This view is supported by the fact that the gap between manufacturing and services declines with respect to the collaboration with government and public research institutes, which tend to focus on applied research. If it would be correct to assume that collaboration with universities is not of great interest to most service enterprises, it would be more promising to facilitate their cooperation with research institutes, for example through tax incentives or innovation vouchers, rather than trying to involve service enterprises more in R&D programmes managed by universities.

Entrepreneurship policies: CIS2006 enterprise level data provides information about start-ups between the years 1998-2000, suggesting that higher shares of enterprises in services than in manufacturing are start-ups and that start-up formation is highest in KIBS[75]. Although SMEs have the potential to innovate, they tend to spend relatively low shares of their

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[71] European Commission (2007e)

[72] http://standards.eu-innova.org/Pages/Steppin/default.aspx

[73] The Community Innovation Survey 2006 data covers the period 2002 to 2004, available at http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1913,47567825,1913_57936852&_dad=portal&_schema=PORTAL.

[74] Cruysen, A. van and Hollanders, H. (2008): 58

[75] The Community Innovation Survey 2006 data covers the period 2002 to 2004. The date is available at http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1913,47567825,1913_57936852&_dad=portal&_schema=PORTAL.

revenues on innovation, thus negatively impacting innovation activity and productivity growth in their industry and in the economy in general. One of the reasons is that SMEs seem to lack the necessary funds to invest more in innovation, which may signal a possible market failure related to access to capital. The establishment of attractive conditions for an internationally oriented venture capital market would not only facilitate the formation and development of new enterprises but also their later growth.

There may be other types of market failures at play, including the existence of market power by larger firms creating entry barriers for new firms with innovative offerings; or the existence of information asymmetries leading to competitive advantages with respect to reputation and branding by incumbents. However, it is difficult to see how these market failures could be effectively addressed by policy intervention at national or European level. This may lead to a situation where service enterprises with high growth potential (gazelles") would have to be taken over by larger service enterprises in order to fully exploit their market potential.

Access to finance: In the CIS, a higher percentage of manufacturing than service enterprises report problems with shortage of funds within the firm, which could be related to higher innovation costs[76]. These results suggest that firms in the service sector depend less on high innovation costs than manufacturing firms, taking into account that innovation is less expensive in the service sector. However, both services and manufacturing responses indicate that there might be a problem of finance due to underdeveloped venture capital markets within Europe. In terms of external financial sources, a higher percentage of manufacturing than service enterprises report difficulties[77]. As for KIBS firms, considering that many of them are likely to be start-ups, there seems to be a lack of venture capital in general, rather than a bias in supply towards manufacturing.

Financial markets are important to channel funds from institutional investors towards venture capital in support of innovation. A sound European legal and regulatory system contributes to the improvement of the Single Market in venture capital. However, in order to attract funds from outside, regulatory standards must take into account the global nature of financial markets and that Europe needs to be attractive in global comparison. The existence of more unified venture capital markets would benefit all economic sectors, especially in smaller Member States.

Obstacles to access to finance are particularly often reported for high growth service enterprises. Raising the capital is one of the preconditions for successfully setting up a business and for its further expansion. Relying on own resources or debt financing is often not sufficient or available for early stage SMEs in seed and start-up phases and, in particular, not for SMEs with high-growth potential. Such enterprises, which might not yet have fully marketable innovative products or services and income from them, typically need to look for and have access to a wide range of sources of finance, including grants for pre- and post-proof of concept funds, venture capital from seed funds, business angel investment as well as venture capital for expansion that can provide them with funds to break into markets and grow faster. The current recession has made lenders and investors even more risk averse and has

[76] Cruysen, A. van and Hollanders, H. (2008): 13

[77] Result of the public consultation on the effectiveness of innovation support in Europe as reported in the European Commission (2009)

raised the costs of and difficulties in obtaining funding. It will be essential to ensure that an effective supply of investment capital is available to maintain the innovation and growth trajectory for high growth service businesses. Actions are required to stimulate the supply of funds to meet different stages of growth and to address this downturn in available funding.

Innovation support: There are strong indications that current innovation support measures favour manufacturing over service enterprises. The available CIS2006 data confirms that a substantially higher percentage of manufacturing firms (29%) than service enterprises (16%) received public innovation support (mostly from regional or national authorities), although KIBS firms (23%) perform almost as well as manufacturing enterprises. A higher percentage of manufacturing (5%) than service enterprises (4%) receive support from the European Union, although this percentage is inflated by the presence of KIBS enterprises, which report an even higher percentage of firms receiving European support (7%). These differences may, however, be justified by the higher levels of investment in innovation in manufacturing enterprises or at least in activities such as R&D, where public support is made widely available.

Whether innovation support is indeed biased towards manufacturing firms or technological innovation and what may explain this, is further analysed by the Staff Working Document "Making public support for innovation in Europe more effective: Lessons learned from a public consultation", which presents the results of the recent public consultation and, on this basis, identifies a number of policy challenges to be addressed in order to raise the effectiveness of innovation support at Community level[78].

1.11. Towards a better policy-mix in support of services innovation

Innovation in services may be hampered by a wide range of market and systemic failures that are similar to those that can also be observed, to a large extent, in the manufacturing sector. But for services innovation some of these failures are different in nature and degree. If not corrected, the existence of these failures would result in an under-investment in services innovation. Governments could avoid such negative effects by either extending and/or adjusting already existing policies, or by designing and implementing new polices that specifically address the particularities of services innovation.

In this sense, the following **types of policies in support of services innovation** may be distinguished:[79]

"Assimilation policies": The assimilation approach would not imply new policy initiatives but rather an adaptation of existing policies to better address barriers for services innovation. This approach could be characterised as the "no regret scenario" as it only consists of adaptations of existing policies to new or emerging business realities. For example, current R&D and innovation support schemes should cover service industries as much as possible, as there are no theoretical or practical reasons justifying their exclusion.

[78] European Commission (2009)
[79] Ark, B. van Broersma, L. and den Hertog, P. (2003)

Targeted policies: These policies are based on the assumption that services have specific characteristics that would have to be addressed by specific policies. The heterogeneity of the service sector and the fact that not all services have the same problems, leads to the need for specific measures in support of services innovation. For example, if it is true that services firms innovate differently, they would need different forms of innovation support. Targeted policies specifically address the needs of services innovation, thus drawing a clear demarcation line between the different forms of innovation. However, the need for this has to be clearly demonstrated and supported, more often than not, by ex-ante impact assessments.

Horizontal policies: These policies are not directly related to innovation, but they are also important in supporting innovation activities. Horizontal policies are by nature cross-sector, and, consequently, they lead to convergence with manufacturing-oriented policies. The most important horizontal policy in this respect is the creation of the Internal Market for goods, capital, services and mobility that support services innovation like innovation in general. Other examples of horizontal policies that matter for services innovation include, for example, policies in support of human capital (education, training, and mobility) and of knowledge creation through public research or tax incentives) as well as public procurement and State aids regulations. Such horizontal policies seem to be best suited to support services innovation in general, independently of the sector in which the service activities are located.

It is important to understand that **innovation in services may take different forms and happen at different levels**. This needs to be taken into account by policies addressing the market and systemic failures for services innovation. Policy actions may aim at supporting services innovation in general, irrespectively of the sector in which it occurs. In this case, the objective is to promote services innovation as an activity. Another objective would be to support innovative service firms, if seen as drivers of competitiveness and growth. Still other objectives are to foster the innovativeness of entire service sectors or to create new market opportunities for innovative services through deregulation or liberalisation of service markets or through concerted action, such as "lead market" initiatives. The confusion between these different levels of services innovation has largely contributed to the lack of adequate policy responses so far, as the strategic objective of supporting services innovation was not always clear.

Figure 29 below summarises possible policies in support of innovation in services that aim at addressing the market and systemic failures as described above. What becomes clear from this table is that **a "policy-mix" of different policies seems to be needed** in order to have a real impact. Whereas market failures call mostly for compensative ad-hoc measures, systemic failures in most cases require a mix of targeted and horizontal policies. If not supported or complemented by horizontal policies and/or policies addressing services innovation at a sectoral or market level, it is unlikely that innovation support measures (as described in the box) will unfold their full potential. This idea will be further demonstrated in chapter 5, when discussing the main challenges to fostering services innovation.

Targeted policies raise the specific problem of "governance". Only if clear objectives are set and different policies and innovation support measures are used in a combined and strategic manner, can a strong and sustainable impact be expected. This is, in particular, necessary for sectoral or broader market-oriented initiatives aiming at creating new service industries or proactively fostering market development. In these initiatives, services innovation is rather the result than the prime objective. This links innovation in services with

the broader perspective of “society-driven” innovation, as services innovation is needed to contribute to many economic and societal challenges, ranging from competitiveness and environmental sustainability to better provision of public services.

Figure 29: A mapping of policies in support of innovation in services

	Activity level	Firm level	Sector level	Market level
Assimilation policies	- Innovation metrics - Support to public RTD - Facilitation of knowledge transfer	- Business incubation - Innovation management training & IP support - Access to finance	- Sectoral innovation metrics - Technology foresight - Cluster mapping	- Market foresight - Quality standards & certification - Legal & regulatory framework for innovative services (eCommerce)
Targeted policies	- Specific RTD programmes - Promotion of ICT use (eBusiness) - Promotion of new business models in services	- Specific innovation support schemes for service firms - Specific risk financing schemes for services, e.g. KIBS	- Sectoral industry policy initiatives in service sectors, including innovation - Specific cluster policies and/or initiatives in service sectors	- Deregulation/ liberalisation of specific services - Lead Market Initiatives on new services
Horizontal policies	- Tax incentives - States aids - Public procurement - Education & training	- Entrepreneurship policies for start up's - Mobility programmes - Public procurement	- IPR policy - Sector-specific standardisation, such as in ICT	- Internal Market for services (e.g. Services Directive) - Competition policy, including merger controls

Source: Based on Hertog, P. den, Rubalcaba, L. and Segers, J. (2008) and Cruysen, A. van and Hollanders, H. (2008)

Given that there is a rationale for innovation policy in support of innovation in services, i.e. for public intervention at some level of government, the next question to be raised is "by whom and how". **Public support to services innovation can be provided at different levels** (regional, national, and European) and by different actors, and in order to identify the competences of the European Union in particular, the subsidiarity principle applies also to support to services innovation.

In the case of innovation policy, the European Union has no exclusive competence. Thus, public support to services innovation is a shared competence, whereby the Union has a competence to coordinate, supplement and support Member States' actions. In order to respect the subsidiarity principle and to ensure both the legitimacy and effectiveness of innovation support in the field of services, it is therefore important to identify

complementarities between the different levels of public intervention and to exploit them in the best possible manner. The main role of European support for services innovation can be seen in complementing regional and national efforts in this regard, for example by facilitating mutual policy learning and removing legal and regulatory obstacles for European-wide provision of innovative services.

Innovation in services not only happens in markets but also in the public sector. The **borderlines between the private and public sector are often difficult to draw**, and spill-over effects in both directions may be observed that could also be exploited in support of innovation in services. An example is the information held by public authorities upon which innovative services could be, and are being built. However, services innovation may help improving the quality or cost effectiveness of public services, thus better responding to public policy goals.

When assessing the legitimacy and added value of innovation support measures at Community level, a third justification may therefore have to be considered, namely acknowledging the role of services innovation in support of public policy goals. This justification is closely linked to the collective character of a service (or good) that is not excludable or indivisible by character, such as defence or public healthcare, and usually referred to as a public good. Innovation in services may be considered as a **public good**, when supporting a democratically agreed policy challenge, such as better environmental protection, better healthcare and social care or better education. In these cases, services innovation is a goal in itself and must not be justified by market or systemic failures.

The challenge of raising competitiveness and job creation is a societal challenge, which is recognised by the Lisbon strategy and thus supported at Community level as a matter of high priority. Other societal challenges which could be supported by services innovation exist, but are often less explicitly politically agreed. For example, many innovative eGovernment applications also serve societal needs. However, in most cases such **societal challenges that could be addressed through services innovation** are closely related to policy goals set and democratically legitimised at regional or national level, taking into account different social values and political priorities. For this reason, innovation in public services is not included in this Staff Working Document, as it would require a high-level political commitment still to be made at Community level.

2. NEW POLICY INITIATIVES IN SUPPORT OF INNOVATION: AN OVERVIEW OF NEW POLICY TRENDS IN EUROPE

Over recent years, the interest towards services innovation policy has been growing simultaneously with the growing economic weight and significance of services. At the same time, **policies in support of services innovation have remained relatively underdeveloped in many Member States and regions**. As innovation in services is less driven by research and publicly funded innovation projects, effective innovation support calls for different approaches than for technological innovation. At the same time, there is the challenge to better address the needs of fast growing innovative enterprises and to create a more favourable business environment for services in general so that services innovation happens at all levels more easily. Europe lacks innovative service enterprises with a global reach.

This chapter will first look into the funding of services research and innovation, by using the CIS data that is showing a bias towards manufacturing, although Community funding is almost evenly distributed between the two sectors. Then the National Reform Programmes of the Member States will be assessed in order to identify which importance is given to innovation in services in the national Lisbon strategies. Following this analysis of general policy trends in Europe, a more detailed analysis of specific programmes and initiatives supporting services innovation at national and European level will be provided, taking into account the different levels of services innovation.

Overall, this analysis confirms that services innovation only recently entered the policy discussions in Europe. Although some research and innovation programmes specifically supporting services innovation in Europe can be found, they are mostly still in their infancy and generally not complemented by more strategic approaches at sector or market level. This seems to be the area where policy shifts are mostly needed, at national and at European level.

2.1. New trends in support of innovation in services within the Lisbon strategy

At the level of funding, it is rather difficult to assess the participation of service firms in national and Community programmes. Based on CIS-5 data for 18 countries[80] covering 2004-2006, Figure 30 presents how innovative firms, in particular service enterprises, benefit from different R&D and innovation support programmes in Europe.[81] This data shows that **service firms generally receive less public financial support for R&D and innovation** than manufacturing firms. This result is in line with previous studies from the OECD (2005) and other studies based on the CIS database, for example the RENESER project[82]. These findings confirm the existence of a **bias against service enterprises in public funding** that can be

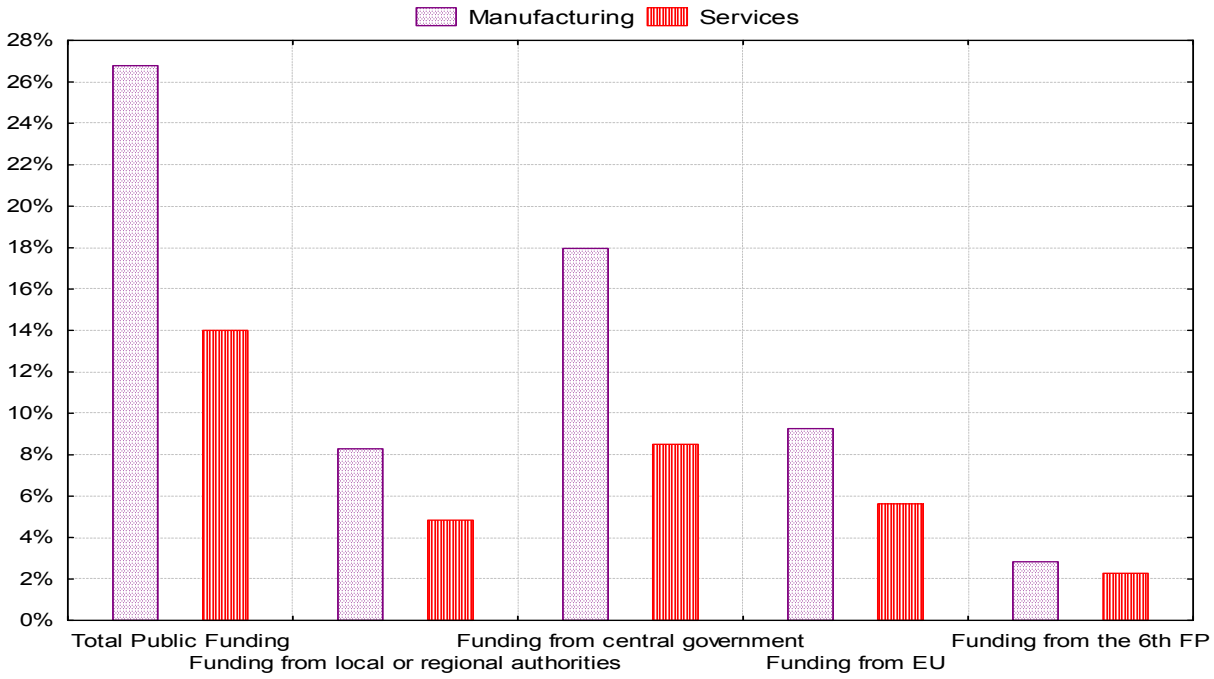
[80] The countries comprise Belgium, Bulgaria, Czech Republic, Germany, Estonia, Greece, Spain, Cyprus, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania and Slovakia.

[81] The CIS3 database provides information on innovation activity at enterprise level for the year 2000, and leads to a better understanding of the innovative organisational practices and their effects on the economy. For the purposes of this document, the 'public funding of innovation' indicator is analysed. The analysis has revealed some significant considerations on business innovation funding in Europe, as well as the source of this support. Data on this key indicator are available for the following sixteen countries: Austria, Belgium, Germany, Denmark, Spain, Finland, France, Greece, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden and United Kingdom.

[82] RENESER (2006)

explained in two ways: Either policy measures do not fit services well or, alternatively, service enterprises need less public R&D and innovation support than manufacturing. In any case, the bias against services is in particular obvious at national level and less so at regional level, whereas services benefit much more from the support programmes offered at EU level.

Figure 30: Percentage of innovative manufacturing and services enterprises using public funding



Note: Services refer to NACE sections I and J and NACE divisions 51, 72, 74.2 and 74.3.
Source: Average of countries with available data in CIS-5, Eurostat

However, **great differences exist between different Member States as well as between different service categories**. Generally, all Member States fund more manufacturing firms than service firms. Regarding business services, the situation is more differentiated. While some countries fund even more firms from business services than from manufacturing, the majority does not. This could be explained by the different maturity of the national innovation systems. If the innovation capacity is not particularly strong, the proportion of consultancy and ICT related firms benefiting from public support seems to be higher than in countries that invest strongly in R&D and innovation.[83]

The Lisbon strategy has shifted the policy attention in Europe towards EU competitiveness**,** and services are considered as a driver for jobs and growth, also in view of the economic recovery in Europe. However, this importance is not yet fully reflected in most of the National Reform Programmes (NRP). An analysis of the most recent NRPs suggests that **only few Member States are planning to launch new strategies and measures in support of innovation in services** for the period 2008-2010. Only five countries (Denmark, Finland, Germany, Ireland and the UK) provided information about a new innovation strategy or

[83] OECD (2005)

specific action plans focused on services innovation. In addition, the Netherlands reported that the government is considering different options for introducing a services innovation strategy and the United Kingdom mentioned efforts that had been carried out to get better statistics on innovation in services and studies supporting a new services innovation policy, including a report on "hidden innovation" in leading British service sectors and creative industries.

Out of the 27 Member States, only the **Netherlands** reported on a specific measure in support of services innovation, namely a fiscal incentives scheme implemented by the Research and Development Act (WBSO) with the aim to facilitate research in enterprises based on a wider R&D definition. This specific measure aims at stimulating services innovation based on R&D and the application of software. A number of other countries reported on sectoral measures in support of specific service sectors, mostly in the ICT sector but also in areas such as tourism and creative industries.

The National Reform Programme of **Finland** expressed the clear view that "the service sector's capacity to innovate can best be promoted through broad, non-technological development." Following that horizontal approach, it stated that "in recent years, Tekes' innovation funding has been strongly directed into services, which in 2007 represented nearly one third of R&D funding granted by Tekes to enterprises. Innovation funding is now additionally being directed to public services that private service providers can also offer." A similar approach is followed in **Germany** by the German High-Tech Strategy 2006-2009[84]. With the aim of forging links between research and emerging, cutting-edge markets, this plan defines innovation strategies for 17 high-tech sectors. For the first time, services are included as one of the sectors and will receive a budget of €50 million (0.4%) of the total of €11.940 million over the four-year period of the strategy.

What makes it difficult to assess policy shifts towards support to services innovation is that such measures may not always be explicitly labelled as such, but they may include programmes of which **service sectors** are the main beneficiaries. Many of the measures reported in the NRPs are considered to be sector-neutral, thereby covering both manufacturing and services. However, from many of the new measures introduced at national level in support of "gazelles" or of "user-driven innovation" service enterprises benefit in particular. For example, four countries (Cyprus, Lithuania, Netherlands and the United Kingdom) reported that they were introducing new innovation voucher schemes and three countries announced measures focused on "gazelles". Poland was considering introducing a measure to capture a user-driven innovation approach and Cyprus announced an innovation award with a special category for services innovation.

The analysis of the NRPs 2008-2010 shows however that at a strategic policy level services innovation is not yet addressed as a matter of high priority. This may indicate that services are not considered to be strategically important in most Member States or that the awareness of services as a driver of competitiveness and innovation is still rather low. At the same time, as will be shown below, the public debate on services innovation has increased in recent years in many Member States, and specific measures for services innovation are being introduced beyond what has been reported in the NRPs. An explanation why many new measures in support of services innovations were not announced in the NRPs may be that the Integrated

[84] Federal Ministry of Education and Research (2006a)

Guideline 8 of the Lisbon Strategy[85] for reporting on innovation in the NRPs does not directly mention services innovation. Member States are therefore not explicitly invited to refer to this innovation policy area when formulating their NRPs, which may explain the low level of reporting on this area. However, the results also show that the main focus of innovation policy in most Member States is still on the technological aspects of innovation and that this is only slowly changing.

The discussion on services innovation is clearly led by some Member States, such as those having signed the "**European Services Innovation Memorandum**"[86]. It is worthwhile to note that this policy discussion has from the beginning taken place at European level, which reflects the fact that this is a new and untapped area for most policy makers in Europe. The Open Method of Coordination**,** which was introduced as part of the Lisbon process, offers the tools and the right environment to contribute to the learning process by sharing information on future trends, exchanging good practice examples and jointly developing new policy approaches. In this respect, both the ERA-Nets on R&D cooperation[87] and the INNO-Nets[88] in the field of innovation have been very supportive to mutual policy learning in Europe.

Under the PRO INNO Europe® initiative, a first step in this direction was launched with the **Innovation Policy Project in Services[89] (IPPS)** project, led by Tekes from Finland. The key objective of the IPPS project was to advance service-related innovation policy and programme development among Member States and regions by networking relevant actors, promoting cooperation, disseminating good practices and encouraging transnational policy learning. In addition, scientific knowledge on services innovation was built up during the project. The project was finalised in August 2007 with an assessment of national services innovation programmes and strategies and with proposals for concrete ideas on how to facilitate transnational cooperation in support of innovation in services. The IPPS project was followed up by the publication of the "European Services Innovation Memorandum" signed by eight national and regional ministries and innovation agencies in Europe. The Memorandum calls for better recognition of the strategic importance of services for European innovation and for the economic performance in Europe as well as for more European cooperation.

As a follow-up of the IPPS project, a new **INNO-Net on "Better policies and instruments in support of innovation in services"** will be launched in the second half of 2009. The main objective of this new initiative will be to facilitate transnational cooperation between innovation policy makers in view of further implementing the "European Services Innovation Memorandum". In this respect, the aim is to identify emerging policy challenges resulting from services innovation developments and to design and test new policy concepts in response to them. This will contribute to better and more efficient policies and instruments in support of innovation in services. The INNO-Net will also contribute to a better valorisation

85 European Communication to the Spring European Council (2007b)

86 Tekes (2007)

87 More information on the ERA-Nets scheme is available at http://cordis.europa.eu/fp7 /coordination/ eranet_ en.html

88 More information on INNO-Nets is available at http://www.proinno-europe.eu/index.cfm ?fuseaction=page. display&topicID=55&parentID=55

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

of the novel tools and instruments developed under Europe INNOVA, in particular under the European Knowledge Intensive Service Innovation Platform (KIS-IP)[90].

An important element of the INNO-Net will be the setting-up of a **"Reflection Group"** that will allow the participation of all national and regional ministries in Europe interested in further policy development in this field. The mandate of this group is to facilitate discussions and to prepare for concrete policy recommendations. In particular, it expected that this group will prepare a concrete proposal on a new Lead Market initiative in the field of services and contribute to the discussion on better metrics and economic impact analysis for services innovation. Furthermore, this INNO-Net will launch **joint initiatives** to test new forms of innovation support for services at programme level, such as in the area of knowledge transfer which is a particular challenge for better innovation support for services.

In the field of research, the **CREST**[91] set up a working group on **"R&D in Services"** that produced its report in February 2008. Based on this report, CREST adopted conclusions on 18 April 2008 encouraging Member States to continue to develop mutual learning activities on research in services, to explore joint research activities in ERA-Net type initiatives, to encourage their universities and public research institutes to explore the possibilities to promote the subject of service sciences and service engineering and to initiate an exchange of views on research and innovation in services by bringing together different stakeholders by means of public-private partnerships.

Therefore, the policy debate on how to better support services innovation has started in some Member States, as well as at European level. As called for by the **European Council of December 2008**, a rethink of European innovation policy is necessary. Innovation in services is a main enabler of the creation of the knowledge-based economy and the transition from traditional industries (e.g. manufacturing) to a sustainable economy in which services will have to play a major role. This was also highlighted by the European Services Innovation Memorandum, which stated that "emerging services innovation policy in Europe is in a unique situation where it has a possibility to renew the entire innovation policy towards a more balanced and demand driven concept".

2.2. Main policies and instruments in support of innovation in services at regional and national level

This section presents new trends in support of innovation in services, based on a recent **INNO-Policy TrendChart survey** of policies at national and regional level in Europe[92] as well as on other information sources. Unfortunately, the "European Inventory on Research and Innovation Policy Measures"[93] maintained by ERAWATCH and the INNO-Policy TrendChart does not yet systematically collect information about policy measures relevant for services R&D and innovation. It will therefore be important to further improve this inventory with the aim of better capturing new innovation support measures on services innovation, as well as policies and measures with specific relevance for service sectors.

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[90] More information on the European Knowledge Intensive Services Innovation Platform is available at http://www.europe-innova.org/index.jsp? type= page&previousContentId=6344&cid=9207&lg=EN

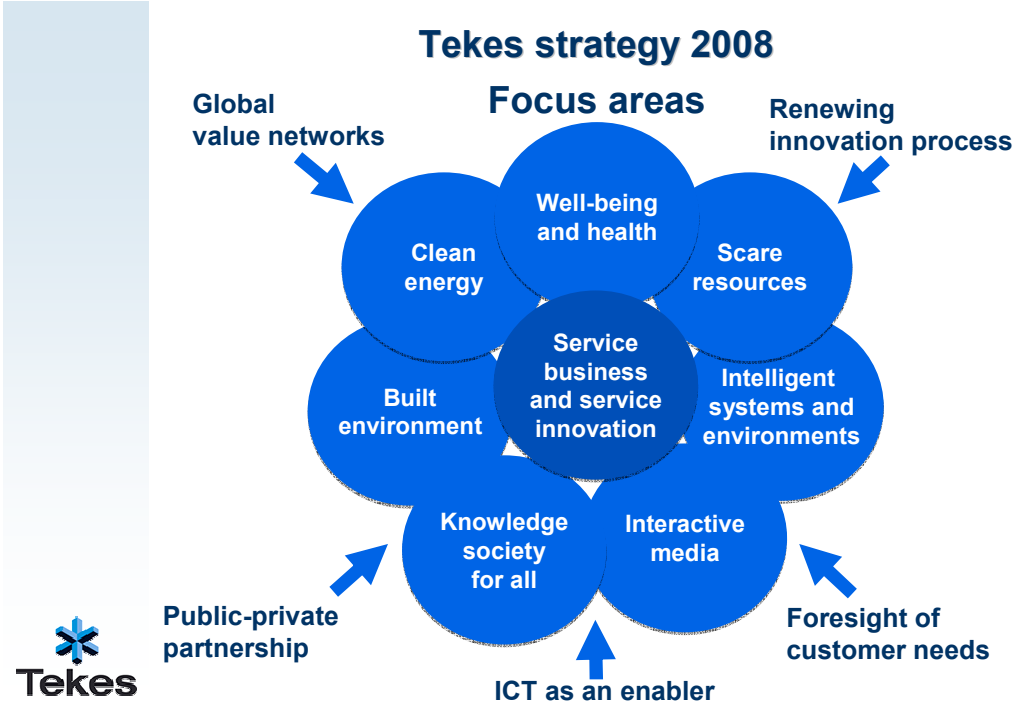
[91] European Union Scientific and Technical Research Committee (2008)

[92] Cunningham, P. (2007)

[93] See http://cordis.europa.eu/erawatch/index.cfm?fuseaction=about.collaboration

In recent years, services innovation has been addressed at national level in different ways. In the broadest sense, services innovation is nowadays considered as an enabler of **"society-driven innovation"**. Such policies are using services innovation to address societal challenges and as a catalyst of societal and economic change. An example of this general approach is **Finland**, where the "Innovation Strategy 2008"[94] of Tekes – the Finnish Technology and Innovation Agency – makes explicit reference to societal priorities like health and well-being, clean energy, scarce resources and "the knowledge society for all". Services innovation is expected to make a major contribution to achieving these objectives (see Figure 31).

Figure 31: An example of an innovation strategy with services innovation at the core



Source: http://www.tekes.fi/eng/tekes/themes.htm

A similar strategic approach towards services innovation is followed by **Germany**. The German R&D programme on "Innovation with Services"[95] was launched in 2006 by the Federal Ministry of Education and Research[96] providing funding in pre-defined thematic fields. The project funding objectives were drawn up in cooperation with representatives of research, industry and the social partners integrating the recommendations issued by the "Partners for Innovation Initiative" (Initiative Partner für Innovation)[97]. The objectives are threefold: to improve the German service sector's market position by systematically developing new services and ensuring the quality of existing services, to establish the

[94] More information on Tekes strategy focus area is available at http://www.tekes.fi/eng/tekes/themes.htm.
[95] Federal Ministry of Education and Research (2006b), available at http://www.bmbf.de/pub/innovation_with_services.pdf.
[96] Federal Ministry of Education and Research (2006b), available at http://bmbf.de/pub/innovation_with_services.pdf
[97] More Information on " Partner für Innovation" is available at http://www.innovationen-fuer-deutschland.de/

conditions necessary for attractive jobs at various levels and to realign services research on the basis of economic, social and technological development.

At a different strategic level, a long tradition exists in many Member States to support the **innovativeness of specific service sectors** as part of industrial or development policies. A recent study shows that the main sector supported by such measures is ICT, followed by healthcare, biotechnology-based services and tourism.[98]. In **France**, an "ICT-SMEs 2010 Action Plan"[99] was launched by the French Government that aims at the integration of SMEs in sectoral supply chains, which are typically dominated by large enterprises. It supports projects covering 20 industry and service sectors,, with a total budget of €17 million for 2006 – 2008, The main objectives of this policy are to support the implementation and use of common ICT tools in enterprises belonging to the same sector in order to create "digital supply chains", to improve interoperability across different sectors between the tools developed and to provide local technical assistance to SMEs, supporting organisational changes and helping them to integrate ICT in their internal processes and data exchange with suppliers and customers.

In the **Netherlands**, the focus of the Dutch policy mix for eBusiness has evolved towards the use of ICT by SMEs for digital transactions and collaboration in specific sectors and value networks. A new programme "The Netherlands connected digitally"[100] was launched in 2007. The main objective is to help SMEs to use ICT for transactions and collaboration with suppliers, clients and partners. A number of initiatives for specific sectors and value chains are foreseen. Several other countries, like Germany, Italy, Ireland, Portugal and Spain follow a similar sectoral eBusiness policy approach that indirectly supports services innovations based on ICT and eBusiness.

In **Spain**, the "Strategic Action for Tourism" within the framework of the National R&D&I Plan (2008-2011)[101] includes the implementation of ICT and environmental policies that are applied to tourism activities. Established lines of scientific and technology research and support for innovation focus on the analysis of the competitiveness and economic growth of the tourist sector, the development and implementation of business management systems and methods, environmental quality and the development of ICTs for the sustainable management of tourist businesses, as well as tourism product innovation aimed at sectoral diversification. The National R&D&I Plan (2008-2011) also includes measures to foster innovation in the tourism sector in specific regions (Balearic Islands and Canary Islands).

Another example comes from the Spanish "INGENIO 2010 Programme"[102], where measures are oriented towards developing a knowledge economy through investments in infrastructure and services aimed at modernising the public and private sectors. The main measures focus on knowledge intensive business services and have been implemented by the Spanish Government through its services to the public, such as the Digital Cities Programme launched in 2004 to promote the diffusion and use of ICT in government and business (eGovernment,

[98] Cunningham, P.(2007))
[99] More information on the french « ICT-SMEs 2010 Action Plan » is available at http://www.telecom.gouv.fr /rubrique.php3?id_rubrique=108
[100] See TNO Information and Communication Technology (2008)
[101] http://www.plannacionalidi.es/plan-idi-public/
[102] http://www.ingenio2010.es/

electronic commerce, tele-work, telemedicine, etc.). In May 2006, the "Plan AVANZ@" was launched as a follow-up to this programme to promote the Information Society in the local environment. This programme is implemented by cities at regional level. A number of further initiatives in the field of ICT have been launched, such as the electronic ID card or the "System of Applications and Networks for the Administration", aimed at improving information exchange between administrations.

Although there are no direct sectoral support schemes in **Latvia**, over recent years the notion of innovation has been increasingly applied to several specific service sectors, for example in tourism, where the annual competition "Tourism company of the year"[103] organised by the Ministry of Economics has been held since 2003 with the aim to nominate an innovative tourism product or service. Since 2005 annual awards have also been presented to the most innovative graduation works in the field of tourism. Also the creative industries are being promoted in Latvia by the Ministry of Culture and the Ministry of Economics. The action plan of the Programme for Promotion of Business Competitiveness and Innovation 2007-2013 is included among the budget priorities for 2008-2010, and a conference was held in 2007 on the development of creative industries[104].

Another example of sector-oriented support mechanisms which are supporting directly or indirectly services innovation can be found in the **Netherlands,** where three new innovation programmes for specific service sectors will be launched in 2009[105]. The targeted sectors include the creative and financial sectors, retirement management (pensions) and logistics and supply chains. Besides that, the so-called "Creative Challenge Call"[106] had a budget of €8 million for projects that focus on the creation of public-private networks, collaboration and knowledge exchange within the creative industry sector. Also in the "TechnoPartner" scheme[107], a special investment fund has been set up for young enterprises in the creative industries.

Besides providing support for specific service sectors, in many Member States a new trend can be observed towards applying the **concept of clusters** also to services, with the aim of innovating a broader set of related services. Such measures go beyond a purely sectoral approach, as they are trying to promote better framework conditions or "eco-systems" for services innovation in a region. According to the INNO-Policy TrendChart Thematic Report on services innovation (2007), a surprisingly large number of service sector cluster policies or initiatives are in operation, or planned. The European Cluster Observatory has mapped 788 cluster organisations in Europe, out of which 182 focus on service industries. The most relevant fields of these **service cluster initiatives** are ICT, education and research, creative industries, financial services, health and well-being, tourism, transport and logistics.

As could be expected, most of the service cluster policies and initiatives are implemented at regional level or even at local level, which may explain why they are not included in the

[103] See Cunningham, P. (2007):52
[104] http://www.em.gov.lv/em/2nd/?cat=17802

[105] As announced by the Ministry of Economic Affairs/SenterNovem of the Netherlands at a Europe INNOVA Workshop on Innovation in services held in Poorvo, Finland, 9-10 March 2009

[106] http://www.kennisland.nl/en/projects/creative-region/Creative-Challenge-Call.html
[107] http://www.technopartner.nl/

National Reform Programmes under the Lisbon strategy. Such service-related cluster initiatives can be found in Austria, Belgium, Bulgaria, Switzerland, Cyprus, Spain, Estonia, Finland, France, Ireland, Iceland, Italy, Luxembourg, Malta, the Netherlands, Norway, Portugal, Sweden and the United Kingdom[108]. For example, three "competitiveness clusters" in **France** out of 71 are oriented towards the service sector and non-technological innovation, the Seine Normandie Logistic[109] competitiveness cluster; the Trade Industry[110] competitiveness cluster and the Finance Innovation[111] competitiveness cluster. The latter brings together major financial firms in banking, insurance, asset management, etc, as well as main issuers, small and mid caps, regulators, financial and business schools, universities and academics as well as public institutions. This cluster is aiming to become a "Global competitiveness cluster"[112], meaning that it has a mission to compete at global level.

In the **United Kingdom**, some of the Regional Development Agencies have launched cluster initiatives that include services in areas such as software, digital content and creative industries. Examples of these include the East Midlands Development Agency (EMDA)[113] , which has helped to set up cluster organisations in support of service sectors like healthcare and creative industries. For the creative industries, EMDA has allocated £6.9 million through a range of large and small projects. For example £800.000 has been invested towards a £4 million fund to enhance business support, visitor and community facilities at the Broadway media centre in Nottingham. Over £1.5 million has been invested in the East Midlands Media and Technology Centre at the University of Lincoln. Similar initiatives are under way in other regions. Logistics is a key service sector cluster, providing an essential part of the infrastructure for movement of goods into and out of any region. In the North West region, there are 23.000 firms in the logistics cluster, employing 250.000 people and with a combined turnover of £26.4 billion (2007). In the North East, logistics include 3.100 firms and 46.000 employees.

Many cities set the ambition to become hubs of creative clusters, which attract highly skilled and creative people and offer a good environment for innovative occupations and new ideas. In **Spain** for example, the 22@Barcelona initiative[114] aims at transforming almost 200 hectares of the city into a centre for the knowledge intensive industries. Today, 22@Barcelona promotes several growth strategies in the field of creative industries, for example the textile-fashion sector, media, information and communication technologies, medical technologies and energy. Under the umbrella of 22@Barcelona, the Barcelona Media Park is an urban complex where modern offices for research and innovation, university training, media and ICT incubation services are offered. Another initiative is the Barcelona Design Innovation Cluster[115] composed of innovative firms with the aim of increasing the competitiveness of sectors in which design is a facilitator of innovation.[116]

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[108] See Cunningham, P. (2007):52

[109] www.logistique-seine-normandie.com

[110] www.picom.fr

[111] www.finance-innovation.org

[112] There are three types of clusters in France: Global competitiveness clusters; globally oriented competitiveness clusters and competitiveness clusters

[113] http://www.emda.org.uk/main/

[114] http://www.22barcelona.com/

[115] http://www.22barcelona.com/clusters2009/data/9439_CONVENIOENGLISH.pdf

[116] http://www.22barcelona.com/

These are just a few examples of cluster policies in service sectors, which seem to become increasingly popular. However, only recently have Member States started with specific **research and innovation support policies at the level of activity and firms**. Such measures include public research programmes, programmes for the development of new business models and initiatives to build service networks. The research and development programmes for services often start from basic questions such as service conceptualisation and the adaptation of modern technologies to the needs of services. For example, in **Finland** Tekes has launched the SERVE programme[117] 2006-2010, which seeks to facilitate service business development in targeted industries, encourage research, development and innovation activity in these industries and promote service-related academic research. The total budget is about €100 million. The evaluation criteria for project proposals are primarily assessed against the novelty of the services innovation, not necessarily on the novelty of the applied technology.

In **Denmark** a new innovation strategy for service enterprises was launched in 2008[118] that shall help to improve the service sector's framework conditions for research and innovation. The strategy sets out four concrete strategic targets for the development of service enterprises including targets for cooperation with knowledge institutions, the proportion of graduates in service enterprises, the interaction of service enterprises with foreign players and increased participation of operational service enterprises in innovation as well as for research and development projects. A number of concrete activities are proposed to achieve these targets, such as new innovation networks for services, the launch of "Knowledge Pilots" in service enterprises, a better use of the Business PhD scheme in service enterprises, the launch of a user analysis of service enterprises' needs, the facilitation of commercialisation of research by new, knowledge-based service enterprises and the enlargement of the "proof of concept" approach for services. The overall budget for this strategy is DKK500 million (approx. €67 million) for the period 2008-2010.

Another example of research-driven innovation support for services stems from **Norway**, where the PULS-programme[119] for services, commerce and logistics is a research programme running for the period 2002-2010 and managed by the Research Council of Norway. The overall aim of the programme is to develop a competitive service industry in Norway, by supporting R&D based innovation and innovation processes in service firms. Since 2006, the PULS programme has been incorporated in the BIA-programme: "User Driven Research Based Innovation"[120], which is one of the Research Council's major programmes in support of research-based innovation in firms. The programme is open to projects that target different types of innovations. Development of new and greatly improved services through innovation is a fundamental goal of the programme. An evaluation of the BIA-programme was made in 2006, stressing the importance of increasing R&D investments in the service field.

Whereas the above initiatives are strongly R&D oriented, few initiatives so far exist on **direct innovation support to service firms**. This type of support may mostly be provided as part of broader service packages, from which also services firms benefit, including support for early-stage high growth firms, export promotion, the internationalisation of firms or support for

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[117] Tekes (2006), available at: http://akseli.tekes.fi/opencms/opencms/OhjelmaPortaali/ohjelmat/Serve/en/etusivu.html

[118] The Danish Council for Technology and Innovation (2008)

[119] See http://www.forskningsradet.no/servlet/Satellite?c=Informasjonstekst&pagename=puls%2FHovedsidemal&cid=1234130491933

[120] See http:// www.rcn.no/bia

innovation management. An example of such measures, which is particularly relevant for innovative service firms, can be found in **Denmark** with the "Gazelles Growth Programme"[121]. The objective of this programme is to accelerate the growth of 40 Danish firms with high potential for international growth over a period of three years, with a total budget of DKK32 million (approx. €4.3 million). A key element of this programme is the coaching of the firms by international experts. In addition, the firms are supported over a period of 14 months in a foreign market. Service firms are among the main beneficiaries of this programme.

Another prominent example of targeted support policies for specific service firms is the new Irish Services Strategy[122] from **Ireland**, which was launched in September 2008. The aim of this action is to promote the further development of Ireland's service sector and to encourage the internationalisation of the Irish service firms. In this respect, the strategy has identified those service sectors that are most relevant for diversifying the Irish export base. The action shall, in particular, enable Irish service firms to exploit new opportunities, such as eLearning, business and financial services, professional and consultancy services and others.

2.3. Main policies and instruments in support of innovation in services at European level

This section describes which main types of policies and instruments are supporting the innovativeness of service activities, firms, sectors and markets at Community level. A more in-depth analysis would be necessary to fully assess the impact on the many current EU policies on services innovation, as services cut across many different Community policies and initiatives.

The creation of the **Internal Market** is the most important contribution at European level to the creation of competitive and innovative services. The central principles governing the Internal Market for services are set out in the EC Treaty. This guarantees EU firms the freedom to establish themselves in other Member States and the freedom to provide services on the territory of another EU Member State other than the one in which they are established. The principles of freedom of establishment and free movement of services have been clarified and developed over the years through the case law of the European Court of Justice. In addition, the Internal Market principles have been applied through specific legislation in fields such as financial services, telecommunications, broadcasting and the mutual recognition of professional qualifications.

Liberalisation and harmonisation of specific service markets through Internal Market legislation as well as accompanying competition rules have unlocked the potential for services innovation in many different ways, including most notably the markets for telecommunication[123], postal services[124], transport[125] and financial services[126]. To reap the full

[121] See http://www.gazellegrowth.com/
[122] More information is available at http://www.forfas.ie/media/forfas080912_services_strategy.pdfInsert link
[123] Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment
[124] Directive 97/67/EC as amended by Directive 2002/39/EC and as amended by Directive 2008/06/EC
[125] Council Regulation (EEC) No 1017/68 of 19 July 1968 applying rules of competition to transport by rail, road and inland waterway
[126] European Commission (1998) and European Commission (2005a)

benefits of the Internal Market liberalisation, a series of harmonising measures such as common standards or specifications and accompanying competition rules were laid down in a number of Directives.[127]

The liberalisation of service markets in the EU has stimulated the cross-border provision of services offering more and better choices for consumers and firms, which certainly has stimulated competition and innovation in services in Europe. In this way, the Internal Market has, as an indirect effect, been an important driver of services innovation. But, due to numerous legal and administrative barriers that still exist, the Internal Market in services has remained largely fragmented and is not yet functioning at its full potential. The **Service Directive**[128] was adopted to knock down a broad range of administrative and legal obstacles. The Directive has to be fully implemented by the end of 2009 and proper implementation should result in more cross-border trade of services and easier market access throughout Europe, hereby increasing competitive pressure on tradable services. The lighter legal framework and higher market integration that will result from the Services Directive will help innovative businesses develop their activities across borders and create a springboard for their further internationalisation.

In the field of R&D, services have long been supported at European level through the **Framework Programmes for R&D**. As was already explained in section 4.1, service firms receive nearly as much R&D support at Community level as manufacturing firms. This is mainly due to the specific ICT theme as most ICT-related research includes services. Also other themes of the FP7 Cooperation programme, such as transport, security, health, energy and environment are, to a larger or smaller extent, supporting research which benefits services. A full examination of the importance of services in these programmes would, however, require ex-post evaluations of the individual projects, instead of screening of the ex-ante definitions and guidelines of the programmes.

For example, many research projects are not only supporting new technological developments, but also the development and testing of new service concepts. Services also benefit to a high degree from the SME Specific Work Programme of FP7, which is aimed at supporting firms or groups of firms with more applied and short-term oriented research projects. In addition, the FP7 Socio-economic sciences and humanities work programme has recently included service-specific topics. Although this programme is in an early stage of prioritising services, few, but good examples of research on services can be found in this programme. The NESSI platform[129] or ISTAG[130] provide other good examples of service-related initiatives in FP7.

Besides promoting competition and open markets for services and supporting research at European level, services are also considered as a **driver of sectoral competitiveness in Europe**. In the 2007 Mid-term review of industrial policy, the Commission introduced an initiative on "industry and services" to conduct a detailed screening and competitiveness

[127] Directive (2002/77/EC) on competition in the markets for electronic communications services or Council Regulation (EEC) No 1017/68 of 19 July 1968 applying rules of competition to transport by rail, road and inland waterway

[128] Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market

[129] More information is available at www.nessi-europe.com

[130] More information on Istag is available at http://.cordis.europa.eu/ist/istag.html

analysis of the service sectors and their impact on industrial competitiveness and, if necessary, further sectoral monitoring. The study on "Industrial Policy and Services"[131] analyses the interactions between services and manufacturing, which will help identify potential obstacles to improved competitiveness in Europe.

Service sectors have long received specific attention through **targeted sectoral Community policies** aimed at creating new markets or restructuring and modernising specific service sectors. An early example of such a more targeted approach towards services innovation can be found in the area of **information society** from 1998. The e-Europe initiative[132]defined as a strategic goal that Europe "fully benefits from the changes the Information Society is bringing". In order to make this vision happen, an eEurope Action Plan[133] was presented that included policy measures to review and adapt legislation at national and European level and to facilitate the exchange of experience, support to R&D and demonstration projects and measures to overall coordination of existing policies. The "Go Digital initiative"[134] assisted by the Euro Info Centres network encouraged the adoption of eCommerce by SMEs and the adoption of the eCommerce Directive[135] established harmonised rules on issues, such as the transparency and information requirements for online services providers, commercial communications, electronic contracts and limitations of liability of intermediary service providers. It was expected that the combined effect of these measures would facilitate the take-up of ICT based services in Europe, which also happened.

The **i2010 Communication**[136] sets a framework for addressing the main challenges and developments in the information society and media sectors up to 2010. The i2010 initiative promotes an open and competitive digital economy and emphasises ICT as a driver of inclusion and quality of life. i2010 aims at creating the single "European Information Space", which promotes an open and competitive Internal Market for information society and media services. Further objectives are increasing investments in innovation and research in ICT and fostering inclusion, better public services and quality of life through the use of ICT. The "ICT Policy Support Programme" in the CIP is one of the main financial instruments of i2010 and aims at stimulating innovation and competitiveness through wider take-up and best use of ICT by citizens, governments and businesses, especially SMEs.

This approach of combining different policy instruments with the view to supporting emerging markets was also followed by the **Lead Market Initiative for Europe**[137] (LMI) launched in 2008. This initiative aims at developing innovation-friendly markets in a more targeted way by creating conditions to facilitate the translation of technological and non-technological innovation into commercial products and services. Services are among the six markets, for which specific action plans have been developed by the LMI, in particular in

[131] Baker, P. Miles, I. Rubalcaba, L. Plaisier, N. Tamminen, S. and de Voldere, I. (2008)
[132] European Commission (1999)
[133] European Commission (2002a)
[134] European Commission (2001)
[135] Directive 2000/31/EC on electronic commerce
[136] European Commission (2005b)
[137] The Lead Market Initiative for Europe was launched by the European Commission following the EU's Broad based innovation strategy of 2006. The scope of the LMI, the selection of the six markets and the action plans were approved in the Competitiveness Council of May 2008. See also http://ec.europa.eu/enterprise/leadmarket/leadmarket.htm

eHealth, sustainable construction, recycling and renewable energies. A Midterm Review of the LMI will be published in June 2009.

At sectoral level, most Community level support has been provided to the **ICT sector**. Community initiatives in support of services innovation mainly address the wider take-up of IT and eBusiness by sectors. Inspired by relevant national policies, the Small Business Act (SBA)[138], a series of sector-specific eBusiness actions of European scope was announced. These actions will seek to streamline entire sectors by digitising the whole supply chain and helping all enterprises take full advantage of ICT-enabled innovations. A first, large-scale pan-European pilot action in the textile and footwear sectors started in January 2008; others will follow in the first half of 2009.

There are a number of Community initiatives supporting **European networks for service industries**. The "Nordic Baltic Innovation Platform for Creative Industries"[139] funded under the Nordic Innovation Centre provides a platform for joint actions and mutual learning in the field of creative industries. One of its objectives is to explore the potential of creative industries and design innovation programmes in the Nordic-Baltic area. The network called **"**Creative Growth**"**[140], financed under the Interreg IVC programme, aims at supporting growth in the creative economy and will look at the mapping of the creative industry landscape of participating regions. The **Regions of Knowledge Programme** under FP7 also supports research driven clusters in the field of service industries. An example is the project CReATE financed under this initiative, which is facilitating the cooperation of highly innovative clusters in the creative industries with the objective to bring the benefits of research to SMEs. Furthermore, regional cooperation on dissemination of common projects and exchange of good practices between regions is supported through the **'European Territorial Cooperation'**[141] Objective of the new Cohesion Policy. Building upon networks of voluntary regions, the so-called Fast Track Networks, the "**Regions for Economic Change" initiative**[142] was developed to assist Member States and regions in their efforts to further improve the innovation strategies for the programming period 2007-2013. In this context, there is an opportunity for the Commission to actively work with these networks and inform them of the role that services can have on increasing the competitiveness of regions.

A different Community approach is followed by the "**European Knowledge Intensive Services Innovation Platform"**[143] (KIS-IP), which was launched in February 2008. The KIS-IP addresses the specific needs of innovative service firms and it focuses on the innovative service solutions in technological and industrial fields by developing and testing new or better innovation support mechanisms for innovative SMEs, for example through innovation vouchers financed by innovation agencies and delivered through clusters and private consultancies. The KIS-IP currently consists of three sectoral partnerships in the areas of ICT, space-based services and renewable energy services; new sectors will be added to the KIS-IP

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[138] More Information on the SBA is available at http://ec.europa.eu/enterprise/entrepreneurship/sba_en.htm

[139] See http://www.nordicinnovation.net/_img/04269_nordic_baltic_innovation_platform_for_ci_final_nice_report.pdf

[140] http://www.creative-growth.eu/

[141] The "European Territorial Cooperation" replaces and reinforces the former Community Initiative INTERREG.

[142] More information about this initiative can be found at: http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/index_en.cfm

[143] www.europe-innova.org

in 2009. The KIS-IP can be considered as a "test laboratory" for the development of better practise in support of services innovation. The tools and instruments developed and tested under this initiative are expected to be "rolled out" either at regional or national level by innovation agencies or at European level by the Enterprise Europe Network.

The **Enterprise Europe Network**[144], which was launched in February 2008, supports SMEs in developing their full potential and innovative capacity. The EEN offers a broad range of services to help, assist and advice SMEs and provide information on, and help in accessing EU policies, programmes and funding opportunities. In particular, EEN partners assist firms in identifying potential commercial partners, especially in other countries; help SMEs to develop new products and services to access new markets and inform them about EU activities and opportunities. Furthermore, they advice small businesses on technical issues such as IPR, standards and EU legislation and they act as a two-way street between entrepreneurs and EU decision-makers, relaying views in both directions. Innovative services firms benefit from these support services as do manufacturing firms. However, special efforts will be undertaken in the future to leverage the results from the pilot schemes tested under Europe INNOVA into "base line services" to be provided by EEN partners so that innovative service firms receive better customised support also at European level.

The **EU financial instruments**[145] of the CIP support both innovative firms in manufacturing and services. Managed by the European Investment Fund (EIF) in cooperation with financial institutions at regional level, the EIF target firms in different phases of their lifecycle (seed, start-up, expansion and business transfer) and support investments in technological development, innovation, technology transfer and the cross border expansion of business activities with a total budget of over €1 billion for 2007-2013. Service firms benefit, to a large extent, from these financial instruments, although some bias may exist towards manufacturing and KIBS firms in access to finance.

The Community strategic guidelines on cohesion policy (2007-2013)[146,] stress the need to concentrate resources on research and innovation (RTDI), entrepreneurship, information society, training and adaptability of workers in order to improve competitiveness. Member States have responded positively and have allocated more than €86 billion (25% of the total Structural Funds) to innovation. A significant part of this is directed at services. The approach and contribution to innovation within Cohesion Policy is explained in the Staff Working Document, 'Regions delivering innovation through cohesion policy'.[147] The **support of Cohesion Policy to the development of service activities in regions** and Member States encompasses a wide range of actions that include the modernisation of public administrations, the creation and/or improvement of business services for SMEs, which can include the creation/support of regional innovation agencies and other business intermediaries, the development of financial schemes for SMEs and start-ups, cluster initiatives, of which many focus on service activities, ICT use and dissemination, education and health, etc. A number

[144] The Enterprise Europe Network operates in almost 40 countries and consists of some 500 organisations, including chambers of commerce, regional development agencies and university technology centres. See also: http://ec.europa.eu/enterprise-europe-network

[145] See http://ec.europa.eu/cip/eip_en.htm

[146] http://ec.europa.eu/regional_policy/sources/docoffic/2007/osc/index_en.htm

[147] SEC(2007) 1547 of 14.11.2007 http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/SEC-2007-1547.pdf.

of the actions reported by Member States in this area are, under different forms, supported by Cohesion Policy.

Finally, and in support of innovation policy in general, specific efforts have been undertaken at Community level to better include services in **innovation benchmarking and policy monitoring** and studies. For example, the INNO-Policy TrendChart has recently included some services related policy categories, and the Sectoral Innovation Watch of the Europe INNOVA initiative is specifically looking into the innovation patterns of service sectors, including in particular knowledge intensive services as well as organisational innovation and foresight analysis on potential Lead Markets in the area of services. Furthermore, the IMP³rove database offers rich information on benchmarking innovation strategies in different sectors.

3. TOWARDS A EUROPEAN POLICY APPROACH IN SUPPORT OF INNOVATION: MAIN CHALLENGES

Services innovation is supported, in particular at activity and firm level, by a large number of Community programmes and national initiatives. What is still missing, however, is to bring together these different tools and instruments in support of services innovation in a more strategic manner, seeking synergies between them and serving common objectives. This is what Europe really lacks.

Such a **European policy approach in support of services innovation is not easy to define**, taking into account the different strategic interests of Member States in supporting specific sectors and the wide range of possible actions that can be potentially used to unlock the potential of services innovation at different levels. As services account for around 70% of the employment and of the gross value added generated by EU27, the first priority should be to create a generally favourable business environment in which services innovation can flourish across the board.

A number of **market and systemic failures** exist that may hamper services innovation in Europe. This may call for specific action to address them effectively. One of the challenges of supporting innovation in services is that most of the existing tools and instruments used to support innovation are either less relevant for services or do not fit service business models. Developing more relevant policies for services innovation is therefore a challenge.

Challenge Nº 1: To improve policy exchange and development to strengthen services innovation in Europe

Explicit policies to promote services innovation is a relatively new phenomenon among Member States. Only few Member States such as Denmark, Finland, Germany, the Netherlands and the UK have begun to develop and implement new policies and instruments in support of services innovation. In many Member States, there is still **a lack of awareness of what services innovation actually is** and how to promote it effectively.

Currently, not many "good practice" examples on how to design innovation support programmes that meet the specific needs of service firms exist; even fewer could be easily transferred from one country to another. The **challenge is to accelerate the modernisation of innovation support tools in general**, by sharing practical experience.

However, services innovation in Europe will not flourish if policy is only focussed at activity, firm or even national level. The ultimate challenge is to create new job opportunities through services innovation, and this calls for a **more favourable business environment for service firms** to exploit their innovative ideas across the EU. In this respect, the potential role of service clusters to foster existing strengths and to act as a springboard for exploitation across the European market, and beyond, needs to be explored.

Starting in September 2009, a **project** lead by TEKES, the Finnish innovation agency, will be supported under the Competitiveness and Innovation Programme (CIP) for three years with the aim of strengthening policies and instruments in support of innovation in services to be

implemented at European, national and regional levels. This project is establishing a "Reflection Group", which should identify a range of new policy measures to respond to developments in services and services innovation. Participation by a large number of Member States will be ensured, and the project is aimed at becoming the focal point for policy learning in the area of services innovation in Europe.

The high-level **"European Cluster Policy Group"**[148] established as a follow-up action of the Communication "Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy"[149], has been invited to look specifically into the potential of new emerging service clusters in knowledge-intensive areas. This discussion will be facilitated by the European Cluster Observatory, by better defining service clusters and measuring their economic importance and impact. This statistical information may also help Member States and regions to follow an evidence-based approach in the formulation of new strategies in support of service sectors.

Challenge Nº 2: To improve understanding of the nature and economic impact of services innovation for policy development

The design of new policies and instruments in support of services innovation requires a clear, **evidence-based approach** and a better understanding of the services innovation phenomenon. Different and more comprehensive measures of firms' innovation activities would be needed to improve our understanding of how, and where, services innovation takes place. The current Community Innovation Survey offers the best available statistical information on services innovation, but it does not provide the full picture.

Greater efforts are also required to be able to assess the contribution of services innovation to the overall innovation performance of Member States. The **Service Sector Innovation Index** (SSII), as defined on the basis of indicators specifically relevant for services innovation, offers some interesting first results. However, statistical data on services innovation is not yet available for all EU Member States and not always suitable for making comparisons between different countries. As a result, the SSII currently only delivers results of limited value for policy makers. Benchmarking the national innovation performance in services would require internationally comparable data which is statistically more robust and consistent over time.

Although services innovation is, in principle, measured at sectoral level, little statistical information about the **innovativeness of service sectors** is available. The latest available figures date back to 2005, where only few service sectors were included, and the current definitions do not help our understanding. The craft sector is statistically not well defined and for new service industries such as "creative industries" no commonly agreed definitions exist yet. All this makes it very difficult to assess the innovativeness of different service sectors and to identify the most promising among them. An alternative approach would be to consider the

[148] The high-level European Cluster Policy Group (ECPG) was established on the 22nd of October 2008 by a Commission Decision (2008/824/EC), published in the Official Journal of the European Union (L 288/7) on 30.10.2008. The mandate of the Group is to advise the Commission on how to better assist Member States in supporting the emergence of world-class clusters in the EU.

[149] European Commission (2008c), available at http://ec.europa.eu/enterprise/policies/innovation/policy/clusters/

cluster concept as a means of defining service sectors, taking into account linkages between them and with manufacturing sectors.

Finally, the **data in support of the identification of market or systemic failures** necessary to justify policy action is weak in specific service sectors or value chains. Without such evidence the concept of market and systemic failures remains rather inconclusive, if not arbitrary. A better understanding of all dimensions of services innovation is therefore needed to develop better and more effective tools in support of services innovation as well as to promote the most promising service sectors in a more targeted manner.

Challenge Nº 3: Investing more in research on services innovation and exploiting the results

Many services innovations are based on advanced and new technologies in areas such as software, information technology, entertainment and media production, healthcare, construction, databases and business and financial services. The **research intensity in many service sectors is increasing** and participation of service firms in European research programmes is relatively high. Whether it should or could be higher, taking into account the specific innovation patterns in services, is difficult to assess. A general problem seems to be that most service firms are not well connected to the research community and are therefore not well informed about opportunities for participation. Furthermore, the user-driven nature of most services innovation, as well as its short-term orientation, may limit the interest to participate in long-term research projects.

The **CREST conclusions of 18 April 2008** on "R&D in Services – review and case studies: Promoting the Role of Systematic R&D in Services" highlighted among other issues, the need to take action at European level that will move forward research on services and produce knowledge for policy development. The conclusions also proposed a number of concrete actions, including an invitation to the Commission "to explore, in the context of the mid-term review of the financial perspective, an expansion of research activity on services in the context of FP7 as well as a more comprehensive approach on service research in the forthcoming FP8".[150]

A first step is to support more research on services innovation, in particular to analyse long-term research needs of service firms and, bearing in mind societal and market trends, by taking into account the current support of research on innovation and services of the FP7 Socio-economic sciences and humanities work programme (SSH programme) as well as those of Member States. Furthermore, the 2010 work programme of FP7 on Research for the benefit of SMEs is being reprioritised towards more service-relevant research, by strengthening research on better use of technologies for services innovation. It would be possible to further raise the awareness of these and other opportunities for service firms to participate in FP7, through the National Contact Points for FP7 and the National Research Officers appointed by some Member States, by developing targeted guidance on how service firms might participate in FP7.

[150] European Union Scientific and Technical Research Committee (2008)

Challenge Nº 4: Developing and testing more effective innovation support mechanisms for services

Services innovation has only recently become a subject of political interest. For too long, services have not been recognised as innovation drivers and thus have been widely ignored by innovation policy. Only in recent years, some **Member States have started to address the challenges of services innovation**, but this is still a relatively new area and more emphasis is needed to raise awareness in order to give more priority to this form of innovation. If Europe is to maintain its competitive position, its innovation strategies cannot be based only on technology-based manufacturing. Innovation happens more and more through "open innovation", which means that firms cooperate with each other and interact with users. It is important to offer to innovative SMEs precisely the innovation support they need. This calls for a more user-centred or demand-driven approach of innovation support for all sectors, but for services in particular.

Although the importance of services is now generally well recognised, there are still relatively few specific innovation measures targeting services innovation directly, indirectly or through the improvement of the framework conditions. The public consultation on the effectiveness of innovation support at regional, national and European levels, which was held in spring 2009, confirmed that **manufacturing firms receive more support for financing of innovation projects than services do**. The overall satisfaction rate with public support for innovation was not high for either sector, however, services expressed that support to technology and knowledge transfer was significantly less important than did manufacturing. When analysing the needs of firms for more effective forms of innovation support, these needs are basically the same for the two sectors, but the relative importance differ to some extent. Service firms express, in particular, an even higher need for access to finance, whereas support for IP protection is considered to be of lower importance for services.

The challenge is to ensure that the tools and instruments for innovation support are not exclusively focussed on the traditional manufacturing paradigm, but are responsive also to the needs of service businesses.

Challenge Nº 5: Unlocking the full potential of early stage high growth innovative services firms

A number of recent studies highlight the **significance of high-growth firms as an engine of innovation and economic growth**, quite often through radical innovation and the creation of new market opportunities.[151] Evidence shows that most high-growth entrepreneurial firms or "gazelles" are to be found in services, in particular in knowledge intensive services. However, Europe has generated a much lower number of "global players" than the US in service industries and only very few service firms made it to the top-50 of European firms in recent years. This limits the role service "gazelles" are playing in the rejuvenation of the European economy. In global competition small is not always beautiful.

[151] Link, A.N. and Rees, J. (1991) and Audretsch, D.B. and Feldman, M.P. (1994) and Baumol, W.J. (2004)

Policy makers may need to consider a more fundamental change of policy approach towards "gazelles": High-growth entrepreneurship policy is distinct from traditional SME support, as it aims at supporting the most promising firms, not by "picking winners" but by unlocking the growth potential of young innovative start-up's. At the national level, such specific measures aimed at promoting "gazelles" have been launched in Denmark, Finland, the Netherlands, the UK and Sweden, as reported in the European Innovation Progress Report 2008[152]. These measures differ in terms of criteria, target groups and delivery, but they seem to agree on one specific point: **"Gazelles" need the global market**; hence any public support must be linked to internationalisation. Supported by the removal of international trade barriers and the use of new technologies, in particular ICT, services are increasingly tradable. As a result, the competitive pressure in service markets is growing and more specialisation is expected to take place in many services, for example in areas such as banking, insurance, legal services and other business consultancy services.

Many specific coaching and investment readiness actions have been launched in recent years at European level and in Member States to support the emergence of more European "innovation gazelles" in service sectors. These efforts may now be in vain, as the economic downturn makes it much harder to finance new service business concepts. It would not make much sense, to provide promising service firms with further public support relating to investment readiness and better innovation management if such actions are not accompanied by facilitating access to finance. In order to improve the overall effectiveness of innovation support, these measures may have to be more selective, favouring those firms with the highest growth and innovation potential. Recent results from the Europe INNOVA initiative show that innovative SMEs operating in riskier environments like knowledge intensive services or very early stage markets continue to have problems accessing finance. For example, space-based services have difficult access to capital for breakthrough development in Europe. This is due to the problems in the European risk capital markets, in particular to the problem of providing sufficient growth capital. These problems are addressed in detail in the Staff Working Document "Financing Innovation and SMEs".

From the viewpoint of specific areas of innovation, such as knowledge intensive services and new innovative high potential markets, the **problems in access to finance** are particularly acute. Improved access to a variety of financing sources that are accompanied by the necessary support is essential. Projects in the area of knowledge intensive services (KIS-IP) have indicated that large gaps in access to finance continue to exist. In particular, a better availability of venture capital plays an essential role in promoting innovation in Europe. Due to the variety of problems in access to finance, an evaluation of appropriate instruments and their features for each problem area require an extensive review. This is especially true when trying to achieve a pan-European venture capital market, but also the low level of business angel investment continues to be a problem for innovative entrepreneurs.

Challenge Nº 6: Better exploiting the synergies between different policy instruments and creating more favourable market conditions

As indicated earlier, it is not enough to support services innovations at activity or firm level, but rather a holistic approach is often required to ensure that new ideas can be brought

[152] European Commission (2009), available at: http://www.proinno-europe.eu/admin/uploaded_documents/EIRP2008_Final_merged.pdf

successfully to market. Such strategic approaches may either be built upon specific sector strengths, for example through clusters, or aimed at creating new market opportunities. Improving the framework conditions for the most advanced services innovations, while at the same time developing and applying more effective innovation support tools in a more strategic and coordinated manner, is a double challenge that is still awaiting appropriate policy responses. This is the approach of the **Lead Market Initiative (LMI)**[153] that was launched in 2007 by the European Commission with the objective of accelerating the development of innovations through better coordination between different policy instruments, such as public research, legislation, public procurement and standardisation. A review of the LMI is presented in the Staff Working Document "Mid Term Progress Report of the Lead Market Initiative"[154].

Service sectors are well represented in the first phase of the LMI, which include for example, eHealth, recycling and sustainable construction. Some Member States have identified specific service sectors as key drivers for innovation, competitiveness and growth and their strategic approaches reflect the diversity of their national research and industry endowment. However, innovative businesses can only prosper at global level if new products and services have access to markets that are large enough to compensate for the costs of innovation and allow an adequate return on capital, taking account of the risks involved. National markets in Europe are typically too fragmented to be of a size which confers such competitive advantage. Thus, it is this diversity of culture and practice which is both Europe's strength and weakness.

The **"European Services Innovation Memorandum"** has recognised this challenge by stating that "services innovation policy should be more focused on demand side innovation policies to stimulate and lead markets". The LMI has shown its potential to use different policy instruments in a more coordinated manner and to concentrate them on strategic objectives.

Finally, a **project** starting in September 2009 funded under the CIP programme on services innovation will specifically analyse the scope for a more systemic approach in support of services innovation, building upon national initiatives in this field.

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To sum up, services innovations can and need to be supported at different levels and by different instruments. A better **European policy approach supporting services innovation** would have to make better use of available Community instruments, aiming at providing service firms with a favourable business environment for innovation and growth and stimulating the creation of new service-driven markets. The European economy will obviously look different once the economic crisis is over, and innovative services will inevitably play a major role in this restructuring process.

At **activity level**, the main challenge is to broaden the knowledge base for services. This not only calls for more and better research on new service concepts, but also for the development of new skills that better address the needs of service firms. Furthermore, new forms of

[153] European Commission (2007a)
[154] SEC(2009)xxx

knowledge diffusion and better networking between the research and business community need to be developed so that the research results can spread more easily and be turned into new service applications.

At **firm level**, innovation support mechanisms need to be better adapted to the specific needs of service firms, allowing for more customised advice and greater flexibility. As services innovation is predominantly user-driven, innovation support must be provided more directly and in different form, in particular with the view to facilitating the growth and internationalisation of service firms so that more innovation leaders are being created in Europe. The current economic crisis would call for even stronger support for entrepreneurship and risk taking. This is the time to test as many new business ideas as possible in order to lay down the foundations for later recovery.

At **sectoral level,** innovation clusters can help create entirely new service sectors, in particular by developing and promoting new technology-based services in close partnerships between larger firms, universities, innovative SMEs and local user groups. Such service clusters often need different forms of support, as users play a much stronger role in them and they are more often at the crossroads between different sectors, technologies and professions.

At **market level**, services innovation can be best stimulated by activating demand for innovative service concepts and removing barriers for their practical use. Building trust for consumers, and using public procurement as a catalyst for services innovation, helps develop the innovation potential created by technological development and innovative enterprises, supported by strong "eco-systems" at regional level. At European level, this approach is best represented by the LMI which aims at bringing together relevant policy instruments in a more strategic manner in order to create more favourable conditions for new markets to emerge.

Together, these different challenges could form the essence of a more strategic orientation in support of services innovation. To have a real impact, the different instruments available at regional, national and European level must be combined in a way that they complement each other, supported by horizontal policies which address challenges of a general nature. The **subsidiarity principle** suggests that the main responsibility for supporting innovative service firms and creating strong "eco-systems" lies with the Member States and regions themselves, whereas the general framework conditions for enabling services innovations would have to be improved at European level in order to have the strongest possible impact and leave European firms best placed to capitalise on global developments.

Figure 32: Overview of challenges for services innovation at European level

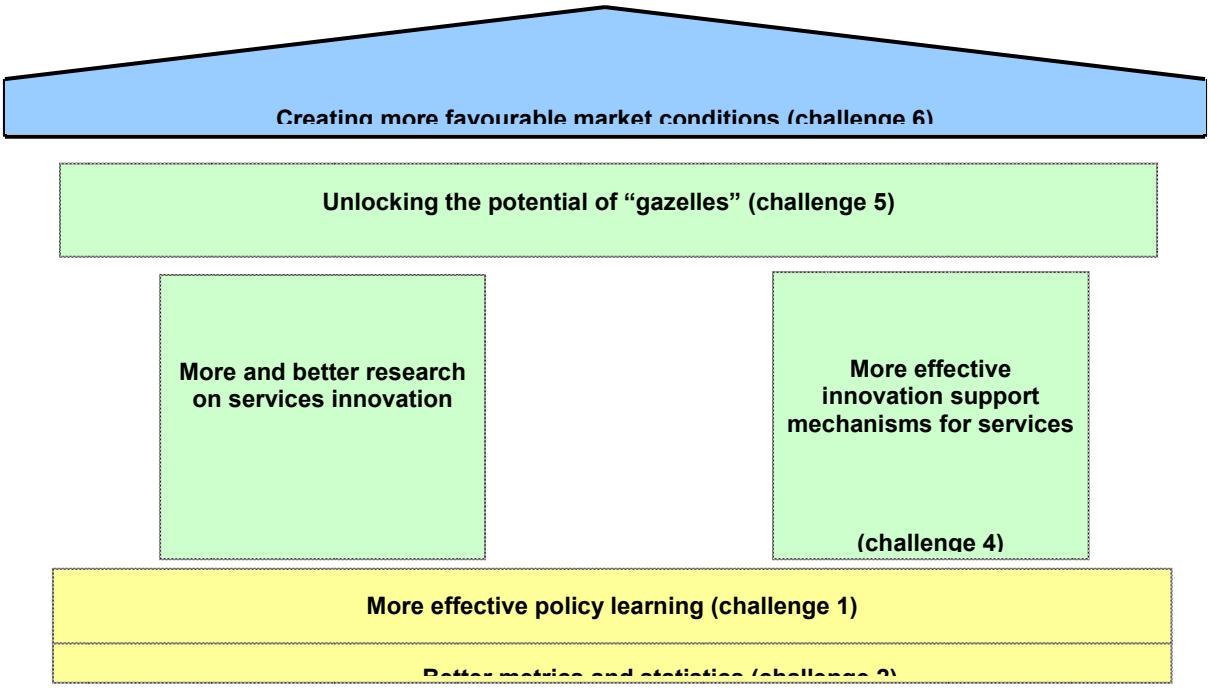

Figure 32 summarises how the different challenges as identified above are strategically linked together. Better metrics on services innovation and more effective instruments for mutual policy learning form the basis for designing and implementing better innovation support mechanisms in the area of services. Without that, an **"evidence-based" policy approach** could not be contemplated and the design of new support mechanism would not be based on well identified barriers, and market and systemic failures.

More efforts need to be undertaken to adapt existing policies and instruments, such as R&D and innovation support, to the specific needs of services innovation.

REFERENCES

Achieve More Partnership (2009) *Funding Knowledge Intensive Service Ventures in the ICT Sector*, Europe INNOVA, available at http://www.europe-innova.org/index.jsp#

Ark, B. van Broersma, L. and den Hertog, P. (2003) *Services Innovation, Performance and Policy: A Review*, Synthesis Report in the Framework of the Project Structurele Informatievoorziening in Diensten (SSID) (Structural Information provision on Innovation in Services).

Audretsch, D.B. and Feldman, M.P. (1994) *R&D spillovers and the recipient firm size*, The Review of Economics and Statistics, 336-340.

Baumol, W.J. (2004) *Entrepreneurial enterprises, large established firms and other components of the free-market growth-machine*, Small Business Economics, 23, 9-2.

Bruno, N., Miedzinsky, M., Reid, A. and Ruiz-Yaniz, M. (2008) *Socio-cultural determinants of innovation in the sector of information and communication technologies (ICT),* Europe INNOVA, Sectoral Innovation Watch, WP10, February.

Camacho, J. A. and Rodriguez, M**.** (2007) Integration and diffusion of KIS for industry performance. In Rubalcaba, L. and Kox, H. (eds), *Business Services in European Economic Growth,* Palgrave/Macmillan, 128-143.

Carlsson, B. and Jacobsson, S. (1997) In search of useful public policies: Key lessons and issues for policy makers. In Carlsson, B. (ed.) *Technological Systems and Industrial Dynamics,* Dordrecht: Kluwer Academic Publishers.

Council of the European Union (2008) *Brussels European Council 11 and 12 December 2008, Presidency conclusions* (17271/1/08 REV 1).

Council of the European Union (2006) *Council Conclusions on a broad-based innovation strategy: Strategic priorities for innovation action at EU level*, 2769th Competitiveness (Internal Market, Industry and Research, Council meeting of 4 December 2006*,* Brussels.

Council of the European Union (1968) *Rules of competition to transport by rail, road and waterway,* Council Regulation (EEC) No 1017/68 of 19 July 1968.

Cruysen, A. van and Hollanders, H. (2008) *Are specific policies needed to stimulate innovation in services?* INNO Metrics 2007 report, Brussels: European Commission, Directorate-General for Enterprise and Industry.

Cunningham, P. (2007) *Innovation in Services*, INNO Policy Trendchart Thematic Report, 2007, PRO INNO Europe, available at http://www.proinnoeurope.eu/ admin/uploaded_documents/Thematic _Report_Innovation_Services_Nov_2007.pdf

Danish Council for Technology and Innovation (2008): *Innovation strategy for service enterprises – New Danish programme for service innovation,* published by the Danish Agency for Science, Technology and Innovation.

Designium Innovation Centre of the University of Art and Design Helsinki UIAH (2006) *'Nordic Baltic innovation platform for Creative Industries,* the Nordic Innovation Centre Norden, March 2006.

Dosi, G. (1988) *Sources, procedures, and microeconomic effects of innovation*, Journal of Economic Literature, 26, 1120-1171.

European Commission, DG Enterprise and Industry (2009) *European Innovation Progress Report 2008*. In http://www.proinno-europe.eu/admin/uploaded_documents/EIRP2008_Final_merged.pdf

European Commission (2009): *Making public support for innovation in the EU more effective: Lessons learned from a public consultation.* Commission Staff Working Document SEC (2009) xxx

European Commission (2008a): *Innovative Business Models with Environmental Benefits*, Draft final report, COWI, Kongens Lyngby, July 2008.

European Commission (2008b): *Regulation declaring certain categories of aid compatible with the common market in application of Articles 87 and 88 of the Treaty (General block exemption Regulation),* Commission Regulation (EC) No 800/2008 of 6 August 2008.

European Commission (2008c) *Towards world-class clusters in the European Union: Implementing the broad-based innovation strategy*. Communication COM (2008) 652, available at http://ec.europa.eu/enterprise/policies/innovation/policy/clusters/

European Commission (2008d) *An Industrial Property Rights Strategy for Europe,* Communication from the Commission to the European Parliament and the Council COM (2008) 465 final, available at http://ec.europa.eu/internal_market/indprop/docs/rights/2008_0465_en.pdf

European Commission (2008e) *Fifth progress report on economic and social cohesion – Growing regions, growing Europe*, Communication from the Commission to the European Parliament and the Council COM (2008) 371 final, Luxembourg: Office for Official Publications of the European Communities, available at http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/interim5_en.htm

European Commission (2008f) *The concept of clusters and cluster policies and their role for competitiveness and innovation: Main statistical results and lessons learned,* Commission Staff Working Document SEC (2008) 2637, available at http://ec.europa.eu/enterprise/policies/innovation/documents/index_en.htm

European Commission (2008g) *European Competitiveness Report 2008,* Commission Staff Working Document SEC (2008) 2853 of 28.11.2008, available at http://ec.europa.eu/enterprise/enterprise_policy/competitiveness/1_eucompetrep/eu_compet_reports.htm

European Commission (2008h) *The Future of Services,* available at http://www.reser.net/The-future-of-services_a380.html

European Commission (2007a) *A Lead Market Initiative for* Europe. Communication COM (2007) 860.

European Commission to the Spring European Council (2007b) *Integrated Guidelines for Growth and Jobs (2008-2010)*, Communication COM (2007) 803 final Part V to the Spring European Council.

European Commission (2007c) *Mid-term review of industrial policy: a contribution to the EU's growth and jobs strategy*, Communication COM (2007) 374.

European Commission (2007d) *Towards a European Strategy in support of innovation in services: Challenges and key issues for future actions*, Commission Staff Working Document, SEC (2007) 1059.

European Commission (2007e) *Guide on dealing with innovative solutions in public procurement – 10 elements of good practice*, Commission Staff Working Document, SEC (2007) 280.

European Commission (2006a) *Community Framework for State Aid for Research and Development and Innovation*, Official Journal of the European Union (2006/C 323/01) of 30.12.2006.

European Commission (2006b) *A renewed EU Tourism Policy: Towards a stronger partnership for European Tourism,* Communication COM (2006) 134 final.

European Commission (2006c) *Pre-commercial procurement of innovation- A missing link in the European Innovation cycle*, March 2006, available at http://ec.europa.eu/information_society/tl/research/key_docs/documents/procurement.pdf

European Commission (2005a) White Paper *Financial Services Policy (2005-2010*), Communication COM (2005) 629 final.

European Commission (2005b) *i2010 – A European Information Society for growth and employment,* Communication, COM (2005) 229 final.

European Commission (2002a) *eEurope 2005-An information society for all*, Communication COM (2002) 263 final.

European Commission (2002b) *Directive (2002/77/EC) on competition in the markets for electronic communications services*, Official Journal of the European Communities (L 249/21) of 17.9.2002.

European Commission (2001) *Helping SMEs to "Go Digital"*. Communication COM (2001) 136 final.

European Commission (1999) *eEurope2002- Communication on a Commission Initiative for the Special European Council of Lisbon, 23 and 24 March 2000,* Communication COM 1999/687, December 1999.

European Commission (1998) *Financial Services: building a framework for action, Communication* COM (1998) 625 of 28.10.98.

European Parliament/ Council of the European Union (2006) *Directive 2006/123/EC of 12 December 2006 on Services in the internal market,* Official Journal of the European Union (L 376/36) of 27.12.2006.

European Parliament and Council of the EU (2002) *Directive (2002/77/EC) on competition in the markets for electronic communications services*, Official Journal of the European Communities (L 249/21) of 17.9.2002.

European Parliament and Council of the European Union (2000) *Directive 2000/31/EC of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market,* Official Journal of the European Communities (L 178/1) of 17.7.2000.

European Parliament/ Council of the European Union (1998) *Directive 98/10/EC on the application of open network provision (ONP) to voice telephony and on universal service for telecommunications in a competitive environment,* Office Journal of the European communities(L101/24) of 01.04.98.

European Union Scientific and Technical Research Committee (2008) *CREST Conclusions of 18 April 2008: R&D in Services – review and case studies: Promoting the Role of Systematic R&D in Services*. CREST 1205/08

Federal Ministry of Education and Research (2006a) *The High-Tech Strategy for Germany*, Bonn, Berlin.

Federal Ministry of Education and Research (2006b) *Innovation With Services*. BMBF-Funding Programme, Bonn, Berlin.

Florida, R. and Tinagli, I. (2004). *Europe in the Creative Age,* Carnegie Mellon & DEMOS.

Gallego, J. and Rubalcaba, L. (2008) *Shaping R&D and service innovation in Europe*, International Journal of Services Technology and Management, 9, 3/4, 199-217.

Green, L., Howells, J. and Miles, I. (2001) *Services and innovation: Dynamics of service innovation in the European Union,* Final report, PREST & CRIC, Manchester: University of Manchester.

Hertog, P. den, Rubalcaba, L. and Segers, J. (2008) *Is there a rationale for services R&D and innovation policies?* In *Int. J. Services Technology and Management, Vol 9. Nos. 3/4.*

Hollanders, H. and Kanerva, M. (2009) *Service sector innovation: Measuring innovation performance for 2004 and 2006 using sector specific innovation indexes*, INNO Metrics 2009 report, Brussels: European Commission, DG Enterprise.

Kane, A. (2001) *Rationales for science, technology and innovation policy*, working paper for Irish Council for Science, Technology and Innovation (ICSTI), Task force on Force on Metrics and Impact, Dublin.

Kox, H. and Rubalcaba, L. (2007) The contribution of business services to European economic growth, in Rubalcaba, L. and Kox, H. (eds), *Business Services in European Economic Growth*, Palgrave/Macmillan, .74-94.

Link, A.N. and Rees, J. (1991) *Firm size, university-based research and the return to R&D*, in Acs, Z.J. and Audretsch, D.B. (eds.) *Innovation and Technological Changes: An International Comparison*, Acs, Z.J.

Malerba, F. (1997) *An evolutionary perspective on technology policy in industrial dynamics*. CESPRI – Bocconi University, Milan: Mimeo.

OECD (2005) *Enhancing the performance of the service sector,* OECD Proceedings, Paris.

OECD/Eurostat. (2005) *Oslo Manual: guidelines for collecting and interpreting innovation data,* 3rd edition. Paris, France.

RENESER (2006) *Research and Development Needs of Business Related Service Firms*, *Final report to DG Internal market and services*, Report commissioned by DG Internal Market and Services of the European Commission, Dialogic / Fraunhofer / PREST / Servilab, Utrecht / Stuttgart / Manchester / Madrid.

Rubalcaba, L. and Kox, H. (2007), *Business Services in European Economic Growth*. Palgrave-MacMillan.

Smith, K. (2000) *Innovation as a systemic phenomenon: Rethinking the role of policy, Enterprise and Innovation Management Studies*, Vol. 1, No. 1, 73-102.

Stiglitz, J.E. (1991) *The invisible hand and modern welfare economics*, NBER Working Paper No.3641.

Tekes (2007) *The European Services Innovation Memorandum.* IPPS 2006-2007.

Tekes (2006) *Serve-Innovative Services Technology Programme 2006-2010*. available at http://akseli.tekes.fi/opencms/opencms/OhjelmaPortaali/ohjelmat/Serve/en/etusivu.html

Tomlinson, M. (2000) Information and technology flows from the service sector: a UK-Japan comparison, in Boden, M. and Miles, I. (eds.), *Services and the Knowledge-Based Economy*, London and New York: Continuum, 209-221.

TNO Information and Communication Technology (2008) *The policy mix for e-Business use by SMEs:* Inspiration from Denmark, Finland and other countries, TNO report 35569, in http://ec.europa.eu/enterprise/newsroom/cf/itemshortdetail.cfm?item_id=1635&lang=fr

Windrum, P. and Tomlison, M. (1999) *Knowledge-intensive services and international competitiveness: a four country comparison*. Technology Analysis and Strategic Management, 11, 3, 391-408.

The Work Foundation (2007) *Staying ahead: the economic performance of the UK's creative industries*, report published by the UK government Department for Culture, Media and Sport (DCMS), June 2007, pages 30-31 and 192, available at http://www.culture.gov.uk/reference_library/publications/3672.aspx/

GLOSSARY

Business services cover a broad spectrum of services principally traded in business-to-business transactions. These intermediary services range from software development to temporary-labour agencies, from equipment rental to economic consultancy, and from translation services to accountancy. From a statistical point of view, most of the business-services sub-sectors are included in Section K of the European Union's NACE classification (Rev. 1.1).

Eco-system is a complex set of relationships among different private and public institutions, businesses, service providers and consumers including their economic, legal and cultural environment in a given geographical area, which sets the framework conditions for the continuous flow of products, services, knowledge and people.

The **EU KLEMS project** aims to create a database on measures of economic growth, productivity, employment creation, capital formation and technological change at the industry level for all EU Member states from 1970 onwards. This work provides an important input to policy evaluation, in particular for the assessment of the goals concerning competitiveness and economic growth potential as established by the Lisbon and Barcelona summit goals. The database should facilitate the sustainable production of high quality statistics using the methodologies of national accounts and input-output analysis.

"**Gazelles**" are defined as small firms with extraordinarily high growth rates over several years. The OECD applies the following definition: "Enterprises, being employers for a period of up to 5 years, with average annualised growth in employees (turnover) greater than 20% a year, over a 3-year period and with 10 employees at the beginning of the observation period".

High-tech knowledge intensive services (HTKIS) are classified by Eurostat with NACE codes 64-post and telecommunications, 72-computer and related activities and 73- research and development services (see Figure 11).

The **IMP³rove database** consists of data provided by SMEs that are older than 2 years and have at least 5 employees. The database is the basis for benchmarking in all dimensions of innovation management (innovation strategy, innovation organisation and culture, innovation lifecycle management and enablers as well as innovation management impact). The benchmarking sample can be selected by the SME by industry, geography, company age and/or size. The benchmarking results are generated in an automated manner and documented in the IMP³rove Assessment Report. The IMP³rove benchmarking is a dynamic benchmarking that means that with every SME that fills in their data, the benchmark might be redefined. SMEs can access the IMP³rove benchmarking via www.improve-innovation.eu.

Knowledge intensive Services (KIS) can be 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. See services. Eurostat defines the NACE Rev 1.1 codes 61, 62, 64, 65 to 67, 70 to 74, 80, 85, 92 as knowledge intensive services (KIS) (see Figure 9).

Manufacturing firms are defined as firms creating value by developing specific products which are usually enduring.

Potential high growth firms are defined as young firms with the potential to become "gazelles", see "gazelles".

Services are defined in the Oslo manual[155] in the manner that "a key element of services is that the distinction between products and processes is often blurred, with production and consumption occurring simultaneously. Development of processes can be more informal for services than for goods, with an initial phase consisting of search, idea gathering and commercial evaluation, followed by implementation."

Service clusters can be defined as a group of firms with a predominant share of services, related economic actors, and institutions that are located near each other and have reached a sufficient scale to develop specialised expertise, services, resources, suppliers and skills. They are a real economic phenomenon that can be economically measured, whereas cluster policies in support of services are more an expression of political commitment to support existing service clusters or the emergence of new service clusters, and cluster initiatives in support of services are organised efforts to achieve this.

Service enterprises /firms or companies are characterised as those whose produced performance is mainly linked to service provision which is either linked to material products or is of a purely immaterial nature with an often high level of expertise involved. This also means that service cannot be stored or kept, but that service is consumed at the moment of production.

Services innovation is defined in the Oslo manual as "Innovation activity in services tends to be a continuous process, consisting of a series of incremental changes in products and processes. This may occasionally complicate the identification of innovations in services in terms of single events, i.e. as the implementation of a significant change in products, processes or other methods."

For the purpose of this document, services innovation refers mainly to innovation in the service sector provided by service entrepreneurs or 'service firms'. When relevant, it also refers to innovation in service activities in all sectors, including manufacturing. When measuring innovation in services it is usually the measuring of innovation in the service sector, and the NACE classification of the service sector is used.

Service sector According to Eurostat the terms service industry(ies), service sector(s) or simply service(s) are generally used to refer to economic activities covered by Sections G to K and M to O of NACE Rev 1.1 codes.

[155] OECD/Eurostat (2005)