



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

## European Innovation Scoreboard 2024 – Country profile Netherlands

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# **European Innovation Scoreboard 2024 Country profile Netherlands**

**The report was prepared by**

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NETHERLANDS

**Innovation Leader**Summary innovation index (relative to EU in 2017): **138.3**Rank: **5**

Change vs 2023: ▼ -0.5    Change vs 2017: ▲ 7.8

The Netherlands is an Innovation Leader with performance at 125.7% of the EU average in 2024. Performance is below 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
<b>SUMMARY INNOVATION INDEX</b>	<b>125.7</b>	<b>7.8</b>	<b>-0.5</b>
<b>Human resources</b>	<b>151.3</b>	<b>-2.6</b>	<b>-3.6</b>
New doctorate graduates	86.9	0.0	0.0
Population with tertiary education	161.9	-6.6	-11.4
Population involved in lifelong learning	215.1	-2.1	0.0
<b>Attractive research systems</b>	<b>184.3</b>	<b>24.9</b>	<b>-0.8</b>
International scientific co-publications	197.1	53.7	-4.1
Scientific publications among the top 10% most cited	154.5	-10.6	0.2
Foreign doctorate students as a % of all doctorate students	220.1	76.0	0.0
<b>Digitalisation</b>	<b>154.4</b>	<b>13.0</b>	<b>-2.5</b>
Broadband penetration	121.3	25.7	-4.9
Individuals with above basic overall digital skills	200.4	0.0	0.0
<b>Finance and support</b>	<b>126.6</b>	<b>22.8</b>	<b>-2.7</b>
R&D expenditure in the public sector	101.6	-5.0	-5.0
Venture capital expenditures	141.3	67.4	-0.8
Direct and indirect government support of business R&D	137.8	11.3	-2.2
<b>Firm investments</b>	<b>78.6</b>	<b>11.4</b>	<b>1.7</b>
R&D expenditure in the business sector	105.5	13.5	4.5
Non-R&D innovation expenditures	38.7	0.0	0.0
Innovation expenditures per person employed	86.9	21.2	0.0
<b>Use of information technologies</b>	<b>150.4</b>	<b>37.5</b>	<b>11.6</b>
Enterprises providing ICT training	138.5	70.1	33.8
Employed ICT specialists	161.7	6.4	-9.7
<b>Innovators</b>	<b>108.5</b>	<b>-10.5</b>	<b>0.0</b>
SMEs introducing product innovations	111.0	-40.7	0.0
SMEs introducing business process innovations	106.4	17.9	0.0
<b>Linkages</b>	<b>177.0</b>	<b>13.5</b>	<b>-15.9</b>
Innovative SMEs collaborating with others	150.1	43.4	0.0
Public-private co-publications	322.7	54.6	-11.7
Job-to-job mobility of HRST	139.6	-32.3	-32.3
<b>Intellectual assets</b>	<b>113.3</b>	<b>0.5</b>	<b>-4.7</b>
PCT patent applications	122.3	-8.9	1.5
Trademark applications	106.1	3.8	-5.2
Design applications	106.9	10.3	-12.5
<b>Employment impacts</b>	<b>132.3</b>	<b>0.4</b>	<b>10.8</b>
Employment in knowledge-intensive activities	157.4	4.8	-3.6
Employment in innovative enterprises	111.2	-3.7	23.9
<b>Sales impacts</b>	<b>80.4</b>	<b>-4.4</b>	<b>3.2</b>
Exports of medium and high technology products	75.9	0.7	7.2
Knowledge-intensive services exports	93.9	-2.7	-3.7
Sales of new-to-market and new-to-firm innovations	66.8	-15.0	6.0
<b>Environmental sustainability</b>	<b>115.3</b>	<b>1.7</b>	<b>-3.0</b>
Resource productivity	188.1	26.7	0.0
Air emissions by fine particulates	104.1	2.2	0.2
Environment-related technologies	64.1	-18.9	-9.8

**Relative strengths**

- Public-private co-publications
- Foreign doctorate students as a % of all doctorate students
- Population involved in lifelong learning

**Relative weaknesses**

- Non-R&D innovation expenditures
- Environment-related technologies
- Sales of new-to-market and new-to-firm innovations

**Strong increases since 2017**

- Foreign doctorate students as a % of all doctorate students
- Enterprises providing ICT training
- Venture capital expenditures

**Strong decreases since 2017**

- SMEs introducing product innovations
- Job-to-job mobility of HRST
- Environment-related technologies

**Strong increases since 2023**

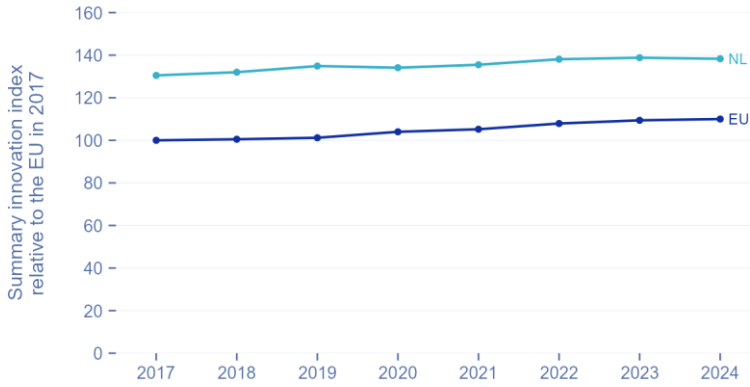
- Enterprises providing ICT training
- Employment in innovative enterprises
- Exports of medium and high technology products

**Strong decreases since 2023**

- Job-to-job mobility of HRST
- Design applications
- 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.

Emerging Innovators    Moderate Innovators    Strong Innovators    Innovation Leaders



### Summary innovation index

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

The Netherlands has a well-performing research and innovation system. It benefits from strong international connections and the ability to attract talent from abroad. It outperforms the EU average in most research and innovation-framework conditions, particularly in tertiary education with 55% of the population (ranking 5th) and in engagement in lifelong learning with 26% of the population (ranking 3rd). In terms of international scientific collaborations, high-impact publications, and attractiveness towards foreign doctorate students, the Netherlands ranks among the top five EU countries. With an internationally recognised research and education system the Netherlands attracts 48% of foreign doctoral students.

It lags slightly behind in producing new doctorate graduates in STEM fields and has shown no growth since 2017. According to the European Semester Country report (2024), the Netherlands faces shortages of skilled workers across several sectors. Additionally, the International Monetary Fund article on labour shortages (IMF, 2024) indicates skills mismatch and labour shortages, particularly in engineering and Information and Communication Technology (ICT) which are sectors crucial for the digital and the low-carbon transition of the Netherlands.

#### Human resources



#### Attractive research systems



#### Digitalisation



### Investments

The Netherlands outperforms the EU average in private R&D investments, including venture capital investments. For Venture Capital, the data show impressive growth, with a 67%-point increase over the period 2017-2024. This is combined with increased government funding and tax support for business R&D, which is 137.8% of the EU average in 2024. In contrast, R&D expenditures as a share of GDP in the public sector, including the government and higher education sectors, are only slightly above the EU average, with 0.7%, and have recorded negative growth since 2017. Moreover, the innovation expenditures per person employed is below the EU average with 86.9% of the EU average in 2024.

The Netherlands also has a higher number of enterprises providing ICT skills training and a larger proportion of ICT specialists in total employment compared to the EU average in 2024. Notably, enterprises offering training to develop or upgrade ICT skills, has grown by 70%-points from 2017 to 2024.

It performs below the EU average in non-R&D innovation expenditures as a percentage of turnover (38.7% of the EU average in 2024). This indicator comes from the Community Innovation Survey (CIS) from 2020 and will need to be updated with the CIS data from 2022 in EIS 2025.

**Finance and support**



**Firm investments**



**Use of information technologies**



**Innovation activities**

The EIS results in this dimension highlight a successful R&D ecosystem fostering collaboration. It has higher percentages of SMEs introducing product and business process innovations compared to the EU average (111.0% and 106.4% of the EU average in 2024). It also has significantly more innovative SMEs collaborating with others (150.1% of the EU average in 2024) as well as higher mobility of skilled personnel in science and technology (139.6% of the EU average in 2024). It shows exceptional performance in innovation outputs, especially in public-private co-publications, outperforming the EU average by ca. three times while also achieving a high growth of 55%-points since 2017. In PCT patent and trademark applications per billion GDP, it performs above the EU average in 2024

**Innovators**



**Linkages**



**Intellectual assets**



**Impacts**

The Netherlands ranks first in resource productivity. It also performs above the EU average in employment in knowledge-intensive activities (157.4% of the EU average in 2024) and innovative enterprises (111.2% of the EU average in 2024). The share of medium and high technology products in the total value of exports is below the EU average. This indicator is influenced by the large volume of total exports from the Netherlands, a major global exporter ranking 4th in world trade in 2022 (including exports and re/exports) according to the World Trade Organization (WTO).

Sales of new-to-market and new-to-enterprise innovations which rely on the latest data from CIS 2020, and hence the period of the pandemic data, position the Netherlands below the EU average. The trend can be more precisely assessed when the CIS 2022 data become available.

In developing environment-related technologies as a share in total patents, the Netherlands performs below the EU average and records a declining trend of -18.9%-points since 2017.

**Employment impacts**



**Sales impacts**



**Environmental sustainability**



## Structural differences

### Performance and structure of the economy

The Netherlands is an advanced, service-oriented economy with a strong emphasis on knowledge-intensive activities. According to the European Semester Country Report (2024), the Netherlands is expected to grow moderately in 2024 and 2025 recovering after a slowdown of its economy in 2023.

### Business and entrepreneurship

The business environment in the Netherlands shows considerable strengths. It has a significantly higher total entrepreneurial activity compared to the EU average. Equally, the share of top R&D spending by enterprises is significantly higher than the EU average and is driven by the presence of global companies producing cutting edge technologies in the Netherlands. At the same time, the rate of enterprise births is slightly below the EU average.

According to Dutch Trade Facts and Figures (2023) by Statistics Netherlands (CBS) the Netherlands is among the countries with the largest foreign direct investment, both inward and outward globally. However, the FDI position is still below the pre-pandemic level of 2019. In the EIS, inward FDI flows are measured over a three-year period covering the years 2020-2022 and divided by GDP. The data shows a notable negative value in contrast to the positive EU average, which indicates higher disinvestment by foreign investors than newly invested capital in the Dutch economy.

### Innovation profiles

No Innovation profiles are available for the Netherlands.

### Governance and policy framework

Overall, the country demonstrates strong governance and policy frameworks. It has high scores in corruption perceptions and rule of law ranking above the EU average. In innovation procurement measured as a share of total procurement, the country performs slightly below the EU average. This result needs to account for the very large public procurement market, as noted in the European Semester Country Report (2024), accounting for 20% of GDP and placing the Netherlands at the top of the rank among EU and OECD countries.

### Climate change

The Netherlands demonstrates strong performance in circular material use. According to the European Semester Country Report, the Netherlands is a frontrunner in the circular economy and is on track to achieve the EU Circular Economy Action Plan goals. Furthermore, in the Eco-Innovation Index, the Netherlands was ranked 9th in 2022, positioned as an Eco-Innovation leader. However, it performs below the EU average in terms of greenhouse gas emissions intensity of energy consumption. This is addressed in the Netherlands' Recovery and Resilience Fund and Cohesion Policy funds, which are being mobilised to support the transition to renewables for industry and limit energy consumption.

### Demography

The Netherlands has a population of ca. 17.5 million and is growing at a higher rate than the EU average. It has a much higher population density compared to the EU average, making it one of the most densely populated countries in the EU.

## Structural indicators

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

	NL	EU
<b>Performance and structure of the economy</b>		
GDP per capita	130.7	100
Average annual GDP growth (2021-2023 average)	2.2	1.9
Employment share Manufacturing	8.3	15.8
Employment share High and Medium high-tech	35.1	37.9
Employment share Services	42.9	39.8
Employment share Knowledge-intensive services	39	28.6
Turnover share SMEs	15.7	12.6
Turnover share large enterprises	37.2	49.6
Foreign-controlled enterprises – share of value added	17.5	13.3
<b>Business and entrepreneurship</b>		
Enterprise births	0.7	0.8
Total Entrepreneurial Activity	13.4	6.8
FDI net inflows	-12.1	1.9
Top R&D spending enterprises	21.3	8.4
Buyer sophistication	4.4	3.6
<b>Governance and policy frameworks</b>		
Corruption Perceptions Index	80.3	64
Basic-school entrepreneurial education and training	5.5	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	8.8	9.2
<b>Climate change</b>		
Circular material use rate	27.7	11.5
Greenhouse gas emissions intensity of energy consumption	91.1	82.8
Eco-Innovation Index	118.8	121.5
<b>Demography</b>		
Population size (in millions)	17.6	447
Average annual population growth (2021-2023 average)	1	0.3
Population density	511.8	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 the Netherlands

*Studies and reports*

