

The geography of Europe's brain business jobs: 2024 Index

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Foreword: Klas Tikkanen

Since 2017, the brain business jobs index has mapped the geography of Europe's knowledge-intensive jobs. This work has gained increasing attention from national and regional governments, educators, researchers, and businesses across Europe. For instance, the governments of Ireland and Estonia have leveraged the brain business jobs index for their innovation policy planning. Its impact has even extended globally, serving as university course literature in countries such as India and Mexico.

This year's index goes further by projecting the state of brain business jobs in 2024, revealing significant shifts in Europe's knowledge-intensive job landscape. Unfortunately, Sweden has found itself at the bottom of the European growth league in terms of GDP output. As a result, the country has seen a decline in the proportion of adults employed in brain business jobs. Conversely, countries like Ireland, Estonia, and Malt are emerging as European climbers in this area. These nations have successfully attracted knowledge-intensive jobs by combining a strong knowledge base with a favorable business climate and competitive taxation for businesses, investment and labour.

As a leading private equity investor in Europe, Nordic Capital is committed to supporting research that explores how knowledge can enhance investment conditions. Europe is increasingly becoming an integrated marketplace, with knowledge-intensive jobs growing rapidly in regions which offers the most attractive conditions. To remain competitive in this landscape, countries like Sweden, and regions such as Stockholm, need to improve their competitiveness for brain business jobs.

The so-called "climbers" are rapidly surpassing high-tax European countries.

A generation ago, The Nordic countries, France and Italy had a more comfortable technological edge than the Baltic countries, Ireland and Malta. Yet, Estonia has a

higher share of brain business jobs per capita than most Nordic countries today. While Paris as a region has more brain business jobs than elsewhere, only some such jobs exit in the rest of France. Ireland is far ahead of France's total population size and might soon outpace Switzerland in the number one spot. Malta is amongst the top currently relative to its population size; the tiny island nation even now has high-tech manufacturing of advanced electronics.

The previous year's index studied the link between brain business jobs and the total tax burden. The finding was that those countries which have experienced the strongest growth of brain business jobs tend to have a lower tax burden. This year's index studies the link to energy usage and electricity prices. To begin with, there is a clear link to countries with a higher share of adults employed in the most knowledge-intensive jobs and countries with, on average, much higher total energy usage.

Knowledge-intensive jobs, such as high-tech manufacturing, pharmaceuticals manufacturing, IT services, or, for that matter, research & development, all rely on energy. Therefore, investing in the infrastructure of energy production and delivery, is a key challenge for future growth of brain business jobs. Additionally, this year's study analyses how electricity prices for businesses, after adjusting for inflation, have grown in Europe over time. The finding is that countries with a more substantial increase in accurate electricity prices for companies, tend to have had a somewhat slower growth of brain business jobs per capita.

We can learn more about what it takes for Europe to grow with brain business jobs. Lower tax burdens and competitive energy prices both turn out to be important factors, in stimulating the growth of knowledge-intensive jobs. These jobs, in turn, matter. A comparison of 244 European regions shows that those regions where a high share are employed in brain business jobs, also tend to have lower unemployment levels.

This means that knowledge-intensive jobs matter, for a well-functioning labor market. Fostering these jobs remains a crucial challenge for national and regional policymakers. We are pleased to contribute to this understanding, with the hope that it leads to further growth in knowledge-intensive jobs across Europe.



Klas Tikkanen, Chief Operating Officer, Nordic Capital Advisors.

Klas has helped drive Nordic Capital's transformation the past decade, including the development of its strategy, governance, culture, and operations. He sits on Nordic Capital's top management company board, the investment review committees for Nordic Capital Flagship and Evolution funds, portfolio review committee, fair value committee, operations advisory board, and value portfolio committee, as well as chairing the HR and compensation committee and charities boards.

Summary

- Major shifts in brain business jobs during crises of recent years, migration from higher cost to lower cost European nations.
- Countries with a higher share of brain business jobs per adult use more energy per capita. Those countries where real electricity prices have grown more, have had slightly lower rate of brain business jobs growth.
- Ireland, Netherlands and Malta are fast climbers with business-friendly policies and taxation.
- Six out of the top-ten regions with the highest share of brain business jobs are in Eastern Europe, two in Western, one in the Nordics, and one in Southern Europe.
- Each percentage point increase in the population of European regions employed in brain business jobs is linked to 0.27 percentage points lower regional unemployment.

The study *The geography of Europe's brain business jobs* measures the share of the working-age population across Europe employed in highly knowledge-intensive enterprises. The data is compiled through an analysis of detailed structural business statistics for European countries and regions. This is the seventh edition of the index, which is used by national governments, regional governments, universities, and businesses to better understand the changing geography of enterprise in Europe.

By looking at the share of the population employed in high-value-creating sectors in 33 European countries and 244 regions within these countries, this study finds a significant link to regional unemployment.¹ Regions that have a high share of brain business jobs tend to have lower unemployment than those with a lower share of knowledge-intensive jobs.

- **During the crises of the early 2020s, brain business jobs have migrated from higher cost to lower cost European nations.** Sweden has recently fallen significantly behind in the share of adults employed in brain business jobs. Knowledge-intensive businesses such as head office & management tend to remain in high-cost countries when the economic climate is stable, but during periods of economic crises when such jobs are crowded out, they tend to in effect shift towards lower tax countries. When the value chain rebounds after the crises, those programming jobs lost do not necessarily recover fully in high-cost countries such as Sweden, since outsourcing that part of the value chain to for example Estonia is an attractive option.
- **Energy usage and change in electricity prices are linked to brain business jobs.** Those countries which have a higher share of adults employed in brain business jobs, also tend to use more total energy per adult. For each percent higher share of adults in these knowledge-intensive job, 9.1 gigajoule more energy is used per capita. Additionally, those European countries where real electricity prices have risen more over time, tend to have had a slower rate of brain business jobs growth. In a linear regression 4 percent of the

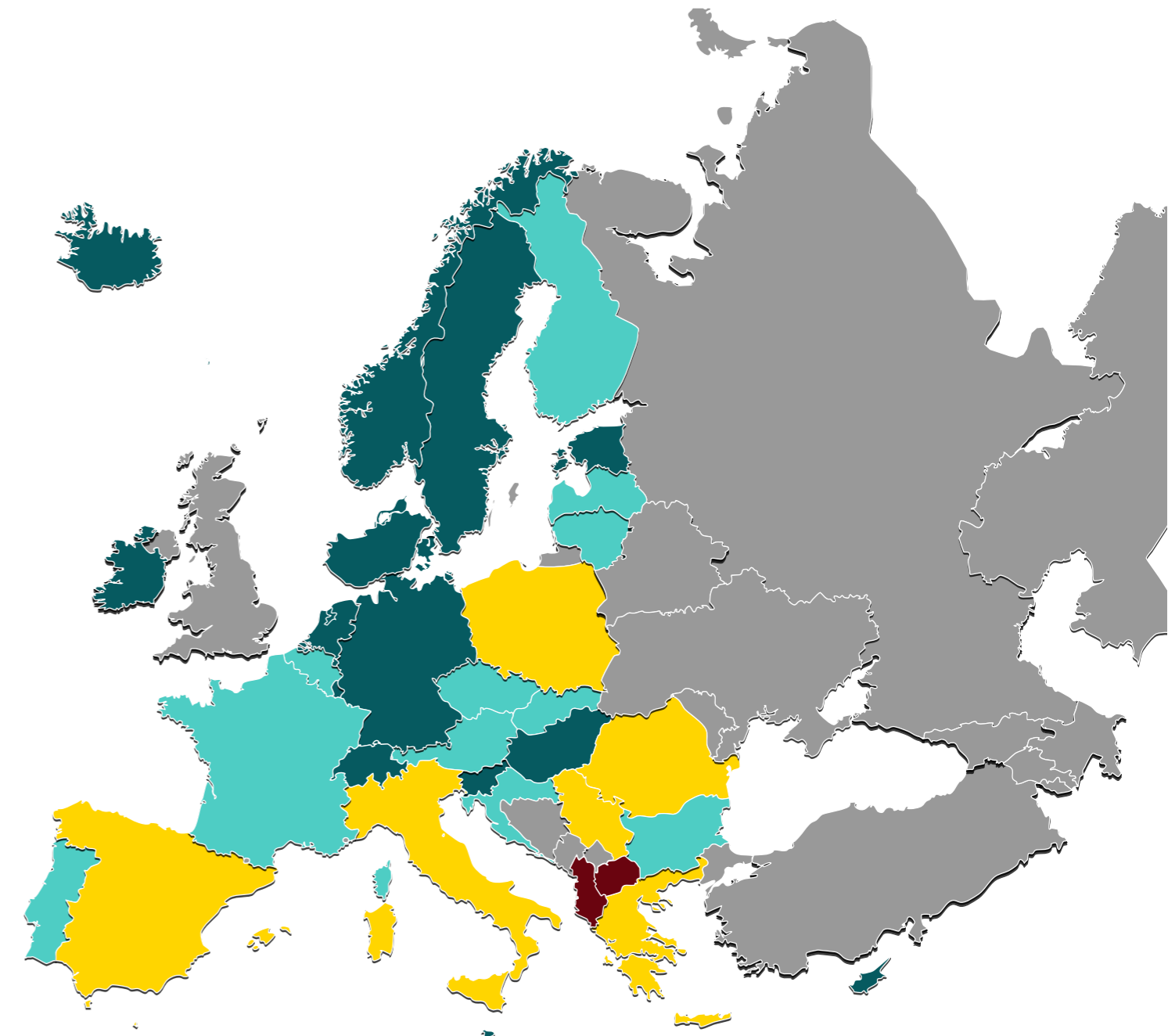
¹ Data of high quality for regions does not exist yet for Switzerland, Ireland, and Serbia.

variation of growth of brain business jobs can be explained by the difference in change in non-household real electricity prices. Malta and Cyprus have experienced significant reduction of real non-household electricity prices and are amongst the top-growers of brain business jobs.

- **Ireland, Netherlands and Malta with business-friendly policies and taxation are fast climbers.** These countries thrive in brain business jobs growth since they have competitive taxation costs for investors, businesses and labor are amongst the climbers. They are also progressing in human capital, with Ireland and Estonia having amongst the best school results in the world, according to PISA. The Netherlands, which has a moderate taxation level and business friendly policies, also is amongst the climbers.
- **6 out of top-ten regions with highest share of brain business jobs regions are found in Eastern Europe, 2 in Western, 1 in the Nordics, and 1 in Southern Europe.** Budapest remains the European region with highest share of adults, 25.0 percent, employed in brain business jobs. It is followed by Bratislava (23.1), Prague (21.8), Bucharest (20.7) and Paris (18.3). Paris is much larger and has in total numbers close to 1.4 million such jobs. While in total number this region surpasses all others, relative to the adult population, Paris thus ranks on fifth place. The Brabant Wallon region which lays south of Brussels follows on sixth place, followed by Copenhagen, Oberbayern, Zagreb, Warsaw and Vilnius. Six of the regions in the top-10 are found in Eastern Europe, two in Western Europe, one in the Nordics, and one in Southern Europe.
- **Fostering high-value-creating jobs remains important for the regional labor markets of Europe.** Each percentage point higher share of the population of European regions employed in brain business jobs is linked to 0.27 percentage points lower regional unemployment. Meaning that in a region where 10 percentage points more of the population is employed in brain business jobs, the average unemployment is 2.7 percent lower, compared to the typical European region.

Table 1. Rate of change in brain business jobs concentration (per capita working-age inhabitants) between 2014 and 2024

Cyprus	114,9%
Portugal	98,5%
Lithuania	82,9%
Romania	81,2%
Croatia	79,5%
Bulgaria	68,8%
Malta	64,0%
Poland	63,9%
Estonia	60,4%
Slovenia	58,8%
Slovakia	52,8%
Hungary	52,0%
Latvia	45,8%
Spain	42,1%
Italy	40,0%
Belgium	32,6%
Czechia	31,4%
Austria	26,1%
Netherlands	24,7%
Norway	23,6%
Germany	21,0%
France	16,3%
Greece	15,6%
Finland	14,8%
Iceland	8,6%
Switzerland	8,0%
Luxembourg	2,5%
Denmark	2,4%
Sweden	-4,1%



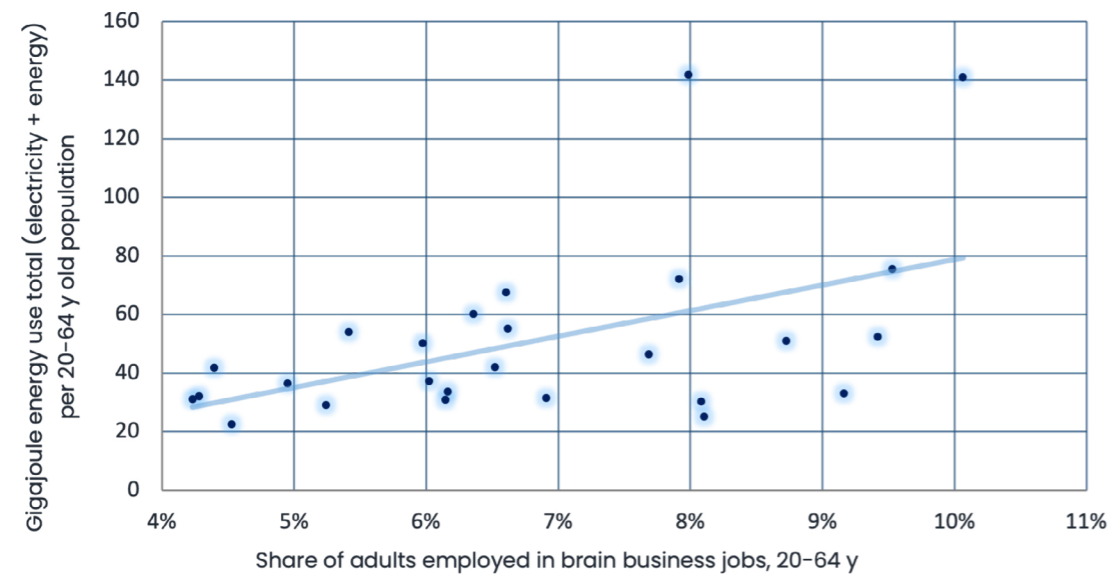
Source: Own analysis of Eurostat structural business statistics, short-term business statistics, and population data.

Note: Ireland, Serbia, North Macedonia, and Albania had no complete data for previous years, and is therefore excluded in this historical comparison. The UK is unfortunately no longer included due to the data not being reported since Brexit.

Countries with higher share of brain business jobs use more energy

Various factors can influence the conditions for brain business jobs growth. One such factor, which is in focus in this year's study, is energy. High-tech manufacturing, pharmaceuticals production, IT services, media and research & development are examples of brain business jobs activity that are strongly reliant on energy. Indeed, there is as shown in figure 2 a link to energy consumption in total (electricity and energy usage per adult) and the share of adults employed in brain business jobs.

Figure 2. Countries with more brain business jobs/capita use more energy/capita



The link is that for each percent higher brain business jobs per capita, 9.1 gigajoule more energy is used per capita. This points to energy supply playing a key role in knowledge-intensive industries. Besides this, colder countries in the north, such as Iceland, have due to climate reasons more energy usage.

The infrastructure for energy is something that needs to be created and maintained, based on long-term strategies. Many European governments are today striving towards building

more sustainable energy production facilities, with focus on primarily wind and nuclear power. The limited current capacities, and the limited expected capacities, to produce and deliver energy, are stalling economic growth throughout Europe.

Knowledge-intensive jobs are not only reliant on a good tax climate, a supportive business climate and the availability of human capital, but also on sound energy policies.



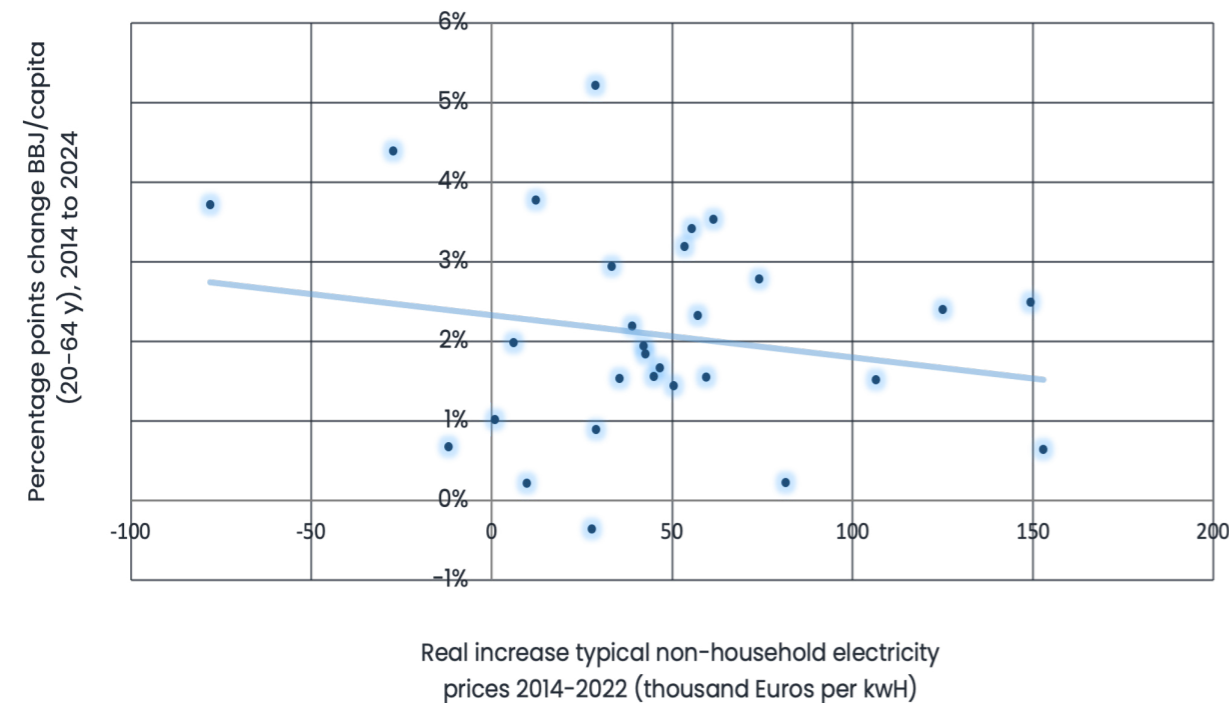
The link is that for each percent higher brain business jobs per capita, 9.1 gigajoule more energy is used per capita. This points to energy supply playing a key role in knowledge-intensive industries.

Real none-household electricity prices and brain business jobs growth

The development of real electricity prices since 2014 (until latest available data for 2022) are compared to the rate of brain business jobs growth since 2014. The results shown in figure 3 indicate that on average, there is a link between these two factors.

In a linear regression just under 4 percent of the variation of growth of brain business jobs can be explained by the difference in change in non-household real electricity prices. This is in line with electricity prices for businesses being one of several factors that influences knowledge-intensive jobs growth.

Figure 3. The growth of brain business jobs per capita tends to have been weaker in countries with increasing real electricity costs



Three island-nations with energy subsidies have experienced reduced real electricity prices. A most decrease has occurred in Iceland, while more significant reductions have occurred in Malta and Cyprus. The latter two have also had amongst the strongest growth rate of brain business jobs.



In a linear regression just under 4 percent of the variation of growth of brain business jobs can be explained by the difference in change in non-household real electricity prices.

Leading brain business jobs regions of Europe

The capital regions of Eastern European nations have some of the highest levels of brain business jobs concentration. The highest share is found in the Hungarian capital region of Budapest, followed by the Slovakian capital region of Bratislava, the Czech capital Prague, and the Romanian capital region Bucharest.

The French capital region Paris is much larger and has in total numbers close to 1.4 million such jobs. While in total number this region surpasses all others, relative to the adult population, Paris thus ranks on fifth place. On sixth place ranks the Brabant Wallon region which lays south of Brussels follows on sixth place. It is followed by the Danish capital region Copenhagen, Oberbayern in Germany, the Croatian capital region Zagreb and the Polish capital region Warsaw. Six of the regions in the top-10 are found in Eastern Europe, two in Western Europe, one in the Nordics, and one in Southern Europe.

Table 2. Regional Ranking of brain business jobs

Rank	Region	Percentage of the adult (20–64 years old) population employed in brain business jobs
1	Budapest	25%
2	Bratislava	23%
3	Prague	22%
4	Bucharest	21%
5	Paris	18%
6	Brabant Wallon	17%
7	Copenhagen	17%
8	Oberbayern	17%
9	Zagreb	17%
10	Warsaw	16%
11	Vilnius	16%
12	Utrecht	16%
13	Hamburg	16%
14	Stockholm	16%
15	Vienna	15%
16	Brussels	15%

17	Amsterdam	15%
18	Sofia	15%
19	Lisbon	14%
20	Berlin	14%
21	Helsinki	14%
22	Madrid	13%
23	Darmstadt	13%
24	Oslo	13%
25	Vlaams-Brabant	13%
26	Köln	12%
27	Ljubljana	12%
28	Karlsruhe	12%
29	Antwerpen	11%
30	Mittelfranken	11%
31	Stuttgart	11%
32	Bremen	10%
33	Malta	10%
34	Noord-Brabant	9%
35	Lombardia	9%

36	Zuid-Holland	9%
37	Estonia	9%
38	Düsseldorf	9%
39	Athens	9%
40	Tirol	9%
41	Steiermark	9%
42	Luxembourg	9%
43	Iceland	8%
44	Cyprus	8%
45	Slovenia	8%
46	Salzburg	8%
47	Rome	8%
48	Prov. Oost-Vlaanderen	8%
49	Gelderland	8%
50	Trøndelag	8%

Capital regions are marked in **blue**. Smaller countries such as Iceland and Malta make up single NUTS2 regions and are marked in **green**. Regional data is not available for Switzerland and Ireland.

Mapping Europe's brain business jobs

For an investor, a business, or an employee choosing where to locate, the characteristics of regions and countries matter. Previous studies that have attempted to identify knowledge-intensive industries tend to end up with the following four knowledge-intensive types of business, namely the *tech sector*, *ICT* (*information and communications technology*), *advanced services*, and

creative professions. These broad fields are in the data analysis divided into twelve subfields, as shown below. This comprehensive way of defining brain business jobs includes not only those who work with novel technological solutions but also the creators and advanced service providers who play a key role in modern societies.

Table 3. Division of brain business jobs

Tech sector	High-tech Manufacturing Engineering/Architecture Research and Development Pharmaceutical industry
ICT	Telecom IT Services Computer Programming
Advanced services	Head office Management Advertising and Market Research
Creative professions	Publishing Media Design and other Creative Work

The source of the data is structural business statistics, published by the European statistics agency Eurostat. Through this comprehensive database of activity in the business sector, the share of people who work in *highly specialized knowledge-intensive workplaces or local units of firms* is measured. Structural business statistics is highly detailed, but since it relies on firms' annual accounts, and firms have different accounting years, the data measures the situation two years previously. Quarterly employment statistics (for Q1 of each year) are added to the analysis to estimate brain business jobs also during the latter two years. The technical source of regional data is SBS data by NUTS 2 regions and NACE Rev. 2. Other data, such as unemployment levels, energy usage and electricity prices, are also gathered from Eurostat databases.

The statistical unit used for regional SBS is the local unit, which is an enterprise or part of an enterprise situated in a geographically identified place. Local units are usually classified under NACE according to their main activity. Manufacturing industries (except high-tech manufacturing and pharmaceuticals which are counted as brain business jobs, as well as electricity

& gas) and professional services (except engineering & architecture, R&D, telecommunications, IT Services, programming, head office & management, advertising & market research, publishing, film/TV/music, and design & other creative professions, which are counted as brain business jobs) are also included in the analysis. Together brain business jobs, manufacturing industries jobs, and professional services jobs are referred to as high-value-creating sector jobs. These jobs are important for regional economic activity, bringing in export revenues and are often also drivers of innovation.

Short-term and long-term business data, as well as population data, all have Eurostat as their source. Following Brexit, data are no longer available for the UK, neither from UK statistical agencies. Data for three new nations, Serbia, Albania and North Macedonia are however now available and have been included. National and regional data for 33 countries are included in this study. These countries are the 27 EU member states plus Switzerland, Norway, Iceland, Serbia, Albania and north Macedonia.

Data over the working-age (20-64 years old) population is calculated for the corresponding years in each region and country—again with Eurostat as the source. In total, 6.8 percent of the working-age population of the 33 studied European countries work in brain business jobs. Additionally, 16.1 percent work in manufacturing industries, and 9.7 percent in professional services.

Figure 4. The high-value-creating jobs sectors of Europe

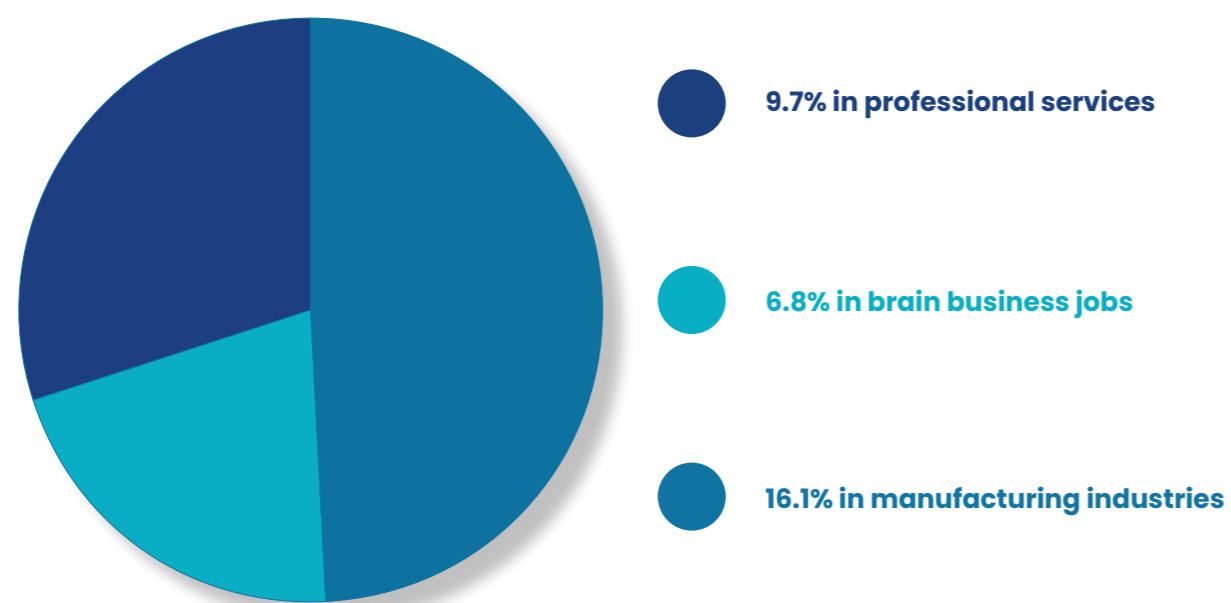


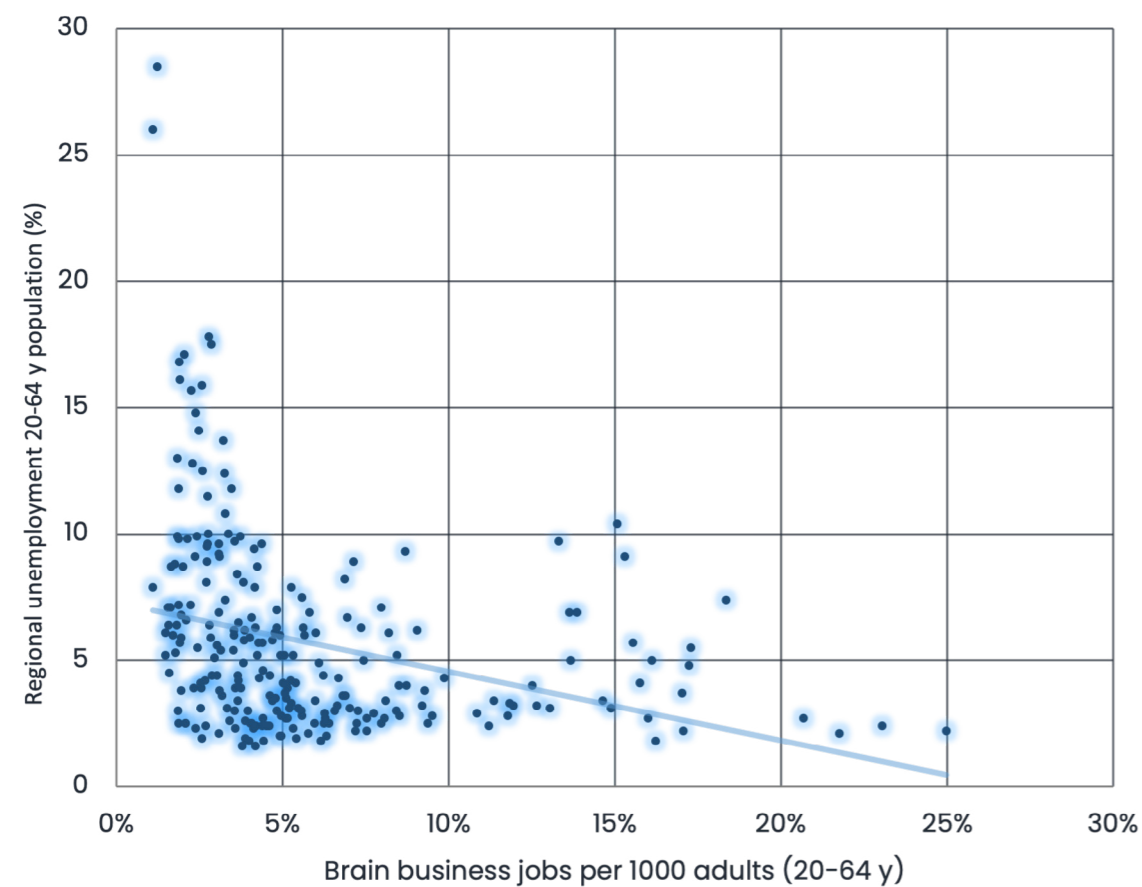
Table 4. Detailed brain business jobs, manufacturing jobs, and professional services jobs rating for European nations

	BBJ per capita total	Tech sector BBJ	ICT sector BBJ	Advanced services BBJ	Creative professions BBJ	Manufacturing industries per capita	Professional services per capita
Switzerland	11,0%	5,8%	2,6%	1,8%	0,7%	15,8%	10,4%
Ireland	10,6%	3,4%	3,7%	2,1%	1,5%	12,7%	15,9%
Netherlands	9,8%	2,4%	3,0%	3,0%	1,4%	11,7%	10,8%
Malta	9,5%	2,6%	3,3%	2,5%	1,2%	11,8%	13,8%
Denmark	9,2%	3,3%	2,6%	1,7%	1,6%	14,1%	9,6%
Estonia	9,1%	2,1%	3,9%	1,6%	1,5%	19,1%	9,2%
Slovenia	8,6%	3,0%	2,4%	2,2%	1,0%	25,1%	9,5%
Sweden	8,6%	2,7%	3,0%	1,4%	1,4%	15,6%	9,0%
Luxembourg	8,5%	2,2%	4,4%	1,4%	0,5%	19,7%	20,8%
Iceland	8,4%	2,2%	3,3%	1,1%	1,9%	17,1%	12,7%
Germany	8,3%	3,1%	2,6%	1,6%	1,1%	20,4%	10,9%
Cyprus	8,2%	1,3%	3,0%	2,7%	1,2%	13,1%	16,6%
Hungary	8,1%	2,7%	2,4%	1,7%	1,3%	17,3%	8,0%
Norway	8,1%	2,7%	2,6%	1,4%	1,4%	16,6%	9,8%
Finland	7,8%	2,7%	2,7%	1,1%	1,3%	15,2%	7,1%
Lithuania	7,8%	1,8%	3,0%	1,8%	1,2%	20,4%	16,0%
Portugal	7,6%	1,8%	2,6%	2,1%	1,1%	19,5%	13,5%
Austria	7,5%	2,6%	2,1%	1,8%	1,0%	18,9%	11,5%
Belgium	7,5%	2,0%	2,1%	2,8%	0,6%	11,8%	7,2%
Latvia	7,0%	1,4%	3,5%	1,2%	0,9%	15,9%	10,4%
Czechia	7,0%	2,4%	2,3%	1,1%	1,1%	24,9%	8,6%
Slovakia	6,7%	1,7%	2,3%	1,9%	0,8%	19,6%	7,0%
Croatia	6,6%	2,0%	2,6%	1,2%	0,8%	18,9%	11,0%
France	6,4%	2,0%	2,0%	1,3%	1,0%	13,5%	8,8%
Bulgaria	6,1%	1,2%	3,2%	0,8%	1,0%	15,9%	8,8%
Romania	5,3%	1,5%	2,3%	1,0%	0,6%	14,7%	6,6%
Italy	5,3%	1,6%	1,7%	1,0%	1,0%	16,0%	10,2%
Serbia	5,2%	1,5%	2,2%	1,0%	0,4%	16,3%	7,2%
Spain	5,2%	1,4%	1,8%	1,1%	0,8%	12,1%	10,5%
Poland	5,1%	1,3%	2,1%	1,1%	0,6%	17,6%	6,7%
Greece	4,7%	1,7%	1,1%	1,2%	0,6%	9,9%	14,6%

Brain business jobs and unemployment

Previous editions of the geography of Europe's brain business jobs index have shown that there is a link between brain business jobs, on a regional level, and unemployment. This is still apparent.

Figure 4. European regions with high share of brain business jobs have lower unemployment



Each percentage point higher share of the population of European regions employed in brain business jobs is linked to 0.27 percentage points lower regional unemployment. This is shown through comparison of those 244 European regions for which data exists. The results mean that in a region where 10 percentage points more of the population is employed in brain business jobs, the average unemployment is 2.7 percent lower, compared to the typical European region.

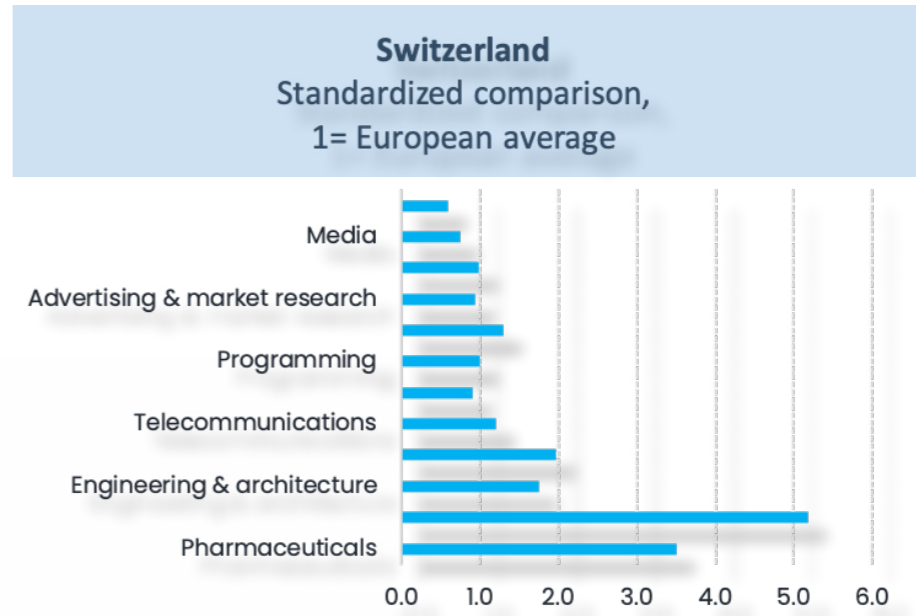
European regions need to have advanced sectors, particularly those that bring in export revenues through trade of good and or services. Sectors that are on top of the value chain create well-paid jobs and additionally boost local demand in support-activates, and local services. It is therefore crucial for local competitiveness, and jobs, to attract and maintain brain business jobs.



The results mean that in a region where 10 percentage points more of the population is employed in brain business jobs, the average unemployment is 2.7 percent lower, compared to the typical European region.

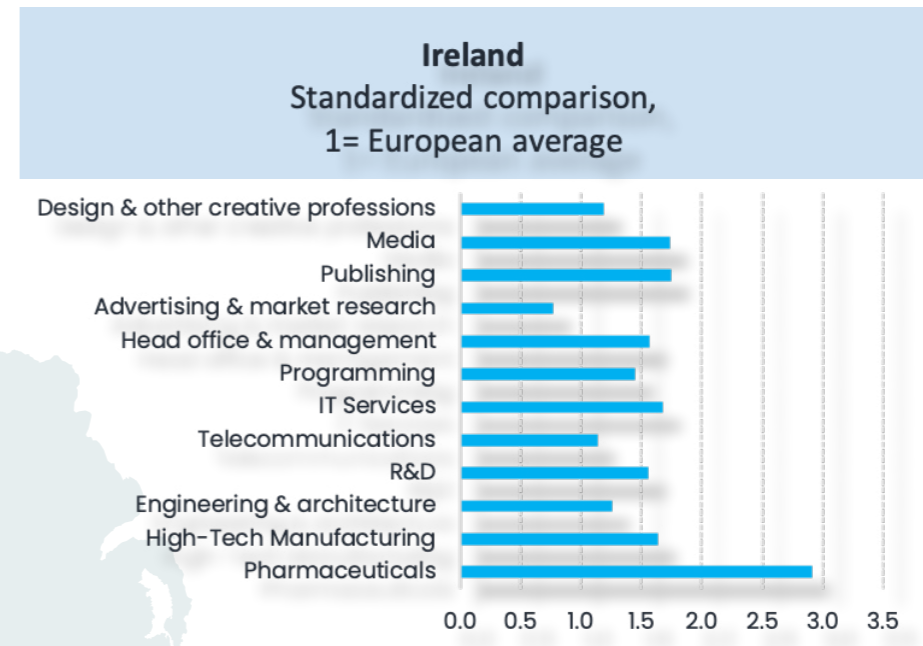
Switzerland

- In 2024, 11.0 percent of the working-age adults of Switzerland were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an improvement from 10.8 percent the previous year. Long-term the share of brain business jobs has grown from 10.1 percent in 2014. Switzerland remains, as in all previous editions of this index, the European country with the highest concentration of knowledge-intensive jobs.
- Further 15.8 percent of adults in Switzerland are employed in manufacturing industries, while 10.4 percent are employed in professional services. Together with those employed in brain business jobs, in total 37.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Switzerland has particular relative strengths in high-tech manufacturing, with some 116 500 jobs in this sector, as well as in pharmaceuticals, where 51 200 are employed.



Ireland

- In 2024, 10.6 percent of the working-age adults of Ireland were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an improvement from 10.1 percent the previous year. Ireland is now the country in Europe with second-highest concentration of knowledge-intensive jobs.
- Out of adults in Ireland, 12.7 percent are employed in manufacturing industries, while 15.9 percent are employed in professional services. Together with those employed in brain business jobs, in total 39.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Ireland has particular relative strengths in pharmaceuticals, where 24 300 are employed. The country also has a relatively strong media sector, with 9 800 employees.

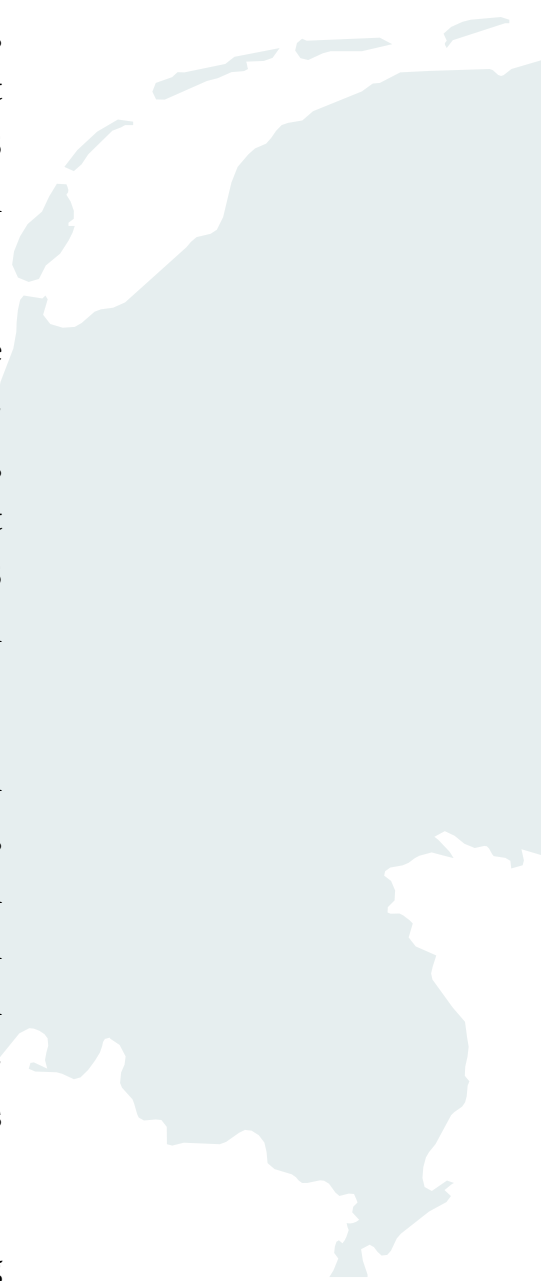


Netherlands

- In 2024, 9.8 percent of the working-age adults of the Netherlands were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an improvement from 9.4 percent two years before, and significantly higher than 7.8 percent in 2014. The Netherlands is now the country in Europe with third-highest concentration of knowledge-intensive jobs.
- In 2024, 9.8 percent of the working-age adults of the Netherlands were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an improvement from 9.4 percent two years before, and significantly higher than 7.8 percent in 2014. The Netherlands is now the country in Europe with third-highest concentration of knowledge-intensive jobs.
- In the Utrecht region fully 16.0 percent of the adults are employed in brain business jobs, this is the 12th highest share in a regional comparison, with all European regions that data exists for. The capital Amsterdam region ranks on 17th place in Europe, with 14.9 percent of adults in brain business jobs. It is an unusual trend, that the region with most brain business jobs concentration is another than the capital region. Noord-Brabant and Zuid Holland also have high shares of brain business jobs per capita.
- Of adults in the Netherlands, 11.7 percent are employed in manufacturing industries, while 10.8 percent are employed in professional services. Together with those employed in brain business jobs, in total 32.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have

high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.

- The Netherlands has particular relative strengths in research and development, where 50 900 are employed. The country also has a strong head office & management sector, where close to 250 000 are employed.



Brain business jobs per capita	
Utrecht	16.0%
Amsterdam	14.9%
Noord-Brabant	9.4%
Zuid-Holland	9.2%
Gelderland	7.7%
Overijssel	7.2%
Groningen	6.9%
Flevoland	6.0%
Limburg	5.1%
Friesland	4.8%
Drenthe	4.2%
Zeeland	3.8%

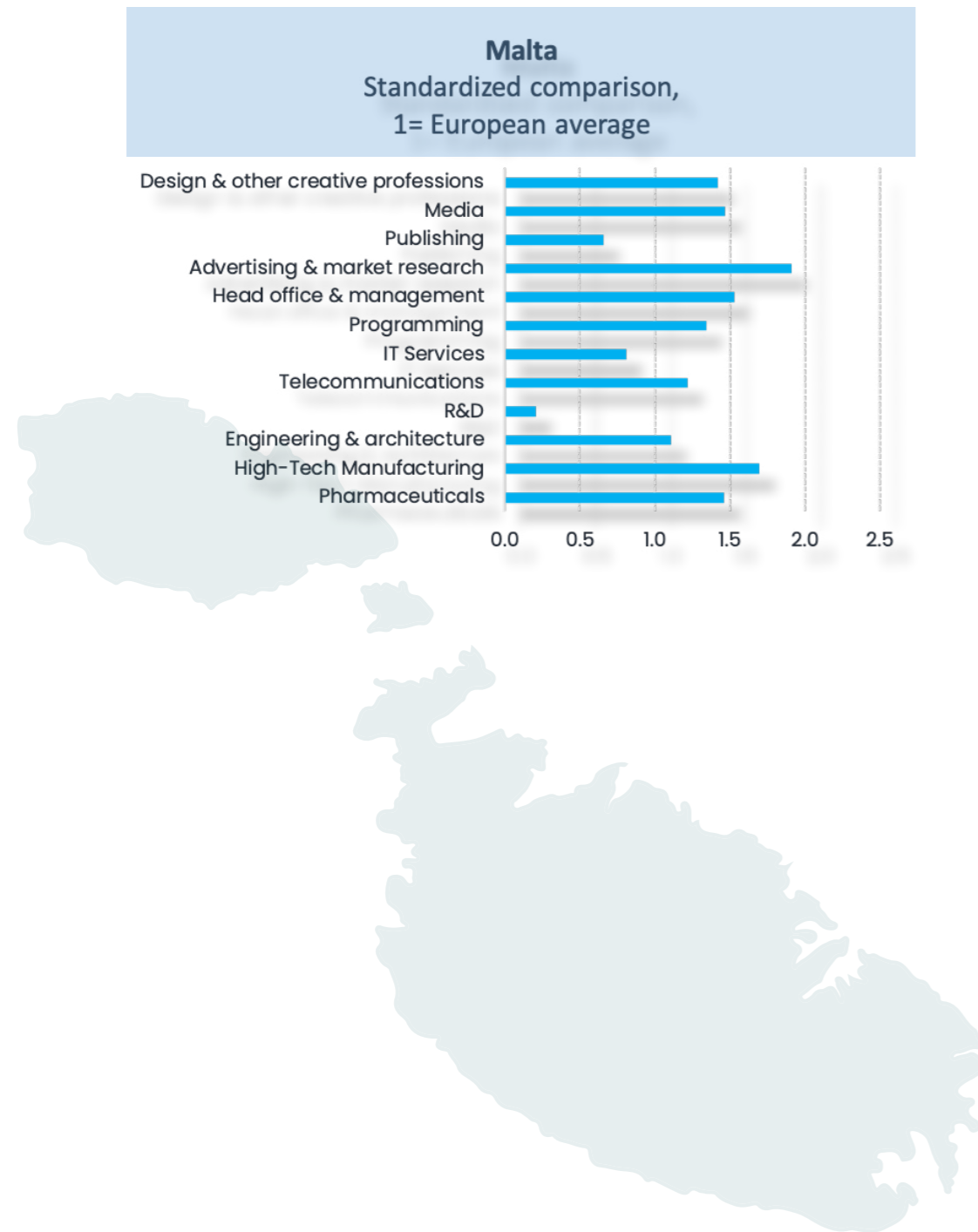
Netherlands
Standardized comparison,
1= European average



Malta

- In 2024, 9.5 percent of the working-age adults of Malta were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a major improvement from 8.1 percent two years before, and significantly higher than 7.8 percent in 2014. Malta is now the country in Europe with fourth-highest concentration of knowledge-intensive jobs. The top-3 nations are now all in Western Europe, with Malta having a higher share of brain business jobs per adult, than even the Nordic countries.
- Of adults in the Malta, 11.8 percent are employed in manufacturing industries, while 13.8 percent are employed in professional services. Together with those employed in brain business jobs, in total 35.1 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Malta has particular relative strengths in advertising and market research, where close to 2 900 are employed. The country also has recently developed a relatively strong high-tech manufacturing sector, by attracting advanced electronic producers, with more than 2 400 employees in this knowledge-intensive industry.

Denmark

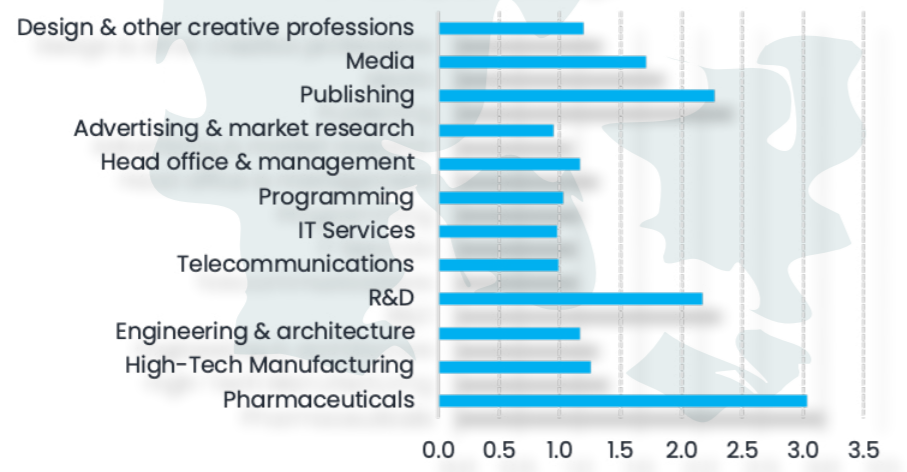


- In 2024, 9.2 percent of the working-age adults of Denmark were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a slight reduction from 9.5 percent two years before. The level now is somewhat higher than 9.0 percent in 2014. Denmark is now the country in Europe with fifth-highest concentration of knowledge-intensive jobs.
- In the Copenhagen region fully 17.2 percent of the adults are employed in brain business jobs, this is the 7 highest share in a regional comparison, with all European regions that data exists for. Midtjylland also has a high share of brain business jobs, 7.5 percent of the adults.
- Amongst adults in Denmark, 14.1 percent are employed in manufacturing industries, while 9.6 percent are employed in professional services. Together with those employed in brain business jobs, in total 32.8 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Denmark has particular relative strengths in pharmaceuticals, where close to 28 200 are employed. The country also has recently developed a relatively strong research and development sector, with 15 600 employees.

Brain business jobs per capita

Copenhagen	17.2%
Midtjylland	7.5%
Syddanmark	4.4%
Nordjylland	4.3%
Sjælland	2.6%

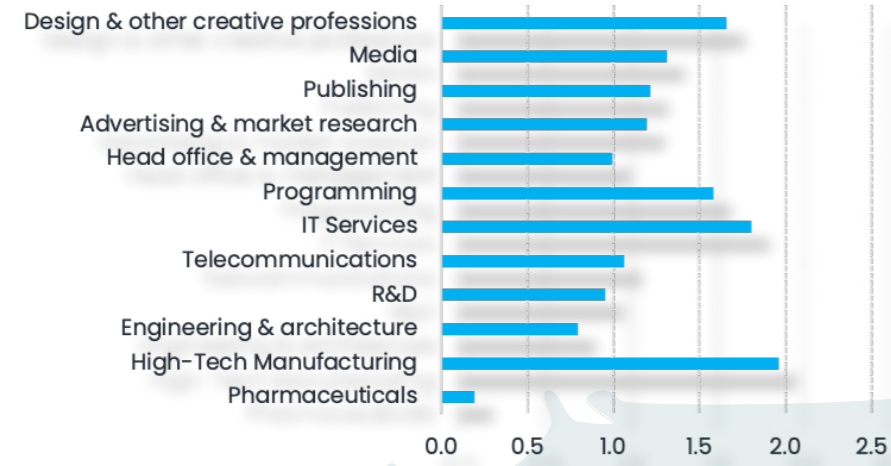
Denmark
Standardized comparison,
1= European average



Estonia

- In 2024, 9.1 percent of the working-age adults of Estonia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a slight reduction from 9.5 percent two years before. The level now is somewhat higher than 9.0 percent in 2014. Estonia is amongst the European countries with the highest share of brain business jobs in Europe.
- Out of adults in Estonia, 19.1 percent are employed in manufacturing industries, while 9.2 percent are employed in professional services. Together with those employed in brain business jobs, in total 37.4 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Estonia has particular relative strengths in high-tech manufacturing, where more than 6 500 are employed. The country also has recently developed a relatively strong IT services sector, with nearly 4 200 employees.

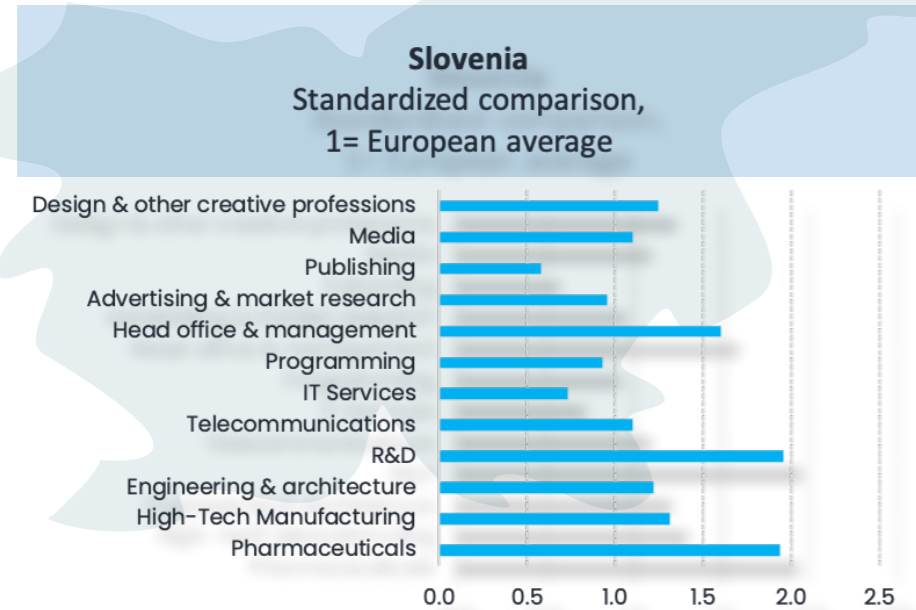
Estonia
Standardized comparison,
1= European average



Slovenia

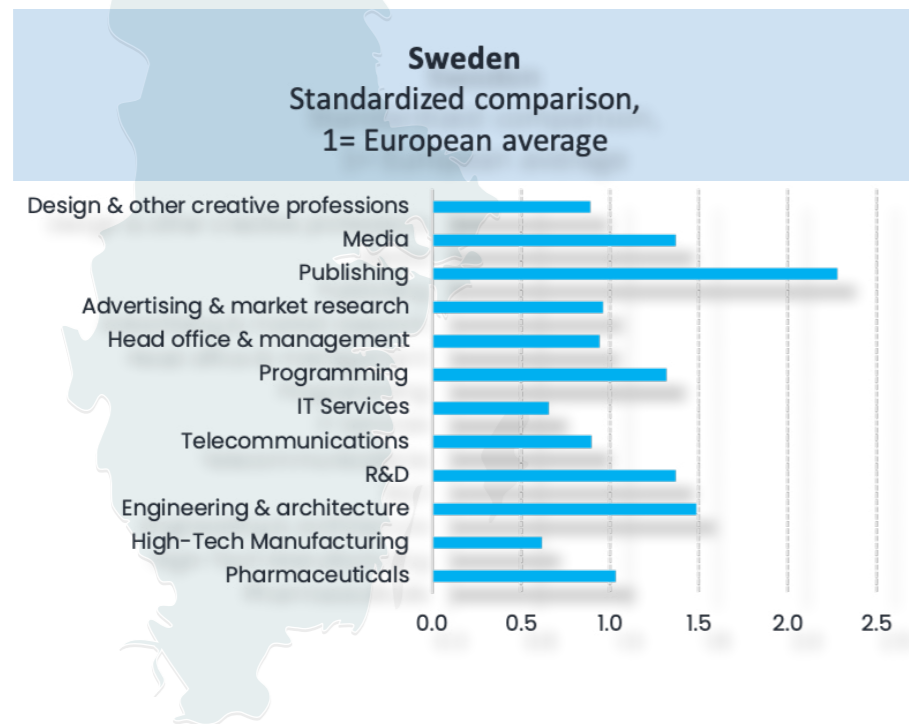
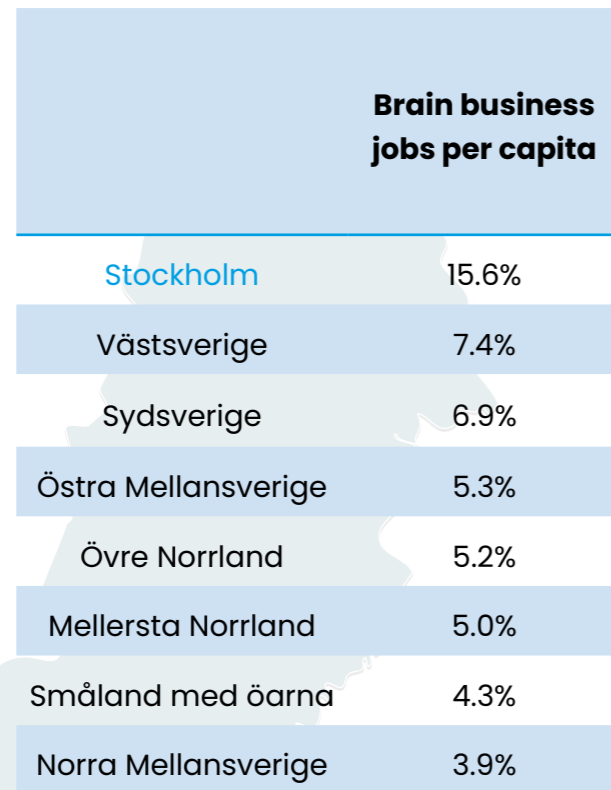
- In 2024, 8.6 percent of the working-age adults of Slovenia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a significant improvement from 7.7 percent two years before. The level has long-term grown from 5.4 percent in 2014. Slovenia is amongst the European countries with the highest share of brain business jobs in Europe.
- In the Ljubljana region fully 11.8 percent of the adults are employed in brain business jobs, this is the 27 highest share in a regional comparison, with all European regions that data exists for.
- Furthermore, 25.1 percent of adults in Slovenia are employed in manufacturing industries, while 9.5 percent are employed in professional services. Together with those employed in brain business jobs, in total 43.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Slovenia has particular relative strengths in pharmaceuticals, where 6 500 are employed. The country also has recently developed a relatively strong research and development sector, with nearly 5 100 employees.

Brain business jobs per capita	
Ljubljana	11.8%
Vzhodna Slovenija	4.7%



Sweden

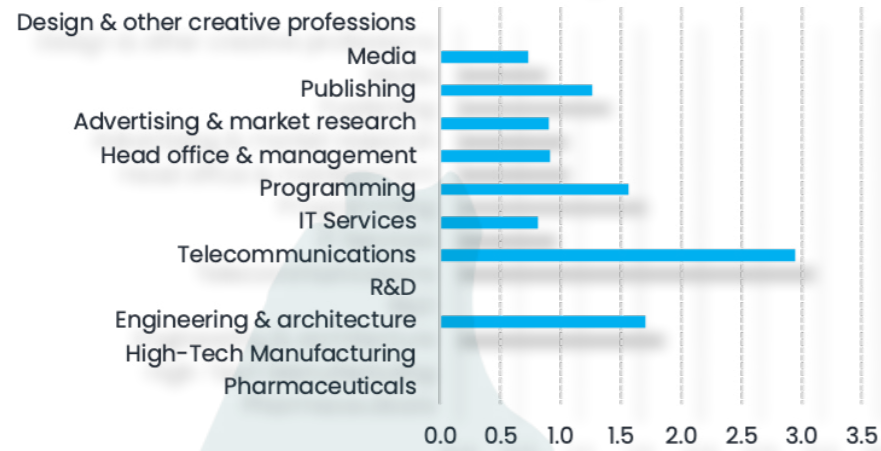
- In 2024, 8.6 percent of the working-age adults of Sweden were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a significant reduction from 10.1 percent two years before. The level has long-term fallen from 9.0 percent in 2014. Sweden is amongst the European countries with the highest share of brain business jobs in Europe, yet has been losing such jobs, including head offices, recently. As Europe is becoming more integrated, brain business jobs are shifting towards countries with lower tax costs for businesses and labor.
- In the Stockholm region fully 15.6 percent of the adults are employed in brain business jobs, this is the 14th highest share in a regional comparison, with all European regions that data exists for. Västsverige and Sydsverige are other regions with high share of brain business jobs per capita.
- Further 15.6 percent of adults in Sweden are employed in manufacturing industries, while 9.0 percent are employed in professional services. Together with those employed in brain business jobs, in total 33.3 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Sweden has particular relative strengths in publishing, where 41 500 are employed. The country also has recently developed a relatively strong engineering & architecture sector, with nearly 114 000 employees.



Luxembourg

- In 2024, 8.5 percent of the working-age adults of Luxembourg were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a reduction from 9.2 percent two years before. The level has long-term increased from 8.2 percent in 2014. Luxembourg is amongst the European countries with the highest share of brain business jobs in Europe yet stagnating due to high costs.
- Of adults in the Luxembourg, 19.7 percent are employed in manufacturing industries, while 20.8 percent are employed in professional services. Together with those employed in brain business jobs, in total 48.9 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Luxembourg has particular relative strengths in telecommunications, where nearly 5 300 are employed. The country also has recently developed a relatively strong engineering & architecture sector, with nearly 9 400 employees.

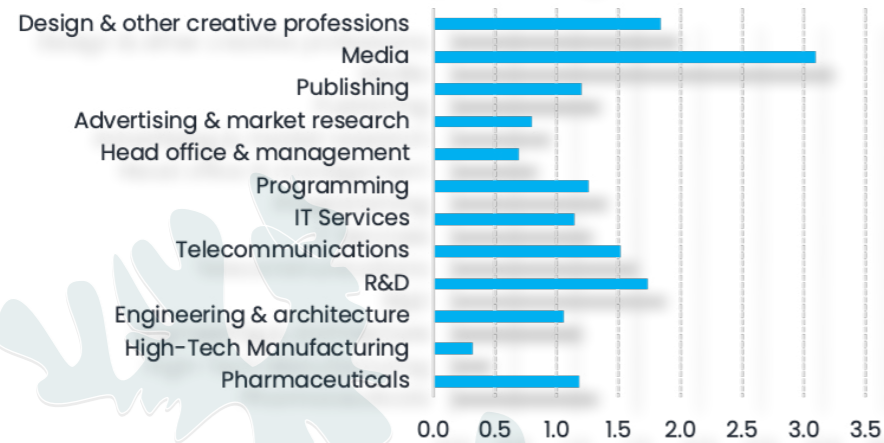
Luxembourg
Standardized comparison,
1= European average



Iceland

- In 2024, 8.4 percent of the working-age adults of Iceland were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 8.2 percent two years before. The level has long-term increased from 7.8 percent in 2014. Iceland is amongst the European countries with the highest share of brain business jobs in Europe.
- Further 17.1 percent of adults in Iceland are employed in manufacturing industries, while 12.7 percent are employed in professional services. Together with those employed in brain business jobs, in total 38.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Iceland has particular relative strengths in media, where nearly 1 400 are employed. The country also has recently developed a relatively strong research and development sector, with nearly 900 employees.

Iceland
Standardized comparison,
1= European average

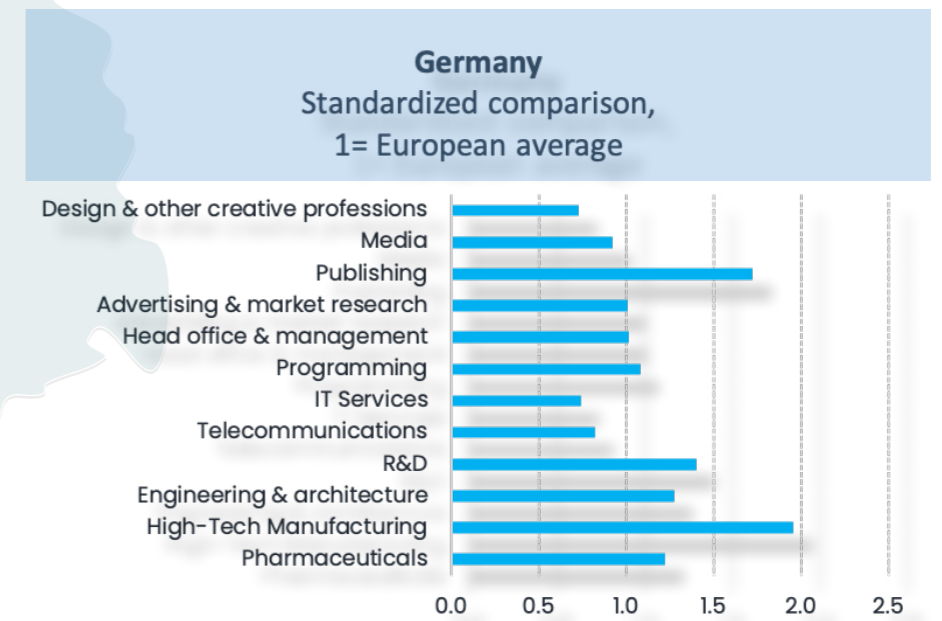


Germany

- In 2024, 8.3 percent of the working-age adults of Germany were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a reduction from 8.7 percent two years before. The level has long-term increased from 6.8 percent in 2014. Germany is amongst the European countries with the highest share of brain business jobs in Europe.
- In the Oberbayern region fully 17.1 percent of the adults are employed in brain business jobs, this is the 8th highest share in a regional comparison, with all European regions that data exists for. The share is also high in Hamburg and Berlin, which rank 13th and 29th respectively in a European comparison.
- Amongst adults in Germany, 20.4 percent are employed in manufacturing industries, while 10.9 percent are employed in professional services. Together with those employed in brain business jobs, in total 39.6 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Germany has particular relative strengths in high-tech manufacturing, where nearly 410000 are employed. The country also has recently developed a relatively strong publishing sector, with above 261 000 employees.

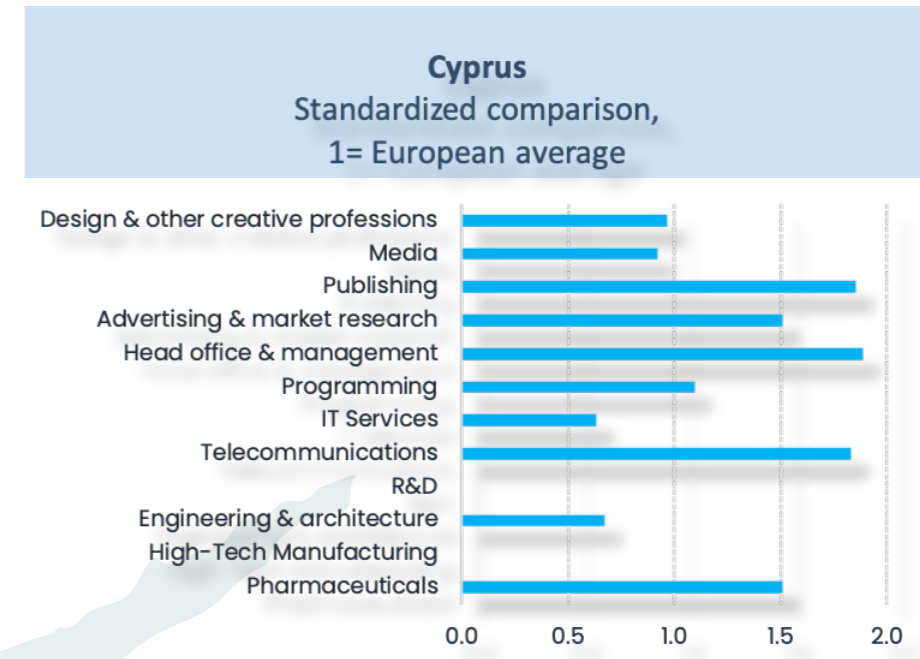
Brain business jobs per capita	
Oberbayern	17,1%
Hamburg	15,8%
Berlin	13,7%
Darmstadt	13,1%
Köln	12,0%
Karlsruhe	11,8%
Mittelfranken	11,2%
Stuttgart	10,9%
Bremen	9,9%
Düsseldorf	8,7%
Braunschweig	7,3%
Rhein Hessen-Pfalz	6,8%
Dresden	6,4%
Tübingen	6,3%
Hannover	6,3%
Leipzig	6,2%
Freiburg	5,8%
Schleswig-Holstein	5,6%
Oberpfalz	5,3%
Saarland	5,3%
Unterfranken	5,0%
Thüringen	4,8%
Arnsberg	4,7%
Detmold	4,6%
Oberfranken	4,5%
Schwaben	4,4%
Kassel	4,1%
Koblenz	4,0%
Münster	4,0%
Weser-Ems	3,9%
Niederbayern	3,9%

Chemnitz	3,7%
Gießen	3,4%
Brandenburg	3,3%
Sachsen-Anhalt	3,2%
Mecklenburg-Vorpommern	2,9%
Trier	2,7%
Lüneburg	2,1%



Cyprus

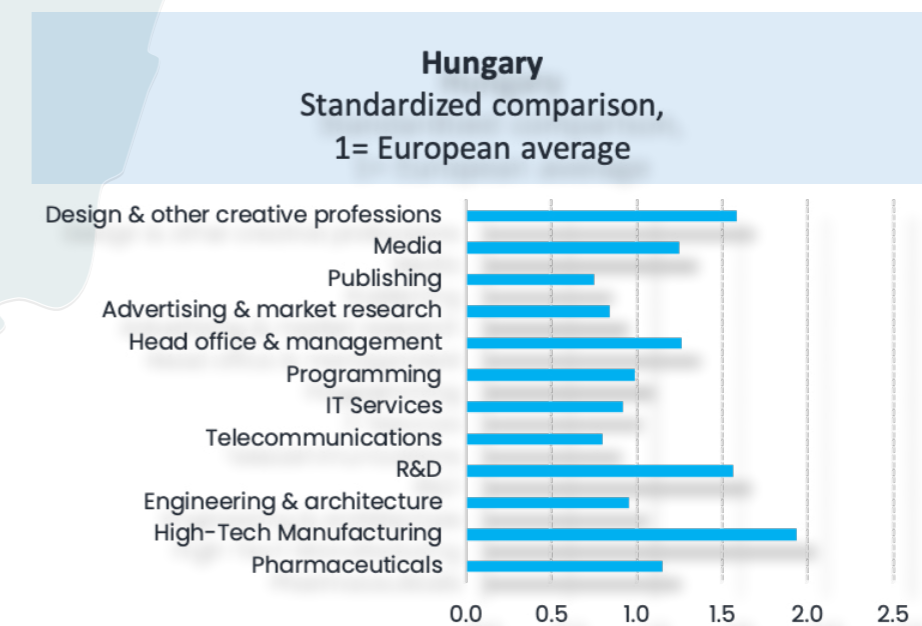
- In 2024, 8.2 percent of the working-age adults of Cyprus were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a significant growth from 6.2 percent two years before. The level has long-term increased from 3.8 percent in 2014, an astonishing rate of growth. Cyprus is amongst the European countries with the highest share of brain business jobs in Europe.
- Out of adults in Cyprus, 13.1 percent are employed in manufacturing industries, while 16.6 percent are employed in professional services. Together with those employed in brain business jobs, in total 37.9 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Cyprus has particular relative strengths in head office and management, where 11 900 are employed. The country also has recently developed a relatively strong telecommunications sector, with close to 4 400 employees.



Hungary

- In 2024, 8.1 percent of the working-age adults of Hungary were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is the same as two years before. The level has long-term increased from 5.3 percent in 2014, a significant rate of growth. Hungary is amongst the European countries with the highest share of brain business jobs in Europe.
- In the Budapest region fully 25.0 percent of the adults are employed in brain business jobs, this is the highest share in a regional comparison, with all European regions that data exists for. No other region in Europe has as high concentration as does Budapest. The share is also high in the Pest region.
- Of adults in the Hungary, 17.3 percent are employed in manufacturing industries, while 8.0 percent are employed in professional services. Together with those employed in brain business jobs, in total 33.4 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Hungary has particular relative strengths in high-tech manufacturing, where 46 600 are employed. The country also has recently developed a relatively strong design and other creative professions sector, with close to 46 200 employees.

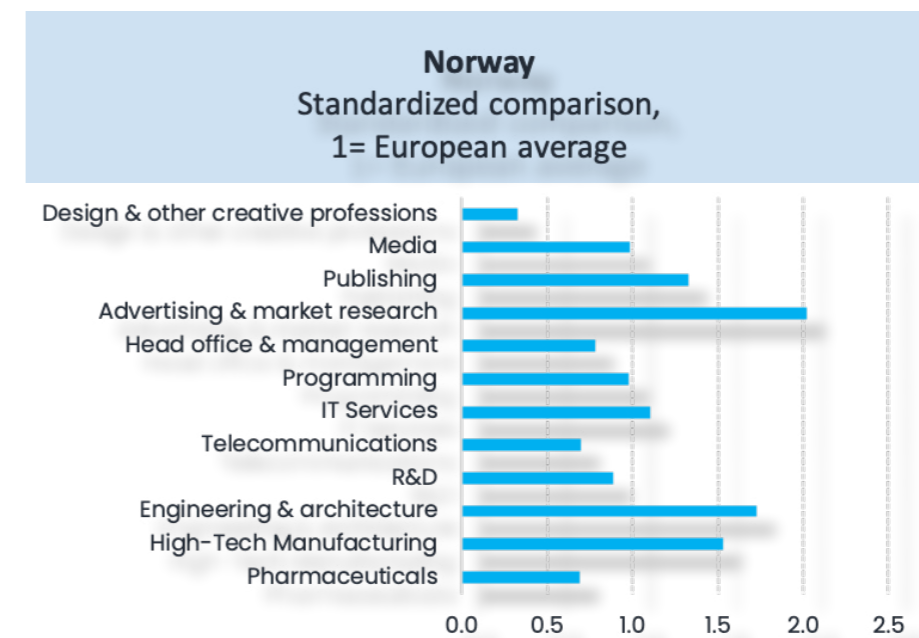
Brain business jobs per capita	
Budapest	25.0%
Pest	7.0%
Dél-Dunántúl	4.9%
Közép-Dunántúl	4.9%
Nyugat-Dunántúl	4.1%
Észak-Alföld	3.7%
Dél-Alföld	3.7%
Észak-Magyarország	3.5%



Norway

- In 2024, 8.1 percent of the working-age adults of Norway were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a significant growth from 7.0 percent two years before. The level has long-term increased from 6.5 percent in 2014, a strong rate of growth. Norway is amongst the European countries with the highest share of brain business jobs in Europe.
- In the Oslo region fully 13.3 percent of the adults are employed in brain business jobs, this is the 24th highest share in a regional comparison, with all European regions that data exists for. The share is also high in the Trøndelag region.
- Further 16.6 percent of adults in Norway are employed in manufacturing industries, while 9.8 percent are employed in professional services. Together with those employed in brain business jobs, in total 34.6 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Norway has particular relative strengths in advertising and market research, where nearly 11 000 are employed. The country also has recently developed a relatively strong engineering and architecture sector, with above 63 000 employees.

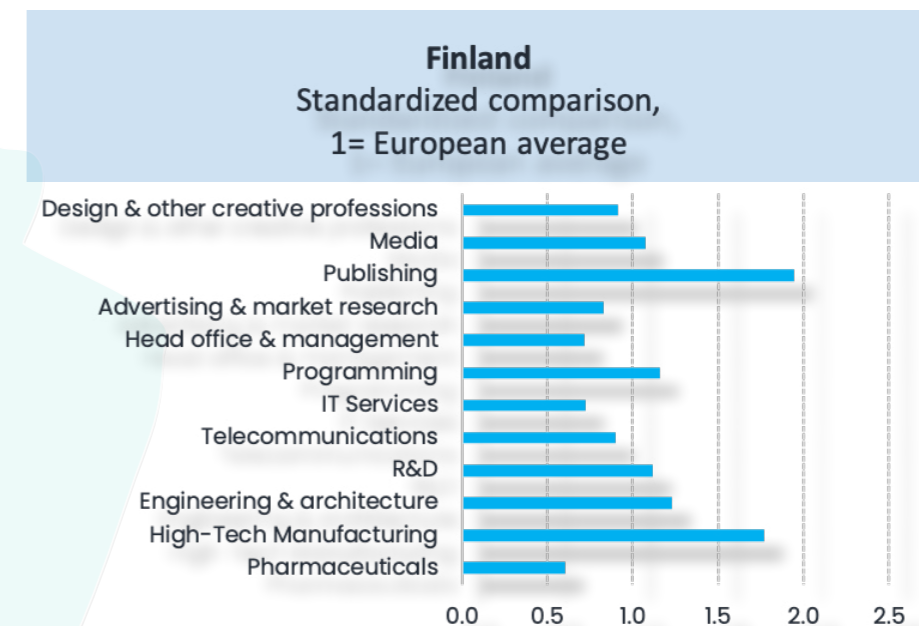
Brain business jobs per capita	
Oslo	13.3%
Trøndelag	6.5%
Vestlandet	4.8%
Agder og Sør-Østlandet	5.4%
Nord-Norge	3.1%
Innlandet	4.5%



Finland

- In 2024, 7.8 percent of the working-age adults of Finland were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a reduction from 8.0 percent two years before. The level has long-term increased from 6.8 percent in 2014.
- In the Helsinki region fully 13.6 percent of the adults are employed in brain business jobs, this is the 21st highest share in a regional comparison, with all European regions that data exists for. The share is also high in the Länsi-Suomi and Åland regions.
- Additionally, 15.2 percent of adults in Finland are employed in manufacturing industries, while 7.1 percent are employed in professional services. Together with those employed in brain business jobs, in total 30.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Finland has particular relative strengths in high-tech manufacturing, where nearly 23 400 are employed. The country also has recently developed a relatively strong publishing sector, with above 18 600 employees.

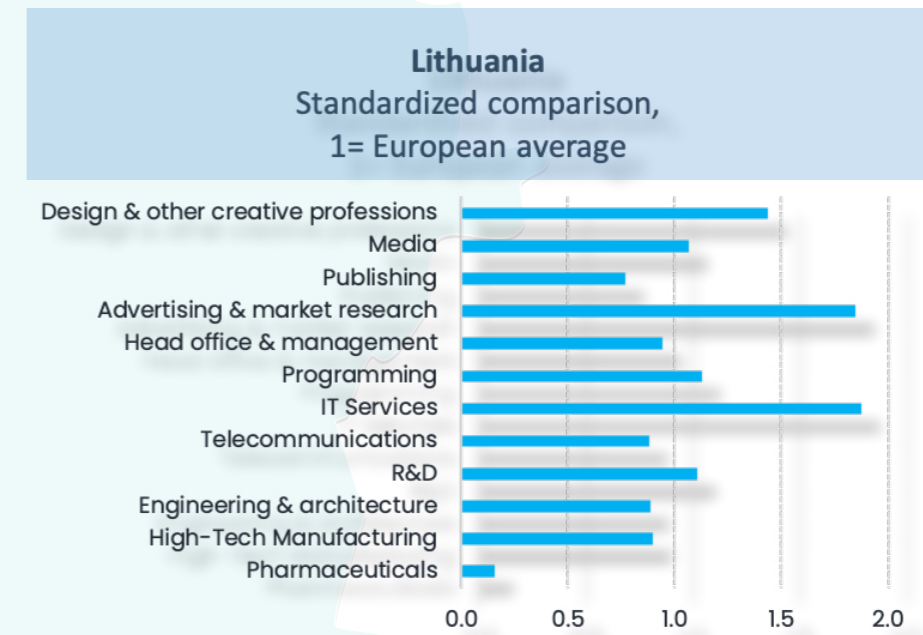
Brain business jobs per capita	
Helsinki	13.6%
Länsi-Suomi	5.6%
Åland	5.2%
Etelä-Suomi	4.8%
Pohjois- ja Itä-Suomi	4.8%



Lithuania

- In 2024, 7.8 percent of the working-age adults of Lithuania were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.9 percent two years before. The level has long-term risen from 4.3 percent in 2014, which represents a very significant improvement over time.
- In the Vilnius region fully 16.1 percent of the adults are employed in brain business jobs, this is the 11th highest share in a regional comparison, with all European regions that data exists for.
- Out of adults in Lithuania, 20.4 percent are employed in manufacturing industries, while 16.0 percent are employed in professional services. Together with those employed in brain business jobs, in total 44.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Lithuania has particular relative strengths in IT services, where nearly 9 300 are employed. The country also has recently developed a relatively strong advertising and market research sector, with above 13 800 employees.

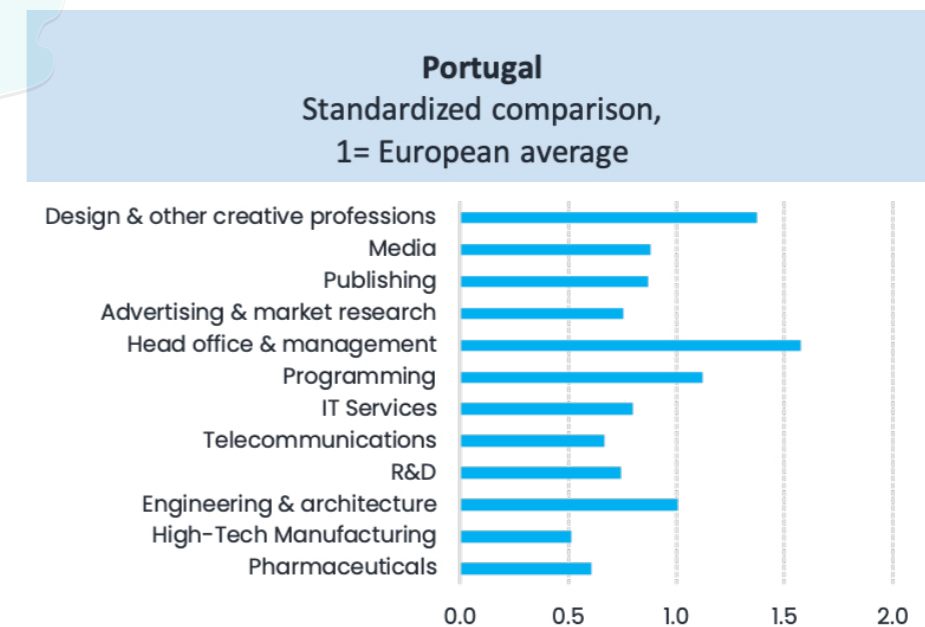
Brain business jobs per capita	
Vilnius	16.1%
Vidurio	4.2%



Portugal

- In 2024, 7.6 percent of the working-age adults of Portugal were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.1 percent two years before. The level has long-term risen from 3.8 percent in 2014, this is a very significant improvement over time.
- In the Lisbon region fully 13.9 percent of the adults are employed in brain business jobs, this is the 19th highest share in a regional comparison, with all European regions that data exists for. Norte and Centro regions also have high shares of brain business jobs per capita.
- Further 19.5 percent of adults in Portugal are employed in manufacturing industries, while 13.5 percent are employed in professional services. Together with those employed in brain business jobs, in total 40.6 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Of adults in Portugal, 19.5 percent of adults in Portugal are employed in manufacturing industries, while 13.5 percent are employed in professional services. Together with those employed in brain business jobs, in total 40.6 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Portugal has particular relative strengths in head office and management, where nearly 104 000 are employed. The country also has recently developed a relatively strong design and other creative professions sector, with above 42 000 employees.

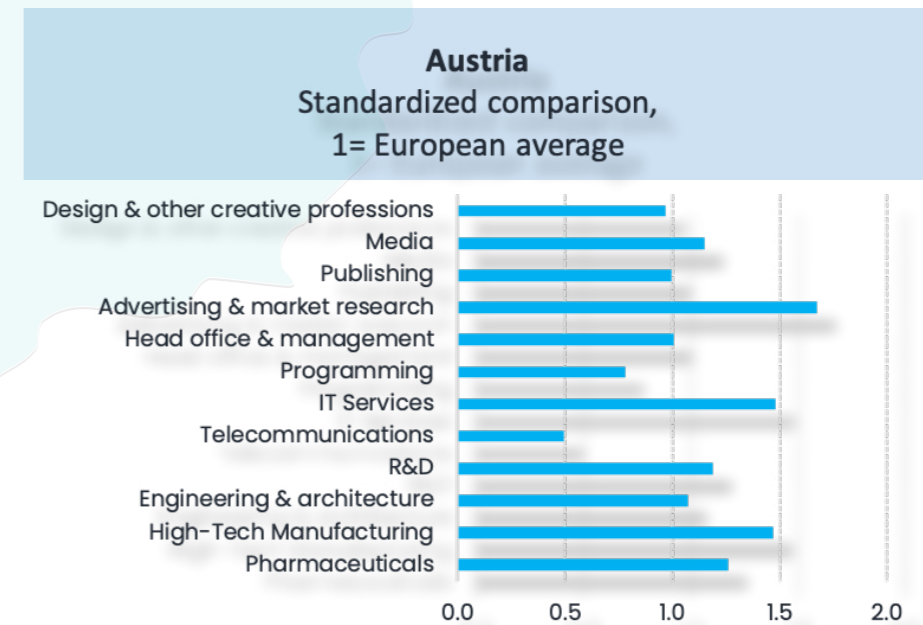
Brain business jobs per capita	
Lisbon	13.9%
Norte	5.8%
Centro	4.2%
Região Autónoma da Madeira	3.8%
Algarve	3.5%
Alentejo	2.8%
Região Autónoma dos Açores	2.8%



Austria

- In 2024, 7.5 percent of the working-age adults of Austria were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.4 percent two years before. The level has long-term risen from 6.0 percent in 2014.
- In the Vienna region as many as 15.3 percent of the adults are employed in brain business jobs, this is the 15th highest share in a regional comparison, with all European regions that data exists for. Tirol and Steiermark regions also have high shares of brain business jobs per capita.
- Of adults in Austria, 18.9 percent are employed in manufacturing industries, while 11.5 percent are employed in professional services. Together with those employed in brain business jobs, in total 37.9 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Austria has particular relative strengths in high-tech manufacturing, where 33 900 are employed. The country also has recently developed a relatively strong IT services sector, with 23 600 employees.

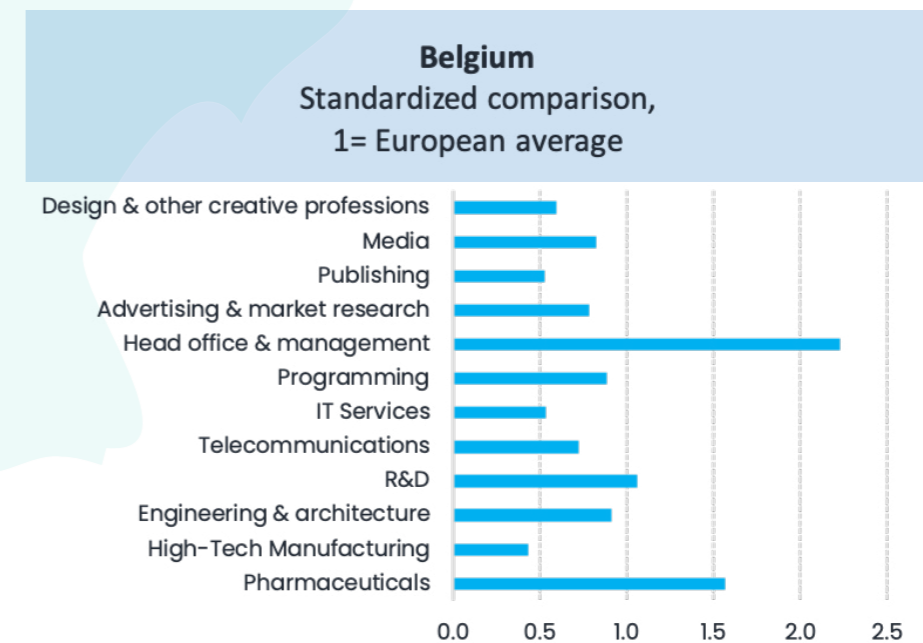
Brain business jobs per capita	
Vienna	15.3%
Tirol	8.5%
Steiermark	8.5%
Salzburg	8.1%
Kärnten	6.7%
Oberösterreich	6.7%
Vorarlberg	5.5%
Niederösterreich	5.0%
Burgenland	3.8%



Belgium

- In 2024, 7.5 percent of the working-age adults of Belgium were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.6 percent two years before. The level has long-term risen from 5.7 percent in 2014.
- In the Brabant Walloon region as many as 17.3 percent of the adults are employed in brain business jobs, this is the 6th highest share in a regional comparison, with all European regions that data exists for. This is also higher than for the capital region of Brussels, which with 15.1 percent of adults in brain business jobs ranks on 16th place in a European comparison. Flemish Brabant and Antwerp regions also have high shares of brain business jobs per capita.
- Amongst adults in Belgium, 11.8 percent are employed in manufacturing industries, and 7.2 percent are employed in professional services. Together with those employed in brain business jobs, in total 26.5 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Belgium has particular relative strengths in head office and management, with some 166 000 jobs in this sector, as well as in pharmaceuticals, where more than 29 000 are employed.
- Belgium has particular relative strengths in head office & management, where 166 100 are employed. The country also has recently developed a relatively strong pharmaceuticals sector, with 29 000 employees.

Brain business jobs per capita	
Brabant Walloon	17.3%
Brussels	15.1%
Flemish Brabant	12.5%
Antwerp	11.4%
East Flanders	8.0%
Limburg	6.3%
West Flanders	6.3%
Liège	4.2%
Namur	4.2%
Hainaut	3.1%
Luxembourg (Belgium)	1.5%



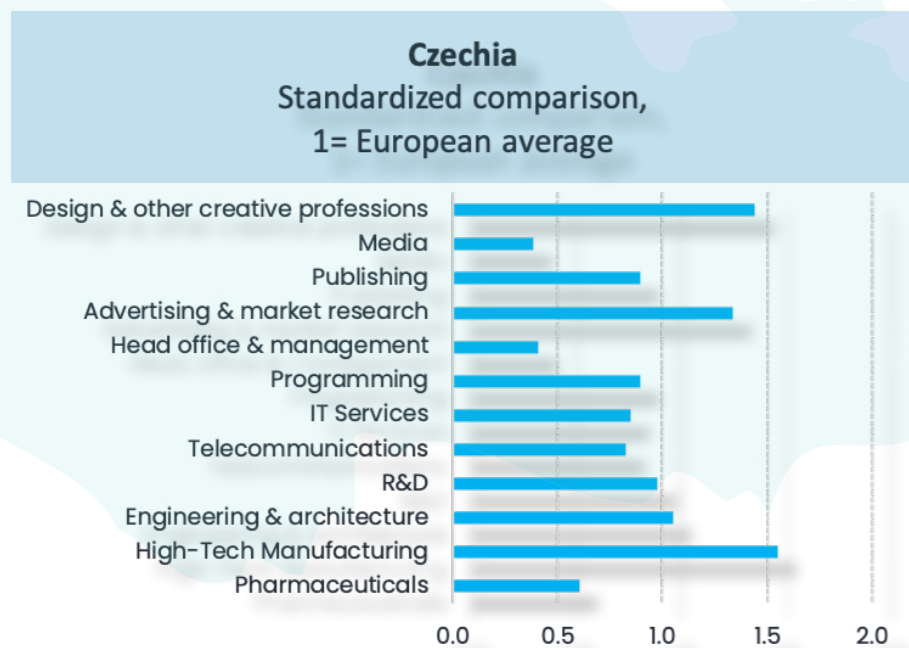
Latvia

- In 2024, 7.0 percent of the working-age adults of Latvia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.5 percent two years before. The level has long-term risen from 4.8 percent in 2014, this represents a significant economic transformation.
- Out of adults in Latvia, 15.9 percent are employed in manufacturing industries, while 10.4 percent are employed in professional services. Together with those employed in brain business jobs, in total 33.3 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Latvia has particular relative strengths in IT services, where 10 100 are employed. The country also has recently developed a relatively strong design & other creative professions sector, with 6 200 employees.

Czechia

- In 2024, 7.0 percent of the working-age adults of Czechia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.6 percent two years before. The level has long-term risen from 5.3 percent in 2014, a major economic transformation.
- In the Prague region as many as 21.8 percent of the adults are employed in brain business jobs, this is the 3rd highest share in a regional comparison, with all European regions that data exists for. Jihovýchod and Moravskoslezsko regions also have high shares of brain business jobs per capita.
- Amongst adults in Czechia, 24.9 percent are employed in manufacturing industries, and 8.6 percent are employed in professional services. Together with those employed in brain business jobs, in total 40.5 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Czechia has particular relative strengths in high-tech manufacturing, with some 43 700 jobs in this sector, as well as in design & other creative professions, where 49 200 are employed.

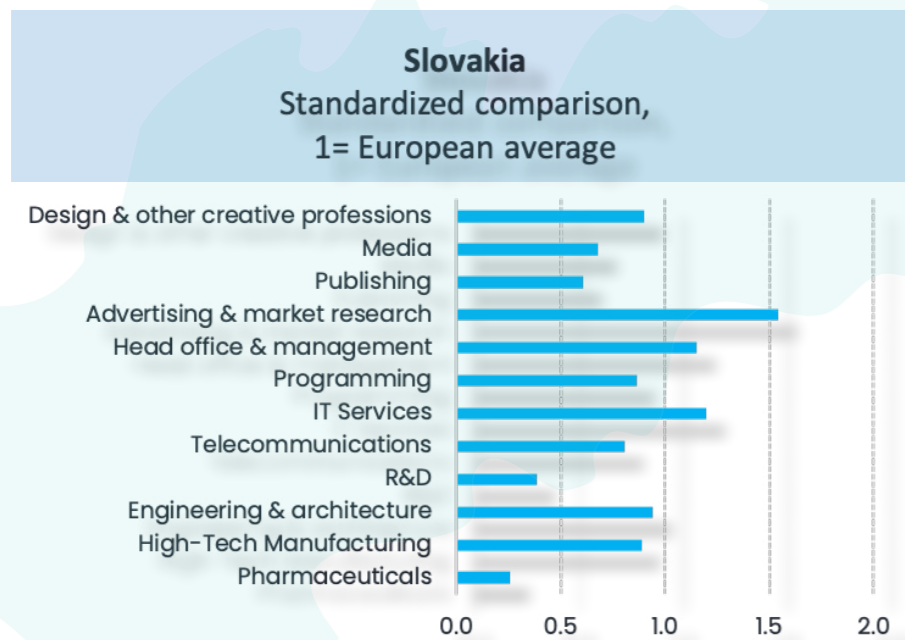
Brain business jobs per capita	
Prague	21.8%
Jihovýchod	7.5%
Moravskoslezsko	5.1%
Severovýchod	5.0%
Strední Morava	4.5%
Strední Cechy	4.2%
Jihozápad	4.0%
Severozápad	2.6%



Slovakia

- In 2024, 6.7 percent of the working-age adults of Slovakia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.0 percent two years before. The level has long-term risen from 4.4 percent in 2014, which represents a significant economic shift.
- In the Bratislava region as many as 23.1 percent of the adults are employed in brain business jobs, this is the 2nd highest share in a regional comparison, with all European regions that data exists for.
- Furthermore, 19.6 percent of adults in Slovakia are employed in manufacturing industries, while 7.0 percent are employed in professional services. Together with those employed in brain business jobs, in total 33.3 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Slovakia has particular relative strengths in head office & management, where 42 200 are employed. The country also has recently developed a relatively strong programming sector, with 54 300 employees.

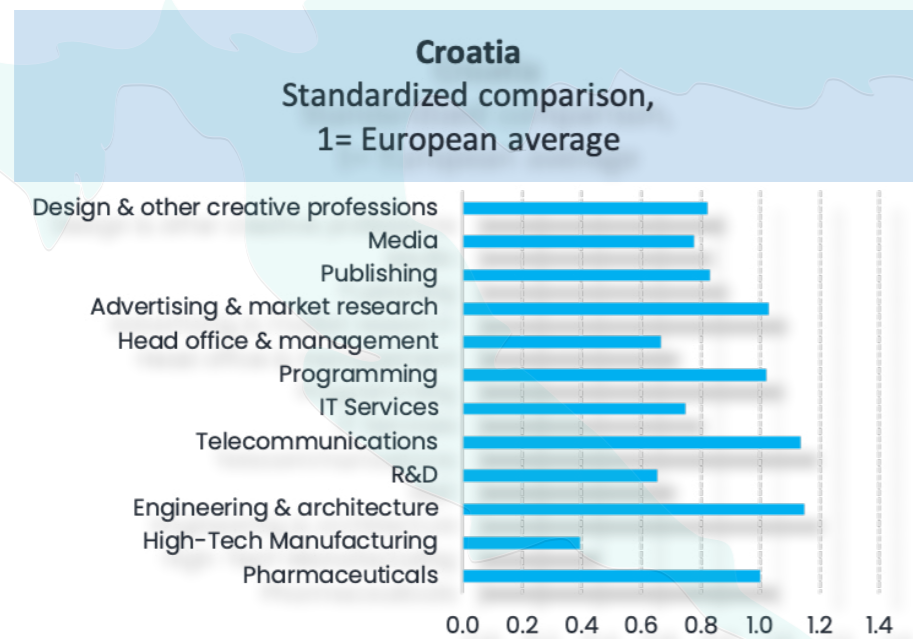
Brain business jobs per capita	
Bratislava	23.1%
Západné Slovensko	4.6%
Stredné Slovensko	4.7%
Východné Slovensko	3.7%



Croatia

- In 2024, 6.6 percent of the working-age adults of Croatia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is a major increase from 5.2 percent two years before. The level has long-term risen from 3.7 percent in 2014, nearly doubling since.
- In the Zagreb region as many as 17.0 percent of the adults are employed in brain business jobs, this is the 9th highest share in a regional comparison, with all European regions that data exists for.
- Out of adults in Croatia, 18.9 percent are employed in manufacturing industries, while 11.0 percent are employed in professional services. Together with those employed in brain business jobs, in total 36.5 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Croatia has particular relative strengths in telecommunications, where 10 400 are employed. The country also has recently developed a relatively strong engineering & architecture sector, with 32 400 employees.

Brain business jobs per capita	
Zagreb	17.0%
Jadranska Hrvatska	4.4%
Sjeverna Hrvatska	3.6%
Panonska Hrvatska	2.7%

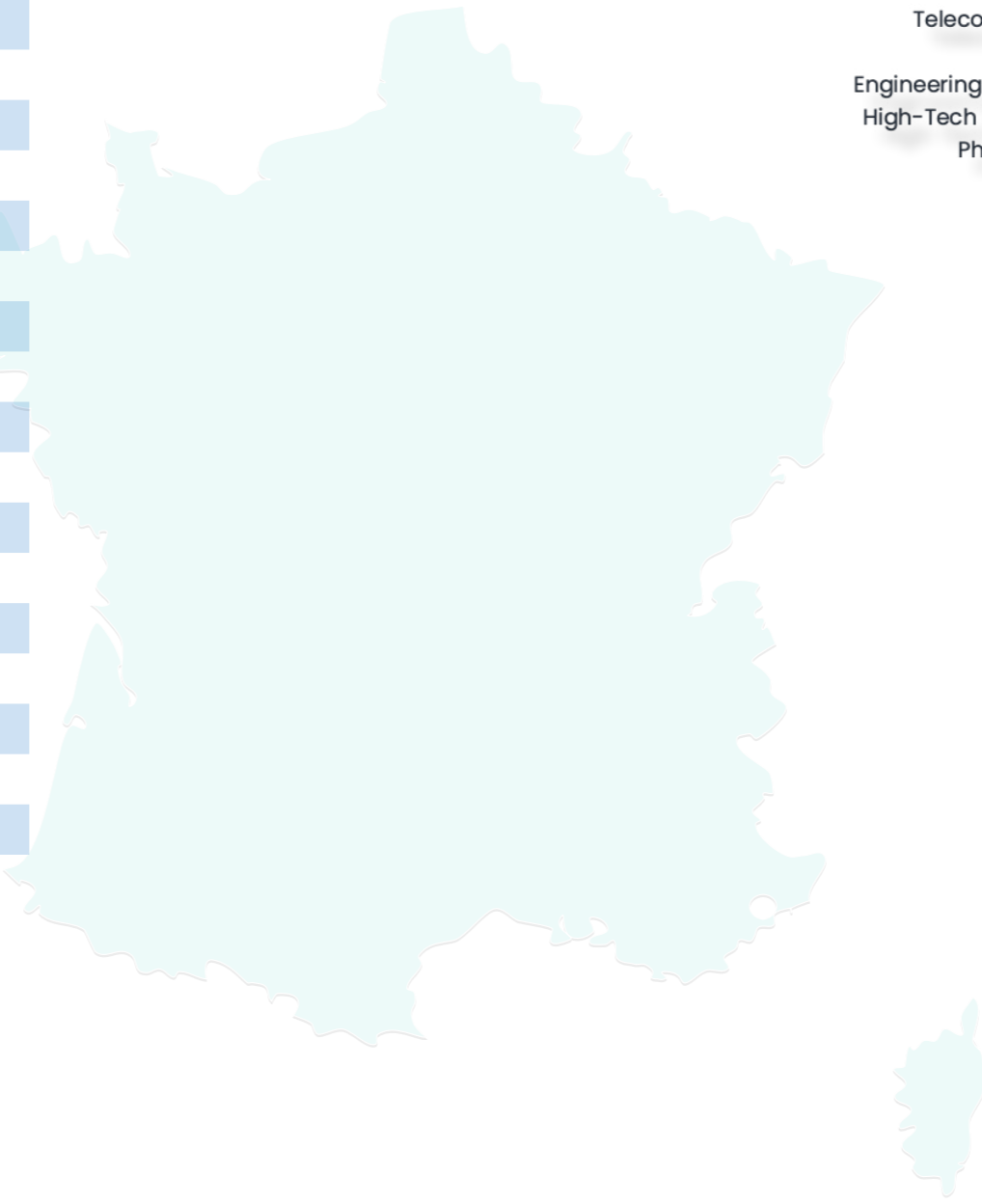


France

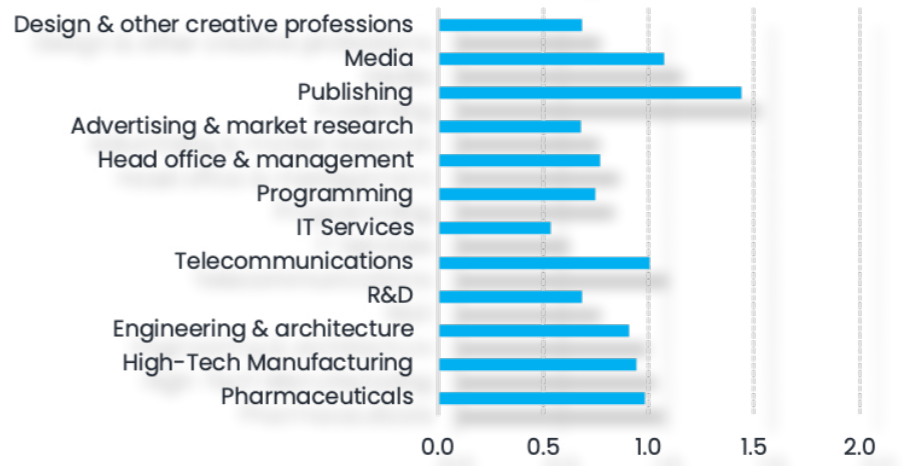
- In 2024, 6.4 percent of the working-age adults of France were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 6.0 percent two years before. The level has long-term risen from 5.5 percent in 2014.
- In the Paris region as many as 18.3 percent of the adults are employed in brain business jobs, this is the 5th highest share in a regional comparison, with all European regions that data exists for. Paris however not only has a high concentration of brain business jobs, but is also a significantly larger city. There are close to 1,4 million brain business jobs in Paris, no other region in Europe is over one million such jobs.
- Out of adults in France, 13.5 percent are employed in manufacturing industries, while 8.8 percent are employed in professional services. Together with those employed in brain business jobs, in total 28.7 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- France has particular relative strengths in media, where 74 200 are employed. The country also has recently developed a relatively strong pharmaceuticals sector, with 100 900 employees.

Brain business jobs per capita

Paris	18.3%
Rhône-Alpes	5.7%
Provence-Alpes-Côte d'Azur	4.1%
Midi-Pyrénées	3.5%
Alsace	3.2%
Aquitaine	3.1%
Pays de la Loire	3.0%
Bretagne	3.0%
Languedoc-Roussillon	2.7%
Nord-Pas de Calais	2.4%
Auvergne	2.1%
Bourgogne	2.0%
Corse	1.9%
Haute-Normandie	1.8%
Basse-Normandie	1.8%
Limousin	1.7%
Picardie	1.7%
Poitou-Charentes	1.6%
Champagne-Ardenne	1.6%
Lorraine	1.6%
Franche-Comté	1.5%



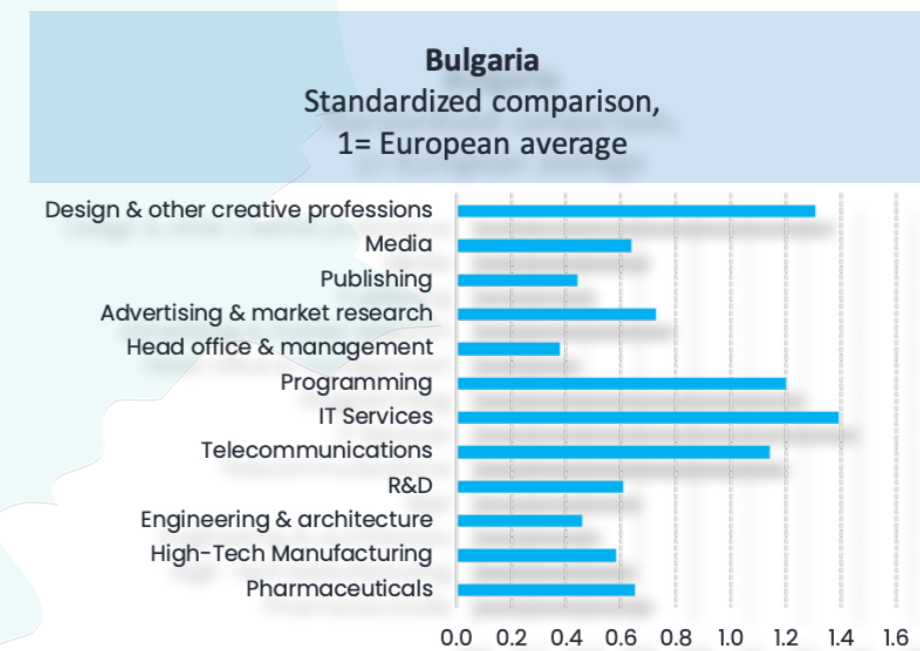
France
Standardized comparison,
1= European average



Bulgaria

- In 2024, 6.1 percent of the working-age adults of Bulgaria were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 5.4 percent two years before. The level has long-term risen from 3.6 percent in 2014, significantly improving.
- In the Sofia region fully 14.6 percent of the adults are employed in brain business jobs, this is the 18th highest share in a regional comparison, with all European regions that data exists for.
- Amongst adults in Bulgaria, 15.9 percent are employed in manufacturing industries, and 8.8 percent are employed in professional services. Together with those employed in brain business jobs, in total 30.7 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Bulgaria has particular relative strengths in IT services, with some 16 800 jobs in this sector, as well as in design & other creative professions, where more than 20 600 are employed.

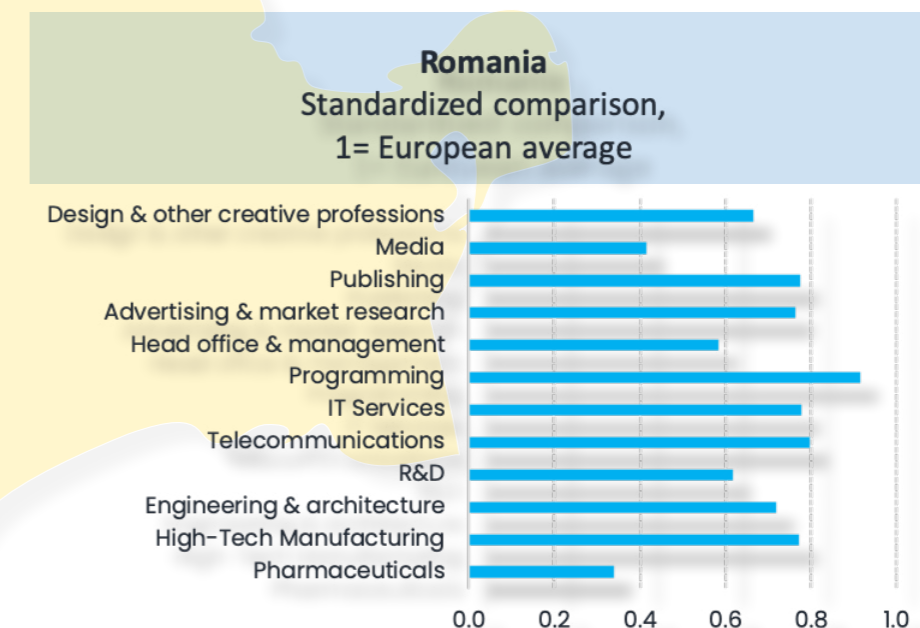
Brain business jobs per capita	
Sofia	14.6%
Severozapaden	3.0%
Yuzhen tsentralen	2.5%
Severen tsentralen	2.0%
Yugoiztochen	1.6%
Severozapaden	1.1%



Romania

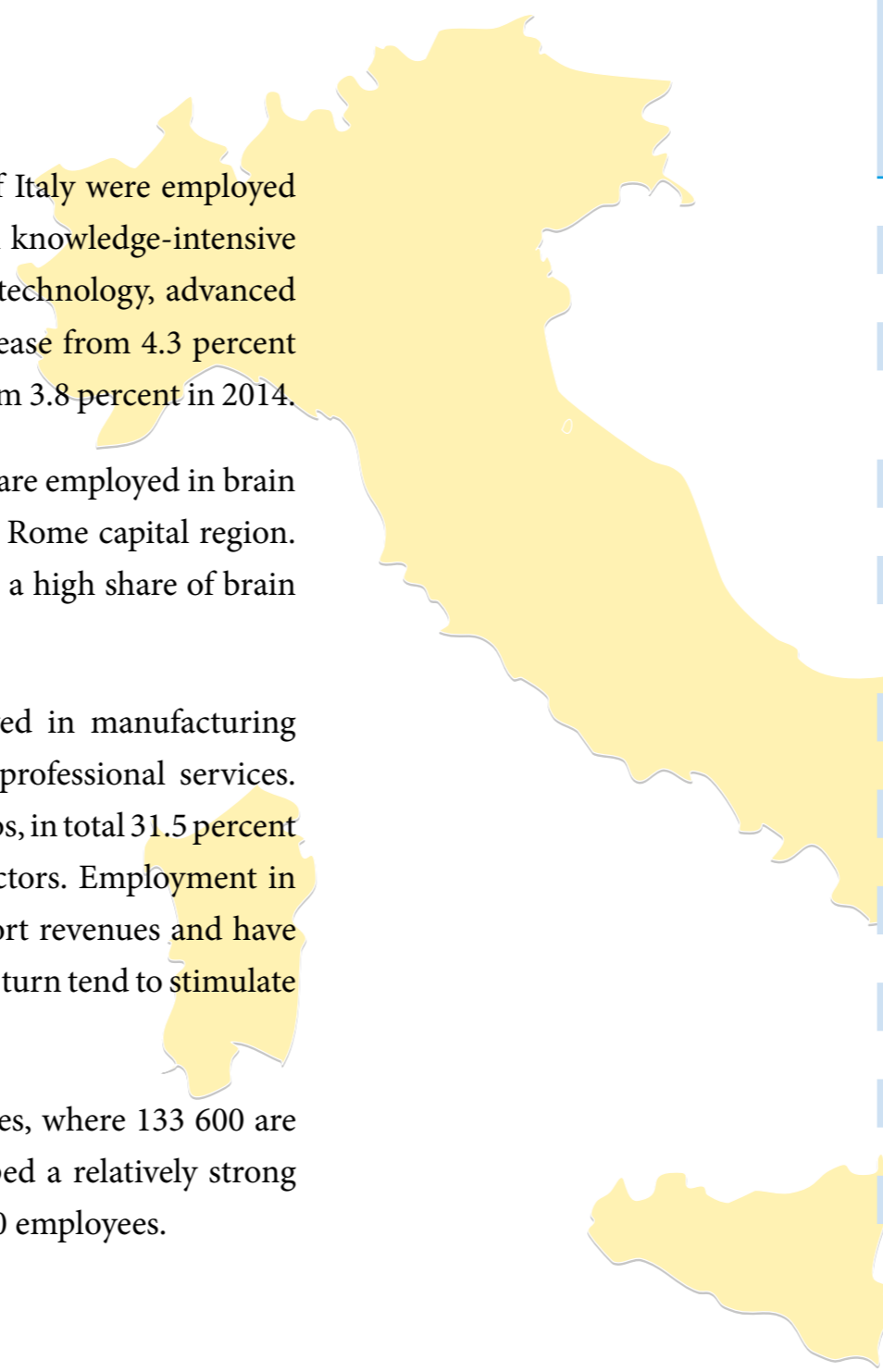
- In 2024, 5.3 percent of the working-age adults of Romania were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 4.5 percent two years before. The level has long-term risen from 3.0 percent in 2014, a significant growth.
- In the Bucharest region fully 20.7 percent of the adults are employed in brain business jobs, this is the 4th highest share in a regional comparison, with all European regions that data exists for. Bucharest has rapidly climbed to this impressive position. Vest and Nord-Vest regions also have a high share of brain business jobs per adult.
- Furthermore, 14.7 percent of adults in Romania are employed in manufacturing industries, while 6.6 percent are employed in professional services. Together with those employed in brain business jobs, in total 26.6 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Romania has particular relative strengths in programming, where 188 300 are employed. The country also has recently developed a relatively strong high-tech manufacturing sector, with 35 600 employees.

Brain business jobs per capita	
Bucharest	20.7%
Vest	5.6%
Nord-Vest	5.2%
Centru	3.7%
Nord-Est	2.4%
Sud-Est	2.0%
Sud - Muntenia	1.9%
Sud-Vest Oltenia	1.8%



Italy

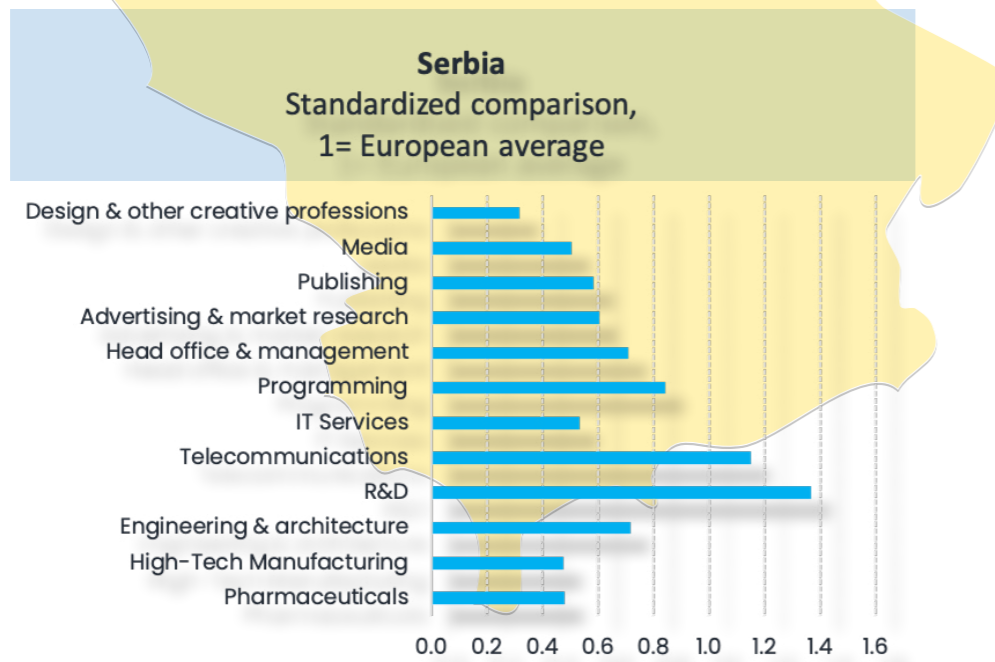
- In 2024, 5.3 percent of the working-age adults of Italy were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 4.3 percent two years before. The level has long-term risen from 3.8 percent in 2014.
- In the Lombardia region 9.3 percent of the adults are employed in brain business jobs, while the rate is 8.0 percent in the Rome capital region. Emilia-Romagna and Piemonte regions also have a high share of brain business jobs per adult.
- Out of adults in Italy, 16.0 percent are employed in manufacturing industries, while 10.2 percent are employed in professional services. Together with those employed in brain business jobs, in total 31.5 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Italy has particular relative strengths in IT services, where 133 600 are employed. The country also has recently developed a relatively strong design & other creative works sector, with 261 900 employees.



Brain business jobs per capita	
Lombardia	9.3%
Rome	8.0%
Emilia-Romagna	6.1%
Piemonte	6.0%
Provincia Autonoma di Bolzano	5.4%
Veneto	5.4%
Toscana	5.3%
Valle d'Aosta	5.2%
Provincia Autonoma di Trento	5.1%
Marche	5.1%
Liguria	4.8%
Friuli-Venezia Giulia	4.6%
Umbria	4.0%
Abruzzo	3.8%
Basilicata	3.3%
Molise	3.1%
Campania	2.9%
Sardegna	2.8%
Puglia	2.8%
Sicilia	2.3%
Calabria	1.9%

Serbia

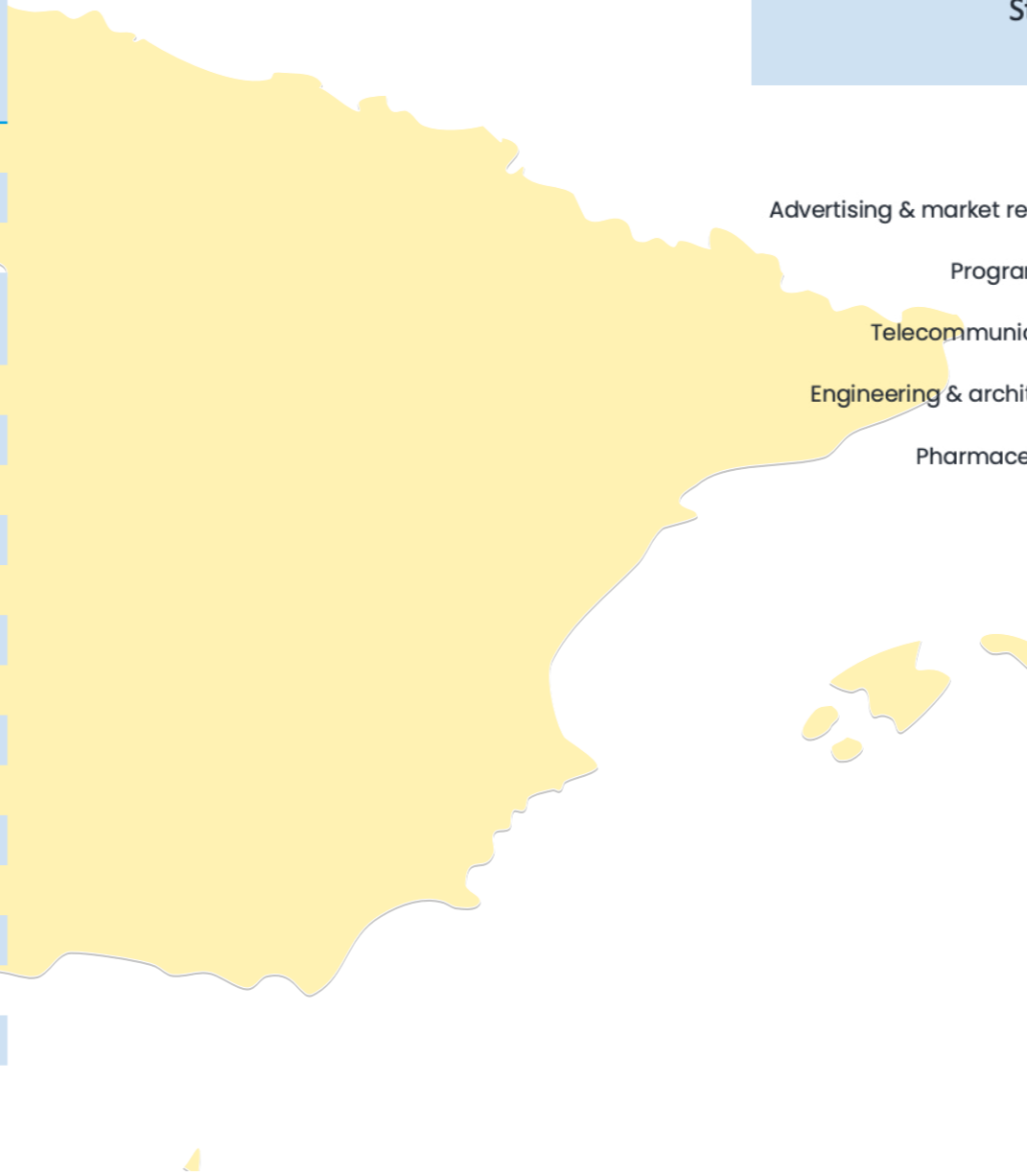
- In 2024, 5.2 percent of the working-age adults of Serbia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. Serbia is new to this study.
- Further 16.3 percent of adults in Serbia are employed in manufacturing industries, while 7.2 percent are employed in professional services. Together with those employed in brain business jobs, in total 28.7 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Serbia has particular relative strengths in research & development, where 11 000 are employed. The country also has recently developed a relatively strong telecommunications sector, with 18 300 employees.



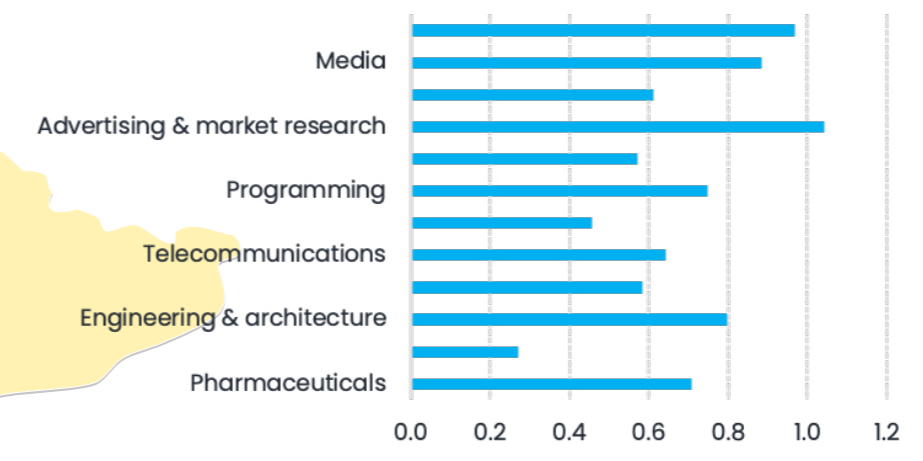
Spain

- In 2024, 5.2 percent of the working-age adults of Spain were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 5.0 percent two years before. The level has long-term risen from 3.6 percent in 2014.
- In the Madrid region fully 13.3 percent of the adults are employed in brain business jobs, this is the 22nd highest share in a regional comparison, with all European regions that data exists for. Cataluña and País Vasco regions also have a high share of brain business jobs per adult.
- Out of adults in Spain, 12.1 percent are employed in manufacturing industries, while 10.5 percent are employed in professional services. Together with those employed in brain business jobs, in total 27.8 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Spain has particular relative strengths in design & other creative professions, where 143 400 are employed. The country also has recently developed a relatively strong engineering & architecture sector, with 297 600 employees.

Brain business jobs per capita	
Madrid	13.3%
Cataluña	7.1%
País Vasco	5.6%
Comunidad Foral de Navarra	4.4%
Aragón	3.6%
Galicia	3.6%
Principado de Asturias	3.5%
Illes Balears	3.4%
Comunidad Valenciana	3.3%
La Rioja	3.1%
Andalucía	2.8%
Castilla y León	2.7%
Cantabria	2.7%
Región de Murcia	2.6%
Canaries Islands	2.6%
Extremadura	2.1%
Castilla-la Mancha	1.8%
Ciudad de Ceuta	1.2%
Ciudad de Melilla	1.1%



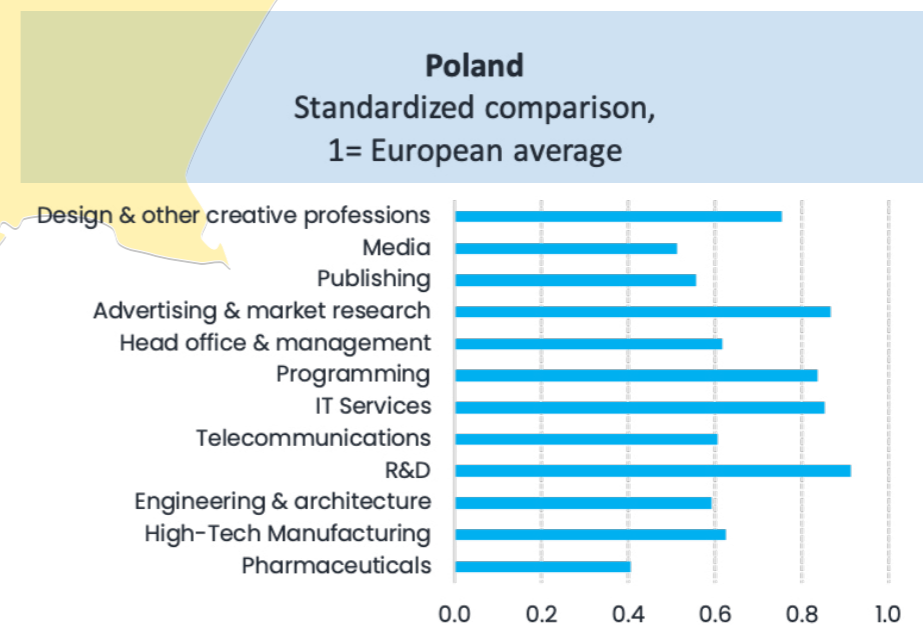
Spain
Standardized comparison,
1= European average



Poland

- In 2024, 5.1 percent of the working-age adults of Poland were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 4.4 percent two years before. The level has long-term risen from 3.1 percent in 2014.
- In the Warsaw region fully 16.2 percent of the adults are employed in brain business jobs, this is the 10th highest share in a regional comparison, with all European regions that data exists for. Malopolskie, Dolnoslaskie and Pomorskie regions also have a high share of brain business jobs per adult.
- Of adults in Poland, 17.6 percent are employed in manufacturing industries, while 6.7 percent are employed in professional services. Together with those employed in brain business jobs, in total 29.4 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Poland has particular relative strengths in research & development, where 43 800 are employed. The country also has recently developed a relatively strong IT services sector, with 56 300 employees.

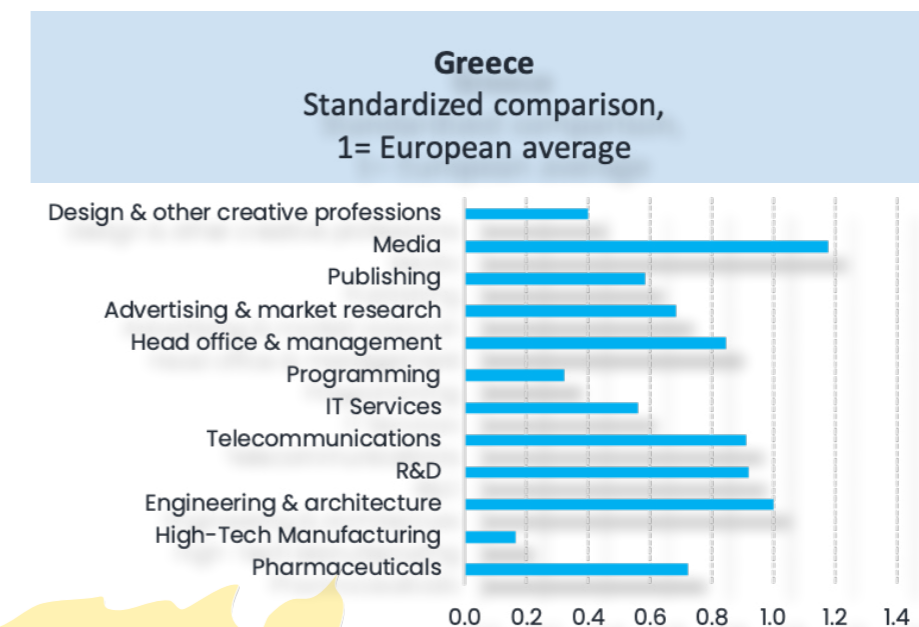
Brain business jobs per capita	
Warsaw	16.2%
Malopolskie	7.2%
Dolnoslaskie	6.6%
Pomorskie	6.2%
Wielkopolskie	4.4%
Slaskie	4.4%
Lódzkie	3.8%
Kujawsko-Pomorskie	3.1%
Zachodniopomorskie	3.1%
Podkarpackie	2.7%
Lubuskie	2.6%
Podlaskie	2.4%
Lubelskie	2.3%
Opolskie	2.1%
Swietokrzyskie	2.0%
Warminsko-Mazurskie	1.9%
Mazowiecki regionalny	1.9%



Greece

- In 2024, 4.7 percent of the working-age adults of Greece were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. This is an increase from 4.2 percent two years before. The level has long-term risen from 4.1 percent in 2014.
- In the Athens region fully 8.7 percent of the adults are employed in brain business jobs. Kriti and Kentriki Makedonia regions also have a higher share of brain business jobs per adult.
- Further 9.9 percent of adults in Greece are employed in manufacturing industries, while 14.6 percent are employed in professional services. Together with those employed in brain business jobs, in total 29.3 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Greece has particular relative strengths in media, where 13 100 are employed. The country also has recently developed a relatively strong research & development sector, with 11 700 employees.

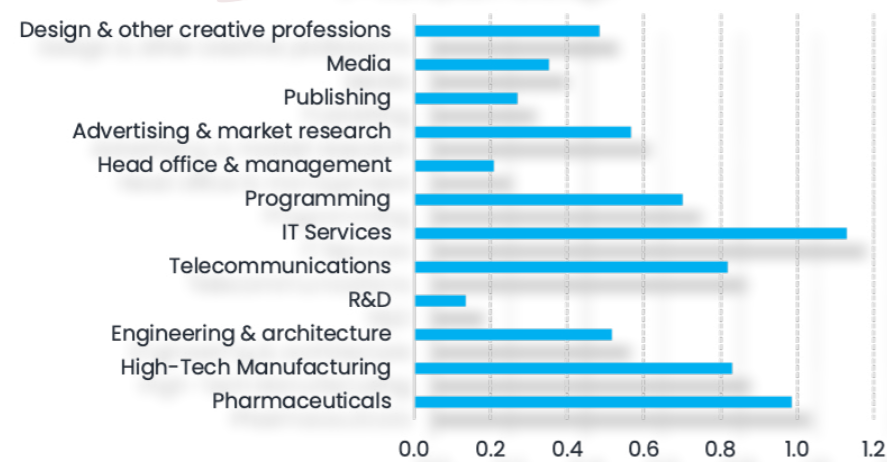
Brain business jobs per capita	
Athens	8.7%
Kriti	3.3%
Kentriki Makedonia	3.2%
Ipeiros	2.5%
Dytiki Ellada	2.4%
Ionia Nisia	2.4%
Thessalia	2.3%
Notio Aigaio	2.2%
Peloponnisos	2.1%
Dytiki Makedonia	1.9%
Voreio Aigaio	1.9%
Anatoliki Makedonia	1.9%
Stereia Ellada	1.8%



North Macedonia

- In 2024, 4.1 percent of the working-age adults of North Macedonia were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. Albania is new to this study.
- Further 14.3 percent of adults in North Macedonia are employed in manufacturing industries, while 7.7 percent are employed in professional services. Together with those employed in brain business jobs, in total 26.2 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- North Macedonia has particular relative strengths in IT services, where 3 200 are employed. The country also has recently developed a relatively strong pharmaceutical sector, with 2 650 employees.

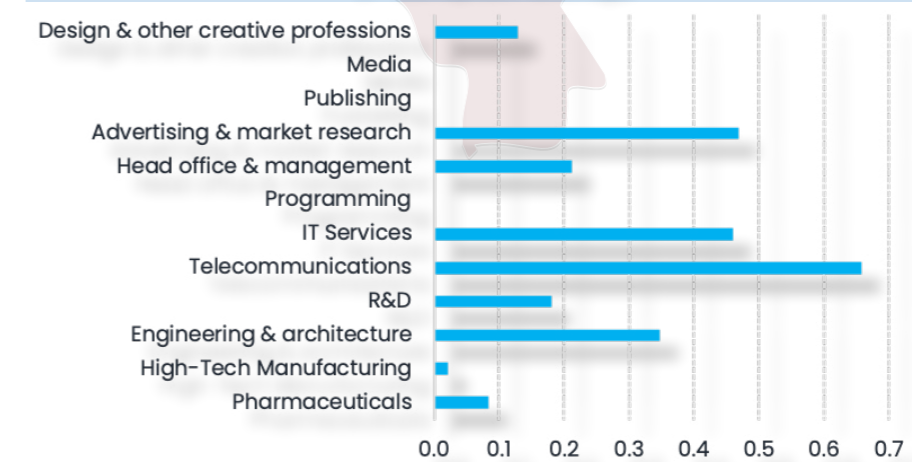
North Macedonia
Standardized comparison,
1= European average



Albania

- In 2024, 1.4 percent of the working-age adults of Albania were employed in brain business jobs, a term for employment in knowledge-intensive firms in tech, information and communications technology, advanced services, and creative professions. Albania is new to this study.
- Further 9.9 percent of adults in Albania are employed in manufacturing industries, while 6.0 percent are employed in professional services. Together with those employed in brain business jobs, in total 17.4 percent of adults are employed in high value creating sectors. Employment in these parts of the economy tend to bring in export revenues and have high value production per employee. These jobs in turn tend to stimulate economic activity in the rest of the economy.
- Albania has particular relative strengths in telecommunications, where 4 600 are employed. The country also has recently developed a relatively strong IT services sector, with 2 250 employees.

Albania
Standardized comparison,
1= European average



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Eurostat databases, Main national accounts tax aggregates.

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