



# European Innovation Scoreboard **2024** Country Profile **Slovakia**

## European Innovation Scoreboard 2024 – Country profile Slovakia

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## Emerging Innovator ●

Summary innovation index (relative to EU in 2017): **71.6**

Rank: **28**

Change vs 2023: ▲ 1.5    Change vs 2017: ▲ 2.6

Slovakia is an Emerging Innovator with performance at 65.1% of the EU average in 2024. Performance is above the average of the Emerging Innovators (48%). Performance is increasing less than the EU (+10%).

Indicator	Performance relative to the EU in 2024	Performance change 2017-2024	Performance change 2023-2024
<b>SUMMARY INNOVATION INDEX</b>	<b>65.1</b>	<b>2.6</b>	<b>1.5</b>
<b>Human resources</b>	<b>78.6</b>	<b>-20.3</b>	<b>-9.6</b>
New doctorate graduates	73.8	-34.8	-11.6
Population with tertiary education	82.0	1.8	4.2
Population involved in lifelong learning	80.5	-23.5	-23.5
<b>Attractive research systems</b>	<b>50.7</b>	<b>19.2</b>	<b>3.9</b>
International scientific co-publications	64.5	25.9	1.5
Scientific publications among the top 10% most cited	38.6	12.5	3.4
Foreign doctorate students as a % of all doctorate students	57.4	27.8	7.1
<b>Digitalisation</b>	<b>66.8</b>	<b>18.8</b>	<b>5.9</b>
Broadband penetration	60.2	33.9	7.8
Individuals with above basic overall digital skills	75.9	3.9	3.9
<b>Finance and support</b>	<b>46.8</b>	<b>-9.2</b>	<b>6.5</b>
R&D expenditure in the public sector	49.2	-67.2	3.3
Venture capital expenditures	44.7	13.5	1.2
Direct and indirect government support of business R&D	46.7	48.8	17.3
<b>Firm investments</b>	<b>58.8</b>	<b>17.7</b>	<b>1.3</b>
R&D expenditure in the business sector	36.1	18.0	3.8
Non-R&D innovation expenditures	100.7	16.2	-1.7
Innovation expenditures per person employed	44.3	18.7	1.6
<b>Use of information technologies</b>	<b>71.3</b>	<b>-11.2</b>	<b>-4.1</b>
Enterprises providing ICT training	59.7	-19.8	-5.1
Employed ICT specialists	82.3	-3.2	-3.2
<b>Innovators</b>	<b>45.5</b>	<b>15.2</b>	<b>-1.2</b>
SMEs introducing product innovations	48.4	15.2	6.4
SMEs introducing business process innovations	43.3	15.5	-7.8
<b>Linkages</b>	<b>55.1</b>	<b>18.1</b>	<b>9.0</b>
Innovative SMEs collaborating with others	71.5	12.0	20.4
Public-private co-publications	85.4	30.1	1.5
Job-to-job mobility of HRST	29.2	17.7	3.0
<b>Intellectual assets</b>	<b>51.2</b>	<b>2.4</b>	<b>-1.3</b>
PCT patent applications	40.5	-2.9	2.0
Trademark applications	80.3	21.5	2.3
Design applications	36.2	-5.5	-7.9
<b>Employment impacts</b>	<b>56.4</b>	<b>12.0</b>	<b>8.3</b>
Employment in knowledge-intensive activities	65.2	2.4	-1.2
Employment in innovative enterprises	49.1	20.9	17.1
<b>Sales impacts</b>	<b>87.4</b>	<b>-2.9</b>	<b>8.6</b>
Exports of medium and high technology products	115.4	3.8	9.4
Knowledge-intensive services exports	41.2	12.3	-7.9
Sales of new-to-market and new-to-firm innovations	115.3	-33.9	30.2
<b>Environmental sustainability</b>	<b>90.9</b>	<b>-7.1</b>	<b>-6.2</b>
Resource productivity	78.3	17.9	6.2
Air emissions by fine particulates	101.8	9.9	-1.6
Environment-related technologies	87.1	-52.3	-23.4

### Relative strengths

- Exports of medium and high technology products
- Sales of new-to-market and new-to-firm innovations
- Air emissions by fine particulates

### Relative weaknesses

- Job-to-job mobility of HRST
- R&D expenditure in the business sector
- Design applications

### Strong increases since 2017

- Direct and indirect government support of business R&D
- Broadband penetration
- Public-private co-publications

### Strong decreases since 2017

- R&D expenditure in the public sector
- Environment-related technologies
- New doctorate graduates

### Strong increases since 2023

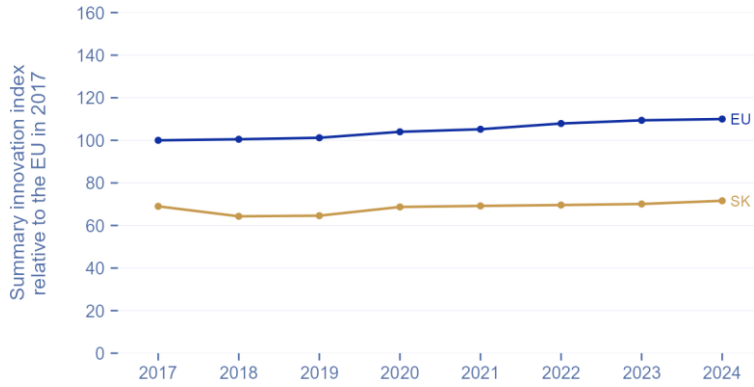
- Sales of new-to-market and new-to-firm innovations
- Innovative SMEs collaborating with others
- Direct and indirect government support of business R&D

### Strong decreases since 2023

- Population involved in lifelong learning
- Environment-related technologies
- New doctorate graduates

**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.

Emerging Innovators    Moderate Innovators    Strong Innovators    Innovation Leaders



### Summary innovation index

The line chart shows the evolution of the innovation performance of Slovakia 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

Slovakia is below the EU average in 2024 in all framework condition dimensions. Human resources (78.6% of the EU average in 2024) have seen a notable decline (-20.3%-points), primarily due to significant reductions in new doctorate graduates (-34.8%-points) and a decrease in lifelong learning participation (-23.5%-points) during the period 2017-2024. Conversely, Slovakia has made substantial progress in the attractiveness of its research systems (50.7 of the EU average in 2024) with an increase of 19.2%-points, marked by significant gains in international scientific co-publications (+25.9%-points), foreign doctorate students (+27.8%-points) and top cited scientific publications (+12.5%-points).

The efforts towards digitalisation have seen significant progress, including notable increases in broadband penetration and modest improvements in individuals with above-basic overall digital skills. This trend is expected to be further supported by the National Digital Decade Roadmap for 2030, which focuses on digital skills, digital infrastructure, digital transformation of businesses, and digitalisation of public services.

#### Human resources



#### Attractive research systems



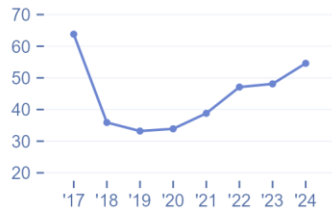
#### Digitalisation



### Investments

Slovakia equally performs below the EU average in 2024 across most investment metrics. One exception is non-R&D innovation expenditures with a score of 100.7 and hence around the EU average in 2024. Overall, finance and support have decreased, marked by a significant drop in public-sector R&D expenditure (-67.2%-points). Nonetheless, there has been a significant rise in direct and indirect government support of business R&D (+48.8%-points). Despite performing at only 36.1% of the EU average in 2024, there have been increases in venture capital expenditures and government support for business R&D. Firm investments have seen moderate growth, aided by the Slovak Investment and Trade Agency who offer services to firms through consultations and other personalised services to aid R&D spending in firms. The moderate growth is driven by increases in both R&D and non-R&D innovation expenditures, although R&D expenditure in the business sector remains relatively low. Innovation expenditures per person employed have risen. However, the use of information technologies has declined, with fewer enterprises providing ICT training and a slight reduction in employed ICT specialists.

Finance and support



Firm investments



Use of information technologies



### Innovation activities

Slovakia shows progress in innovation activities but still falls below the EU average in 2024 for all indicators. The uptick in the trend is helped by collaboration with the Centre of Operations of the Slovak Academy of Sciences, Slovak Alliance for Innovation Economy and CIVITTA Slovakia in projects such as the Slovak AI Digital Innovation Hub - SKAI-eDIH, and VAIA (established 2021), which is the research and innovation authority and a unit of the Government Office responsible for the creation and coordination of research and innovation. The overall score for innovators has improved since 2017 (+15.3%-points), with more SMEs introducing both product and business process innovations. Linkages have strengthened (+18.1%-points), demonstrated by an increase in innovative SMEs collaborating with others and a notable rise in public-private co-publications (+30.1%-points). Job-to-job mobility of highly skilled workers has also increased, but it is only 29.2% of the EU average in 2024. Nonetheless, intellectual assets have seen modest growth, with slight increases in PCT patent applications and trademark applications, while design applications (36.3% of the EU average in 2024) have declined.

Innovators



Linkages



Intellectual assets



### Impacts

Slovakia performs below the EU average in 2024 in employment impacts (56.4%), sales impacts (87.4%), and environmental sustainability (90.9%). However, employment impacts have shown significant growth with increased employment within innovative enterprises (+20.9%-points) and a modest rise in knowledge-intensive activities. Sales impacts have declined slightly, with notable decreases in sales of new-to-market and new-to-firm innovations (-33.9%-points). Nonetheless, it is still one of Slovakia's best performing indicators, at 115.3% of the EU average in 2024. Exports of medium and high technology products recorded a slight increase and is equally the best performing metric at 115.4% of the EU average in 2024. On environmental sustainability, indicators present a mixed picture and an overall performance of 90.9% of the EU average in 2024. While resource productivity and air emissions by fine particulates have improved, the development of environment-related technologies has significantly declined (-52.3%-points).

Employment impacts



Sales impacts



Environmental sustainability



## Structural differences

### Performance and structure of the economy

Slovakia's GDP per capita (72.3) is lower than the EU average. The country's average annual GDP growth is close to the EU average. The employment share in manufacturing is significantly higher in Slovakia than in the EU. Slovakia also has a higher employment share in high and medium high-tech sectors (47.1). However, the employment share in services and knowledge-intensive services is lower. The turnover share of SMEs in Slovakia is higher than the EU average, while the turnover share of large enterprises is lower. Foreign-controlled enterprises (24.2), especially in the automotive sector and electronics sector, account for a larger share of value added than the EU average. A low flat tax rate for both businesses and individuals and cheap and skilled labour (OECD, 2024) are Slovakia's main advantages for foreign investors.

### Business and entrepreneurship

Slovakia has a higher rate of enterprise births and the total entrepreneurial activity in Slovakia (9.3) is also higher than the EU average. However, Slovakia's FDI net inflows are low and so is buyer sophistication. To support businesses and start-ups, Slovakia has several accelerators and incubators. Initiatives like for instance SAPIE (Slovak Alliance for Innovation Economy) focus on promoting new businesses.

### Innovation profiles

Slovakia demonstrates lower percentages in several innovation profile categories compared to the EU average. It has fewer in-house product innovators with and without market novelties and the country also has a lower percentage of innovators engaged in in-house business process innovations. Conversely, Slovakia has a higher percentage of non-innovators with potential to innovate compared to the EU average.

### Governance and policy framework

The country's Corruption Perceptions Index (53) suggests a higher perceived level of corruption relative to its EU counterparts and the rule of law in Slovakia indicates a need for improvement. Basic-school entrepreneurial education and training are slightly more emphasised in Slovakia than in the broader EU context. Government procurement of advanced technology products in Slovakia falls slightly below the EU average along with innovation procurement (5.6).

### Climate change

Slovakia's climate change metrics indicate a slightly lower circular material use rate compared to the EU average. The greenhouse gas emissions intensity of energy consumption in Slovakia is also lower than the EU average, with the country aiming to reach its 2030 target of a 19.2% share of renewable energy sources with onshore wind, photovoltaics and bioenergy. Slovakia's Eco-Innovation Index is also lower than the EU average.

### Demography

Slovakia is a landlocked country in central Europe with a low population size (5.4 million) and is experiencing a slight annual decline in population growth (-0.3%). The country's population density is moderately higher than the EU average driven by its mountainous terrain in the west and north.

## Structural indicators

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

	SK	EU
<b>Performance and structure of the economy</b>		
GDP per capita	72.3	100
Average annual GDP growth (2021-2023 average)	1.7	1.9
Employment share Manufacturing	23.7	15.8
Employment share High and Medium high-tech	47.1	37.9
Employment share Services	33.3	39.8
Employment share Knowledge-intensive services	21.9	28.6
Turnover share SMEs	14.2	12.6
Turnover share large enterprises	43.1	49.6
Foreign-controlled enterprises – share of value added	24.2	13.3
<b>Business and entrepreneurship</b>		
Enterprise births	1.1	0.8
Total Entrepreneurial Activity	9.3	6.8
FDI net inflows	1.6	1.9
Buyer sophistication	2.9	3.6
<b>Innovation profiles</b>		
In-house product innovators with market novelties	8.9	11.7
In-house product innovators without market novelties	5.3	13.7
In-house business process innovators	14.5	17.6
Innovators that do not develop innovations themselves	2.8	6.1
Innovation active non-innovators	5.1	4.2
Non-innovators with potential to innovate	36.5	17.8
Non-innovators without disposition to innovate	27	30.6
<b>Governance and policy frameworks</b>		
Corruption Perceptions Index	53	64
Basic-school entrepreneurial education and training	2.9	2.6
Government procurement of advanced technology products	3.1	3.4
Rule of law	0.7	1
Innovation procurement as a share of total public procurement	5.6	9.2
<b>Climate change</b>		
Circular material use rate	9.2	11.5
Greenhouse gas emissions intensity of energy consumption	77.7	82.8
Eco-Innovation Index	94.4	121.5
<b>Demography</b>		
Population size (in millions)	5.4	447



	SK	EU
Average annual population growth (2021-2023 average)	-0.3	0.3
Population density	111.9	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](#).

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

*Studies and reports*

