

European Innovation
Scoreboard **2024**
Country Profile
Sweden

European Innovation Scoreboard 2024 – Country profile Sweden

European Commission

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**Innovation Leader** ●Summary innovation index (relative to EU in 2017): **146.2**Rank: **3**

Change vs 2023: ▲ 0.2 Change vs 2017: ▲ 9.3

Sweden is an Innovation Leader with performance at 132.9% of the EU average in 2024. Performance is above the average of the Innovation Leaders (132.1%). Performance is increasing less than the EU (+10%).

Indicator	Performance relative to the EU in 2024	Performance change 2017-2024	Performance change 2023-2024
SUMMARY INNOVATION INDEX	132.9	9.3	0.2
Human resources	173.1	-10.3	8.1
New doctorate graduates	139.4	-46.3	11.6
Population with tertiary education	159.7	28.7	10.1
Population involved in lifelong learning	227.8	0.0	0.0
Attractive research systems	166.1	10.1	-0.8
International scientific co-publications	239.3	55.6	-3.4
Scientific publications among the top 10% most cited	127.0	-12.9	0.2
Foreign doctorate students as a % of all doctorate students	161.3	19.3	-0.2
Digitalisation	138.4	1.8	1.8
Broadband penetration	137.7	0.0	0.0
Individuals with above basic overall digital skills	139.5	3.7	3.7
Finance and support	115.4	26.3	-6.3
R&D expenditure in the public sector	126.2	-9.9	-6.6
Venture capital expenditures	143.8	101.5	-9.0
Direct and indirect government support of business R&D	67.8	-8.5	-2.8
Firm investments	131.2	-18.6	-4.7
R&D expenditure in the business sector	159.0	6.8	0.0
Non-R&D innovation expenditures	73.5	-47.6	-7.7
Innovation expenditures per person employed	155.2	-15.5	-6.5
Use of information technologies	175.2	5.3	6.6
Enterprises providing ICT training	167.9	10.8	13.4
Employed ICT specialists	182.3	0.0	0.0
Innovators	132.3	44.4	-17.0
SMEs introducing product innovations	155.2	42.9	-8.3
SMEs introducing business process innovations	113.5	45.8	-25.3
Linkages	178.6	49.6	25.0
Innovative SMEs collaborating with others	239.2	181.1	157.7
Public-private co-publications	389.0	47.3	-14.8
Job-to-job mobility of HRST	41.6	-61.8	-70.6
Intellectual assets	123.2	-8.9	-4.3
PCT patent applications	143.1	0.0	0.0
Trademark applications	120.6	10.0	-5.3
Design applications	94.2	-35.3	-9.1
Employment impacts	153.9	25.6	2.7
Employment in knowledge-intensive activities	178.7	18.1	0.0
Employment in innovative enterprises	133.3	32.9	5.2
Sales impacts	93.3	14.8	1.6
Exports of medium and high technology products	87.2	1.1	8.4
Knowledge-intensive services exports	96.8	6.6	0.2
Sales of new-to-market and new-to-firm innovations	97.4	47.3	-7.7
Environmental sustainability	85.0	7.5	-1.1
Resource productivity	53.5	3.1	-2.2
Air emissions by fine particulates	106.8	11.7	5.2
Environment-related technologies	84.2	5.0	-8.9

Relative strengths

- Public-private co-publications
- International scientific co-publications
- Innovative SMEs collaborating with others

Relative weaknesses

- Job-to-job mobility of HRST
- Resource productivity
- Direct and indirect government support of business R&D

Strong increases since 2017

- Innovative SMEs collaborating with others
- Venture capital expenditures
- International scientific co-publications

Strong decreases since 2017

- Job-to-job mobility of HRST
- Non-R&D innovation expenditures
- New doctorate graduates

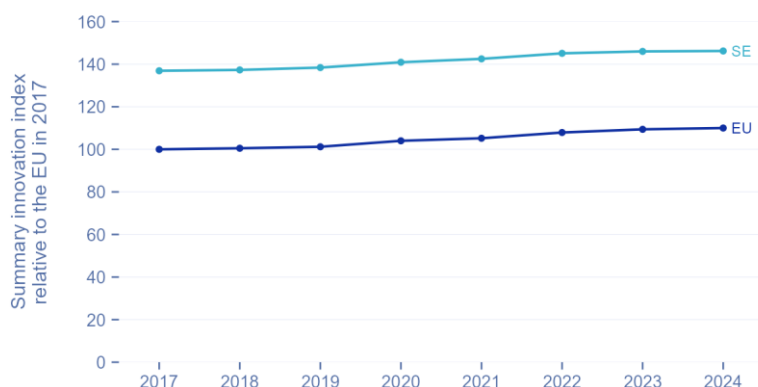
Strong increases since 2023

- Innovative SMEs collaborating with others
- Enterprises providing ICT training
- New doctorate graduates

Strong decreases since 2023

- Job-to-job mobility of HRST
- SMEs introducing business process innovations
- Public-private co-publications

Footnote: The first data column shows scores relative to the EU in 2024, with colour codes indicating performance levels. The subsequent columns show performance changes over time, with scores relative to the EU in 2017, coloured in purple for positive change and red for negative change. As reference years differ between the first column (2024) and the last two columns (2017), scores cannot be directly compared or subtracted across these columns.



Summary innovation index

The line chart shows the evolution of the innovation performance of Sweden over time, relative to the performance of the EU in 2017.

Footnote: All performance scores (SII and dimensions below) are relative to that of the EU in 2017.

Framework conditions

Sweden is one of the top-performing Member States in the European Union across all framework conditions, including human resources (173.1% of the EU average), the attractiveness of its research system (166.1% of the EU average), and digitalisation (138.4% of the EU average). The country benefits from a highly skilled and educated workforce, with 54% of the population aged 25-34 having some form of tertiary education, and 39% of the population aged 15-64 involved in lifelong learning, ranking Sweden as the top country in the EU in this regard. Although it still represents 139.4% of the EU average in 2024, the number of new doctorate graduates in STEM have gradually declined since 2017 (-46.3%-points). In consequence, Sweden face risks in future investment in R&D due to shortages in highly skilled STEM, as highlighted in the 2024 European Semester Report.

The Swedish population demonstrates above-average digital skills, with 36% of the population having digital skills above the basic level, which corresponds to 139.5% of the EU average. 12% of Swedish scientific publications reach the top 10% most cited worldwide, ranking third behind the Netherlands and Denmark, despite a declining trend since 2017 (-12.9%-points). Sweden's research and education systems are internationally recognised and attract more foreign doctorate students than the EU average (161.3% of the EU average in 2024).

Human resources



Attractive research systems



Digitalisation



Investments

Sweden ranks 6th in R&D expenditure in the public sector with 0.89% of GDP, which corresponds to 126.2% of the EU average, despite a gradual decline over the last years (-9.9%-points between 2017 and 2024). In firms, innovation expenditures per person employed are also significantly above the EU average (155.2%), driven upwards by the strong R&D expenditure in the business sector, topping 2.51% of GDP in 2024 (159.0% of the EU average), but negatively affected by the declining non-R&D innovation expenditures (-47.6%-points between 2017 and 2024).

Venture capital represents a growing funding source to finance innovation activities, as venture capital expenditures have tripled since 2017, reaching 0.35% of GDP in 2024, which represents 143.8% of the EU average. In contrast, direct government funding and government tax support for business R&D performs below the EU average (67.8%).

Swedish enterprises invest in their staff's proficiency in information and communication technology (ICT), with 34% of them offering training to enhance the ICT skills of their personnel – this represents 167.9% of the EU average and is the second-best performance in the EU. Additionally, ICT specialists account for 8.7% of total employment in Sweden, or almost twice more than the EU average (182.3%).

Finance and support**Firm investments****Use of information technologies****Innovation activities**

Sweden showcases strong innovation activities, particularly driven by the growing role of SMEs in innovation and the integration of the innovation ecosystem. There has been a strong increase in the share of SMEs introducing innovations, reaching 37% of SMEs for product innovations (or 155.2% of the EU average) and 45% for business process innovations (or 113.5% of the EU average). Almost a third of innovative SMEs collaborate with others, which is twice more than in 2017 (+181.1%-points, the most dramatic increase observed for Sweden), and represents 239.2% of the EU average. Collaboration is also visible through the number of public-private co-publications which is among the highest in the EU, reaching 389.0% of the EU average in 2024.

However, job-to-job mobility of human resources in science and technology has been strongly declining since 2017 (-61.8%-points) and falls below half of the EU average. Limited labour mobility is highlighted in the European Semester report (2024) pointing at shortages in affordable housing and insufficient integration of low-skilled workers into the labour market.

Sweden generates above-average intellectual assets, particularly PCT patents and trademarks, which represent respectively 143.1% and 120.6% of the EU average in 2024. Design applications have gradually decreased (-35.3%-points between 2017 and 2024), reaching a low of 3.4 applications per billion GDP in 2024.

Innovators**Linkages****Intellectual assets****Impacts**

Despite strong framework conditions and excellent performance in investments and innovation activities, Sweden's performance in innovation impacts is rather mixed. Strong employment impacts are visible with employment in knowledge-intensive activities and innovation enterprises being on an upward trend and reaching respectively 178.7% and 133.3% of the EU average.

However, regarding sales, impacts are more limited, and Sweden performs at 93.3% of the EU average due to exports of medium and high technology products and of knowledge-intensive services below the EU average (respectively 87.2% and 96.8% of the EU average). Domestic sales of new-to-market and new-to-firms innovation are also just below the EU average (97.4%) but have strongly increased between 2017 and 2024 (+47.3%-points).

Sweden also scores below the EU average in environmental sustainability (85.0% of the EU average), mostly driven downward by the low performance in resource productivity which reaches only half (53.5%) of the EU average. Air emissions by fine particles have however strongly improved between 2017 and 2024 (performance improving by 11.7%-points) to reach 106.8% of the EU average in 2024. Production of patents based on environment-related technologies is below (84.2%) the EU average.

Employment impacts**Sales impacts****Environmental sustainability****Structural differences****Performance and structure of the economy**

Sweden's GDP per capita is 117.7% of the EU average. However, the Swedish economy experiences relatively low growth, with an average annual GDP growth of 0.6%, one of the lowest in the EU.

Knowledge-intensive services account for 41.8% of employment in Sweden. Although the manufacturing sector employs a small portion of the population, it is characterised by high technological intensity, with 46.5% of manufacturing jobs in high and medium-tech industries.

Compared with the EU average, SMEs represent a relatively small share of total turnover, while large enterprises represent 54.0% of total turnover. The share of foreign-controlled enterprises in total value added is slightly above the EU average.

Business and entrepreneurship

Sweden has a relatively low rate of enterprise births, averaging 0.5% of enterprises annually. Nevertheless, it performs above the EU average on all other business structural indicators. The country attracts significant FDI, with net inflows reaching 6.6% of GDP, exceeding the EU average. Sweden also has a significant number of enterprises investing large sums in R&D, ranking fourth in the EU. Demand for innovation is high in Sweden, driving purchasing decisions based on performance and quality.

Innovation profiles

Swedish enterprises introduce more products new to the firm and new to the market, as well as innovative business processes, compared to the EU average. It is also the Member State with the second highest rate of innovators not developing innovations themselves. Sweden counts relatively fewer non-innovative enterprises with potential to innovate and non-innovative enterprises without the disposition to innovate.

Governance and policy framework

Sweden benefits from a positive governance framework. The low perception level of corruption (score of 83.3/100 on the Corruption Perception Index) and the significant trust in the rule of law contribute to a secure business environment. Innovation procurement as a share of total public procurement reaches 13.1% which is among the highest in the EU, with government purchase decisions for the procurement of advanced technology products being relatively more driven by technical performance and innovativeness than the price. Moreover, the education and training system integrates significant training in creating or managing SMEs.

Climate change

While Sweden shows a share of material resources coming from recycled waste materials below the EU average, it performs remarkably well in reducing greenhouse gas emissions from energy consumption. Moreover, it is one of the best-performing Member States on the Eco-Innovation Index.

Demography

On 1 January 2024, Sweden had a population of 10,451,059 inhabitants, and an average annual population growth of 0.7%.

Structural indicators

The table below presents some structural differences between Sweden and the EU.

	SE	EU
Performance and structure of the economy		
GDP per capita	117.7	100
Average annual GDP growth (2021-2023 average)	0.6	1.9
Employment share Manufacturing	9.7	15.8
Employment share High and Medium high-tech	46.5	37.9
Employment share Services	40.7	39.8
Employment share Knowledge-intensive services	41.8	28.6
Turnover share SMEs	11.5	12.6
Turnover share large enterprises	54	49.6
Foreign-controlled enterprises – share of value added	14.9	13.3
Business and entrepreneurship		
Enterprise births	0.5	0.8
Total Entrepreneurial Activity	9.1	6.8
FDI net inflows	6.6	1.9
Top R&D spending enterprises	28.6	8.4
Buyer sophistication	4.6	3.6
Innovation profiles		
In-house product innovators with market novelties	17.2	11.7
In-house product innovators without market novelties	16.7	13.7
In-house business process innovators	19.2	17.6
Innovators that do not develop innovations themselves	9.5	6.1
Innovation active non-innovators	2.5	4.2
Non-innovators with potential to innovate	7.9	17.8
Non-innovators without disposition to innovate	26.9	30.6
Governance and policy frameworks		
Corruption Perceptions Index	83.3	64
Basic-school entrepreneurial education and training	4.2	2.6
Government procurement of advanced technology products	4	3.4
Rule of law	1.7	1
Innovation procurement as a share of total public procurement	13.1	9.2
Climate change		
Circular material use rate	6.4	11.5
Greenhouse gas emissions intensity of energy consumption	68.8	82.8
Eco-Innovation Index	160.9	121.5
Demography		

	SE	EU
Population size (in millions)	10.5	447
Average annual population growth (2021-2023 average)	0.7	0.3
Population density	25.4	109

References

The country's relative strengths and weaknesses for each indicator, compared to other EU Member States and neighbouring countries, can be found in [Annex B](#).

European Commission, 2024 Country Report – Sweden, 2024, Accessed July 4, https://economy-finance.ec.europa.eu/document/download/e2e7e782-7541-46e0-bf4b-1486bfaa0304_en?filename=SWD_2024_627_1_EN_Sweden.pdf



This report provides the Country profile from the 2024 European Innovation Scoreboard for Sweden

Studies and reports

A series of approximately 10-12 light blue, curved lines that originate from the left edge of the page and sweep downwards and to the right, creating a sense of movement and depth. The lines are of varying lengths and curves, some starting near the top and others near the bottom, all contributing to a modern, abstract design element.