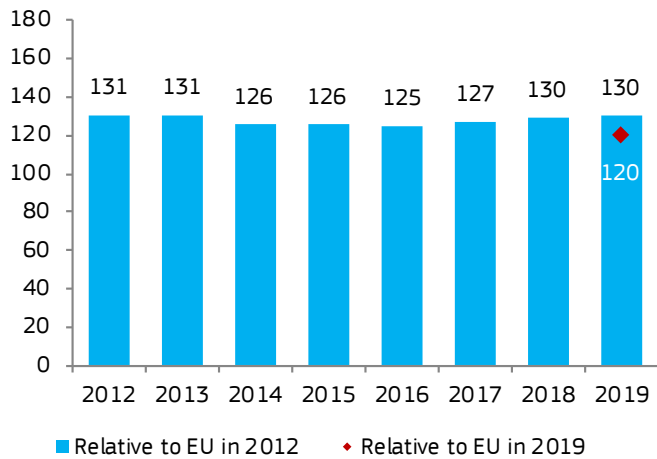




### Germany is a Strong Innovator.

Over time, performance has remained the same compared to that of the EU in 2012.



Germany	Relative to EU 2019 in 2019	Performance relative to EU 2012 in	
	2019	2012	2019
<b>SUMMARY INNOVATION INDEX</b>	<b>119.9</b>	<b>131.0</b>	<b>130.5</b>
<b>Human resources</b>	<b>94.4</b>	<b>98.7</b>	<b>108.7</b>
New doctorate graduates	1468	1709	161.7
Population with tertiary education	59.1	38.0	75.2
Lifelong learning	75.3	77.8	81.1
<b>Attractive research systems</b>	<b>92.2</b>	<b>95.3</b>	<b>105.4</b>
International scientific co-publications	97.3	110.2	142.9
Most cited publications	110.2	114.3	110.2
Foreign doctorate students	53.8	42.3	62.0
<b>Innovation-friendly environment</b>	<b>97.6</b>	<b>91.2</b>	<b>169.8</b>
Broadband penetration	91.3	90.0	210.0
Opportunity-driven entrepreneurship	104.8	92.0	142.7
<b>Finance and support</b>	<b>119.8</b>	<b>115.9</b>	<b>138.4</b>
R&D expenditure in the public sector	148.5	138.5	145.8
Venture capital expenditures	87.0	78.0	125.8
<b>Firm investments</b>	<b>146.3</b>	<b>163.7</b>	<b>190.0</b>
R&D expenditure in the business sector	150.2	151.0	172.0
Non-R&D innovation expenditures	138.9	196.6	194.7
Enterprises providing ICT training	150.0	146.2	207.7
<b>Innovators</b>	<b>136.9</b>	<b>158.5</b>	<b>122.4</b>
SMEs product/process innovations	127.3	155.3	126.8
SMEs marketing/organizational innovations	144.2	163.4	118.4
SMEs innovating in-house	140.4	156.4	122.2
<b>Linkages</b>	<b>135.6</b>	<b>152.6</b>	<b>139.6</b>
Innovative SMEs collaborating with others	90.5	156.6	89.9
Public-private co-publications	163.9	169.2	185.3
Private co-funding of public R&D exp.	148.0	143.4	149.3
<b>Intellectual assets</b>	<b>128.2</b>	<b>139.2</b>	<b>119.8</b>
PCT patent applications	134.8	138.9	125.1
Trademark applications	110.8	126.6	117.9
Design applications	135.8	149.7	113.9
<b>Employment impacts</b>	<b>105.6</b>	<b>129.2</b>	<b>113.9</b>
Employment in knowledge-intensive activities	113.8	131.1	123.0
Employment fast-growing enterprises	98.9	127.7	106.6
<b>Sales impacts</b>	<b>119.8</b>	<b>122.5</b>	<b>119.1</b>
Medium and high-tech product exports	128.5	136.9	142.4
Knowledge-intensive services exports	112.9	119.5	116.6
Sales of new-to-market/firm innovations	116.3	110.2	97.1

The colours show normalised performance in 2019 relative to that of the EU in 2019: dark green: above 125%; light green: between 95% and 125%; yellow: between 50% and 95%; orange: below 50%. Normalised performance uses the data after a possible imputation of missing data and transformation of the data.

Firm investments, Innovators and Linkages are the strongest innovation dimensions. Germany performs particularly well on Public-private co-publications, R&D expenditure in the business sector, Enterprises providing ICT training, and Public R&D expenditures. Attractive research systems, Human resources and Innovation-friendly environment are the weakest innovation dimensions. Germany's lowest indicator scores are on Foreign doctorate students, Population with tertiary education, Lifelong learning, and Venture capital expenditures.

**Structural differences** with the EU are shown in the table below. Germany shows the highest positive difference to the EU in Top R&D spending enterprises, Employment share high and medium high-tech manufacturing and Government procurement of advanced technology products, and the biggest negative difference in Average annual change in GDP, Enterprise births and FDI net inflows.

	DE	EU
<b>Performance and structure of the economy</b>		
GDP per capita (PPS)	36,900	29,100
Average annual GDP growth (%)	1.05	1.84
Employment share manufacturing (NACE C) (%)	19.1	16.6
of which High and medium high-tech (%)	51.5	37.5
Employment share services (NACE G-N) (%)	40.7	41.4
of which Knowledge-intensive services (%)	34.1	34.3
Turnover share SMEs (%)	36.2	38.3
Turnover share large enterprises (%)	52.2	43.2
Foreign-controlled enterprises – share of value added (%)	12.2	11.1
<b>Business and entrepreneurship</b>		
Enterprise births (10+ employees) (%)	0.6	1.1
Total Entrepreneurial Activity (TEA) (%)	6.0	6.7
FDI net inflows (% GDP)	2.3	2.6
Top R&D spending enterprises per 10 million population	26.7	16.2
Buyer sophistication (1 to 7 best)	4.6	3.7
<b>Governance and policy framework</b>		
Ease of starting a business (0 to 100 best)	79.5	76.5
Basic-school entrepreneurial education and training (1 to 5 best)	1.8	1.9
Govt. procurement of advanced technology products (1 to 7 best)	4.6	3.5
Rule of law (-2.5 to 2.5 best)	1.6	1.1
<b>Demography</b>		
Population size (millions)	82.8	446.2
Average annual population growth (%)	0.30	0.14
Population density (inhabitants/km <sup>2</sup> )	233.9	108.6

### EU targets for 2020

Indicator	2015	Latest	Target <sup>1</sup>
Gross domestic expenditure on R&D (% of GDP)	2.93	3.13	3.00
Tertiary educational attainment (% of population aged 30-34)	32.3	35.2	42.0

1 Sources are provided in the introduction to the country profiles.

### European Semester country report and country specific recommendations:

[https://ec.europa.eu/info/publications/2020-european-semester-country-reports\\_en](https://ec.europa.eu/info/publications/2020-european-semester-country-reports_en)

<https://rio.jrc.ec.europa.eu/en/country-analysis/Germany>