

**129.3**

Change over time: 9.9

Innovation Leaders 134.4

<b>Netherlands</b>	Performance relative to EU in 2022	Performance change 2015-2022	Performance change 2021-2022
<b>SUMMARY INNOVATION INDEX</b>	<b>129.3</b>	<b>9.9</b>	<b>2.0</b>
<b>Human resources</b>	<b>176.0</b>	<b>-4.8</b>	<b>-9.7</b>
Doctorate graduates	85.2	-11.4	-22.9
Population with tertiary education	188.1	0.0	0.0
Lifelong learning	275.6	0.0	0.0
<b>Attractive research systems</b>	<b>200.5</b>	<b>31.5</b>	<b>6.5</b>
International scientific co-publications	199.0	84.7	19.0
Most cited publications	158.9	-12.3	-1.8
Foreign doctorate students	281.7	77.6	13.2
<b>Digitalisation</b>	<b>165.2</b>	<b>7.9</b>	<b>7.9</b>
Broadband penetration	138.5	15.2	15.2
People with above basic overall digital skills	200.0	0.0	0.0
<b>Finance and support</b>	<b>118.5</b>	<b>41.4</b>	<b>15.1</b>
R&D expenditures in the public sector	95.5	0.0	4.8
Venture capital expenditures	127.7	86.6	40.1
Government support for business R&D	135.5	50.9	3.2
<b>Firm investments</b>	<b>76.9</b>	<b>10.8</b>	<b>2.0</b>
R&D expenditure in the business sector	100.7	10.1	6.2
Non-R&D Innovation expenditures	38.3	0.0	0.0
Innovation expenditures per employee	87.0	22.2	0.0
<b>Use of information technologies</b>	<b>160.9</b>	<b>19.6</b>	<b>-6.5</b>
Enterprises providing ICT training	125.0	37.5	-12.5
Employed ICT specialists	200.0	0.0	0.0
<b>Innovators</b>	<b>104.7</b>	<b>9.3</b>	<b>13.1</b>
Product innovators (SMEs)	103.4	-23.0	5.4
Business process innovators (SMEs)	105.8	43.7	21.3
<b>Linkages</b>	<b>183.4</b>	<b>10.4</b>	<b>10.5</b>
Innovative SMEs collaborating with others	161.9	6.8	44.0
Public-private co-publications	326.5	115.7	41.9
Job-to-job mobility of HRST	139.6	-32.4	-32.4
<b>Intellectual assets</b>	<b>112.1</b>	<b>4.3</b>	<b>-2.0</b>
PCT patent applications	119.3	-11.8	-1.1
Trademark applications	105.6	13.7	0.3
Design applications	109.0	16.4	-4.7
<b>Employment impacts</b>	<b>125.7</b>	<b>-15.8</b>	<b>0.0</b>
Employment in knowledge-intensive activities	170.1	0.0	0.0
Employment in innovative enterprises	90.4	-30.2	0.0
<b>Sales impacts</b>	<b>88.6</b>	<b>3.6</b>	<b>-2.2</b>
Medium and high-tech goods exports	89.0	20.1	-8.1
Knowledge-intensive services exports	110.2	7.9	2.6
Sales of innovative products	60.3	-22.8	0.0
<b>Environmental sustainability</b>	<b>121.9</b>	<b>0.5</b>	<b>-2.8</b>
Resource productivity	193.7	16.1	0.0
Air emissions by fine particulate matter	107.9	5.6	0.5

The second column shows performance relative to that of the EU in 2022. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2022; light green: between 100% and 125%; yellow: between 70% and 100%; orange: below 70%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data. The next columns show performance change over time between 2015 and 2022 and between 2021 and 2022, with scores relative to those of the EU in 2015. Positive performance changes are shown in green, negative performance changes in red.

The **NETHERLANDS** is an **Innovation Leader** with performance at 129.3% of the EU average. Performance is below the average of the Innovation Leaders (134.4%). Performance is increasing (9.91%-points) at a rate only just above that of the EU (9.89%-points). The country's performance lead over the EU has remained stable.

### Relative strengths

- Public-private co-publications
- Foreign doctorate students
- Lifelong learning
- People with above basic overall digital skills
- Employed ICT specialists

### Relative weaknesses

- Non-R&D Innovation expenditures
- Sales of innovative products
- Environment-related technologies
- Doctorate graduates
- Innovation expenditures per employee

### Strong increases since 2015

- Public-private co-publications
- Venture capital expenditures
- International scientific co-publications

### Strong decreases since 2015

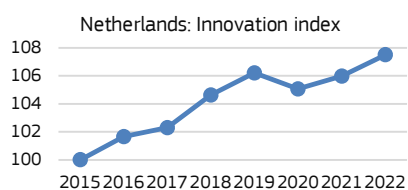
- Job-to-job mobility of HRST
- Employment in innovative enterprises
- Product innovators

### Strong increases since 2021

- Innovative SMEs collaborating with others
- Public-private co-publications
- Venture capital expenditures

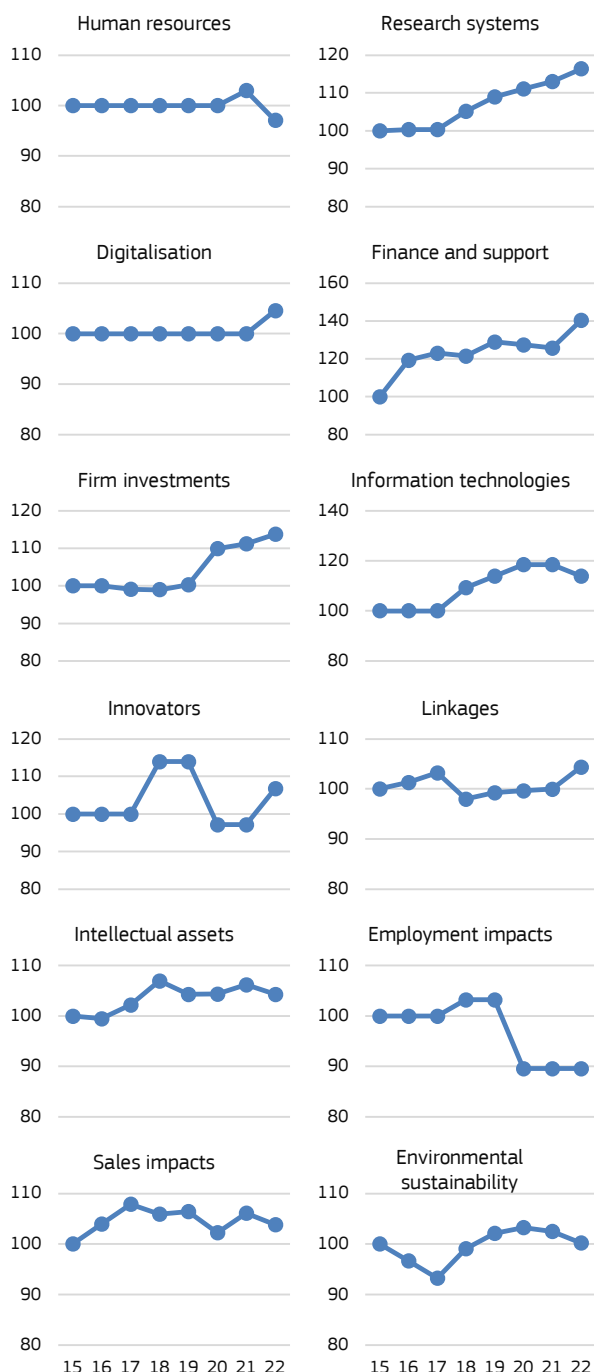
### Strong decreases since 2021

- Job-to-job mobility of HRST
- Doctorate graduates
- Enterprises providing ICT training



The graph on the left shows the evolution of **innovation performance over time** against the performance of the country in 2015. Innovation performance has increased between 2015 and 2019, with a decline in 2020 and recovery in 2021 and 2022.

The graphs below show the evolution of innovation performance in the different **innovation dimensions** against the performance of the country in 2015. Performance increased strongest in Finance and support. Performance did not change for Environmental sustainability and declined for Human resources and Employment impacts.



Performance is measured relative to that of the country in 2015 (=100).

**Structural differences** with the EU are shown below:

- The Netherlands has higher per capita income. Business services takes up a larger share of the economy, with SMEs accounting for a larger share of turnover.
- Entrepreneurial activity and top R&D spenders add positively to the innovation climate, enterprise births and FDI net inflows add negatively.
- Information on Innovation profiles is not available.
- Entrepreneurial training and government procurement are above the EU average as drivers of research and innovation.
- The Netherlands shows a below average performance on the Climate change related indicators circular material use rate and environmental innovation.

	NL	EU
<b>Performance and structure of the economy</b>		
GDP per capita (PPS)	40,600	31,200
Average annual GDP growth (%)	-0.1	-0.4
Employment share Manufacturing (NACE C) (%)	9.5	16.4
of which High and Medium high-tech (%)	32.6	38.0
Employment share Services (NACE G-N) (%)	46.8	41.1
of which Knowledge-intensive services (%)	41.3	35.8
Turnover share SMEs (%)	47.2	34.8
Turnover share large enterprises (%)	37.4	48.2
Foreign-controlled enterprises – share of value added (%)	14.2	11.7
<b>Business and entrepreneurship</b>		
Enterprise births (10+ employees) (%)	0.8	1.0
Total Entrepreneurial Activity (TEA) (%)	12.0	7.3
FDI net inflows (% GDP)	-24.2	1.0
Top R&D spending enterprises per 10 mln. population	31.8	18.3
Buyer sophistication (1 to 7 best)	4.5	3.7
<b>Innovation profiles</b>		
In-house product innovators with market novelties	n/a	10.7
In-house product innovators without market novelties	n/a	12.3
In-house business process innovators	n/a	11.0
Innovators that do not develop innovations themselves	n/a	11.6
Innovation active non-innovators	n/a	3.3
Non-innovators with potential to innovate	n/a	19.9
Non-innovators without disposition to innovate	n/a	31.3
<b>Governance and policy framework</b>		
Ease of starting a business (0 to 100 best)	76.1	76.5
Basic school entrepreneurial education and training	5.7	3.5
Govt. procurement of advanced tech. products	4.0	3.5
Rule of law (-2.5 to 2.5 best)	1.8	1.1
<b>Climate change indicators</b>		
Circular material use rate	8.0	12.2
Greenhouse gas emissions intensity of energy consumption	91.2	82.8
Eco-Innovation Index	97.8	100.0
<b>Demography</b>		
Population size	17.4	447.0
Average annual population growth (%)	0.6	0.1
Population density	504.1	108.8