Knowledge Intensive Business Services

Priority Sector Report

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Executive summary

- In this report Knowledge Intensive Business Services (KIBS) are defined as a combination of professional services, financial services, information services, and education and research
- There are approximately 18.8 million employees in KIBS in Europe, or 11% of overall employment
- Regions with higher share of KIBS are among the most prosperous in Europe
- KIBS are particularly concentrated in urban regions, particularly in the capital cities, though cities like Zurich, Oxford and Frankfurt also exhibit disproportionately high concentration of KIBS
- The regions with the highest share of KIBS are: London, Zurich, Vienna, Stockholm, Brussels, Frankfurt and Paris, all of which have at least 20% of employment in KIBS
- The employment in KIBS grew by an average 2.3% in the period between 2006 and 2011 compared to the growth of the overall economy by 1.5%
- The fastest growing region is Slovenia (18% annually) followed by regions in Bulgaria, Romania, France and Scandinavia
- Among nations, Switzerland, Sweden, Austria and United Kingdom have highest share of employment in KIBS with UK also being the largest in Europe in absolute terms
- The different sub-sectors of KIBS exhibit different location patterns: professional and financial services are relatively spread-out, while information services and research activities are more concentrated
- Only a few regions score high on all or most of the sub-sectors, mostly large European capitals like London and Paris, as well as a few non-capitals such as Oxford, Zurich and Frankfurt

Introduction

According to the original definition[1] Knowledge Intensive Business Services are services and business operations that:

- Rely heavily upon professional knowledge
- Either supply products which are themselves primarily sources of information and knowledge to their users, or use their knowledge to produce services which are intermediate inputs to their clients' own knowledge generating and information processing activities
- Have as their main clients other businesses (including public services and the self-employed)

Figure 1. KIBS specialisation and prosperity

The presence of a highly developed KIBS sector is often seen an important factor of regional prosperity. In fact, plotting GDP per capita against regional specialisation[2] in KIBS reveals a very

[1] Miles, I., N. Kastrinos, K. Flanagan, R. Bilderbeek, P. den Hertog, W. Huntink and M. Bouman (1995) Knowledge-Intensive Business Services, Report to DG13 SPRINT-EIMS

[2] Specialisation is measured by location quotient that compares the local share of KIBS employment with the European one.

strong relationship between these two factors[3]: wealthier regions exhibit disproportionally large concentration of knowledge intensive business service employment.

In terms of exact definition of KIBS, multiple studies have proposed mapping from industry codes to KIBS[4]. However most of them were done using revision 1.1 of the NACE classification of economic activities. In 2007 revision 2.0 of these codes was introduced, which particularly strongly impacted the composition of service industries as the general understanding of the services sectors evolved since the 1990s. In this report we used these up-to-date NACE 2.0 codes to define KIBS as the composite of the four sub-sectors: professional services, information services, financial services, and education and research (see Appendix 1 for exact definitions).

The analysis in this report relies on the data collected for European Cluster Observatory and covers NUTS level 2 regions in EU27 and EEA with minor modifications made in some cases due to data availability[5]. The data represent the latest available figures for each region and in most countries represent 4-digit NACE rev 2.0 industry codes. In United Kingdom and Iceland we are using older data and the codes are on 4-digit NACE rev 1.1, while in the Netherlands, Greece and Czech Republic we were only able to obtain 3-digit figures.

Size and Focus

Knowledge intensive business services accounted for 18.8 million employees corresponding to 11% of the overall European employment or 14% of all services.

KIBS are predominantly an urban activity as evidenced by Table 1: largest regions in terms of total employment typically have largest KIBS employment as well. However, this is not always the case and some regions have much more employees in KIBS than would be expected if this activity was distributed proportionally to overall employment, while others score considerably lower.

In particular, Zurich, Oxford and Frankfurt have much higher KIBS ranks than total employment ranks, while Sevilla, Valencia and Venice have relatively few employees in KIBS.

Table 1. Ranks of regions by total employment and employment in KIBS

Region	Largest city	Total rank	KIBS rank
Île de France	Paris	1	1
Lombardia	Milan	2	4
Cataluña	Barcelona	3	5
Madrid	Madrid	4	3
Andalucía	Seville	5	13
Niedersachsen	Hanover	6	9

[3] GDP data from Eurostat, size of the bubble represents number of employees in a region

[4] E.g. Miles, I. (2005) Knowledge-intensive business services: prospects and policies, foresight, vol 7, iss 6

[5] Ireland, Slovenia, as well as three regions in Germany, one in Italy and one in Finland are reported on NUTS 1

Region	Largest city	Total rank	KIBS rank
Inner London	London	7	2
Valencia	Valencia	8	24
Rhône-Alpes	Lyon	9	14
Mazowieckie	Warsaw	10	8
Düsseldorf	Dusseldorf	11	10
Veneto	Venice	12	30
Oberbayern	Munich	13	7
Outer London	London	14	19
Attiki	Athens	15	18
Emilia-Romagna	Bologna	16	29
Lazio	Rome	17	12
Stuttgart	Stuttgart	18	15
Darmstadt	Frankfurt-am-Main	19	6
Zuid-Holland	Rotterdam	20	16
Köln	Cologne	21	11
Piemonte	Turin	22	26
Provence-Alpes-Côte d'Azur	Nice	23	36
Lisboa	Lisbon	24	40
Rheinland-Pfalz	Mainz	25	47
Kozep-Magyarorszag	Budapest	28	25
Berlin	Berlin	33	20
Noord-Holland	Amsterdam	34	23
Surrey, E and W Sussex	Brighton	36	21
Berks, Bucks and Oxon	Oxford	39	17
Zürich	Zurich	90	22

Another way to look at this is to compare the shares of KIBS employment in the overall employment structure of the region. We call this measure ‘KIBS focus’ and it is plotted in Figure 2 across Europe.

Again, the regions with highest concentrations of KIBS are mostly urban, in particular the capital cities. However there are significant concentrations of KIBS in some non-capital areas, in particular in Switzerland, Sweden, Austria, United Kingdom and Germany.

Another interesting feature of this map is that in most countries all regions have at least 5% of employees working in knowledge intensive services suggesting they play an important role in every context.

The most focused regions have more than 20% of employment in KIBS and include Paris, Frankfurt, Brussels, Stockholm, Vienna, Zurich and London, which has more than 28% of employees working in knowledge intensive business services.

Figure 2. KIBS focus in Europe

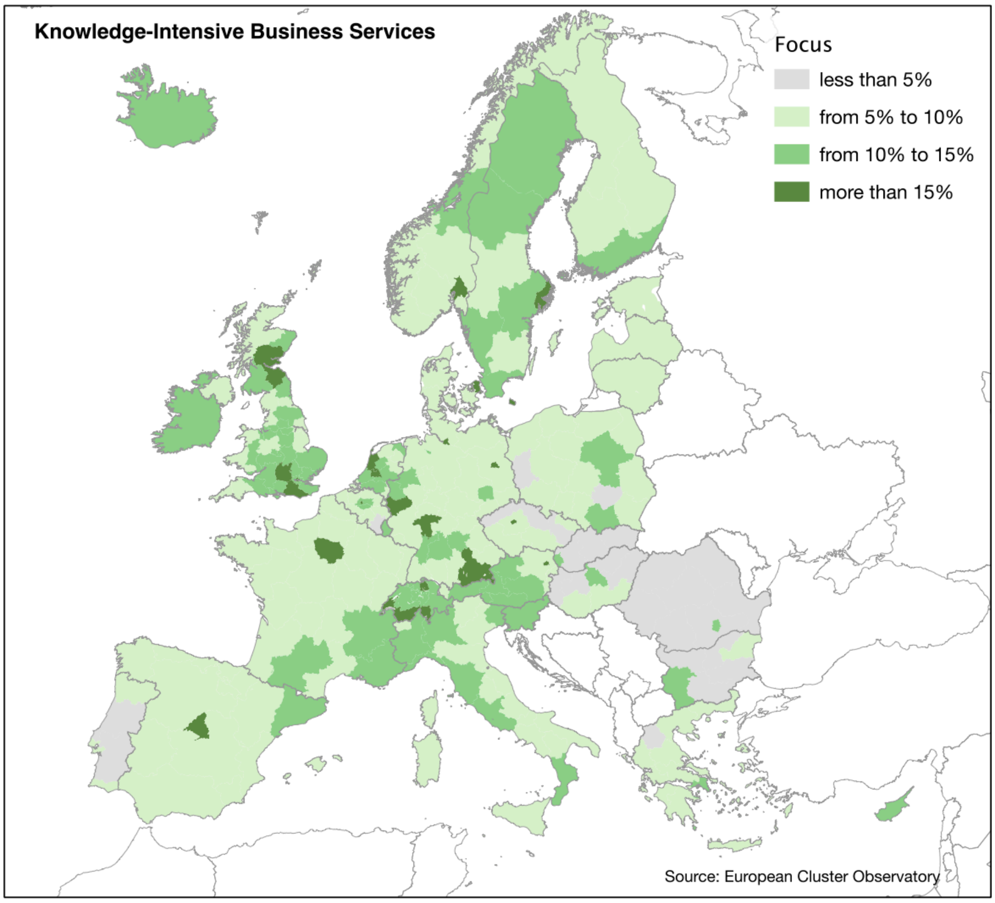


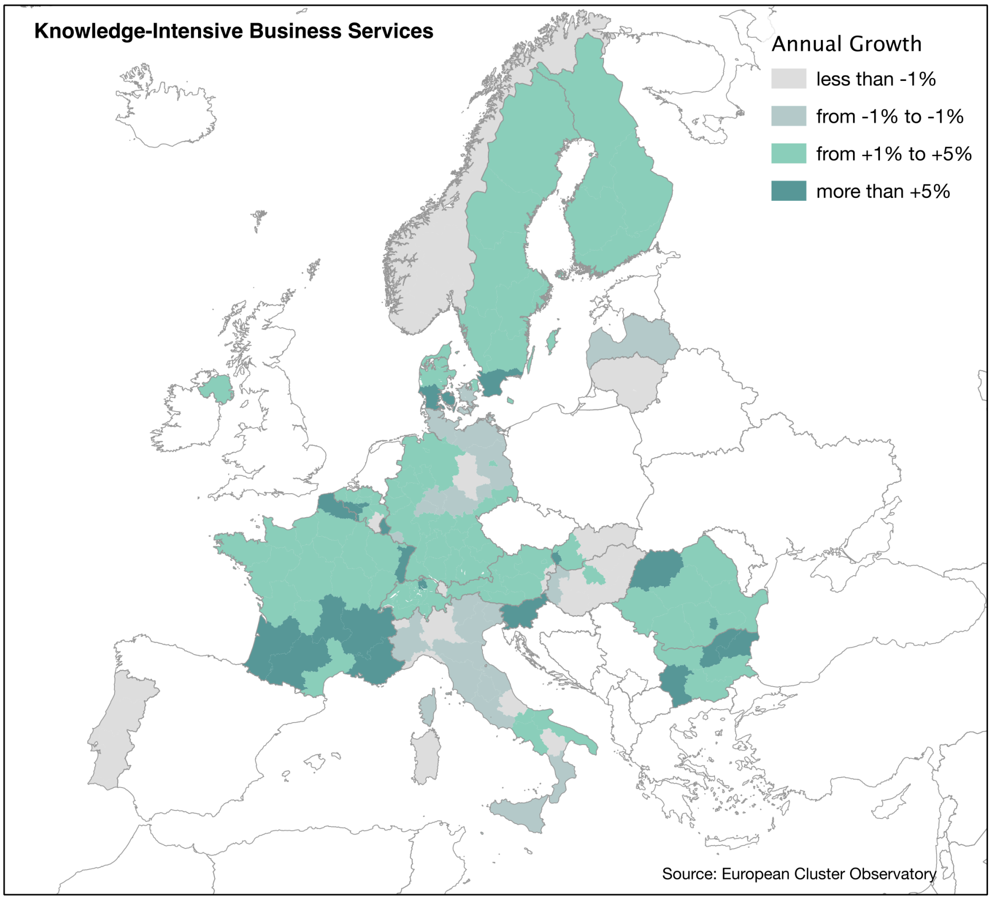
Table 2. Top 15 regions by KIBS Focus

Region	KIBS Employment	KIBS Focus
Inner London	668,729	28.1%
Zürich	176,381	26.4%
Wien	155,715	22.5%
Stockholm	157,798	22.4%
Brussels	125,600	21.9%
Darmstadt	310,501	20.8%
Île de France	992,323	20.4%
Berks, Bucks and Oxon	218,045	19.8%
Hamburg	151,285	18.1%
Région lémanique	112,277	17.9%
Utrecht	91,552	17.8%
Hovedstaden	161,735	17.8%
Oberbayern	308,335	17.7%
Madrid	520,052	16.2%
Berlin	185,110	16.1%
Köln	235,494	16.0%
Praha	97,766	16.0%
Surrey, E and W Sussex	181,301	15.9%
E Scotland	140,172	15.5%
Oslo og Akershus	64,351	15.4%

Growth

The employment in KIBS grew by an average 2.3% in the period between 2006 and 2011 compared to the growth of the overall economy by 1.5%. It has to be noted that these figures reflect only the data for a subset of countries where the data was available at both points in time[6].

Figure 3. KIBS growth in Europe



Some of the fastest growing regions in Europe are located in Southern France and Scandinavia. However, we can also observe rapid growth in Romania and Bulgaria where the share of KIBS was relatively low previously. The fastest growing region in this period was Slovenia, which increased employment in KIBS by 18% (compared to a 6% increase in the overall economy based on the same data).

The regions typically considered European champions in innovation, as measured by Regional Innovation Survey, exhibit very strong growth patterns in KIBS. This is in contrast the the KIBS report prepared at European Cluster Observatory in 2009, where many of the top RIS regions saw a decline in KIBS employment. However, in general comparing the European employment data over time remains problematic due to data availability, changes in the NACE classification and intra-country reporting of certain sectors.

[6] Austria, Belgium, Bulgaria, Denmark, Germany, Hungary, Finland, France, Italy, Latvia, Lithuania, Luxembourg, Norway, Northern Ireland, Portugal, Romania, Slovakia, Slovenia, Sweden

Table 3. KIBS growth of top 10 regions by RIS

Region	KIBS Growth	RIS 2006
Stockholm	3.0%	0.90
Västsverige	2.9%	0.83
Oberbayern	3.6%	0.79
Etelä-Suomi/Åland	2.0%	0.78
Karlsruhe	3.0%	0.77
Stuttgart	2.9%	0.77
Sydsverige	7.9%	0.76
Île de France	2.9%	0.75
Östra Mellansverige	3.1%	0.74
Berlin	3.8%	0.74

National perspective on growth, size and specialisation

On the national level, the country with the highest number of employees in KIBS is United Kingdom with 3.6 million employees. This is considerably larger than Germany, which is larger in the total size of the economy, but has 300 thousand fewer KIBS employees. Switzerland and Sweden have the highest shares of KIBS employment at 18.1% and 16.2% respectively, while the fastest growing countries are Slovenia and Luxembourg.

Table 4. KIBS growth, size and specialisation on the national level

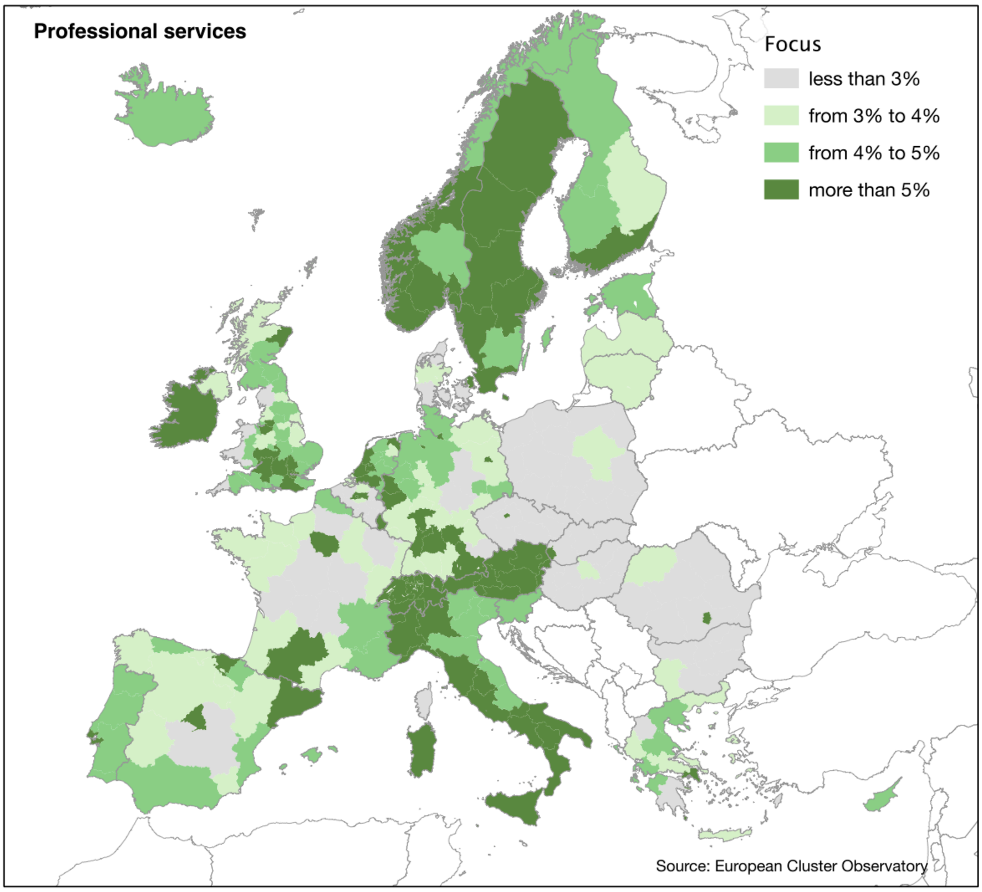
Region name	KIBS Employment	Focus	CAGR	Total CAGR
Switzlerland	544,788	18.1%	4.1%	2.7%
Sweden	356,623	16.3%	3.5%	1.3%
Austria	354,241	15.6%	2.9%	1.2%
United Kingdom	3,582,848	15.5%	0.1%	0.1%
Denmark	249,735	14.1%	3.8%	-0.6%
Luxembourg	32,640	14.0%	15.3%	10.8%
France	2,358,256	14.0%	3.9%	3.4%
Belgium	361,680	13.7%	3.3%	1.9%
Netherlands	888,445	13.2%		
Germany	3,293,962	13.1%	2.1%	2.2%
Finland	169,273	12.7%	2.1%	1.4%
Ireland	110,989	12.0%		
Iceland	17,636	11.2%		
Norway	143,605	11.1%	-8.8%	-9.4%
Hungary	230,691	11.1%	1.1%	-0.7%
Italy	1,873,023	11.0%	-0.5%	0.8%
Cyprus	38,744	10.9%		
Slovenia	78,000	10.7%	17.8%	6.3%
Spain	1,829,520	10.5%		
Slovakia	68,097	10.4%	9.5%	1.4%
Poland	738,726	10.1%		

Region name	KIBS Employment	Focus	CAGR	Total CAGR
Bulgaria	166,257	10.0%	7.6%	-0.0%
Greece	385,978	9.7%		
Latvia	75,317	9.5%	-0.6%	-4.4%
Czech Republic	319,952	8.7%		
Romania	207,792	8.3%	4.8%	-1.7%
Portugal	249,828	7.4%	-3.9%	-0.3%
Estonia	22,105	6.2%		
Lithuania	35,004	5.3%	-2.6%	-7.9%

Sub-sector analysis

The KIBS sector is a combination of several sub-sectors: professional services, financial services, information services, and education and research. Even though these sub-sectors share many similarities, they each have distinct location patterns. In the latest year of our data, professional services constituted 44.9% of KIBS, financial services - 26%, information services - 14.5%, and education and research - 14.6%.

Figure 4. Professional services focus in Europe

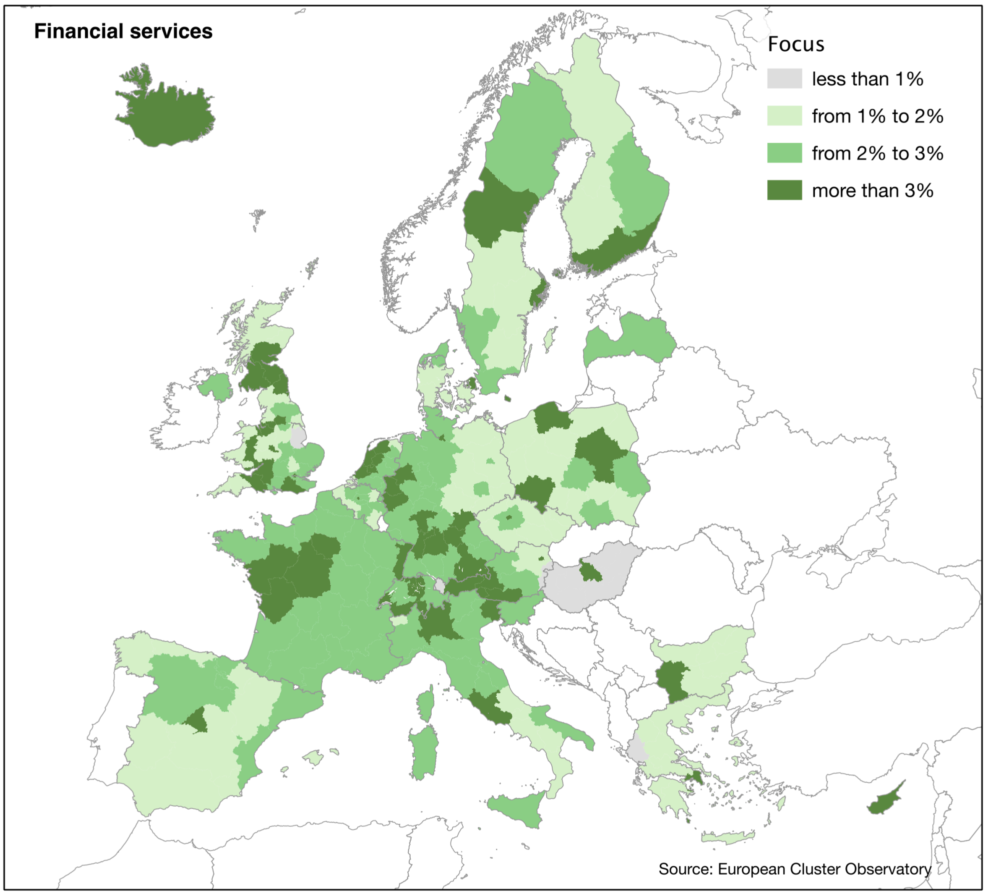


Regional specialisation of professional services suggests that even though they are spread out rather evenly across Europe, the patterns are somewhat different among separate countries. More centralised states such as France have most of professional services concentrated in the capital. On the other hand, Central and Northern European countries have strong presence in all regions.

Table 5. Top 10 regions by professional services employment

Region	Employment	Focus	European Share
Île de France	399,565	8.2%	4.7%
Inner London	304,264	12.8%	3.6%
Madrid	251,971	7.8%	3.0%
Lombardia	227,849	6.2%	2.7%
Cataluña	183,491	5.3%	2.2%
Oberbayern	129,847	7.4%	1.5%
Andalucía	127,391	4.3%	1.5%
Darmstadt	120,805	8.1%	1.4%
Düsseldorf	118,102	6.5%	1.4%
Lazio	114,812	7.1%	1.4%

Figure 5. Financial services focus in Europe

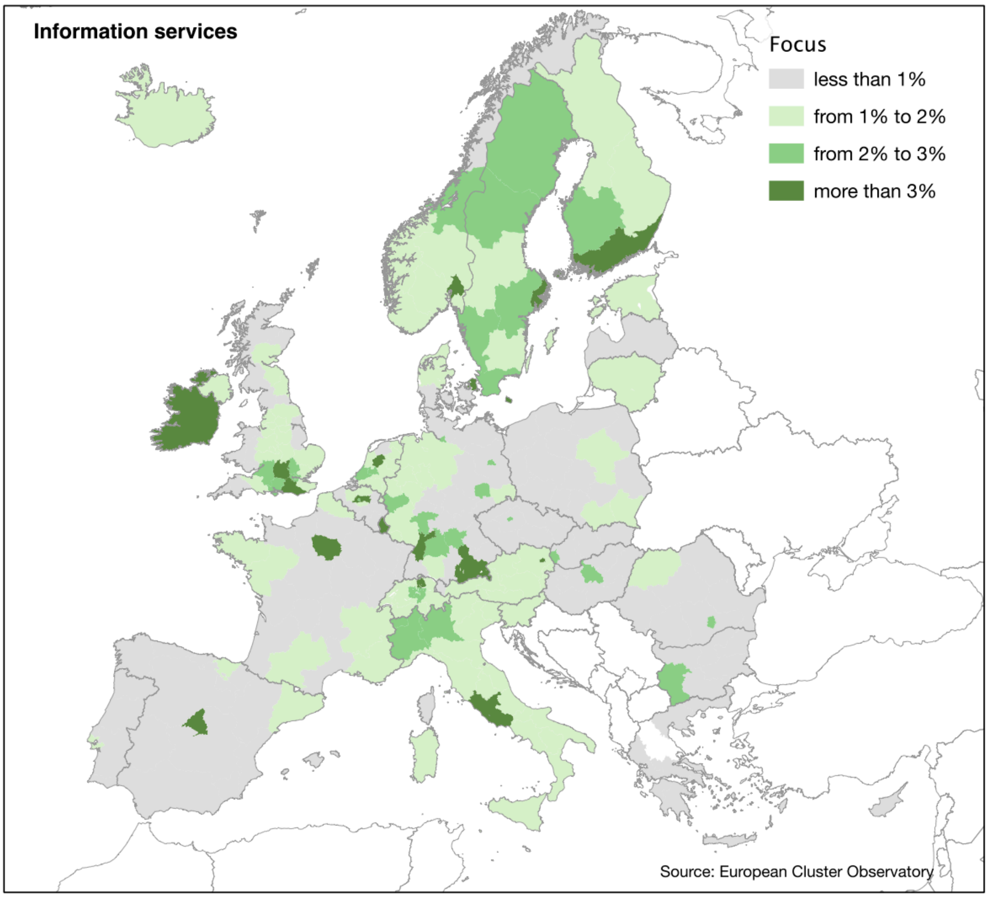


Financial services exhibit similar patterns on European scale, though the situation within individual countries differs. Almost every region in Europe has at least 1% of employment in financial services and most have more than 3%.

Table 6. Top 10 regions by financial services employment

Region	Employment	Focus	European Share
Île de France	286,794	5.9%	5.9%
Inner London	232,167	9.8%	4.8%
Lombardia	125,009	3.4%	2.6%
Darmstadt	111,052	7.4%	2.3%
Mazowieckie	109,612	5.8%	2.2%
Madrid	106,981	3.3%	2.2%
Cataluña	81,428	2.4%	1.7%
Oberbayern	80,169	4.6%	1.6%
Zürich	77,564	11.6%	1.6%
Attiki	68,354	4.1%	1.4%

Figure 6. Information services focus in Europe

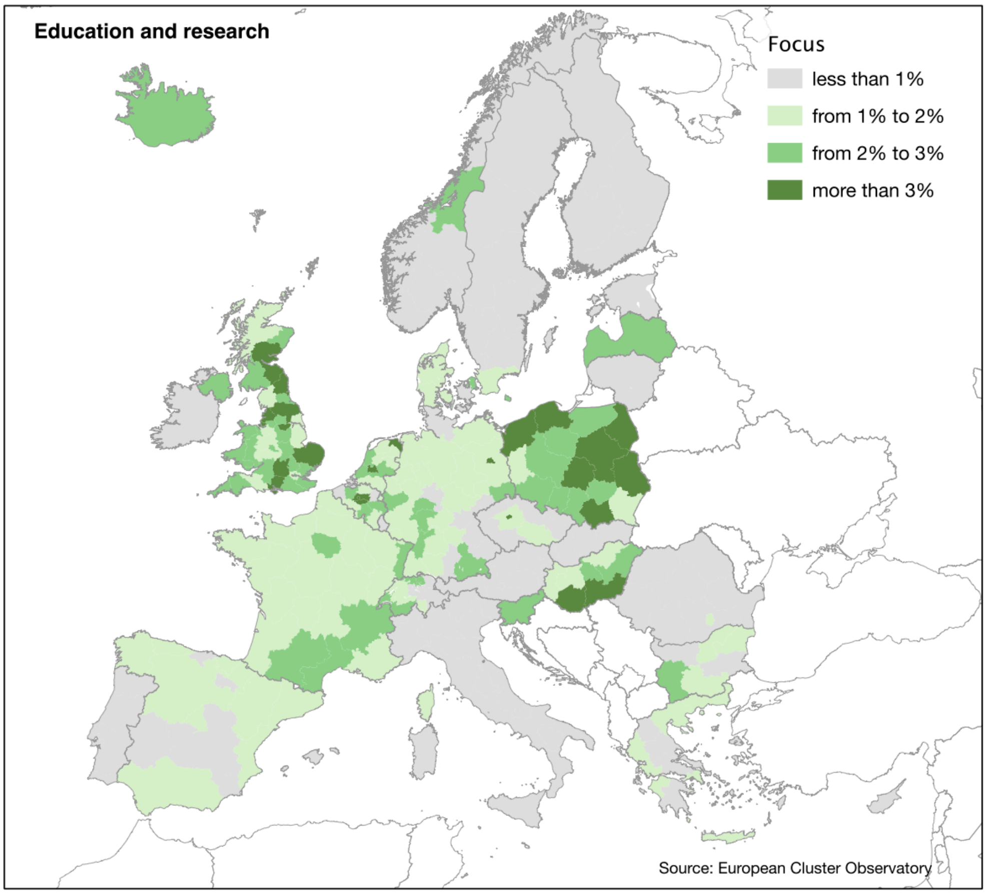


Information services are considerably more concentrated to a few key areas such as Ireland, Oxford, Karlsruhe and Stockholm. This is predominantly an urban activity particularly concentrated in capital cities, though the presence of other strong KIBS sub-sectors increases the likelihood of finding a strong information services concentration.

Table 7. Top 10 regions by information services employment

Region	Employment	Focus	European Share
Île de France	174,045	3.6%	6.4%
Madrid	116,694	3.6%	4.3%
Lombardia	94,159	2.6%	3.5%
Inner London	63,670	2.7%	2.3%
Lazio	60,088	3.7%	2.2%
Oberbayern	58,757	3.4%	2.2%
Berks, Bucks and Oxon	55,257	5.0%	2.0%
Darmstadt	44,028	3.0%	1.6%
Stockholm	43,129	6.1%	1.6%
Cataluña	42,763	1.2%	1.6%

Figure 7. Education and research focus in Europe



Finally, the research and education has the most distinct concentration patterns with most regions in United Kingdom, as well as Poland and Hungary, having high employment concentration in these sectors. Oxford is the most specialised region in this sub-sector with 4.3% of employment in research- and education-related professions.

Table 8. Top 10 regions by education and research employment

Region	Employment	Focus	European Share
Île de France	131,919	2.7%	4.8%
Mazowieckie	73,175	3.9%	2.7%
Inner London	68,628	2.9%	2.5%
Berks, Bucks and Oxon	47,541	4.3%	1.7%
Rhône-Alpes	47,485	2.4%	1.7%
Madrid	44,406	1.4%	1.6%
Cataluña	42,003	1.2%	1.5%
Köln	41,385	2.8%	1.5%
Berlin	41,005	3.6%	1.5%
Oberbayern	39,562	2.3%	1.4%

Appendix 1: Definition of KIBS and sub-sectors (NACE 2.0)

Professional services

69.10 Legal activities
69.20 Accounting, bookkeeping and auditing activities, tax consultancy
70.10 Activities of head offices
70.21 Public relations and communication activities
70.22 Business and other management consultancy activities
71.11 Architectural activities
71.12 Engineering activities and related technical consultancy
71.20 Technical testing and analysis
73.11 Advertising agencies
73.12 Media representation
73.20 Market research and public opinion polling
82.30 Organisation of conventions and trade shows
94.12 Activities of professional membership organisations

Financial services

64.11 Central banking
64.19 Other monetary intermediation
64.20 Activities of holding companies
64.30 Trusts, funds and similar financial entities
64.91 Financial leasing
64.92 Other credit granting
64.99 Other financial service activities, except insurance and pension funding n.e.c.
65.11 Life insurance
65.12 Non-life insurance
65.20 Reinsurance
66.11 Administration of financial markets
66.12 Security and commodity contracts brokerage
66.19 Other activities auxiliary to financial services, except insurance and pension funding
66.30 Fund management activities

Information services

62.01 Computer programming activities
62.02 Computer consultancy activities
62.03 Computer facilities management activities
62.09 Other information technology and computer service activities
63.11 Data processing, hosting and related activities
63.12 Web portals

Education and research

72.11 Research and experimental development on biotechnology
72.19 Other research and experimental development on natural sciences and engineering
72.20 Research and experimental development on social sciences and humanities
85.41 Post-secondary non-tertiary education
85.42 Tertiary education
91.01 Library and archives activities

About the Cluster Observatory

The Cluster Observatory is an online platform that provides a single access point to information and analysis of clusters and cluster policy in Europe. Originally launched in 2007, the Observatory is now offering a range of new services. It provides data and analysis on clusters and competitiveness, a cluster library, and a classroom for cluster education.

The Cluster Observatory also produces analysis and reports on regional competitiveness conditions, transnational cluster networks, clusters in emerging industries, and studies on better practices in cluster organisations.

The Observatory is aimed at three main target groups:

- policy makers and government officials at the European, national, regional and local levels;
- cluster management staff;
- academics and researchers.

The Cluster Observatory offers a user-driven toolbox to facilitate analysis and support fact-based policy and learning

CLUSTER MAPPING
The Cluster Mapping tool gives access to an advanced data set on clusters and regions in Europe. It provides statistical information from a wide range of sources, both on the geographic concentration of various industries and indicators of economic performance. In addition, the Observatory offers data on the framework conditions that shape regional competitiveness. Users can access data for standard sectors and regions, or use special definitions that will be added gradually to the mapping tool. Users can also apply their own customised regional definitions.

CLUSTER CALENDAR
Users can post information about events they want to promote to the cluster community, such as conferences, seminars and workshops.

CLUSTER CLASSROOM
The Classroom offers videos and other educational materials which give an introduction to clusters and cluster policy.

CLUSTER WIKI
The wiki pages present information about regions, sectors, organisations and networks, all of which can be linked to each other and to documents and events. Users contribute the contents of the pages. For example, a cluster policy officer in a region can provide information about cluster policies in the region, upload relevant documents and link them to the region, and link the region to its local cluster organisations.

CLUSTER LIBRARY
The Cluster Library is a European depository for all kinds of cluster-related documents. Users can browse and search for cluster policy reports, sectoral cluster reports, regional cluster reports, and cluster cases. Users can also contribute to the Library by adding their own documents. A subscription system allows users to be notified when relevant documents or events are posted.

The Cluster Observatory is managed by the Center for Strategy and Competitiveness (CSC) at the Stockholm School of Economics (Sweden), in collaboration with Orkestra (Basque Institute of Competitivenes, Basque Country, Spain).

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