European Innovation Scoreboard 2024

Annex B - Performance by indicator

Independent
Expert
Report

Innovation

European Innovation Scoreboard 2024 Performance by indicator

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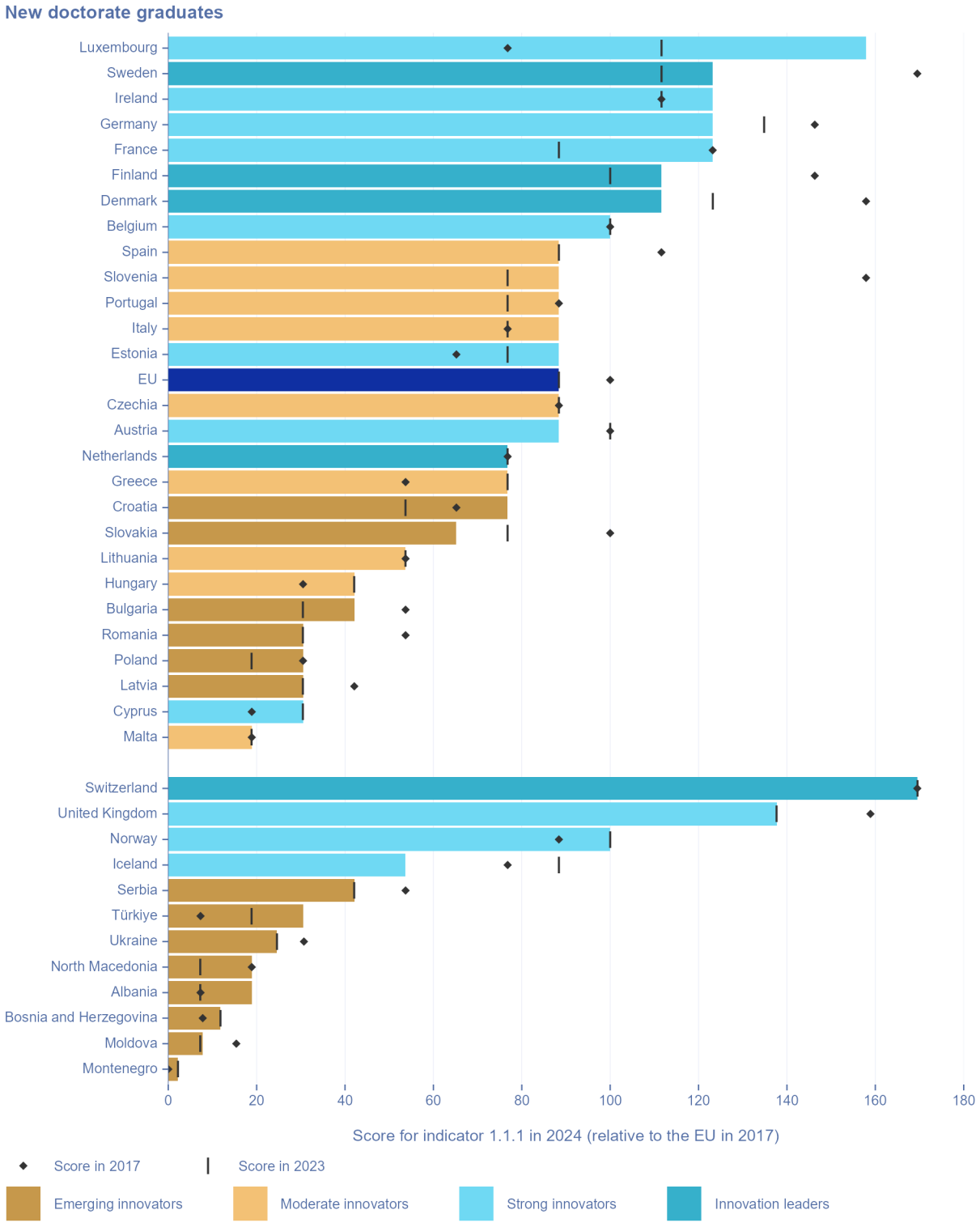
ANNEX B – PERFORMANCE BY INDICATOR

This annex shows performance results for each of the indicators used in the European Innovation Scoreboard (EIS) 2024. The coloured bars show countries' performance in 2024, using the most recent data for 32 indicators. The vertical bars show performance in 2023, using the next most recent data. The rhombus shows performance in 2017. All data are indexed to the EU in 2017.

1.1.1. New doctorate graduates in science, technology, engineering, and mathematics (STEM) per 1,000 population aged 25-34



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	8	> 0	8	> EU	16	> 0	12	> EU	12
	= EU	7	= 0	8	= EU	3	= 0	11	= EU	11
	< EU	12	< 0	11	< EU	8	< 0	4	< EU	4
Non-EU countries	> EU	3	> 0	5	> EU	9	> 0	4	> EU	4
	= EU	0	= 0	2	= EU	1	= 0	7	= EU	7
	< EU	9	< 0	5	< EU	2	< 0	1	< EU	1

The 2024 EU average score in *New doctorate graduates in STEM* is 88.4, corresponding to 0.8 new doctorate graduates in science, technology, engineering, and mathematics (STEM) per 1,000 population aged 25-34. The EU average score saw a decline of 11.6%-points from 2017 to 2024, and remained stable from 2023 to 2024.

The overall best performing country in 2024 is Switzerland, with a score of 169.5. The best performing Member State in 2024 is Luxembourg, with a score of 157.

Among the Member States, in 2024, 8 perform above, 7 perform equal to, and 12 perform below the EU average. Most Innovation Leaders and Strong Innovators surpass the EU average. Among Moderate Innovators, 4 score higher and 5 score lower the EU average. All Emerging Innovators perform below the EU average.

Between 2017 and 2024, performance in *New doctorate graduates in STEM* improved for 8 Member States, remained unchanged for 8 Member States, and declined for 11 Member States. Compared to the EU, 16 Member States improved relatively more, 3 progressed at a similar pace, and 8 improved relatively less. Performance increased fastest for Luxembourg (+81%-points) and decreased strongest for Slovenia (-70%-points).

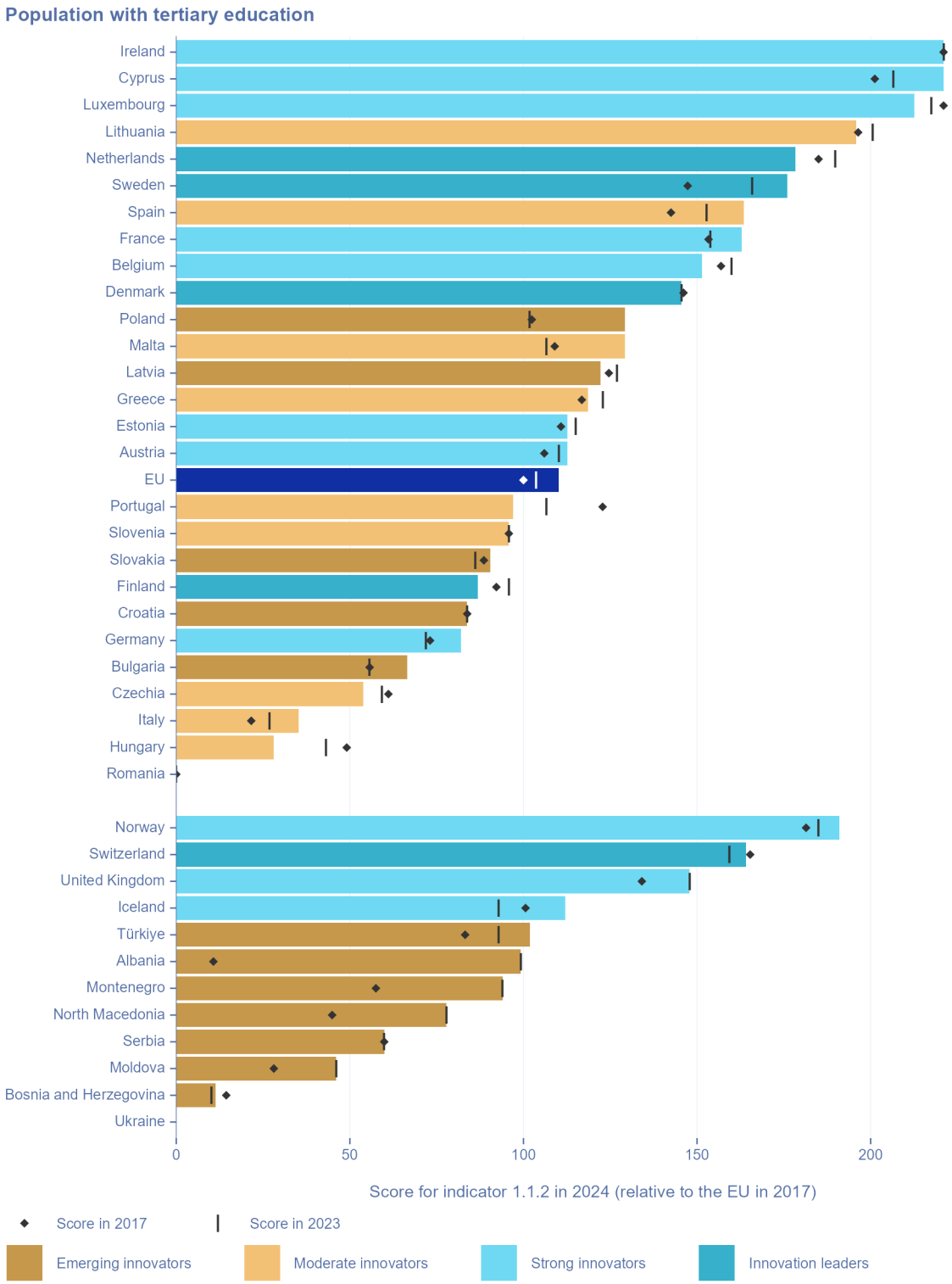
Between 2023 and 2024, performance in *New doctorate graduates in STEM* improved for 12 Member States, remained stable for 11 Member States, and declined for only 4 Member States. Austria, Denmark, Germany and Slovakia (-12%-points) saw the largest declines in relative performance, while Luxembourg (+46%-points) experienced the greatest increase in relative performance.

Of the non-EU countries, in 2024, 3 perform above and 9 perform below the EU average.

Between 2017 and 2024, performance in *New doctorate graduates in STEM* improved for 5 non-EU countries, remained stable for 2, and decreased for 5. Nevertheless, non-EU countries are catching up with the EU. In 9 non-EU countries, relative performance improved faster than the EU average, with the largest increase for Türkiye (+23%-points). Iceland (-23%-points) witnessed the strongest downturn in relative performance.

Between 2023 and 2024, the performance of most non-EU countries (7) remained stable. 4 non-EU countries saw an increase in their score, with the largest relative increases for Albania, North Macedonia, and Türkiye (each +12%-points). Over the last year, performance declined for only one non-EU country, Iceland (-35%-point).

1.1.2 Percentage population aged 25-34 having completed tertiary education



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	16	> 0	-	> EU	-	> 0	11	> EU	9
	= EU	0	= 0	-	= EU	-	= 0	5	= EU	0
	< EU	11	< 0	-	< EU	-	< 0	11	< EU	18
Non-EU countries	> EU	4	> 0	8	> EU	7	> 0	5	> EU	2
	= EU	0	= 0	1	= EU	0	= 0	6	= EU	0
	< EU	7	< 0	2	< EU	4	< 0	0	< EU	9

Performance change for 2017-2024 is not available for EU Member States due to breaks in time series. Data prior to 2022 have been imputed using the 2022 data value. For one non-EU country (Ukraine), data were not available.

The 2024 EU average score in *Population with tertiary education* is 110.2, with 43.1% of the EU population aged 25-34 having completed tertiary education. The EU average score improved by 10.2%-points from 2017 to 2024. This includes a 6.6%-points increase between 2023 and 2024.

The overall top performing countries in 2024 are Member States Ireland and Cyprus, both scoring 221. The best performing non-EU country, Norway, achieved a score of 191 in 2024.

Of the Member States, in 2024, 16 perform above and 11 perform below the EU average. The performance of most Innovation Leaders and Strong Innovators is higher than the EU average. Among Moderate Innovators, 4 score higher and 5 score lower the EU average. As for Emerging Innovators, 2 perform above and 4 fall below the EU average.

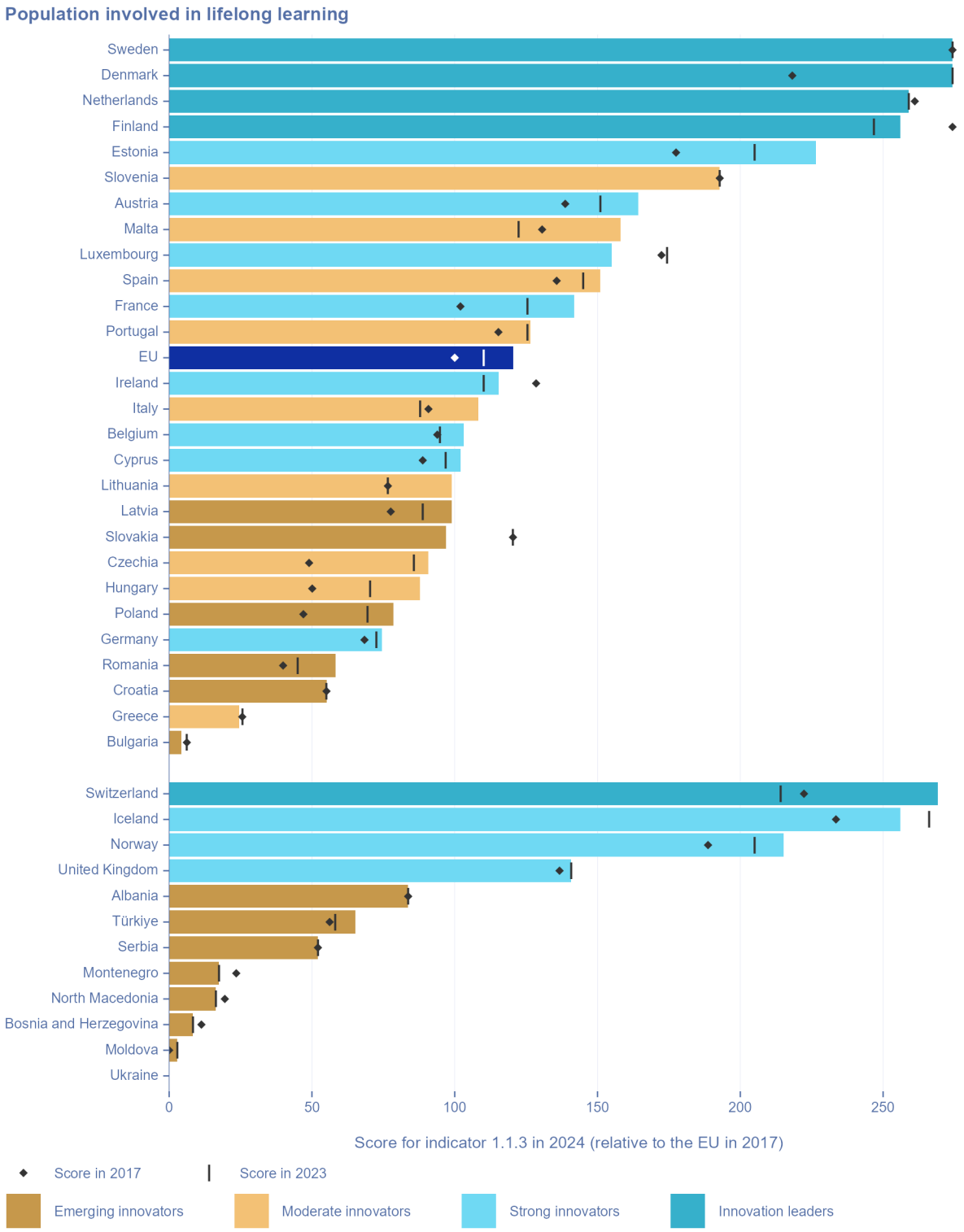
Between 2023 and 2024, performance in *Population with tertiary education* improved for 11 Member States, remained stable for 5 Member States, and declined for 11 Member States. Only 9 Member States improved relatively faster than the EU average between 2023 and 2024, while 18 progressed relatively slower. Poland (+28%-points) saw the greatest performance growth since 2023, and Hungary (-15%-points) recorded the sharpest decline.

Of the non-EU countries, in 2024, 4 perform above and 7 perform below the EU average.

Between 2017 and 2024, performance in *Population with tertiary education* improved for 8 non-EU countries, remained stable for 1 non-EU country, and decreased for 2 non-EU countries. Overall, non-EU countries are catching up with the EU. Relative performance improved faster than the EU-average in 7 non-EU countries, with the largest increase for Albania (+89%-points). Bosnia and Herzegovina (-3%-points) witnessed the strongest decline in relative performance, though of limited magnitude.

Between 2023 and 2024, performance in *Population with tertiary education* of all non-EU countries either improved or remained unchanged. Nevertheless, progress was generally limited compared to the one of the EU, with only 2 non-EU countries improving at a faster rate than the EU average in the last year. Iceland (+19%-points) showed the most significant increase in relative performance.

1.1.3 Percentage of the population aged 25-64 participating in lifelong learning



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	12	> 0	-	> EU	-	> 0	18	> EU	8
	= EU	0	= 0	-	= EU	-	= 0	5	= EU	1
	< EU	15	< 0	-	< EU	-	< 0	4	< EU	18
Non-EU countries	> EU	4	> 0	6	> EU	3	> 0	3	> EU	1
	= EU	0	= 0	2	= EU	0	= 0	7	= EU	1
	< EU	7	< 0	3	< EU	8	< 0	1	< EU	9

Performance change for 2017-2024 is not available for EU Member States due to breaks in time series. Data prior to 2022 have been imputed using the 2022 data value.

For one non-EU country (Ukraine), data were not available.

The 2024 EU average score in *Population involved in lifelong learning* is 120.4, with 12.8% of the EU population aged 25-64 participating in lifelong learning. The EU average score jumped by 20.4%-points between 2017 and 2024, with a significant progress of 10.2%-points from 2023 and 2024.

The overall top performing countries in 2024 are Member States Sweden and Denmark, each scoring 274. The best performing non-EU country in 2024, Switzerland, achieved a score of 269, more than double the EU average.

Of the Member States, in 2024, 12 perform above and 15 perform below the EU average. All Innovation Leaders perform above the EU average. As for Strong and Moderate Innovators, countries present very mixed performances. Lastly, Emerging Innovators all perform below the EU average.

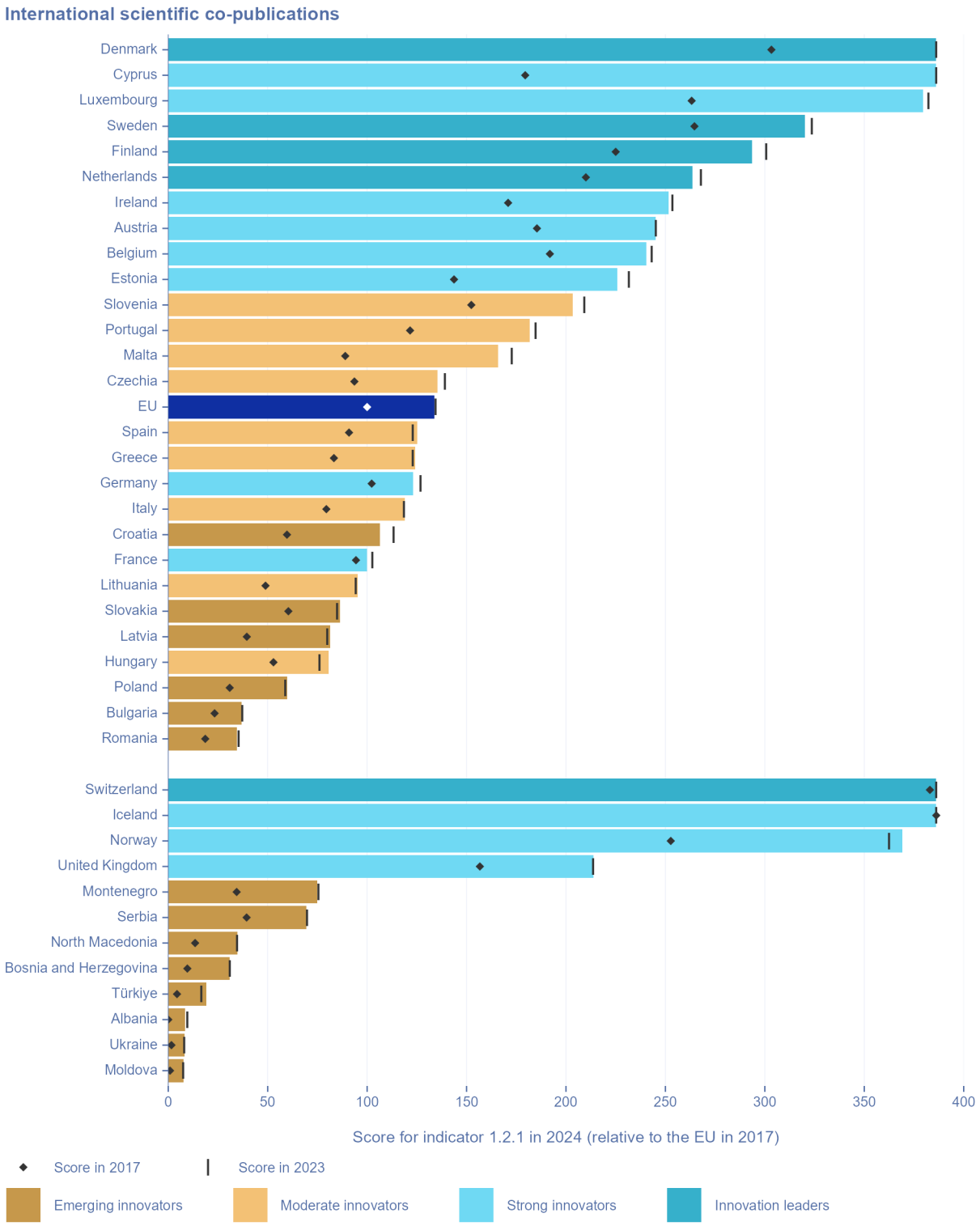
Between 2023 and 2024, performance in *Population involved in lifelong learning* improved for the large majority of Member States (18), remained stable for 5 Member States, and declined for 4 Member States. Nevertheless, only 8 Member States improved relatively faster than the EU average between 2023 and 2024, while one progressed at the same pace and 18 progressed relatively slower. Denmark (+56%-points) saw the greatest performance increase since 2023, while Slovakia (-24%-points) experienced the largest downturn.

Of the non-EU countries, in 2024, 4 perform above and 7 perform below the EU average.

Between 2017 and 2024, performance in *Population involved in lifelong learning* improved for 6 non-EU countries, remained stable for 2 non-EU countries, and decreased for 3 non-EU countries. Overall, non-EU countries are seeing their gap with the EU widen, with 8 non-EU countries improving at a slower pace than the EU average. Montenegro (-6%-points) saw the largest decrease in relative performance over this period, while Switzerland (+47%-points) witnessed the most significant increase.

Between 2023 and 2024, performance in *Population involved in lifelong learning* improved for 3 non-EU countries, declined for one, and remained unchanged for the rest. Due to this overall stagnation, non-EU countries have progressed at a lower pace than the EU since 2023. While Switzerland (+55%-points) recorded the highest gain in relative performance, Iceland (-10%-points) experienced the strongest decline.

1.2.1 International scientific co-publications per million population



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	14	> 0	27	> EU	20	> 0	8	> EU	12
	= EU	0	= 0	0	= EU	0	= 0	2	= EU	0
	< EU	13	< 0	0	< EU	7	< 0	17	< EU	15
Non-EU countries	> EU	4	> 0	11	> EU	3	> 0	4	> EU	11
	= EU	0	= 0	1	= EU	0	= 0	5	= EU	0
	< EU	8	< 0	0	< EU	9	< 0	3	< EU	1

The 2024 EU average score in *International scientific co-publications* is 133.8, reflecting a number of 1268 international scientific co-publications per million population at the EU level. The EU average score jumped by 33.8%-points between 2017 and 2024, despite a slight decline of 0.7%-points from 2023 and 2024.

The top-performing countries overall in 2024 are Member States Denmark and Cyprus, and non-EU countries Switzerland and Iceland, all with a score of 386, nearly three times higher than the EU average.

Of the Member States, in 2024, 14 perform above and 13 perform below the EU average. All Innovation Leaders and Strong Innovators, except Germany and France, exceed the EU average. Among Moderate Innovators, 4 score higher and 5 score lower than the EU average. All Emerging Innovators are lagging behind.

Between 2017 and 2024, performance in *International scientific co-publications* improved for all Member States. 20 Member States improved relatively faster than the EU average, with Cyprus (+207%-points) experiencing the greatest increase. 7 Member States, mostly Emerging Innovators, progressed at a slower pace than the EU. France (+6%-points) showed the smallest performance improvement over this time period.

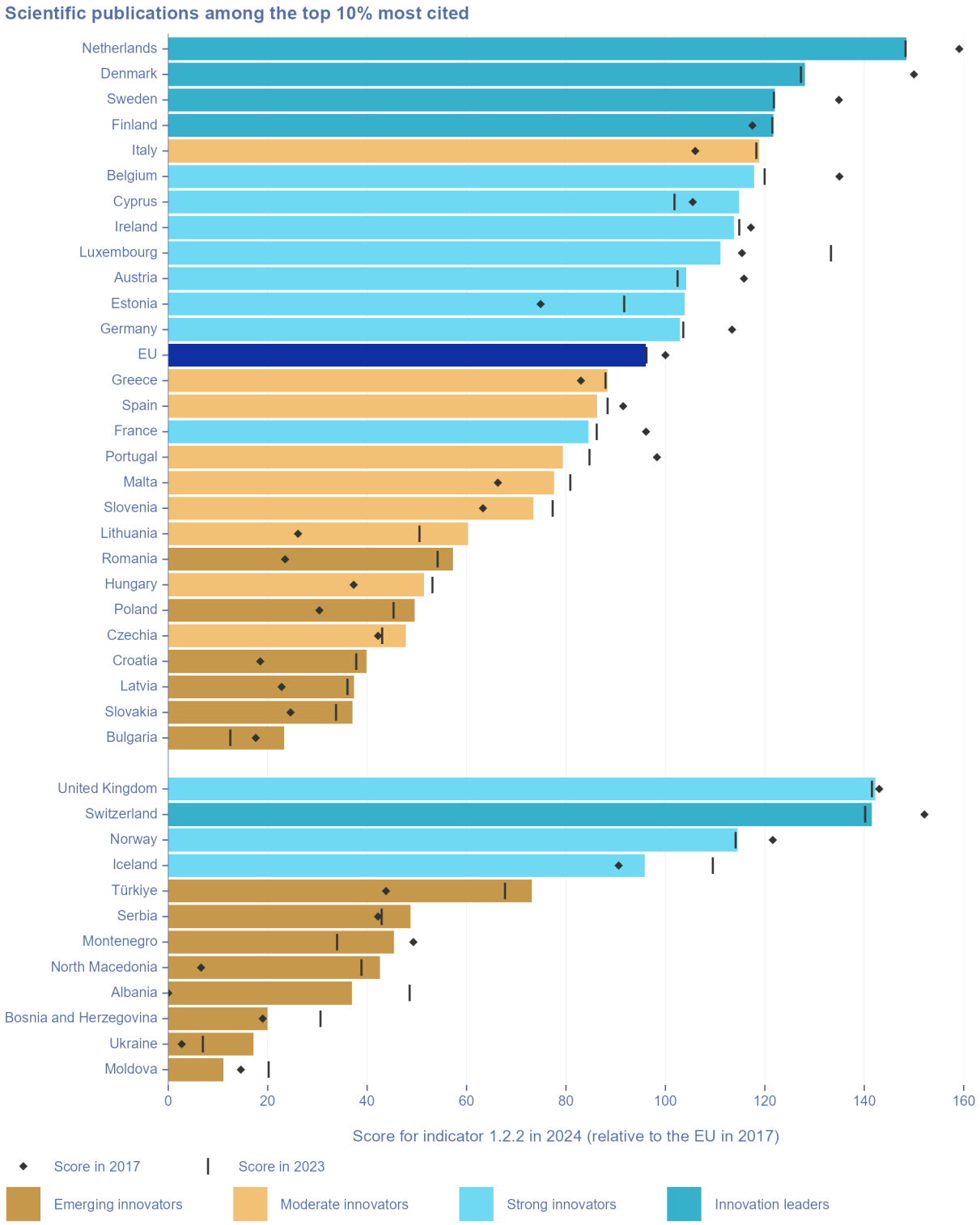
Between 2023 and 2024, performance in *International scientific co-publications* improved for 8 Member States, remained stable for 2 Member States, and fell for 17 Member States. 12 Member States improved relatively faster than the EU average between 2023 and 2024, and 15 progressed relatively slower. Hungary (+5%-points) saw the greatest performance increase since 2023, while Croatia, Malta and Finland (-7%-points) witnessed the largest declines.

Of the non-EU countries, in 2024, 4 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *International scientific co-publications* improved for 11 non-EU countries and remained stable for 1 non-EU country. Nevertheless, only three non-EU countries are catching up with the EU, improving relatively faster than the EU average. Norway (+117%-points) had the largest increase in relative performance over this period.

Between 2023 and 2024, performance in *International scientific co-publications* improved for 4 non-EU countries, remained unchanged for 5 non-EU countries, and declined for 3 non-EU countries. Due to the recent decline in the EU average score, most non-EU countries have progressed faster than the EU, with Norway (+7%-points) showing the greatest improvement. The sole non-EU country that improved relatively less than the EU average is Albania (-1%-points).

1.2.2 Scientific publications among the top-10% most cited publications worldwide as percentage of total scientific publications of the country



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	12	> 0	16	> EU	17	> 0	17	> EU	17
	= EU	0	= 0	0	= EU	0	= 0	0	= EU	0
	< EU	15	< 0	11	< EU	10	< 0	10	< EU	10
Non-EU countries	> EU	3	> 0	7	> EU	10	> 0	8	> EU	8
	= EU	0	= 0	0	= EU	0	= 0	0	= EU	0
	< EU	9	< 0	5	< EU	2	< 0	4	< EU	4

The 2024 EU average score in *Scientific publications among the top-10% most cited* is 96.1, with 9.78% of EU scientific publications reaching the top-10% most cited publications worldwide. The EU average score fell by 3.9%-points between 2017 and 2024, remaining relatively stable between 2023 and 2024.

The overall best performing country in 2024 is the Netherlands, with a score of 148.5. The best performing non-EU country in 2024 is the United Kingdom, with a score of 142.2.

Of the Member States, in 2024, 12 perform above and 15 perform below the EU average. All Innovation Leaders and Strong Innovators, except France, surpass the EU average. All Moderate Innovators, apart from Italy ranking 5th, and all Emerging Innovators perform below the EU average.

Between 2017 and 2024, performance in *Scientific publications among the top-10% most cited* improved for 16 Member States and fell for 11 Member States. Relative to the EU average, 17 Member States improved relatively faster, and 10 relatively slower than the EU average. Lithuania (+34%-points) experienced the greatest performance growth, while Denmark (-22%-points) saw the largest decrease in relative performance.

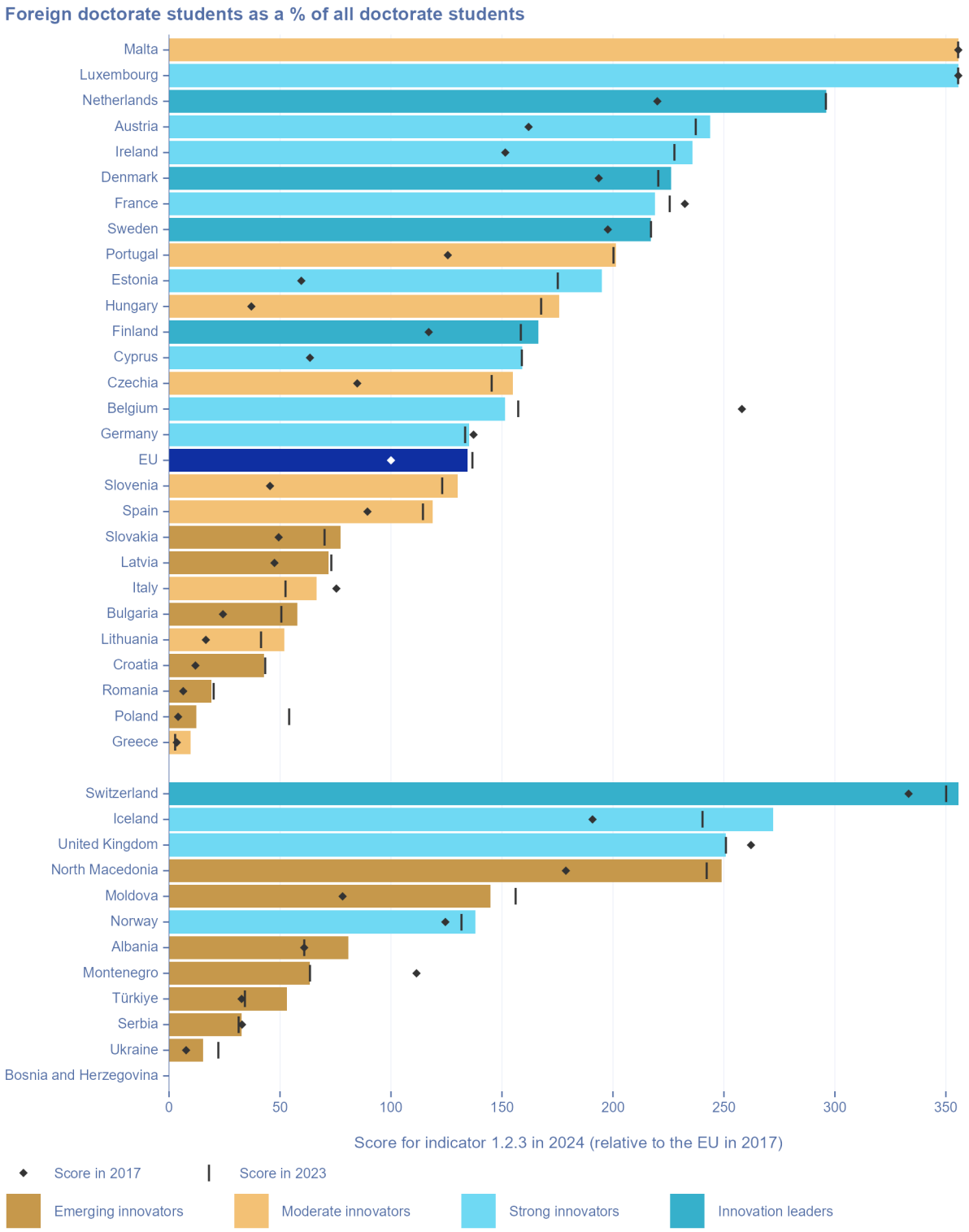
Between 2023 and 2024, performance in *Scientific publications among the top-10% most cited* progressed for 17 Member States and decreased for 10 Member States. Similarly, 17 Member States improved at a higher pace than the EU average, while 10 Member States showed a relatively smaller progression than the EU average. Cyprus (+13%-points) showed the largest increase, whereas Luxembourg (-22%-points) witnessed the most severe decline.

Of the non-EU countries, in 2024, 3 perform above and 9 perform below the EU average.

Between 2017 and 2024, performance in *Scientific publications among the top-10% most cited* improved for 7 non-EU countries and declined for 5 non-EU countries. Nevertheless, most non-EU countries are catching up with the EU, improving relatively faster than the EU average, with Albania (+37%-points) witnessing the largest increase. Switzerland (-11%-points) showed the largest downturn in relative performance between 2017 and 2024.

Between 2023 and 2024, performance in *Scientific publications among the top-10% most cited* increased for 8 non-EU countries and decreased for 4 non-EU countries. 8 non-EU countries progressed at a higher pace and 4 at a lower pace than the EU average. Montenegro (+11%-points) showed the greatest improvement, while Iceland (-14%-points) saw the largest drop in relative performance.

1.2.3 Foreign doctorate students as a percentage of all doctorate students



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	16	> 0	21	> EU	11	> 0	17	> EU	24
	= EU	0	= 0	2	= EU	0	= 0	3	= EU	0
	< EU	11	< 0	4	< EU	16	< 0	7	< EU	3
Non-EU countries	> EU	6	> 0	8	> EU	3	> 0	7	> EU	9
	= EU	0	= 0	0	= EU	0	= 0	2	= EU	0
	< EU	5	< 0	3	< EU	8	< 0	2	< EU	2

For one non-EU country (Bosnia and Herzegovina), data were not available.

The 2024 EU average score in *Foreign doctorate students* is 134.5, with foreign doctorate students representing 22.66% of all doctorate students in the EU. The EU average score soared by 34.5%-points between 2017 and 2024, despite showing a decline of 2.2%-points since 2023.

The best performing Member States in 2024 are Malta and Luxembourg, with a score of 355.6, more than three times the 2017 EU average score. The best performing non-EU country in 2024 is Switzerland, achieving the same score.

Of the Member States, in 2024, 16 perform above and 11 perform below the EU average. All Innovation Leaders and Strong Innovators outperform the EU average. Among Moderate Innovators, 4 score higher than the EU average, and 5 score below. All Emerging Innovators are lagging behind.

Between 2017 and 2024, performance in *Foreign doctorate students* improved for a large majority of Member States, remained stable for 2 Member States, and decreased for 4 Member States. Compared to the EU average, 11 Member States progressed relatively faster, and 16 Member States relatively slower than the EU average. Hungary (+139%-points) witnessed the highest jump in performance, and Belgium (-107%-points) saw the steepest drop.

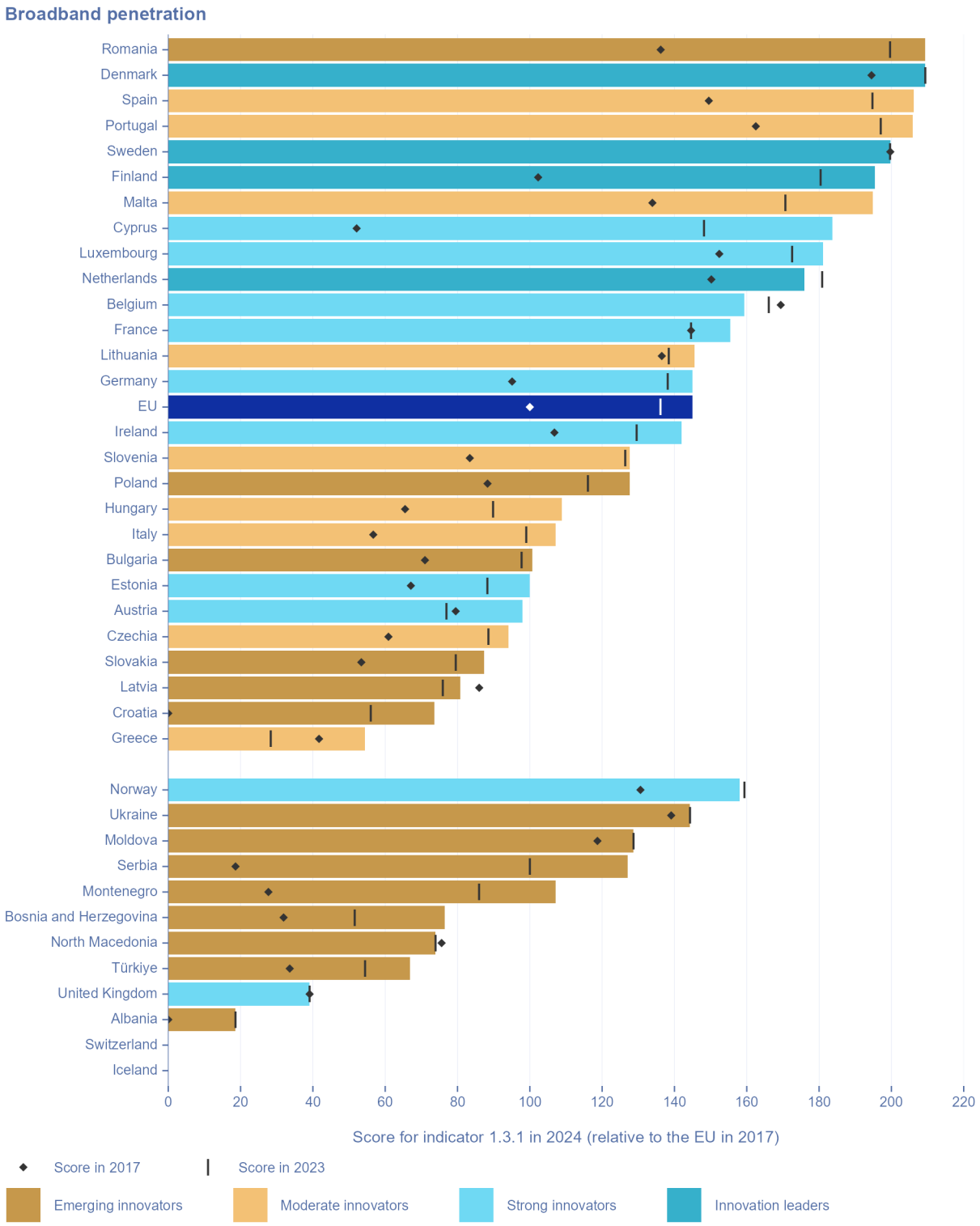
Between 2023 and 2024, performance in *Foreign doctorate students* increased for 17 Member States, remained unchanged for 3 Member States, and fell for 7 Member States. A vast majority of Member States improved at a faster pace than the EU average, with the largest performance increase for Estonia (+20%-points). Only three Member States showed slower progress than the EU average. Poland (-42%-points) faced the largest fall in relative performance.

Of the non-EU countries, in 2024, 6 perform above and 5 perform below the EU average.

Between 2017 and 2024, performance in *Foreign doctorate students* improved for 8 non-EU countries and fell for 3 non-EU countries. Most non-EU countries have seen their gap with the EU widen, with 8 progressing relatively less than the EU average. While Iceland (+81%-points) experienced the greatest increase in relative performance, Montenegro (-48%-points) showed the largest decline.

Between 2023 and 2024, performance in *Foreign doctorate students* increased for 7 non-EU countries, remained stable for 2 non-EU countries and decreased for 2 non-EU countries. 9 non-EU countries progressed relatively more than the EU average, with the largest improvement for Iceland (+32%-points). Moldova (-11%-points) witnessed the greatest decrease in relative performance.

1.3.1 Broadband penetration



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	13	> 0	24	> EU	8	> 0	23	> EU	13
	= EU	1	= 0	1	= EU	0	= 0	2	= EU	1
	< EU	13	< 0	2	< EU	19	< 0	2	< EU	13
Non-EU countries	> EU	1	> 0	8	> EU	2	> 0	4	> EU	4
	= EU	0	= 0	1	= EU	0	= 0	5	= EU	0
	< EU	9	< 0	1	< EU	8	< 0	1	< EU	6

For two non-EU countries (Iceland and Switzerland), data were not available.

The 2024 EU average score in *Broadband penetration* is 145, with 60.2% of enterprises in the EU having a maximum contracted download speed of at least 100 Mb/s for their fastest fixed internet connection. The EU average score soared by 45%-points between 2017 and 2024, with an increase of 8.8%-points occurring in the past year.

The best performing countries overall in 2024 are Member States Denmark and Romania, with a score of 209. The best performing non-EU country in 2024 is Norway, with a score of 158.

Of the Member States, in 2024, 13 perform above, 1 performs equal to, and 13 perform below the EU average. All Innovation Leaders exceed the EU average. Strong Innovators and Moderate Innovators show mixed performances with 5 Strong Innovators and 4 Moderate Innovators score higher than the EU average, while 3 Strong Innovators and 5 Moderate Innovators score lower. Except Romania, all Emerging Innovators are lagging behind.

Between 2017 and 2024, performance in *Broadband penetration* increased for the large majority of Member States, declining for two Member States only and remaining unchanged for one Member State. However, compared to the EU average, only 8 Member States improved relatively faster than the EU average, and 19 Member States progressed at a lower pace. Cyprus (+132%-points) showed the greatest growth in relative performance, and Belgium (-10%-points) witnessed the largest decline.

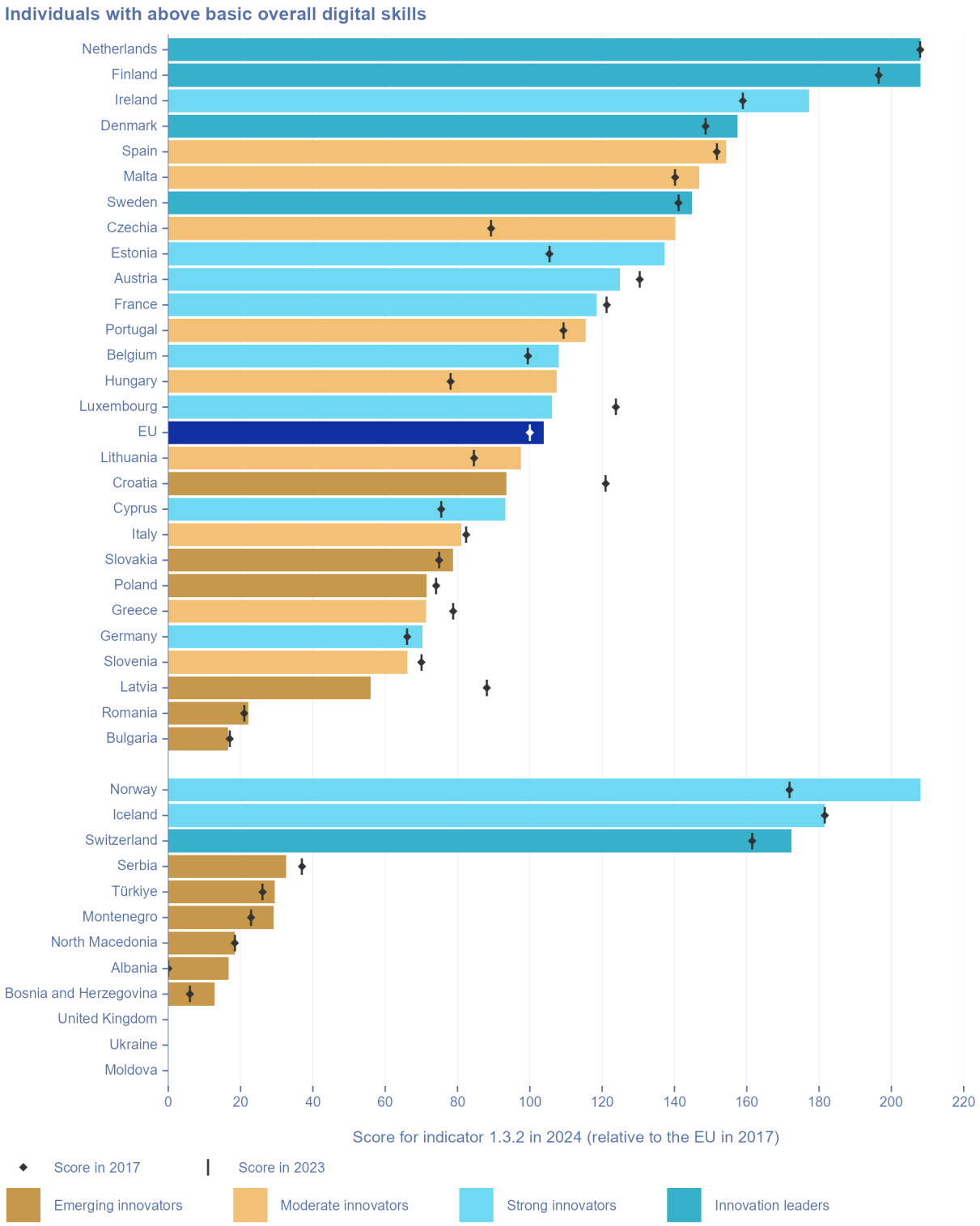
Between 2023 and 2024, performance in *Broadband penetration* improved for most of the Member States, remained stable for two Member States, and fell for two Member States. 13 Member States showed a higher growth in relative performance than the EU average, 1 Member State improved at the same pace, and 13 Member Sates progressed relatively more slowly. Cyprus (+36%-points) saw the largest increase in relative performance, whereas Belgium (-7%-points) showed the greatest downturn.

Of the non-EU countries, in 2024, only one performs above the EU average, with the remaining 9 scoring below the EU average.

Between 2017 and 2024, performance in *Broadband penetration* increased for 8 non-EU countries, remained stable for one non-EU country, and declined for one non-EU country. Despite this overall progress, only two non-EU countries are catching up with the EU average, with the greatest increase in relative performance for Serbia (+108%-points). 8 non-EU countries improved at a slower pace than the EU average. North Macedonia (-2%-points) showed the largest decline in relative performance, though of limited magnitude.

Between 2023 and 2024, performance in *Broadband penetration* improved for 4 non-EU countries, remained unchanged for 5 non-EU countries, and declined for one non-EU country. Compared to the EU average, 4 non-EU countries experienced a larger performance growth and 6 progressed at a relatively slower pace. Serbia (+27%-points) showed the greatest increase, while Norway (-1%-point) was the only non-EU country to witness a decline between 2023 and 2024.

1.3.2 Individuals who have above basic overall digital skills as a share of population



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	15	> 0	-	> EU	-	> 0	16	> EU	13
	= EU	0	= 0	-	= EU	-	= 0	1	= EU	0
	< EU	12	< 0	-	< EU	-	< 0	10	< EU	14
Non-EU countries	> EU	3	> 0	-	> EU	-	> 0	6	> EU	5
	= EU	0	= 0	-	= EU	-	= 0	2	= EU	0
	< EU	6	< 0	-	< EU	-	< 0	1	< EU	4

Performance change for 2017-2024 is not available due to breaks in time series. Data prior to 2022 have been imputed using the 2022 data value.

For three non-EU countries (Moldova, Ukraine, United Kingdom), data were not available.

The 2024 EU average score for *Individuals who have above basic overall digital skills* is 103.8, corresponding to 27.32% of the EU population possessing above basic overall digital skills. The EU average score improved by 3.8%-points between 2023 and 2024.

The best performing countries overall in 2024 are two Member States, Finland and the Netherlands, and one neighbouring country, Norway, all with a score of 208.

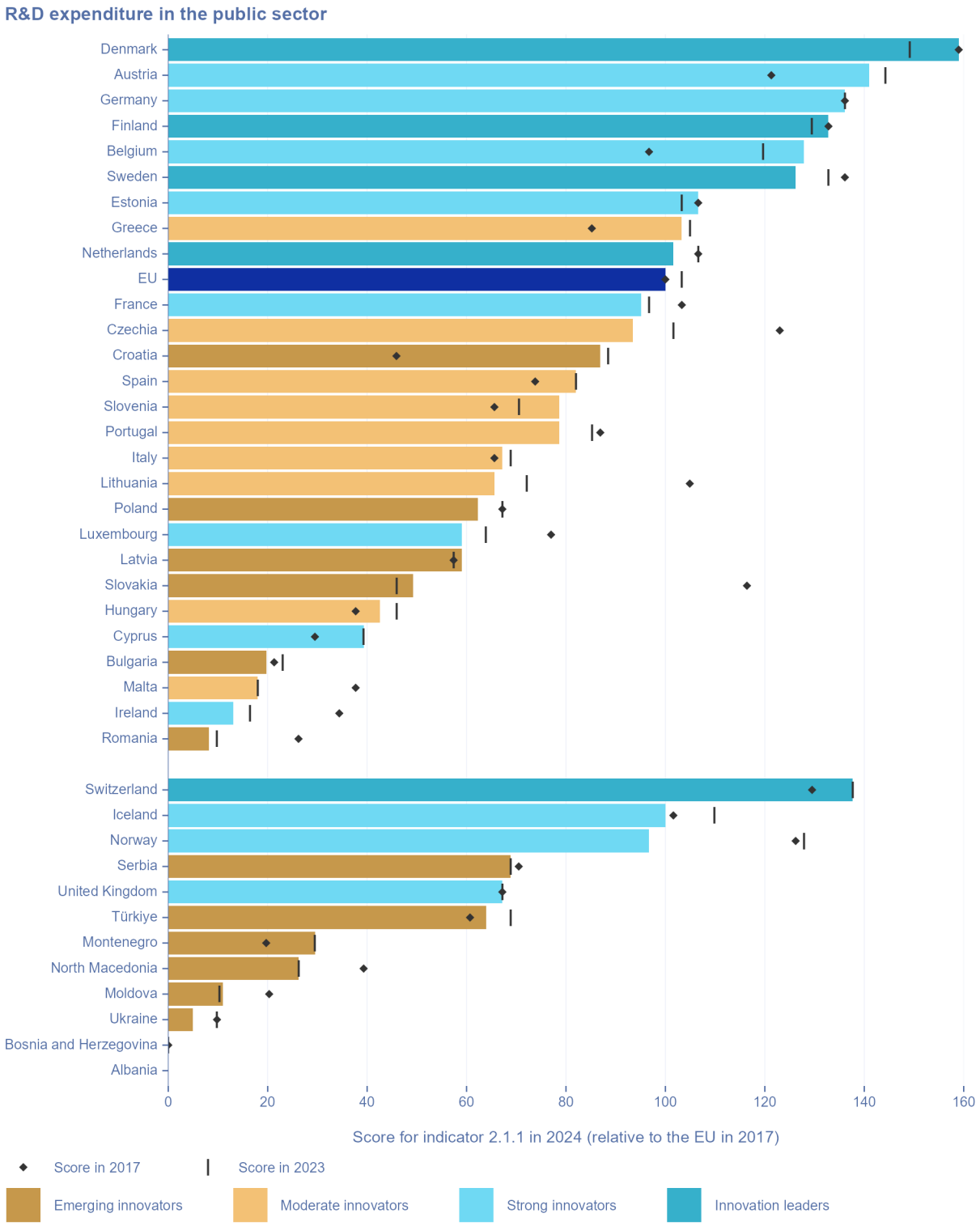
Of the Member States, in 2024, 15 perform above and 12 perform below the EU average. All Innovation Leaders and all Strong Innovators, except Cyprus and Germany, exceed the EU average score. Among Moderate Innovators, 5 score higher and 4 score lower than the EU average. All Emerging Innovators remain at the bottom of the ranking.

Between 2023 and 2024, performance in *Individuals who have above basic overall digital skills* improved for 16 Member States, remained unchanged for one Member State, and fell for 10 Member States. Compared to the EU average, 13 Member States showed a relatively faster increase in performance, while 14 progressed at a relatively slower pace. The greatest increase was observed in Czechia (+51%-points), whereas Latvia (-32%-points) experienced the most significant decline.

Of the non-EU countries, in 2024, 3 perform above and 6 perform below the EU average.

Between 2023 and 2024, performance in *Individuals who have above basic overall digital skills* increased for 6 non-EU countries, remained stable for two non-EU countries, and declined for only one non-EU country, Serbia (-4%-points). 5 non-EU countries are improving at a faster pace than the EU average, with Norway (+36%-points) witnessing the largest rise in relative performance. On the other hand, 4 non-EU countries are seeing their gap with the EU average widen.

2.1.1 R&D expenditure in the public sector (percentage of GDP)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	9	> 0	10	> EU	10	> 0	7	> EU	16
	= EU	0	= 0	4	= EU	4	= 0	4	= EU	3
	< EU	18	< 0	13	< EU	13	< 0	16	< EU	8
Non-EU countries	> EU	1	> 0	3	> EU	3	> 0	1	> EU	7
	= EU	1	= 0	2	= EU	2	= 0	6	= EU	0
	< EU	9	< 0	6	< EU	6	< 0	4	< EU	4

For one non-EU country (Albania), data were not available.

The 2024 EU average score in *R&D expenditure in the public sector* is 100, with R&D expenditures performed by the government and the higher education sectors in the EU representing 0.73% of EU GDP. The EU average score remained stable between 2017 and 2024, despite experiencing a 3.3%-points decrease over the last year.

The top-performing country overall in 2024 is Denmark, with a score of 159. The best-performing non-EU country in 2024 is Switzerland, with a score of 137.7.

Of the Member States, in 2024, 9 perform above and 18 perform below the EU average. All Innovation Leaders exceed the EU average score. Of the Strong Innovators, half score higher and half score lower than the EU average. All Moderate Innovators, except Greece, and all Emerging Innovators, perform below the EU average.

Between 2017 and 2024, performance in *R&D expenditure in the public sector* improved for 10 Member States, remained stable for 4 Member States and decreased for 13 Member States. Croatia (+41%-points) experienced the largest increase in relative performance, while Slovakia (-67%-points) saw the most severe drop.

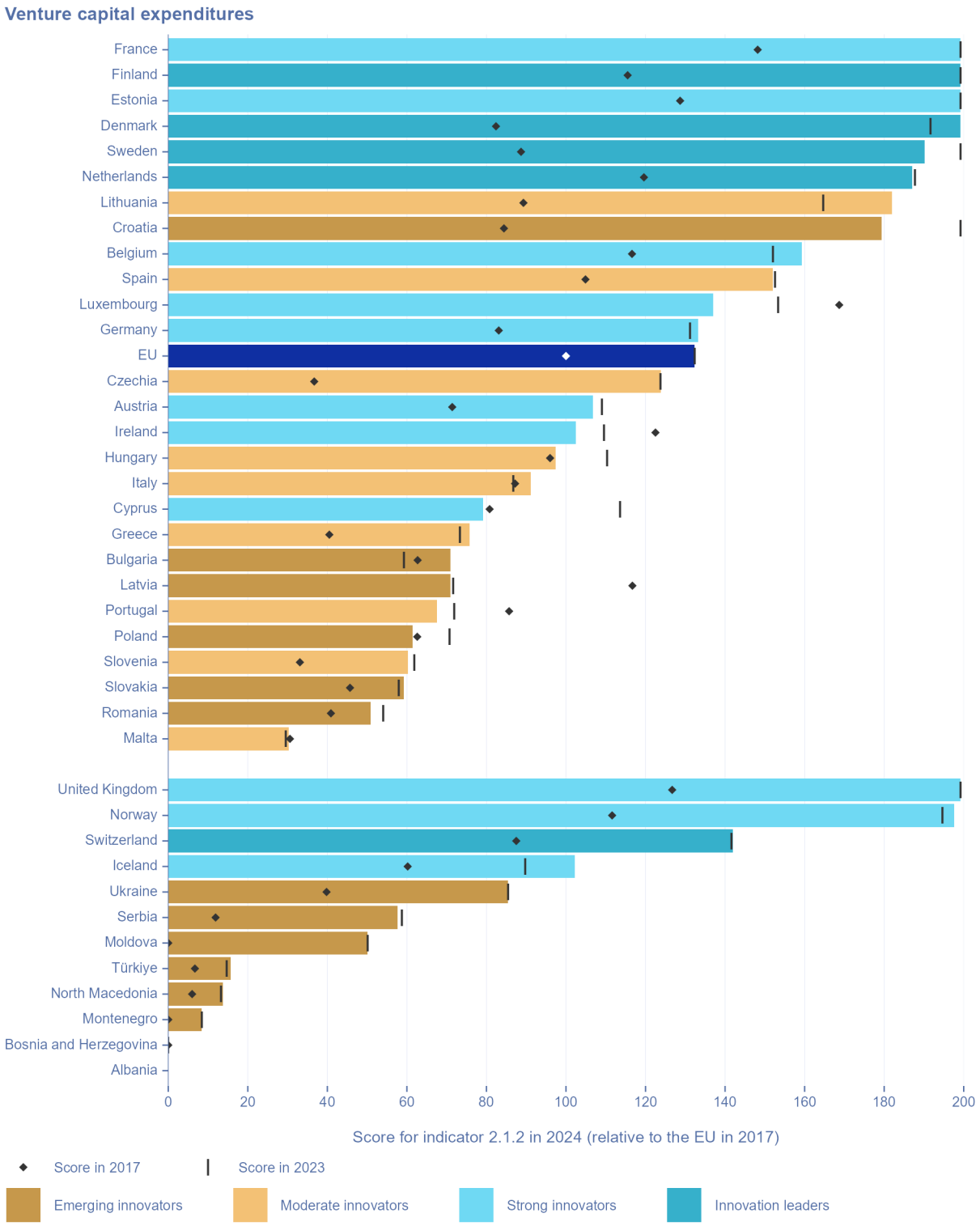
Between 2023 and 2024, performance in *R&D expenditure in the public sector* declined for the majority of Member States, with only 7 Member States seeing an increase in their score and 4 Member States maintaining a stable performance. Compared to the EU, 16 Member States showed greater progress in relative performance, while 3 evolved at a similar pace, and 8 showed slower growth. Denmark (+10%-points) experienced the largest increase, and Czechia (-8%-points) the greatest downturn.

Of the non-EU countries, in 2024, only one performs above the EU average, whereas one performs equal to and 9 perform below the EU average.

Between 2017 and 2024, performance in *R&D expenditure in the public sector* increased for 3 non-EU countries, remained unchanged for 2 non-EU countries, and fell for 6 non-EU countries. Montenegro (+10%-points) showed the greatest progress, while Norway (-30%-points) saw the most significant decline.

Between 2023 and 2024, performance in *R&D expenditure in the public sector* improved for only one non-EU country, Moldova (+1%-point), remaining stable for 6 and declining for 4 non-EU countries. Nevertheless, because of the modest decline in the EU average score, most non-EU countries are catching up with the EU. Norway (-31%-points) experienced the largest fall over the last year.

2.1.2 Venture capital expenditures (percentage of GDP)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	12	> 0	20	> EU	14	> 0	10	> EU	13
	= EU	0	= 0	0	= EU	0	= 0	3	= EU	0
	< EU	15	< 0	7	< EU	13	< 0	14	< EU	14
Non-EU countries	> EU	3	> 0	10	> EU	7	> 0	5	> EU	10
	= EU	0	= 0	1	= EU	0	= 0	5	= EU	0
	< EU	8	< 0	0	< EU	4	< 0	1	< EU	1

For one non-EU country (Albania), data were not available.

The 2024 EU average score in *Venture capital expenditures* is 132.3, with venture capital expenditures representing 0.17% of total GDP in the EU. The EU average score jumped by 32.3%-points between 2017 and 2024, experiencing only a slight decline of 0.1%-points from 2023 to 2024.

The best performing countries overall in 2024 are four Member States, Denmark, Estonia, Finland and France, and one neighbouring country, the United Kingdom, all with a score of 199, almost double the 2017 EU average.

Of the Member States, in 2024, 12 perform above and 15 perform below the EU average. All Innovation Leaders are at the top of the ranking. Among Strong Innovators, five score higher and three score lower than the EU average. All Moderate Innovators, except Lithuania and Spain, and all Emerging Innovators, except Croatia, perform below the EU average.

Between 2017 and 2024, performance in *Venture capital expenditures* increased for 20 Member States and fell for 7 Member States. Compared to the EU, 14 Member States showed a larger increase in relative performance, with Denmark (+117%-points) showing the most significant improvement. On the other hand, 13 Member States progressed at a relatively slower pace than the EU average. Latvia (-46%-points) experienced the largest decline in relative performance.

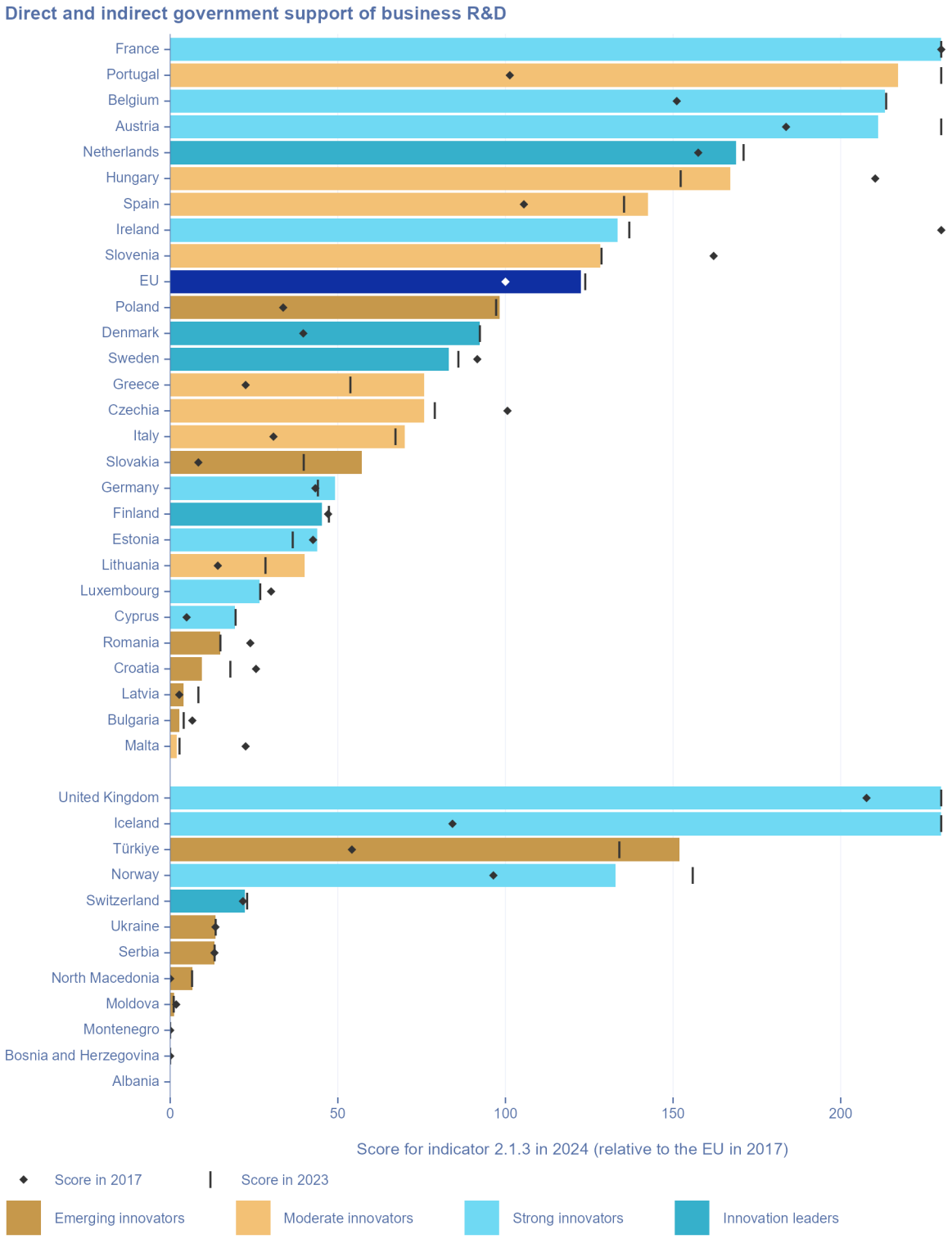
Between 2023 and 2024, performance in *Venture capital expenditures* improved for 10 Member States, remained stable for 3 Member States, and decreased for 14 Member States. 13 Member States progressed at a faster pace, and 14 at a slower pace than the EU average. Whereas Lithuania (+17%-points) showed the greatest increase in relative performance, Cyprus (-35%-points) witnessed the largest drop over the past year.

Of the non-EU countries, in 2024, 3 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *Venture capital expenditures* improved for all non-EU countries, except Bosnia and Herzegovina, which maintained a stable performance. 7 non-EU countries showed greater growth in relative performance than the EU average, while 4 experienced smaller increases. The largest performance increase was seen in Norway (+86%-points).

Between 2023 and 2024, performance in *Venture capital expenditures* increased for 5 non-EU countries, remained unchanged for 5 non-EU countries, and declined for one non-EU country only, Serbia (-1%-point). Compared to the EU, 10 non-EU countries improved relatively more and only one relatively less. Iceland (+12%-points) is showed the highest increase in relative performance.

2.1.3 Direct government funding and government tax support for business R&D (percentage of GDP)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	9	> 0	15	> EU	10	> 0	9	> EU	17
	= EU	0	= 0	1	= EU	0	= 0	3	= EU	1
	< EU	18	< 0	11	< EU	17	< 0	15	< EU	9
Non-EU countries	> EU	4	> 0	6	> EU	3	> 0	1	> EU	10
	= EU	0	= 0	4	= EU	0	= 0	8	= EU	0
	< EU	7	< 0	1	< EU	8	< 0	2	< EU	1

For one non-EU country (Albania), data were not available.

The 2024 EU average score in *Direct government funding and government tax support for business R&D* is 122.5, with government financing and support of R&D reaching 0.185% of GDP. The EU average score rose by 22.5%-points between 2017 and 2024, despite a modest decrease of 1.3%-points from 2023 to 2024.

The best performing Member State in 2024 is France, with a score of 230, more than twice the 2017 EU average. The best performing non-EU countries in 2024 are Iceland and the United Kingdom, both achieving the same score.

Of the Member States, in 2024, 9 perform above and 18 perform below the EU average. Only one Innovation Leader, the Netherlands, outperforms the EU average. While four Strong Innovators score higher than the EU average, four are lagging behind. Similarly, among Moderate Innovators, four perform above and five perform below the EU average. All Emerging Innovators remain in the bottom half of the ranking.

Between 2017 and 2024, performance in *Direct government funding and government tax support for business R&D* increased for 15 Member States, remained stable for one Member State, and declined for 11 Member States. 10 Member States progressed at a faster pace, and 10 at a slower pace, than the EU average. While Portugal (+116%-points) recorded the biggest jump in relative performance, Ireland (-97%-points) experienced the sharpest fall.

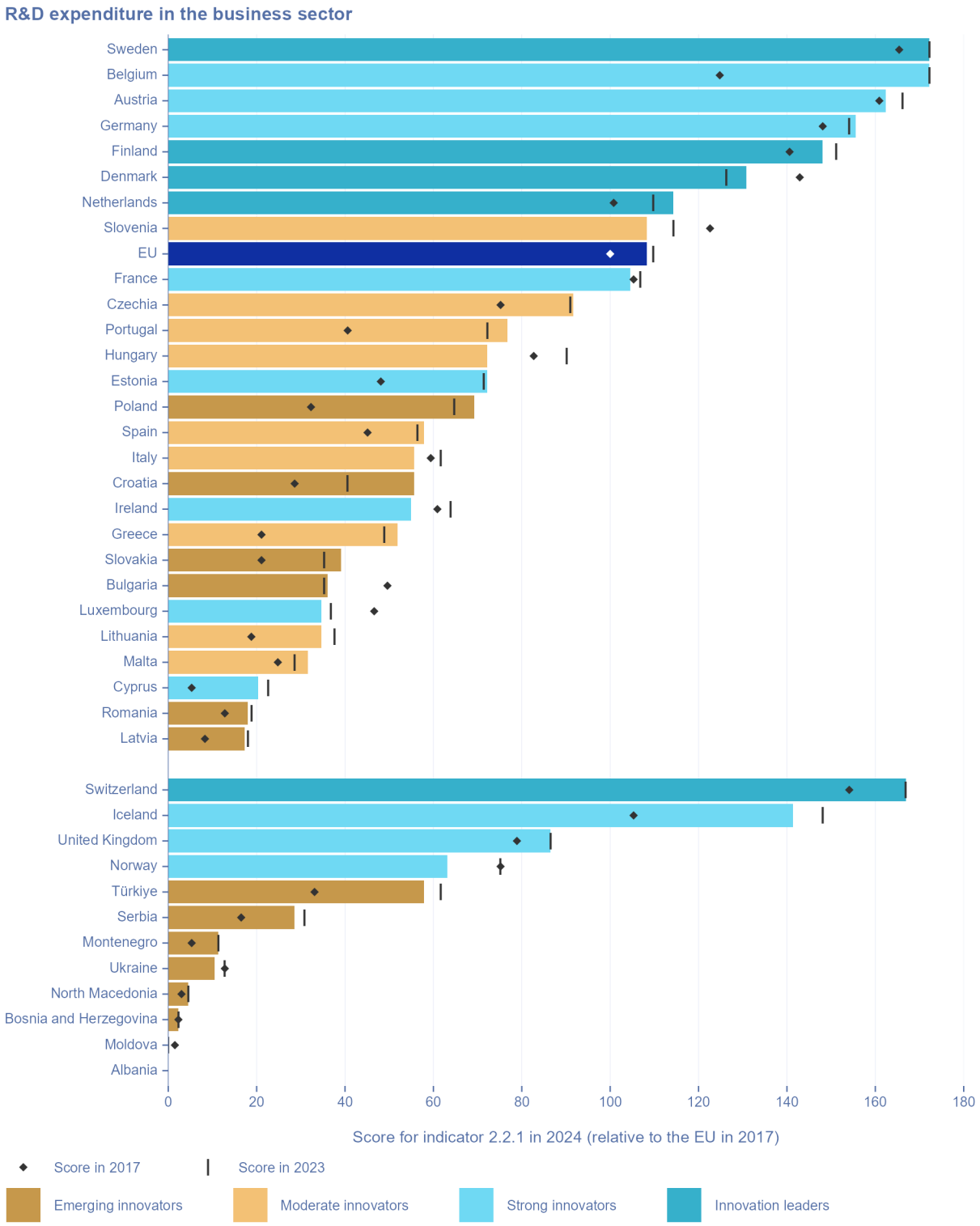
Between 2023 and 2024, performance in *Direct government funding and government tax support for business R&D* improved for 9 Member States, remained unchanged for 3 Member States, and fell for 15 Member States. Relative to the EU average, 17 Member States demonstrated greater increases in performance, 9 showed smaller improvements, and one evolved at the same pace as the EU average. Greece (+22%-points) saw the greatest increase in relative performance, and Austria (-19%-points) the most significant decline.

Of the non-EU countries, in 2024, 4 perform above and 7 perform below the EU average.

Between 2017 and 2024, performance in *Direct government funding and government tax support for business R&D* rose for 6 non-EU countries, remained stable for 4 non-EU countries, and decreased slightly for only one non-EU country, Moldova (-0.7%-points). Compared to the EU average, 3 non-EU countries improved relatively faster and 8 progressed at a slower pace. Iceland (+146%-points) showed the most significant improvement in relative performance.

Between 2023 and 2024, performance in *Direct government funding and government tax support for business R&D* increased for only one non-EU country, Türkiye (+18%-points). Performance remained unchanged for 8 non-EU countries and declined for 2 non-EU countries. Over the past year, all non-EU countries, except Norway (-23%-points), showed greater improvement than the EU average.

2.2.1 R&D expenditure in the business sector (percentage of GDP)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	7	> 0	19	> EU	13	> 0	13	> EU	17
	= EU	1	= 0	0	= EU	0	= 0	2	= EU	0
	< EU	19	< 0	8	< EU	14	< 0	12	< EU	10
Non-EU countries	> EU	2	> 0	7	> EU	4	> 0	0	> EU	6
	= EU	0	= 0	1	= EU	0	= 0	6	= EU	0
	< EU	9	< 0	3	< EU	7	< 0	5	< EU	5

For one non-EU country (Albania), data were not available.

The 2024 EU average score in *R&D expenditure in the business sector* is 108.3, with R&D expenditures performed by the business sector in the EU representing 1.48% of EU GDP. The EU average increased by 8.3%-points between 2017 and 2024, despite a small decline of 1.5%-points over the past year.

The top-performing countries overall in 2024 are Belgium and Sweden, with a score of 172. The best-performing non-EU country in 2024 is Switzerland, with a score of 167.

Of the Member States, in 2024, 7 perform above, one performs equal to, and 19 perform below the EU average. All Innovation Leaders, three Strong Innovators, and one Moderate Innovator surpass the EU average. Other Member States fall below the EU average.

Between 2017 and 2024, performance in *R&D expenditure in the business sector* increased for 19 Member States and declined for 8 Member States. 13 Member States progressed at a faster pace, and 14 Member States at a slower pace than the EU average. Belgium (+47%-points) showed the largest jump in relative performance, and Slovenia (-14%-points) reported the greatest decrease.

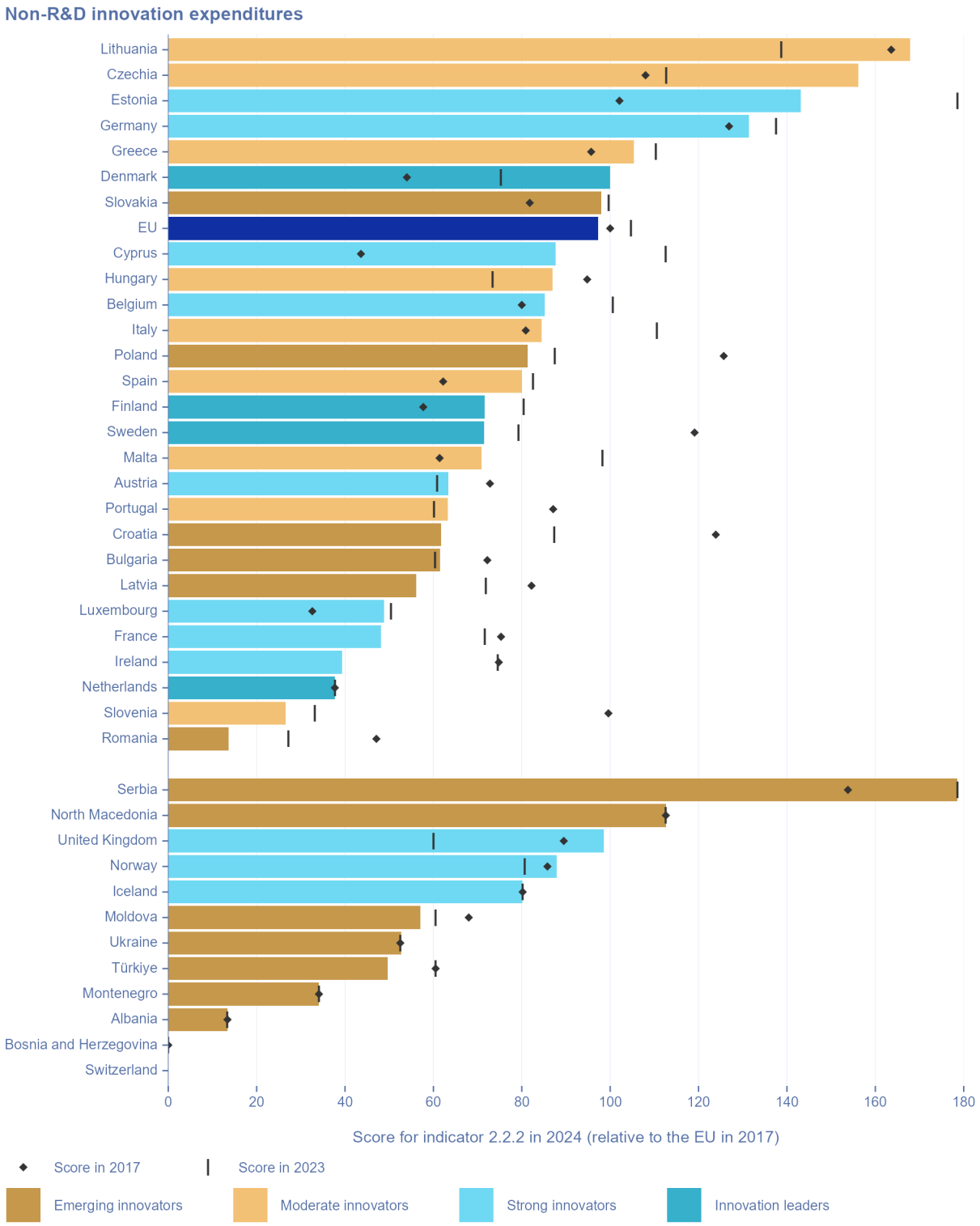
Between 2023 and 2024, performance in *R&D expenditure in the business sector* improved for 13 Member States, remained stable for two Member States, and decreased for 12 Member States. Compared to the EU average, 17 Member States showed greater progress in relative performance and 10 Member States experienced slower growth. Croatia (+15%-points) recorded the highest rise, while Hungary (-18%-points) showed the largest downturn in relative performance.

Of the non-EU countries, in 2024, 7 perform above, one performs equal to, and 3 perform below the EU average.

Between 2017 and 2024, performance in *R&D expenditure in the business sector* rose for 7 non-EU countries, remained stable for one non-EU country, and fell for 3 non-EU countries. 4 non-EU countries improved relatively faster and 7 relatively slower than the EU average. Iceland (+36%-points) witnessed the greatest gain in relative performance, and Norway (-12%-points) saw the most substantial decline.

Between 2023 and 2024, performance for all non-EU countries in *R&D expenditure in the business sector* stagnated or declined. Compared to the EU, 6 non-EU countries saw greater progress in relative performance, while 5 non-EU countries improved more moderately. Norway (-12%-points) showed the greatest decrease in relative performance.

2.2.2 Non-R&D innovation expenditures (percentage of turnover)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	7	> 0	14	> EU	15	> 0	7	> EU	15
	= EU	0	= 0	1	= EU	0	= 0	1	= EU	0
	< EU	20	< 0	12	< EU	12	< 0	19	< EU	12
Non-EU countries	> EU	3	> 0	4	> EU	9	> 0	3	> EU	10
	= EU	0	= 0	5	= EU	0	= 0	6	= EU	0
	< EU	8	< 0	2	< EU	2	< 0	2	< EU	1

For one non-EU country (Switzerland), data were not available.

The 2024 EU average score for *Non-R&D innovation expenditures* is 97.3, with non-R&D innovation expenditures representing 0.78% of total turnover for all enterprises in the EU. The EU average declined by 2.7%-points between 2017 and 2024, driven by a 7.4%-points decrease between 2023 and 2024.

The top-performing country overall in 2024 is Serbia, with a score of 179. The top-performing Member State in 2024 is Lithuania, with a score of 168.

Of the Member States, in 2024, 7 perform above and 20 perform below the EU average. Performances are very mixed within each performance group.

Between 2017 and 2024, performance in *Non-R&D innovation expenditures* increased for 14 Member States, remained unchanged for one Member State, and declined for 12 Member States. Compared to the EU average, 15 Member States improved relatively faster, and 12 Member States progressed at a lower pace. Czechia (+48%-points) showed the greatest growth in relative performance, and Slovenia (-73%-points) witnessed the most significant drop.

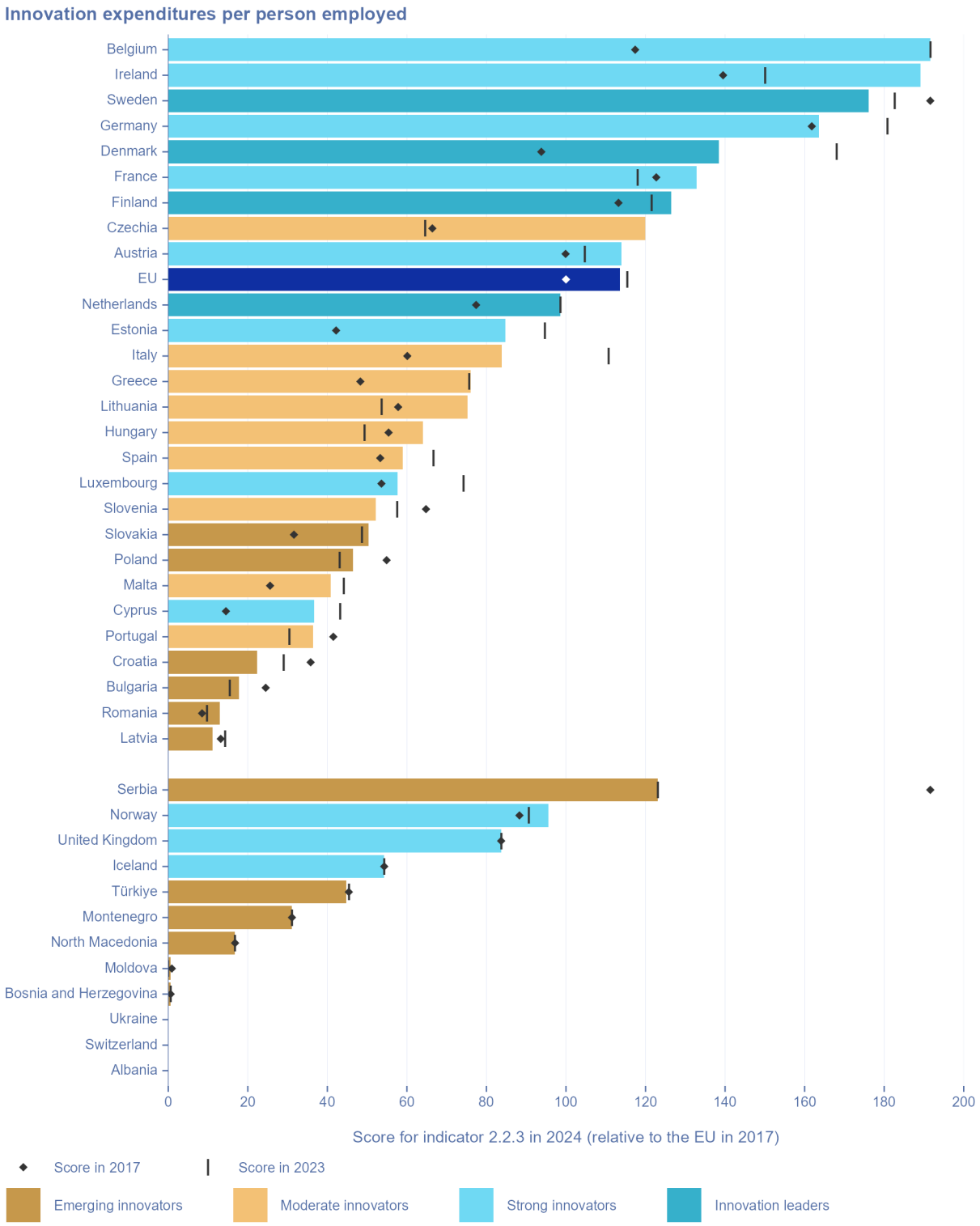
Between 2023 and 2024, performance in *Non-R&D innovation expenditures* progressed for only 7 Member States, remained stable for one Member State, and decreased for 19 Member States. 15 Member States improved at a higher pace than the EU average, while 12 Member States showed a relatively smaller progression than the EU average. Czechia (+44%-points) experienced the largest rise in relative performance, whereas Estonia (-36%-points) saw the most severe decline.

Of the non-EU countries, in 2024, 3 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *Non-R&D innovation expenditures* improved for 4 non-EU countries, remained unchanged for 5 non-EU countries, and decreased for 2 non-EU countries. Nevertheless, non-EU countries are overall catching up with the EU average, with 9 progressing relatively faster, and only 2 experiencing smaller progress. While Serbia (+25%-points) experienced the greatest increase in relative performance, Moldova (-11%-points) showed the largest decline.

Between 2023 and 2024, performance in *Non-R&D innovation expenditures* increased for 3 non-EU countries, remained stable for 6 non-EU countries, and fell for 2 non-EU countries. As the EU average experienced a significant decline over the past year, all non-EU countries, except Türkiye (-11%-points) have improved relatively more than the EU average. The United Kingdom (-39%-points) saw the greatest improvement in relative performance.

2.2.3 Innovation expenditures per person employed



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	9	> 0	20	> EU	13	> 0	13	> EU	15
	= EU	0	= 0	0	= EU	0	= 0	2	= EU	0
	< EU	18	< 0	7	< EU	14	< 0	12	< EU	12
Non-EU countries	> EU	1	> 0	1	> EU	0	> 0	2	> EU	9
	= EU	0	= 0	5	= EU	0	= 0	6	= EU	0
	< EU	8	< 0	3	< EU	9	< 0	1	< EU	0

For three non-EU countries (Albania, Switzerland, Ukraine), data were not available.

The 2024 EU average score in *Innovation expenditures per person employed* is 113.5, with innovation spending reaching on average 7 505 Purchasing Power Standards per person employed in innovative enterprises. The EU average has increased by 13.5%-points between 2017 and 2024, despite a slight decline of 1.9%-points over the last year.

The top-performing country overall in 2024 is Belgium, with a score of 192. The best-performing non-EU country in 2024 is Serbia, with a score of 123.1.

Of the Member States, in 2024, 9 perform above and 18 perform below the EU average. All Innovation Leaders exceed the EU average. Among Strong Innovators, performances are mixed, with 5 Strong Innovators outperforming the EU average, and 3 score well below. All Moderate Innovators, except Czechia, and all Emerging Innovators, fall below the EU average.

Between 2017 and 2024, performance in *Innovation expenditures per person employed* improved for a vast majority of Member States, declining for only 7 Member States. Compared to the EU average, 13 Member States showed a larger increase in relative performance, while 14 Member States progressed at a relatively slower pace. Belgium (+74%-points) showed the greatest improvement, and Sweden (-16%-points) experienced the most significant downturn in relative performance.

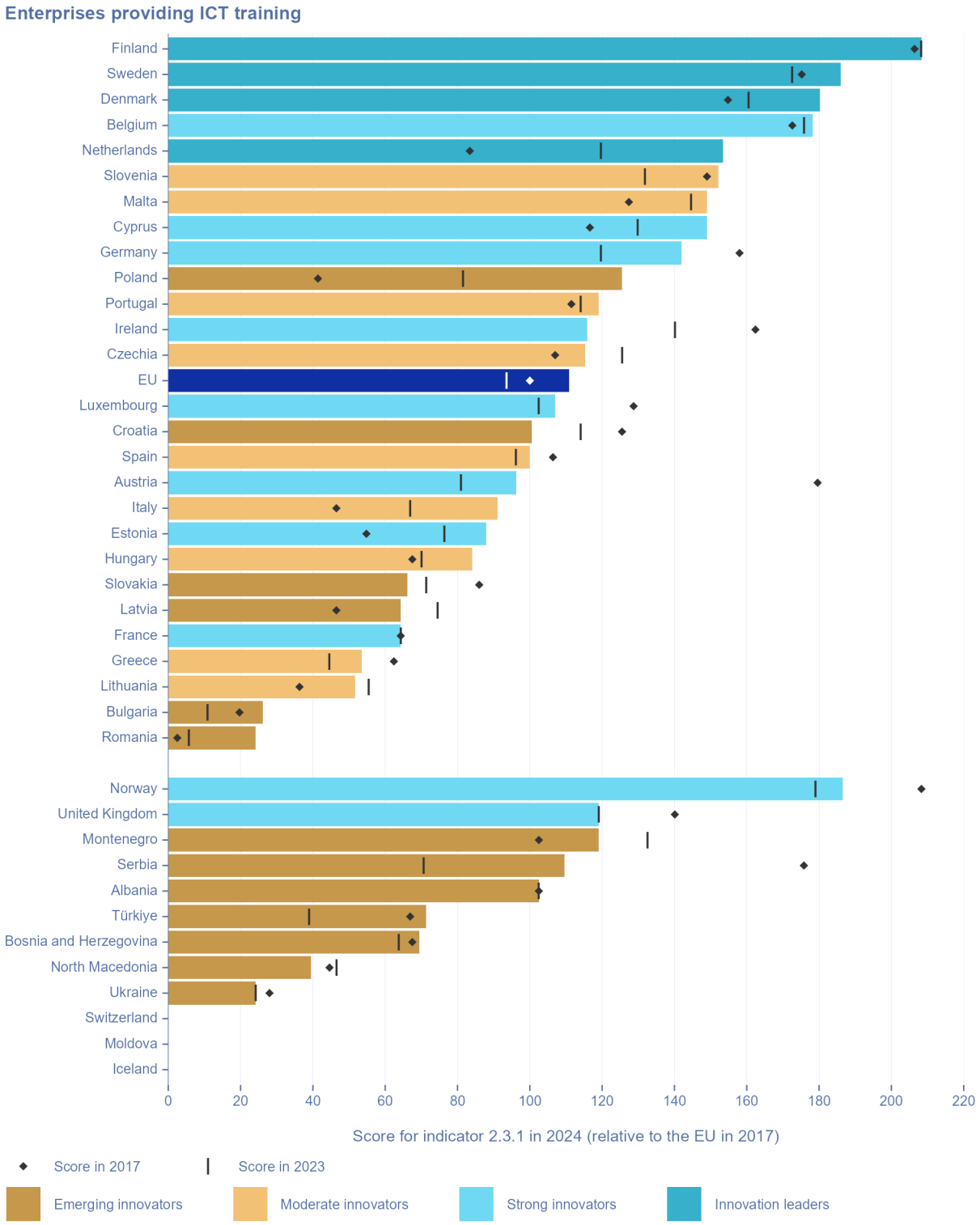
Between 2023 and 2024, performance in *Innovation expenditures per person employed* increased for 13 Member States, remained stable for 2 Member States, and decreased for 12 Member States. 15 Member States progressed at a faster pace, and 12 at a slower pace than the EU average. Whereas Czechia (+55%-points) recorded the highest jump in relative performance, Denmark (-30%-points) witnessed the largest drop over the past year.

Of the non-EU countries, in 2024, only one performs above the EU average.

Between 2017 and 2024, performance in *Innovation expenditures per person employed* improved for only one non-EU country, Norway (+7%-points), remaining stable or decreasing for all other non-EU countries. Serbia (-69%-points) experienced the most severe decline in relative performance over this period.

Between 2023 and 2024, performance in *Innovation expenditures per person employed* remained unchanged for most non-EU countries. Two non-EU countries saw an increase in relative performance in the past year, with Norway (+5%-points) exhibiting the greatest improvement. Türkiye (-0.7%-points) was the only non-EU country to experience a decline, though of limited magnitude.

2.3.1 Enterprises providing training to develop or upgrade ICT skills of their personnel (share of enterprises)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	13	> 0	18	> EU	11	> 0	19	> EU	8
	= EU	0	= 0	1	= EU	1	= 0	2	= EU	0
	< EU	14	< 0	8	< EU	15	< 0	6	< EU	19
Non-EU countries	> EU	3	> 0	3	> EU	1	> 0	4	> EU	2
	= EU	0	= 0	1	= EU	0	= 0	3	= EU	0
	< EU	6	< 0	5	< EU	8	< 0	2	< EU	7

For three non-EU countries (Iceland, Moldova, Switzerland), data were not available.

The 2024 EU average score in *Enterprises providing ICT training* is 110.8, with 22.4% of enterprises providing training to develop or upgrade the ICT related skills of their personnel. The EU average score increased by 10.8%-points between 2017 and 2024.

The best performing country overall in 2024 is Finland, with a score of 208. The best performing neighbouring country in 2024 is Norway, with a score of 187.

Of the Member States, in 2024, 13 perform above and 14 perform below the EU average. All Innovation Leaders are in the top-five for this indicator. Performances are rather varied among Strong Innovators and Moderate Innovators. All Emerging Innovators, except Poland, are lagging behind.

Between 2017 and 2024, performance in *Enterprises providing ICT training* improved for a majority of Member States, declining in only 8 Member States and remaining stable for one. Compared to the EU average, 11 Member States progressed relatively faster, 15 relatively slower, and one at the same pace as the EU average. Poland (+84%-points) witnessed the greatest increase in performance, and Austria (-83%-points) saw the most severe drop.

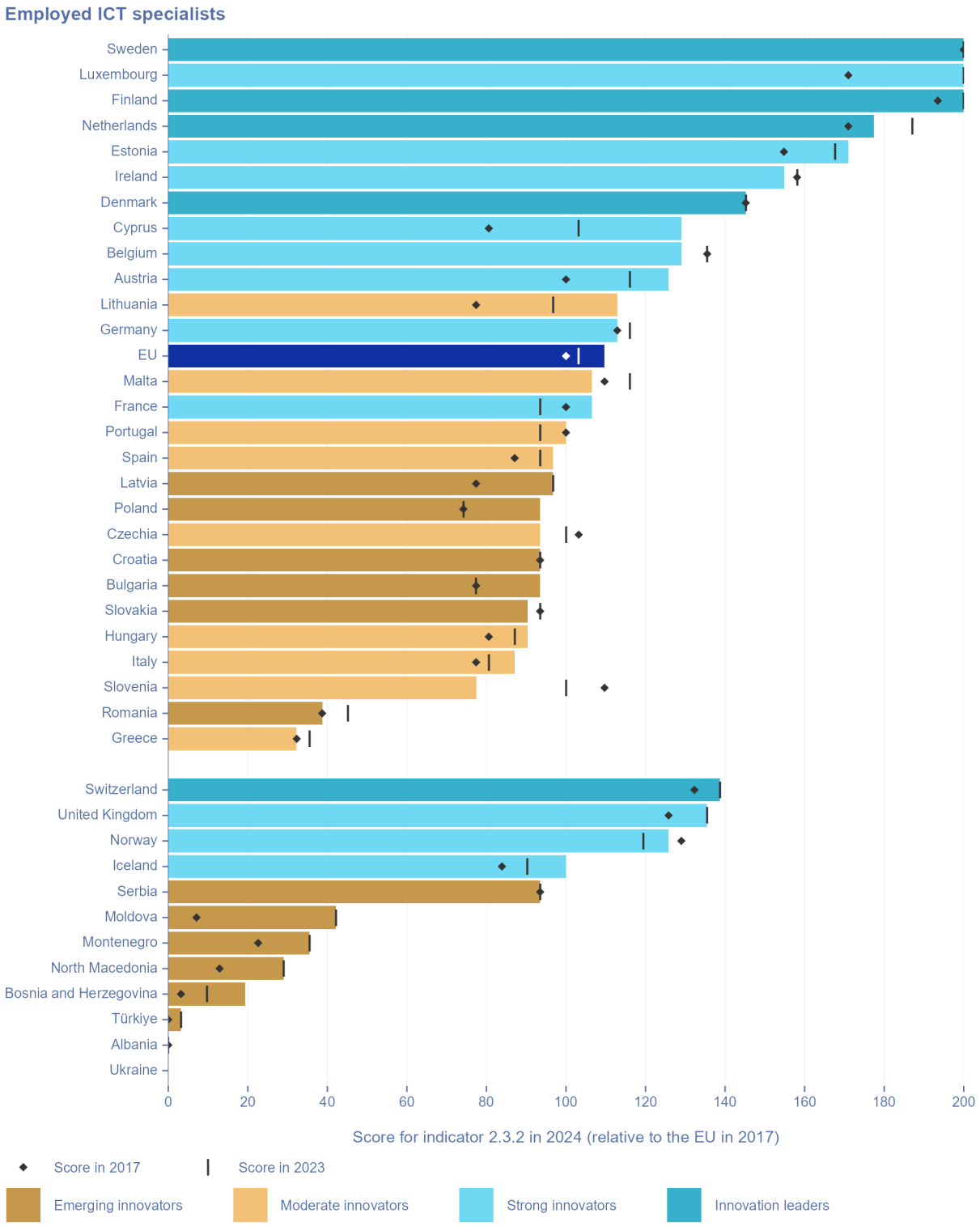
Between 2023 and 2024, performance in *Enterprises providing ICT training* increased for 19 Member States, remained unchanged for 2 Member States, and fell for 6 Member States. A vast majority of Member States improved at a slower pace than the EU average, with only 8 Member States showed greater progress than the EU average. Poland (+44%-points) saw the largest performance increase, while Ireland (-24%-points) faced the most significant downturn in relative performance.

Of the non-EU countries, in 2024, 3 perform above and 6 perform below the EU average.

Between 2017 and 2024, performance in *Enterprises providing ICT training* increased for 3 non-EU countries, remained stable for one non-EU country, and decreased for 5 non-EU countries. Most non-EU countries have seen their gap with the EU widen, with only one non-EU country showing greater improvement than the EU average, Montenegro (+17%-points). The steepest fall in relative performance was registered by Serbia (-66%-points).

Between 2023 and 2024, performance in *Enterprises providing ICT training* improved 4 non-EU countries, remained unchanged for 3 non-EU countries, and declined for 2 non-EU countries. Only two non-EU countries are catching up with the EU, witnessing higher growth in this indicator than the EU average. Serbia (+39%-points) experienced the greatest jump in relative performance, and Montenegro (-13%-points) saw the strongest decline.

2.3.2 ICT specialists as a percentage of total employment



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	12	> 0	14	> EU	8	> 0	11	> EU	6
	= EU	0	= 0	7	= EU	2	= 0	6	= EU	2
	< EU	15	< 0	6	< EU	17	< 0	10	< EU	19
Non-EU countries	> EU	3	> 0	8	> EU	5	> 0	3	> EU	2
	= EU	0	= 0	2	= EU	1	= 0	8	= EU	0
	< EU	8	< 0	1	< EU	5	< 0	0	< EU	9

For one non-EU country (Ukraine), data were not available.

The 2024 EU average score in *Employed ICT specialists* is 109.7, with ICT specialists making up 4.8% of total employment in the EU. The EU average rose by 9.7%-points between 2017 and 2024, with an increase of 6.5%-points occurring in the past year.

The top-performing country overall in 2024 are Member States Finland, Luxembourg and Sweden, all with a score of 200. The top-performing non-EU country in 2024 is Switzerland, with a score of 139.

Of the Member States, in 2024, 12 perform above and 15 perform below the EU average. All Innovation Leaders and Strong Innovators, except France, score higher than the EU average. All Moderate Innovators, except Lithuania, and all Emerging Innovators fall below the EU average.

Between 2017 and 2024, performance in *Employed ICT specialists* increased for 14 Member States, remained stable for 7 Member States, and declined for 6 Member States. 8 Member States progressed relatively faster, 17 relatively slower, and 2 at the same pace than the EU average. Cyprus (+48%-points) saw the highest jump in relative performance, while Slovenia (-32%-points) experienced the largest decrease.

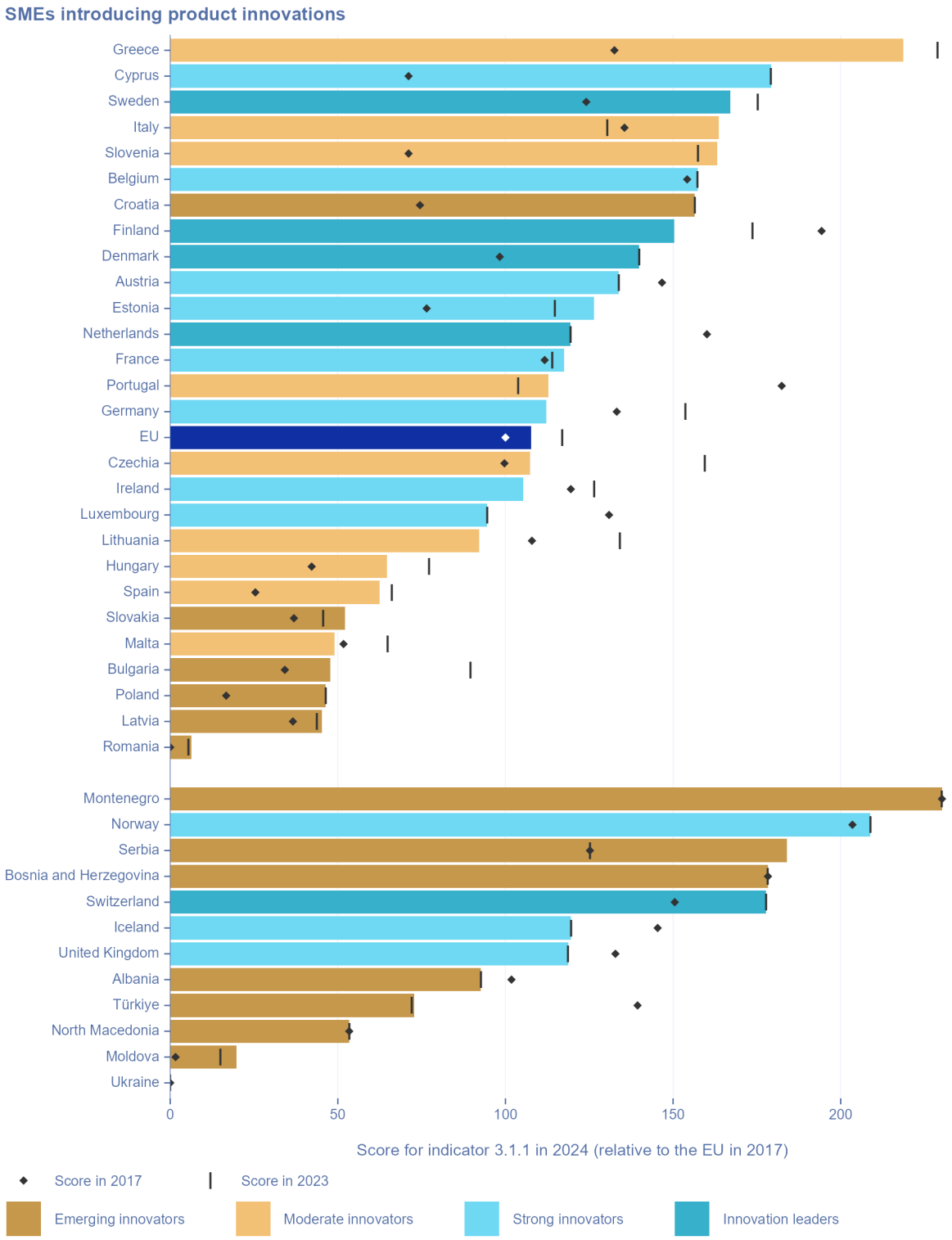
Between 2023 and 2024, performance in *Employed ICT specialists* improved for 11 Member States, remained unchanged for 6 Member States, and fell for 10 Member States. Compared to the EU average, a large majority of Member States experienced slower growth. Cyprus (+26%-points) showed the greatest improvement, and Slovenia (-23%-points) saw the steepest decline in relative performance.

Of the non-EU countries, 3 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *Employed ICT specialists* improved for a majority of non-EU countries, declining only for one non-EU country, Norway (-3%-points) and remaining unchanged for two. Compared to the EU average, 5 non-EU countries showed stronger growth and 5 slower progress, while one improved at the same pace. Moldova (+35%-points) witnessed the largest increase in relative performance.

Between 2023 and 2024, performance in *Employed ICT specialists* increased for 3 non-EU countries and remained stable for the rest. With the EU average experiencing significant growth over the past year, only 2 non-EU countries are catching up with the EU. Bosnia and Herzegovina and Iceland (+10%-points) showed the strongest improvement in relative performance.

3.1.1 SMEs introducing product innovations (percentage of SMEs)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	15	> 0	18	> EU	14	> 0	8	> EU	18
	= EU	0	= 0	0	= EU	1	= 0	8	= EU	0
	< EU	12	< 0	9	< EU	12	< 0	11	< EU	9
Non-EU countries	> EU	7	> 0	4	> EU	3	> 0	3	> EU	12
	= EU	0	= 0	4	= EU	0	= 0	9	= EU	0
	< EU	5	< 0	4	< EU	9	< 0	0	< EU	0

The 2024 EU average score in *SMEs introducing product innovations* is 107.6, with 25.55% of EU SMEs introducing product innovations. The EU average score rose by 7.6%-points between 2017 and 2024, despite a significant downturn between 2023 and 2024.

The overall best performing country in 2024 is Montenegro, with a score of 230. The best performing Member State in 2024 is Greece, with a score of 219.

Of the Member States, in 2024, 15 perform above and 12 perform below the EU average. All Innovation Leaders and Strong Innovators, except Ireland and Luxembourg, surpass the EU average. Among Moderate Innovators, 4 score higher and 5 score lower than the EU average. All Emerging Innovators, except Croatia, fall below the EU average.

Between 2017 and 2024, performance in *SMEs introducing product innovations* improved for 18 Member States and fell for 9 Member States. Compared to the EU average, 14 Member States improved relatively faster, 12 relatively slower, and one at the same pace as the EU average. Cyprus (+108%-points) experienced the greatest performance growth, while Portugal (-70%-points) saw the more severe drop in relative performance.

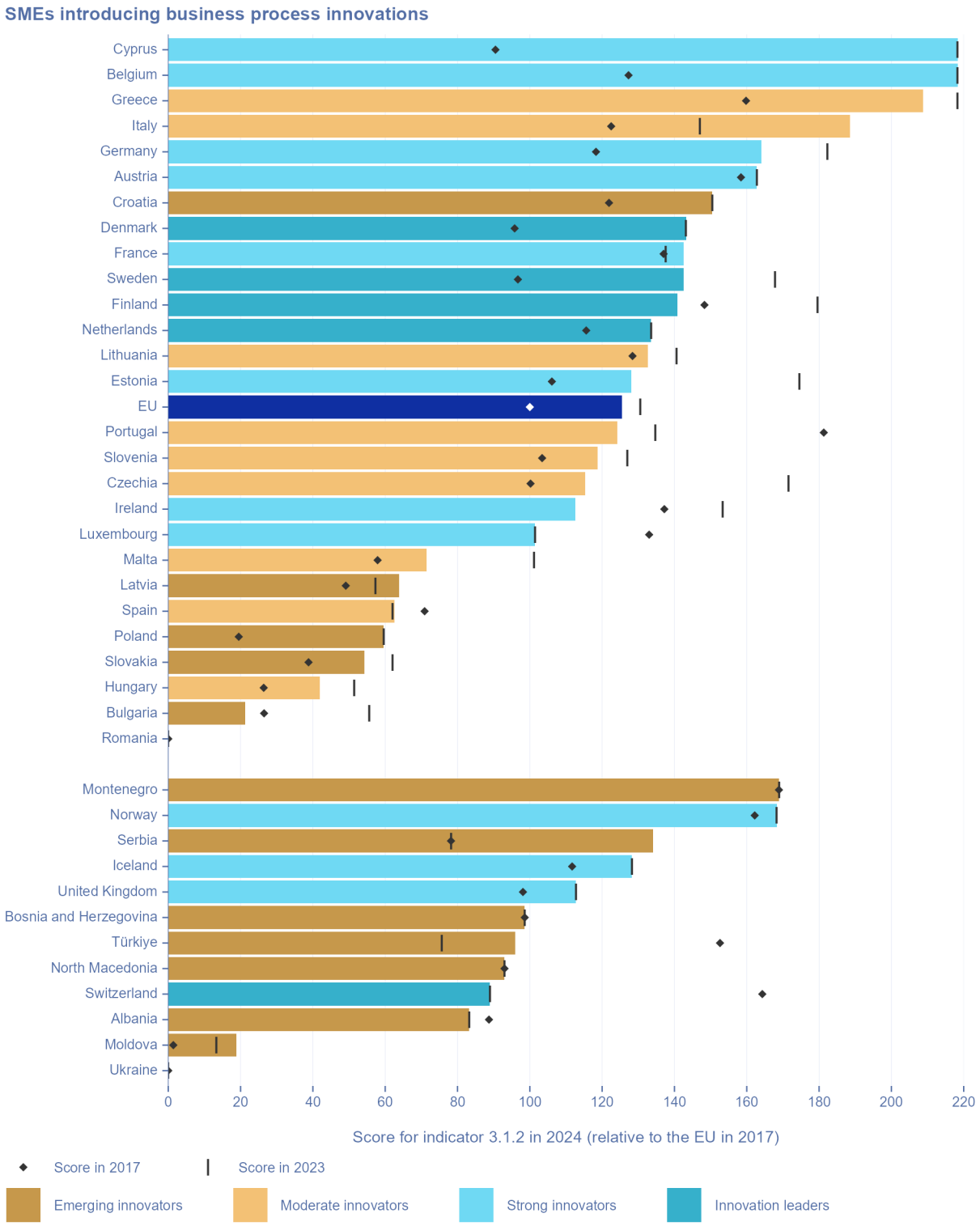
Between 2023 and 2024, performance in *SMEs introducing product innovations* progressed for 8 Member States, remained unchanged for 8 Member States, and decreased for 11 Member States. 18 Member States improved at a higher pace than the EU average, while 9 Member States showed a relatively smaller progression than the EU average. Italy (+33%-points) showed the strongest improvement, whereas Czechia (-52%-points) witnessed the largest decline.

Of the non-EU countries, in 2024, 7 perform above and 5 perform below the EU average.

Between 2017 and 2024, performance in *SMEs introducing product innovations* improved for 4 non-EU countries, remained stable for 4 non-EU countries, and declined for 4 non-EU countries. Most non-EU countries are seeing their gap with the EU widen, as they are improving relatively slower than the EU average. Serbia (+59%-points) witnessed the largest increase in relative performance, and Türkiye (-67%-points) the steepest fall.

Between 2023 and 2024, performance in *SMEs introducing product innovations* increased for 3 non-EU countries and remained unchanged for 9 non-EU countries. All non-EU countries progressed at a higher pace than the EU average, with Serbia (+59%-points) showing the greatest improvement in relative performance.

3.1.2 SMEs introducing business process innovations (percentage of SMEs)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	14	> 0	20	> EU	9	> 0	4	> EU	13
	= EU	0	= 0	1	= EU	0	= 0	9	= EU	0
	< EU	13	< 0	6	< EU	18	< 0	14	< EU	14
Non-EU countries	> EU	4	> 0	5	> EU	1	> 0	3	> EU	12
	= EU	0	= 0	4	= EU	0	= 0	9	= EU	0
	< EU	8	< 0	3	< EU	11	< 0	0	< EU	0

The 2024 EU average score in *SMEs introducing business process innovations* is 125.5, with 41.24% of EU SMEs introducing business process innovations either new to the enterprise or new to the market. The EU average score rose by 25.5%-points between 2017 and 2024, despite a decrease of 5.1%-points from 2023 to 2024.

The best performing Member States in 2024 are Belgium and Cyprus, both with a score of 218. The best performing non-EU country in 2024 is Montenegro, which achieves a score of 169.

Of the Member States, in 2024, 14 perform above and 13 perform below the EU average. All Innovation Leaders and all Strong Innovators, except Ireland and Luxembourg, outperform the EU average. Among Moderate Innovators, three score higher and six score lower than the EU average. All Emerging Innovators, except Croatia, remain in the bottom half of the ranking.

Between 2017 and 2024, performance in *SMEs introducing business process innovations* increased for a vast majority of Member States, remained stable for one Member State, and declined for 6 Member States. Nevertheless, only 9 Member States progressed at a faster pace than the EU average, with 18 showing slower growth than the EU average. While Cyprus (+128%-points) recorded the biggest jump in relative performance, Portugal (-57%-points) experienced the sharpest fall.

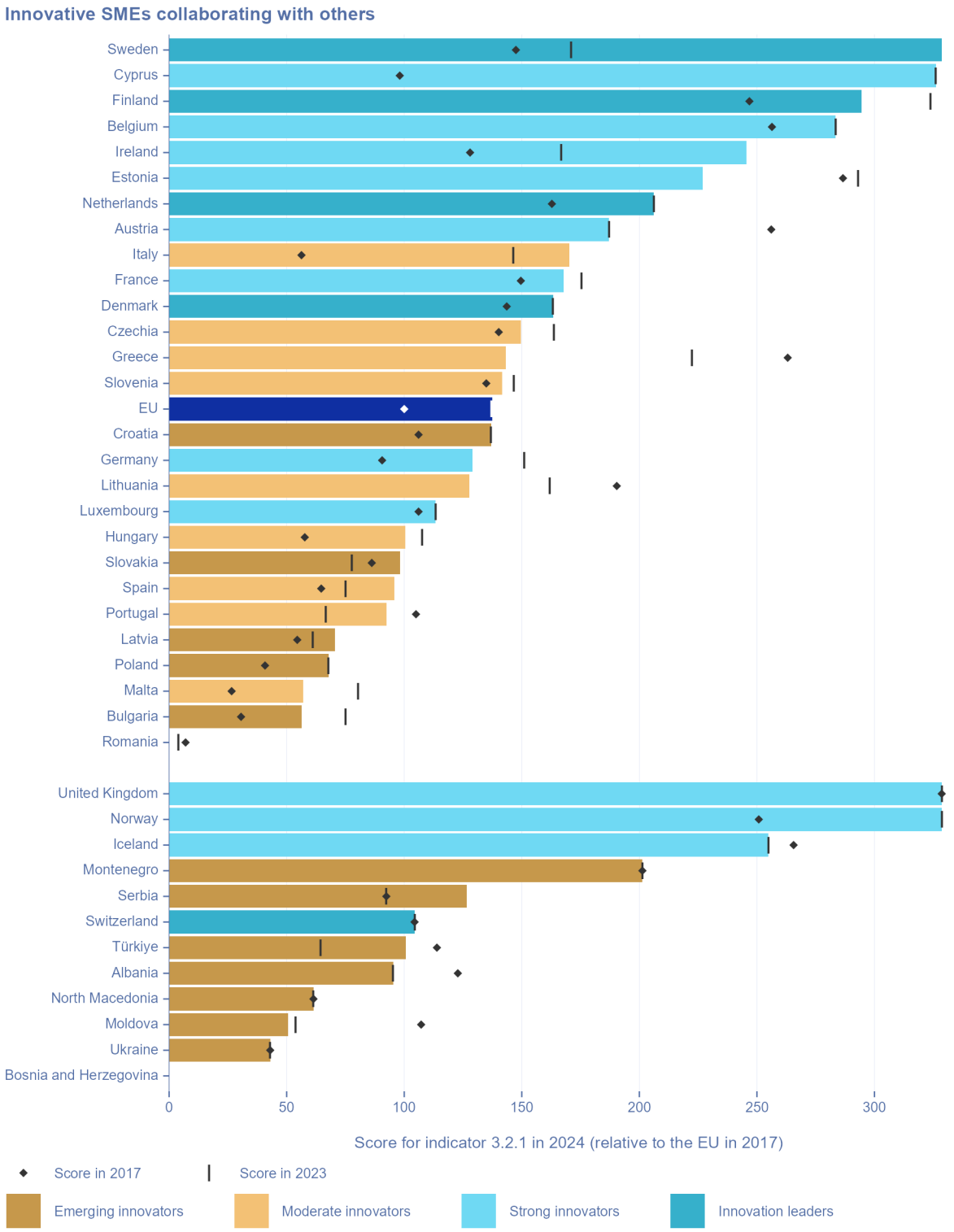
Between 2023 and 2024, performance in *SMEs introducing business process innovations* improved for 4 Member States, remained unchanged for 9 Member States, and fell for 14 Member States. Relative to the EU average, 13 Member States showed greater progress and 14 smaller improvement than the EU average. Italy (+42%-points) saw the greatest increase in relative performance, and Czechia (-56%-points) the most significant downturn.

Of the non-EU countries, in 2024, 4 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *SMEs introducing business process innovations* rose for 5 non-EU countries, remained stable for 4 non-EU countries, and decreased for 3 non-EU countries. Compared to the EU average, 3 non-EU countries improved relatively faster and 8 progressed at a slower pace. Serbia (+56%-points) showed the most significant improvement in relative performance, whereas Switzerland (-75%-points) recorded the more severe decline.

Between 2023 and 2024, performance in *SMEs introducing business process innovations* increased for three non-EU countries and remained unchanged for 9. Over the past year, all non-EU countries showed greater improvement than the EU average, with Serbia (+56%-points) witnessing the strongest increase.

3.2.1 Innovative SMEs collaborating with others (percentage of SMEs)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	14	> 0	21	> EU	8	> 0	7	> EU	7
	= EU	0	= 0	0	= EU	0	= 0	8	= EU	0
	< EU	13	< 0	6	< EU	19	< 0	12	< EU	20
Non-EU countries	> EU	4	> 0	2	> EU	1	> 0	2	> EU	2
	= EU	0	= 0	5	= EU	0	= 0	8	= EU	0
	< EU	7	< 0	4	< EU	10	< 0	1	< EU	9

For one non-EU country (Bosnia and Herzegovina), data were not available.

The 2024 EU average score in *Innovative SMEs collaborating with others* is 137.4, with 12.38% of SMEs participating in innovation co-operation activities with other enterprises or institutions. The EU average score soared by 37.4%-points between 2017 and 2024, remaining relatively stable in the past year.

The best performing Member State in 2024 is Sweden, with a score of 329. The best performing non-EU countries in 2024 are Norway and the United Kingdom, reaching an equal score.

Of the Member States, in 2024, 14 perform above and 13 perform below the EU average. All Innovation Leaders and all Strong Innovators, except Germany and Luxembourg, exceed the EU average. Moderate Innovators show mixed performances, with 4 Moderate Innovators scoring higher and 5 Moderate Innovators scoring lower than the EU average. All Emerging Innovators are lagging behind.

Between 2017 and 2024, performance in *Innovative SMEs collaborating with others* increased for the large majority of Member States, declining for six Member States only. However, compared to the EU average, only 8 Member States improved relatively faster, and 19 Member States relatively slower than the EU average. Cyprus (+228%-points) recorded the highest surge in relative performance, and Greece (-120%-points) witnessed the steepest decline.

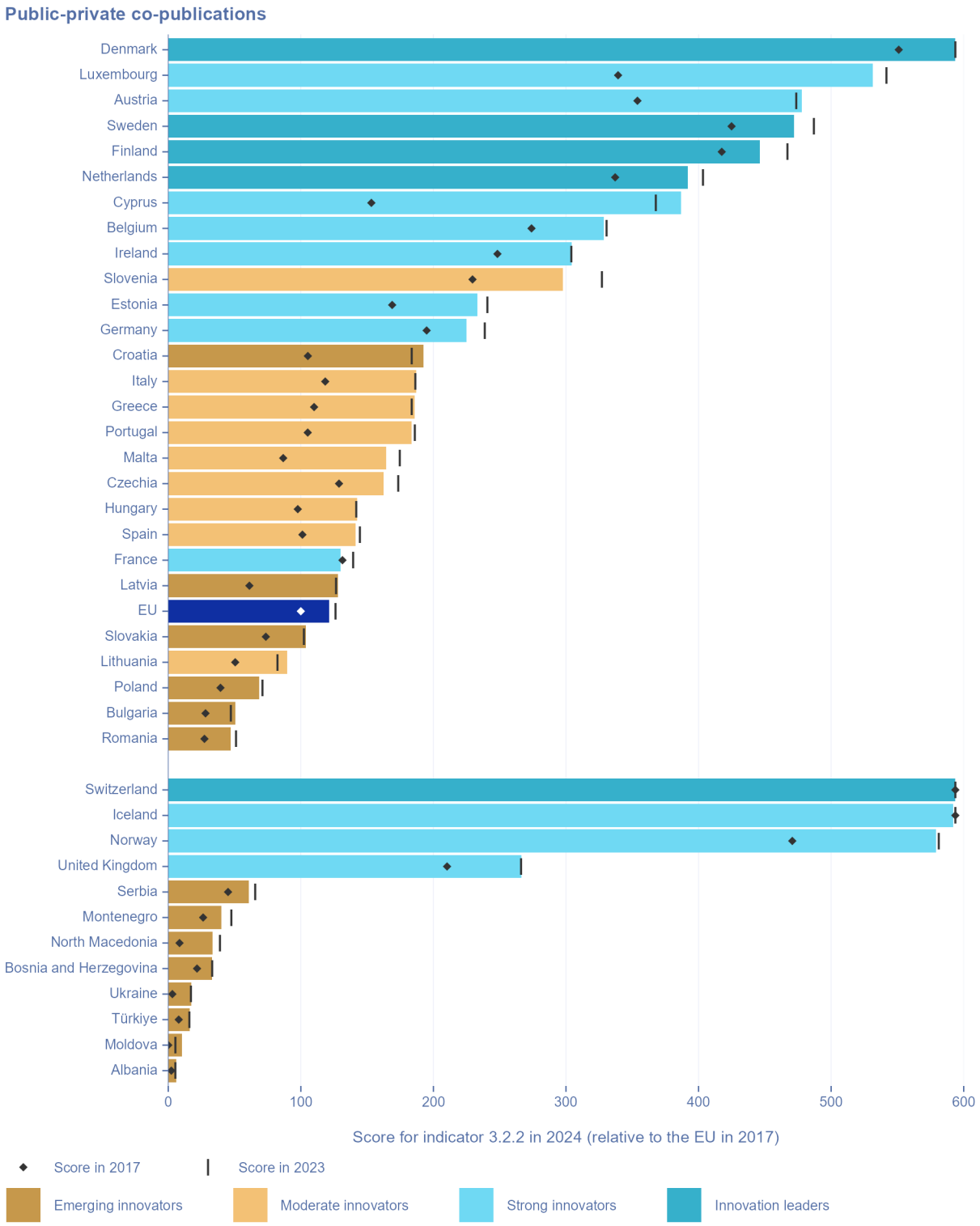
Between 2023 and 2024, performance in *Innovative SMEs collaborating with others* improved for 7 Member States, remained stable for 8 Member States, and fell for 12 Member States. Only 7 Member States showed a higher growth in relative performance than the EU average, with 20 Member Sates progressing at a slower pace. Sweden (+118%-points) saw the largest increase in relative performance, whereas Greece (-79%-points) experienced the greatest downturn.

Of the non-EU countries, in 2024, 4 perform above and 7 perform below the EU average.

Between 2017 and 2024, performance in *Innovative SMEs collaborating with others* increased for 2 non-EU countries, remained stable for 5 non-EU countries and declined for 4 non-EU countries. Only one non-EU country is catching up with the EU average, Norway (+78%-points). All other non-EU countries saw their gap with the EU widen, improving to a lesser extent than EU countries on average. Moldova (-57%-points) showed the sharpest fall in relative performance.

Between 2023 and 2024, performance in *Innovative SMEs collaborating with others* improved for 2 non-EU countries, remained unchanged for 8 non-EU countries, and declined for one non-EU country. Compared to the EU average, 2 non-EU countries experienced a higher performance growth and 9 progressed at a relatively slower pace. Türkiye (+36%-points) showed the greatest increase, while Moldova (-3%-points) was the sole non-EU country to witness a slight decline between 2023 and 2024.

3.2.2 Public-private co-publications per million population



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	22	> 0	26	> EU	25	> 0	11	> EU	17
	= EU	0	= 0	0	= EU	0	= 0	1	= EU	0
	< EU	5	< 0	1	< EU	2	< 0	15	< EU	10
Non-EU countries	> EU	4	> 0	10	> EU	3	> 0	3	> EU	9
	= EU	0	= 0	1	= EU	0	= 0	4	= EU	0
	< EU	8	< 0	1	< EU	9	< 0	5	< EU	3

The 2024 EU average score in *Public-private co-publications* is 121.4, reflecting a number of 137 public-private co-publications per million population in the EU. The EU average score improved by 21.4%-points between 2017 and 2024, despite a slight decline of 4.7%-points in the past year.

The best performing countries overall in 2024 are Denmark, a Member State, and Switzerland, a neighbouring country, both with a score of 594, practically five times higher than the EU average.

Of the Member States, in 2024, 22 perform above and 5 perform below the EU average. All Innovation Leaders, Strong Innovators and Moderate Innovators, except Lithuania, exceed the EU average. Most Emerging Innovators score lower than the EU average.

Between 2017 and 2024, performance in *Public-private co-publications* improved for all Member States, except France (-2%-points). Compared to the EU average, a vast majority of Member States showed a larger increase in relative performance, with only 2 Member States experiencing slower growth. Cyprus (+234%-points) recorded the largest surge in relative performance.

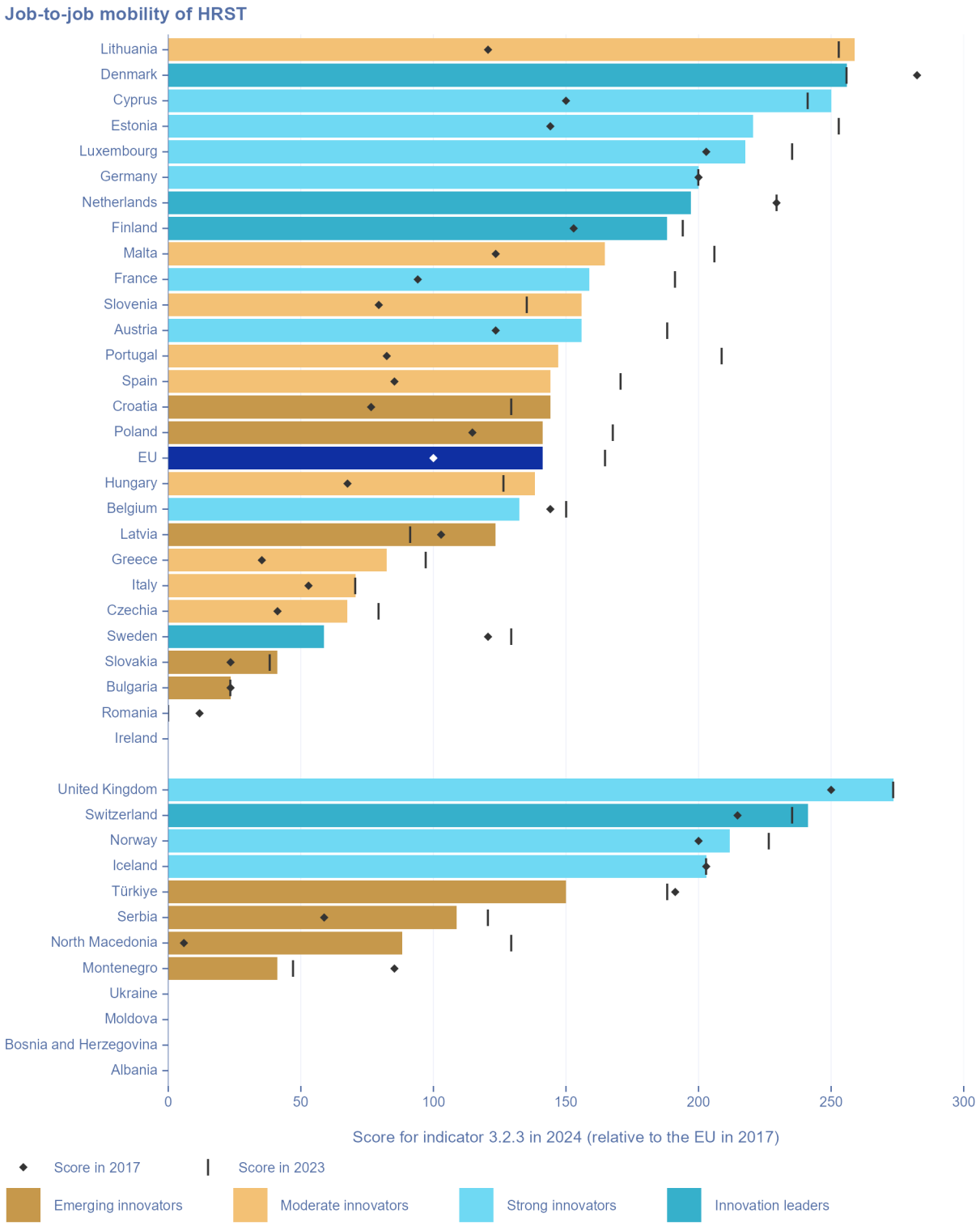
Between 2023 and 2024, performance in *Public-private co-publications* increased for 11 Member States, remained stable for 1 Member States, and decreased for 15 Member States. 17 Member States progressed at a faster pace, and 10 at a slower pace than the EU average. Whereas Cyprus (+19%-points) showed the strongest increase in relative performance, Slovenia (-30%-point) witnessed the steepest fall over the past year.

Of the non-EU countries, in 2024, 4 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *Public-private co-publications* improved for 10 non-EU countries, remained stable for one non-EU country and slightly declined for only one non-EU country, Iceland (-2%-points). Despite this overall progress, only 3 non-EU countries are catching up with the EU average, while 9 non-EU countries showed slower improvements on this dimension. Norway (+108%-points) saw the greatest performance increase.

Between 2023 and 2024, performance in *Public-private co-publications* increased for 3 non-EU countries, remained unchanged for 4 non-EU countries, and declined for 5 non-EU countries. Compared to the EU, 9 non-EU countries improved relatively more and 3 relatively less. Moldova (+5%-points) showed the most significant rise in relative performance, and Montenegro (-8%-points) the largest drop.

3.2.3 Job-to-job mobility of Human Resources in Science & Technology



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	15	> 0	19	> EU	10	> 0	7	> EU	17
	= EU	1	= 0	2	= EU	1	= 0	5	= EU	0
	< EU	10	< 0	5	< EU	15	< 0	14	< EU	9
Non-EU countries	> EU	5	> 0	5	> EU	2	> 0	1	> EU	6
	= EU	0	= 0	1	= EU	0	= 0	2	= EU	0
	< EU	3	< 0	2	< EU	6	< 0	5	< EU	2

For one EU country (Ireland) and four non-EU countries (Albania, Bosnia and Herzegovina, Moldova and Ukraine), data were not available.

The 2024 EU average score in *Job-to-job mobility of Human Resources in Science & Technology* is 141.2, with 6.8% of individuals qualifying as Human Resources in Science & Technology moving from one job to another over the course of a year. The EU average score surged by 41.2%-points between 2017 and 2024, despite a major decline of 23.5%-points over the past year.

The top-performing country overall in 2024 is the United Kingdom, with a score of 274. The best-performing EU country in 2024 is Lithuania, with a score of 259.

Of the Member States, in 2024, 15 perform above, one performs equal to, and 10 perform below the EU average. All Innovation Leaders, except Sweden, and all Strong Innovators, except Belgium, score higher than the EU average. Among Moderate Innovators, 5 exceed the EU average, and the remaining 4 are falling behind. Croatia and Poland are the only Emerging Innovators surpassing the EU average.

Between 2017 and 2024, performance in *Job-to-job mobility of Human Resources in Science & Technology* increased for 19 Member States, remained stable for 2 Member States and declined for 8 Member States. 10 Member States progressed at a faster pace, 15 Member States at a slower pace, and one Member State at the same speed as the EU average. Lithuania (+138%-points) showed the largest jump in relative performance, and Sweden (-62%-points) reported the greatest decrease.

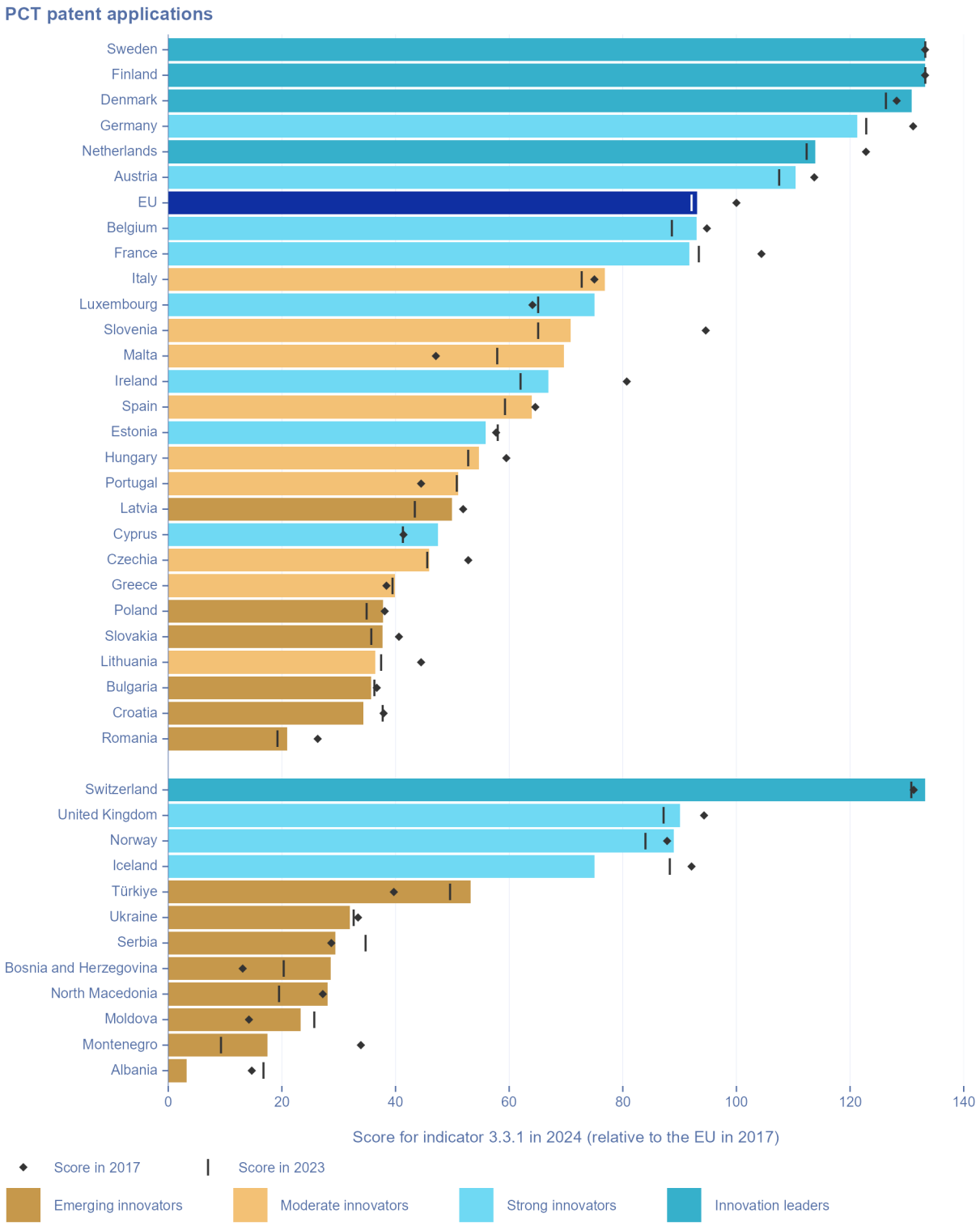
Between 2023 and 2024, performance in *Job-to-job mobility of Human Resources in Science & Technology* improved for 7 Member States, remained stable for 5 Member States, and decreased for 14 Member States. Compared to the EU average, 17 Member States showed greater progress in relative performance and 9 Member States experienced slower growth. Latvia (+32%-points) recorded the strongest improvement, while Sweden (-71%-points) showed the largest downturn in relative performance.

Of the non-EU countries, in 2024, 5 perform above and 3 perform below the EU average.

Between 2017 and 2024, performance in *Job-to-job mobility of Human Resources in Science & Technology* rose for 5 non-EU countries, remained stable for one non-EU country, and fell for 2 non-EU countries. 2 non-EU countries improved relatively faster and 6 relatively slower than the EU average. North Macedonia (+82%-points) witnessed the greatest gain in relative performance, and Montenegro (-44%-points) the most substantial decline.

Between 2023 and 2024, performance in *Job-to-job mobility of Human Resources in Science & Technology* improved for only one non-EU country, remaining unchanged for two non-EU countries and regressing for 5 non-EU countries. Nevertheless, compared to the EU average, 6 non-EU countries saw greater progress in relative performance, while 2 non-EU countries showed slower growth. Switzerland (+6%-points) saw the largest increase in relative performance, while North Macedonia (-41%-points) experienced the steepest fall.

3.3.1 PCT patent applications per billion GDP (in PPS)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	6	> 0	7	> EU	21	> 0	19	> EU	16
	= EU	0	= 0	2	= EU	0	= 0	2	= EU	0
	< EU	21	< 0	18	< EU	6	< 0	6	< EU	11
Non-EU countries	> EU	1	> 0	7	> EU	9	> 0	7	> EU	7
	= EU	0	= 0	0	= EU	0	= 0	0	= EU	0
	< EU	11	< 0	5	< EU	3	< 0	5	< EU	5

The 2024 EU average score in *PCT patent applications* is 93.1, with EU inventors having filed 3.4 patent applications under the PCT per billion GDP in Purchasing Power Standards. The EU average score fell by 6.9%-points between 2017 and 2024, despite a slight increase of 1%-point between 2023 and 2024.

The best performing Member States in 2024 are Finland and Sweden, both with a score of 133. With the exact same score, the best performing neighbouring country in 2024 is Switzerland.

Of the Member States, in 2024, 6 perform above and 21 perform below the EU average. All Innovation Leaders and two Strong Innovators, Germany and Austria exceed the EU average. Other countries all score lower than the EU average.

Between 2017 and 2024, performance in *PCT patent applications* improved for 7 Member States, remained stable for 2 Member States and fell for 18 Member States. Compared to the EU average, 21 Member States improved relatively faster and 6 relatively slower. Malta (+23%-points) experienced the greatest performance growth, while Slovenia (-24%-points) saw the more severe drop in relative performance.

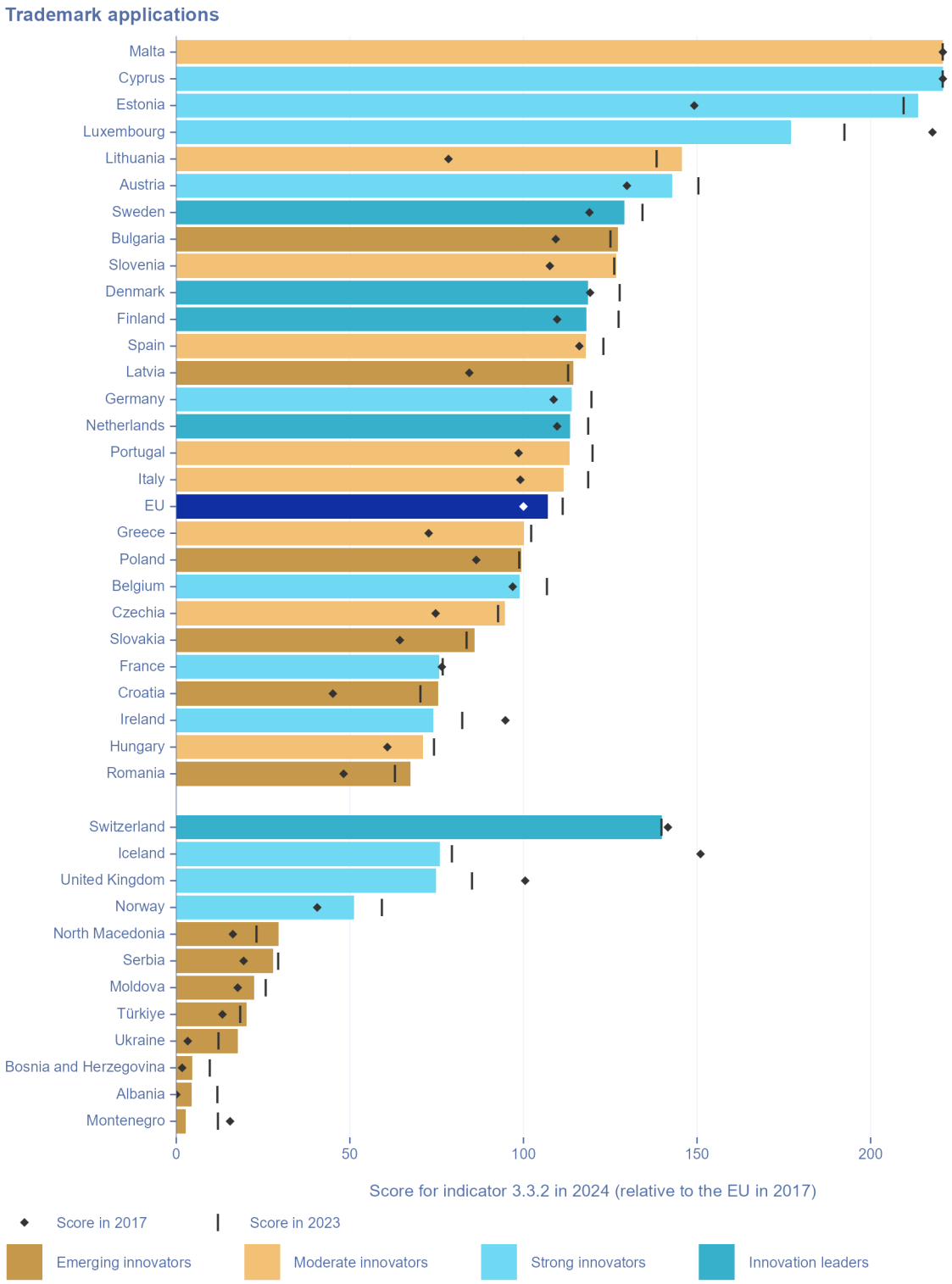
Between 2023 and 2024, performance in *PCT patent applications* progressed for 19 Member States, remained unchanged for 2 Member States, and decreased for 6 Member States. 16 Member States improved at a higher pace than the EU average, while 11 Member States showed a relatively smaller progression. Malta (+12%-points) showed the strongest improvement, whereas Croatia (-3%-points) witnessed the largest decline.

Of the non-EU countries, in 2024, only one performs above the EU average, while 11 perform below.

Between 2017 and 2024, performance in *PCT patent applications* improved for 7 non-EU countries and declined for 5 non-EU countries. Most non-EU countries are seeing their gap with the EU reduce, as they are improving relatively faster than the EU average. Bosnia and Herzegovina (+16%-points) witnessed the largest increase in relative performance, and Iceland (-17%-points)the steepest fall.

Between 2023 and 2024, performance in *PCT patent applications* increased for 7 non-EU countries and decreased for 5 non-EU countries. 7 non-EU countries progressed at a higher pace and 5 at a lower pace than the EU average, with North Macedonia (+9%-points) showing the greatest improvement in relative performance. Albania (-14%-points) recorded the strongest decline in relative performance over the last year.

3.3.2 Trademark applications per billion GDP (in PPS)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	17	> 0	21	> EU	17	> 0	10	> EU	15
	= EU	0	= 0	2	= EU	0	= 0	2	= EU	0
	< EU	10	< 0	4	< EU	10	< 0	15	< EU	12
Non-EU countries	> EU	1	> 0	8	> EU	4	> 0	3	> EU	7
	= EU	0	= 0	0	= EU	0	= 0	1	= EU	0
	< EU	11	< 0	4	< EU	8	< 0	8	< EU	5

The 2024 EU average score in *Trademark applications* is 107, with EU inventors applying for 6.9 individual trademarks at the EUIPO per billion GDP. The EU average rose by 7%-points between 2017 and 2024, despite a slight decline of 4.3%-points occurring in the past year.

The best performing countries overall in 2024 are Member States Cyprus and Malta, both with a score of 221, double the EU average. The top-performing non-EU country in 2024 is Switzerland, with a score of 140.

Of the Member States, in 2024, 17 perform above and 10 perform below the EU average. All Innovation Leaders score higher than the EU average. Performances are rather mixed in other performance groups.

Between 2017 and 2024, performance in *Trademark applications* increased for a vat majority Member States, remaining stable for 2 Member States and declining for 4 Member States. 17 Member States progressed relatively faster, and 10 relatively slower than the EU average. Lithuania (+67%-points) recorded the highest jump in relative performance, while Luxembourg (-41%-points) experienced the largest decrease.

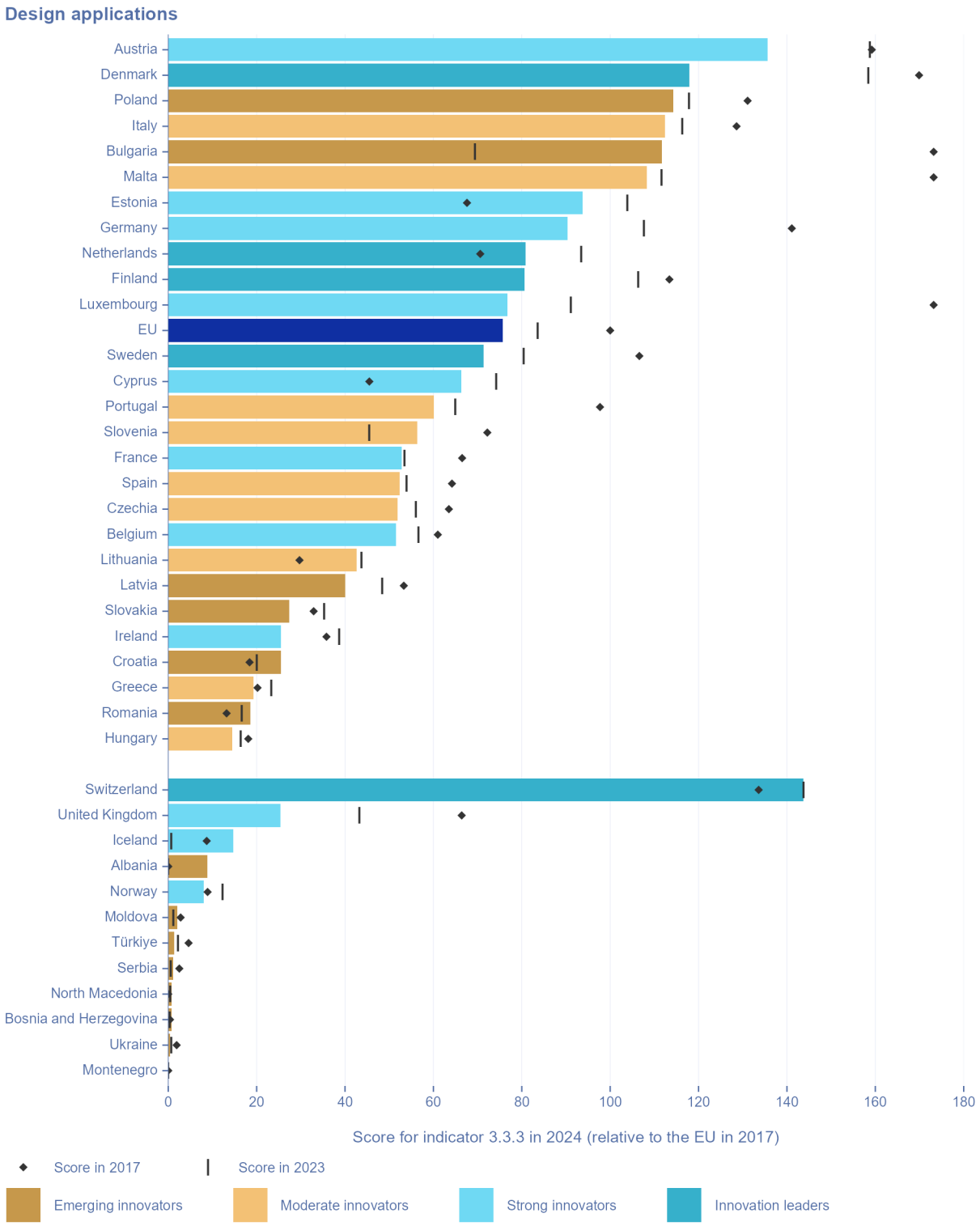
Between 2023 and 2024, performance in *Trademark applications* improved for 10 Member States, remained unchanged for 2 Member States, and fell for 15 Member States. Compared to the EU average, 15 Member States improved relatively faster, while 12 experienced slower growth. Lithuania (+7%-points) showed the greatest improvement, and Luxembourg (-15%-points) saw the steepest decline in relative performance.

Of the non-EU countries, only one performs above the EU average. The other 11 non-EU countries perform below the EU average.

Between 2017 and 2024, performance in *Trademark applications* improved for a majority of non-EU countries, declining for four non-EU countries. Compared to the EU average, 4 non-EU countries showed stronger growth and 8 slower progress. Ukraine (+15%-points) witnessed the largest increase in relative performance, whereas Iceland (-75%-points) saw the sharpest fall.

Between 2023 and 2024, performance in *Trademark applications* increased for 3 non-EU countries, remained stable for one non-EU country, and declined for 8 non-EU countries. 7 non-EU countries are catching up with the EU, improving at a faster pace, and 5 non-EU countries progressed at a slower pace. North Macedonia (+6%-points) showed the strongest improvement, and the United Kingdom (-10%-points) the greatest decline in relative performance.

3.3.3 Design applications per billion GDP (in PPS)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	11	> 0	6	> EU	19	> 0	4	> EU	15
	= EU	0	= 0	0	= EU	0	= 0	0	= EU	0
	< EU	16	< 0	21	< EU	8	< 0	23	< EU	12
Non-EU countries	> EU	1	> 0	5	> EU	11	> 0	6	> EU	11
	= EU	0	= 0	1	= EU	0	= 0	2	= EU	0
	< EU	11	< 0	6	< EU	1	< 0	4	< EU	1

The 2024 EU average score in *Design applications* is 75.7, with EU inventors applying for 3.6 individual designs at the EUIPO per billion GDP. The EU average score dropped by 24.3%-points between 2017 and 2024, with a decline of 7.9%-points occurring over the past year.

The best performing country overall in 2024 is Switzerland, with a score of 144. The best performing Member State in 2024 is Austria, achieving a score of 136.

Of the Member States, in 2024, 11 perform above and 16 perform below the EU average. All Innovation Leaders, except Sweden, outperform the EU average. Other performance groups show mixed performances.

Between 2017 and 2024, performance in *Design applications* improved for a large minority of Member States, declining for 21 Member States. Compared to the EU average, 19 Member States progressed relatively faster, and 8 Member States relatively slower. Estonia (+26%-points) witnessed the greatest increase in performance, and Luxembourg (-96%-points) saw the most severe drop.

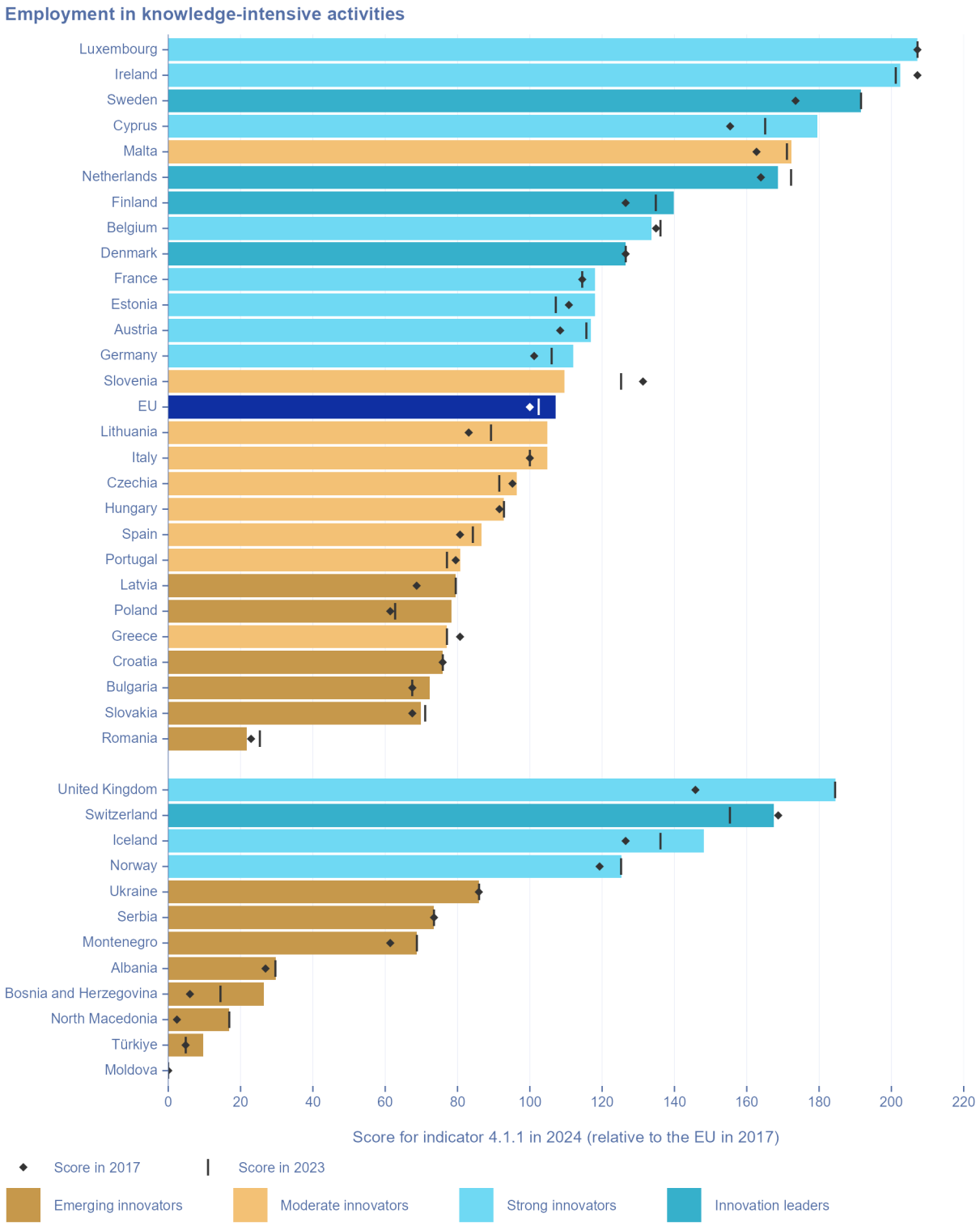
Between 2023 and 2024, performance in *Design applications* increased for only 4 Member States and fell for 23 Member States. 15 Member States improved at a faster pace than the EU average, with the largest performance increase for Bulgaria (+42%-points). 12 Member States showed slower progress than the EU average. Denmark (-41%-points) faced the largest decline in relative performance.

Of the non-EU countries, in 2024, all countries, except Switzerland, perform below the EU average.

Between 2017 and 2024, performance in *Design applications* improved for 5 non-EU countries, remained stable for one non-EU country and decreased for 6 non-EU countries. Most non-EU countries are catching up with the EU average, with 11 progressing relatively more than the EU average. While Switzerland (+10%-points) experienced the greatest increase in relative performance, the United Kingdom (-41%-points) showed the largest decline.

Between 2023 and 2024, performance in *Design applications* increased for 6 non-EU countries, remained stable for 2 non-EU countries and decreased for 4 non-EU countries. 11 non-EU countries progressed relatively more than the EU average, with the largest improvement for Iceland (+14%-points). The United Kingdom (-18%-points) witnessed the greatest decrease in relative performance.

4.1.1 Employment in knowledge-intensive activities (percentage of total employment)



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	14	> 0	19	> EU	10	> 0	15	> EU	7
	= EU	0	= 0	3	= EU	0	= 0	7	= EU	2
	< EU	13	< 0	5	< EU	17	< 0	5	< EU	18
Non-EU countries	> EU	4	> 0	8	> EU	5	> 0	4	> EU	3
	= EU	0	= 0	3	= EU	0	= 0	8	= EU	1
	< EU	8	< 0	1	< EU	7	< 0	0	< EU	8

The 2024 EU average score in *Employment in knowledge-intensive activities* is 107.2, with 15.2% of employed persons working in knowledge-intensive activities in business industries. The EU average score rose by 7.2%-points between 2017 and 2024, with an increase of 4.8%-points occurring over the past year.

The best performing country overall in 2024 is Luxembourg, with a score of 207. The best performing non-EU country in 2024 is the United Kingdom, with a score of 185.

Of the Member States, in 2024, 14 perform above and 13 perform below the EU average. All Innovation Leaders and all Strong Innovators outperform the EU average. All Moderate Innovators, except Malta and Slovenia, and all Emerging Innovators score lower the EU average.

Between 2017 and 2024, performance in *Employment in knowledge-intensive activities* increased for a vast majority of Member States, remained stable for 3 Member States, and declined for 5 Member States. Nevertheless, only 10 Member States progressed at a faster pace than the EU average, with 17 showing slower growth than the EU average. While Cyprus (+24%-points) recorded the biggest jump in relative performance, Slovenia (-22%-points) experienced the sharpest fall.

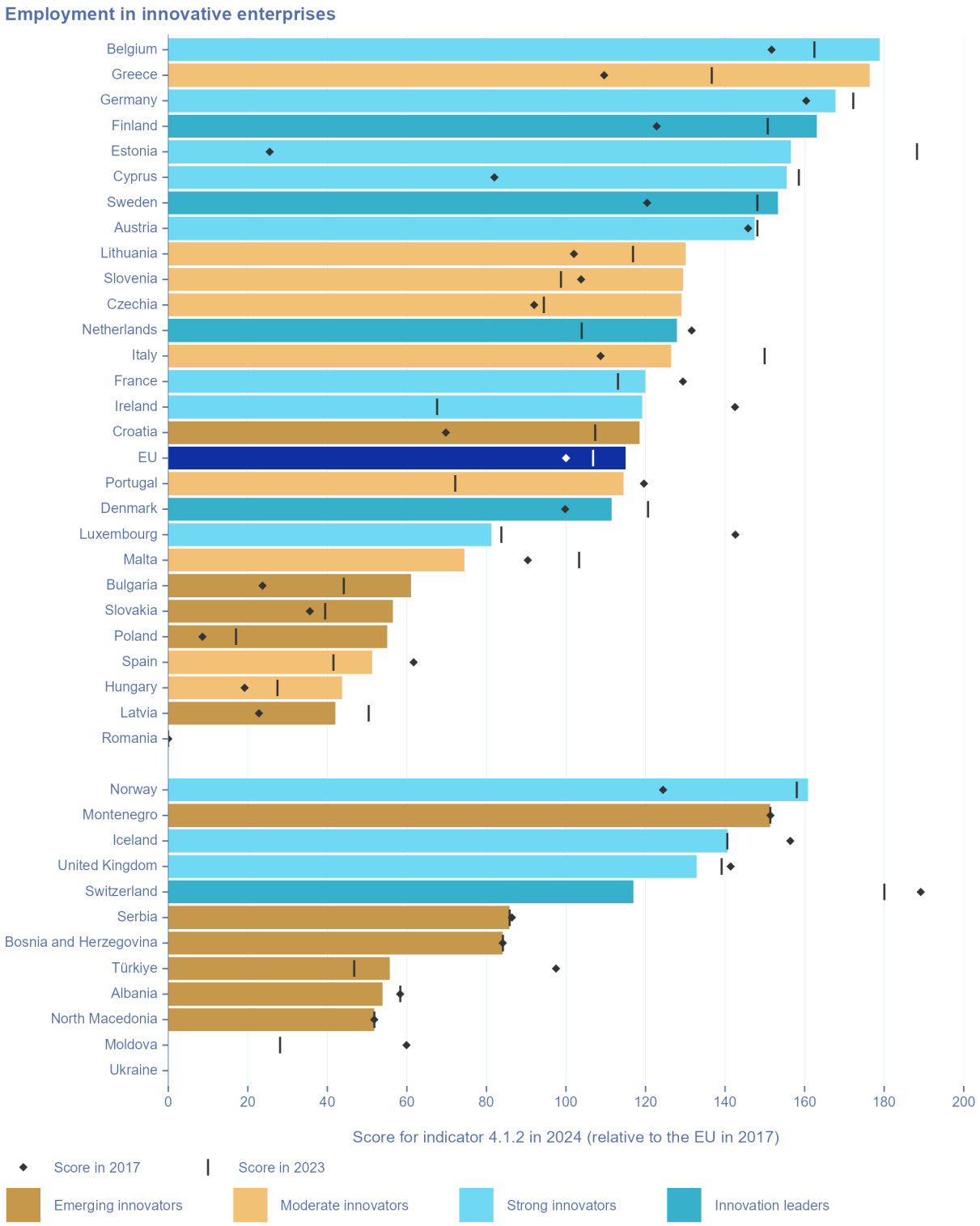
Between 2023 and 2024, performance in *Employment in knowledge-intensive activities* improved for 15 Member States, remained unchanged for 7 Member States, and fell for 5 Member States. Relative to the EU average, only 7 Member States showed greater progress than the EU average, with 2 Member States evolving at a similar pace and 18 at a lower pace than the EU average. Lithuania and Poland (+16%-points) saw the greatest increases in relative performance, and Slovenia (-16%-points) the most significant downturn.

Of the non-EU countries, in 2024, 4 perform above and 8 perform below the EU average.

Between 2017 and 2024, performance in *Employment in knowledge-intensive activities* rose for 8 non-EU countries, remained stable for 3non-EU countries, and decreased for only one non-EU country, Switzerland (-1%-point). Compared to the EU average, 5 non-EU countries improved relatively more and 7 relatively less. The United Kingdom (+39%-points) showed the most significant improvement in relative performance.

Between 2023 and 2024, performance in *Employment in knowledge-intensive activities* increased for 4 non-EU countries and remained unchanged for 8. Over the past year, 3 non-EU countries showed greater improvement than the EU average, 1 non-EU country followed a similar trend, and 8 non-EU countries saw their gap with the EU widen. Switzerland, Iceland, and Bosnia and Herzegovina (+12%-points) witnessed the strongest increases.

4.1.2 Employment in innovative enterprises



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	16	> 0	19	> EU	16	> 0	17	> EU	15
	= EU	0	= 0	1	= EU	0	= 0	1	= EU	0
	< EU	11	< 0	7	< EU	11	< 0	9	< EU	12
Non-EU countries	> EU	5	> 0	1	> EU	1	> 0	2	> EU	1
	= EU	0	= 0	3	= EU	0	= 0	5	= EU	0
	< EU	6	< 0	7	< EU	10	< 0	4	< EU	10

For one non-EU country (Ukraine), data were not available.

The 2024 EU average score in *Employment in innovative enterprises* is 115, with employment in innovative enterprises representing 59.26% of total EU employment in enterprises with 10 or more employees. The EU average score jumped by 15%-points between 2017 and 2024, which includes an increase of 8.2%-points from 2023 to 2024.

The top-performing country overall in 2024 is Belgium, a Member State, with a score of 179. The best performing non-EU country in 2024 is Norway, with a score of 161.

Of the Member States, in 2024, 16 perform above and 11 perform below the EU average. All Innovation Leaders, except Denmark, and all Strong Innovators, except Luxembourg, exceed the EU average. Among Moderate Innovators, 5 score higher and 4 score lower than the EU average. All Emerging Innovators, except Croatia, are lagging behind.

Between 2017 and 2024, performance in *Employment in innovative enterprises* improved for a large majority of Member States, remained unchanged for one Member State, and declined for 7 Member States. 16 Member States improved relatively faster than the EU average, with Estonia (+131%-points) experiencing the greatest surge. 11 Member States progressed at a slower pace than the EU. Luxembourg (-61%-points) showed the most significant downturn over this time period.

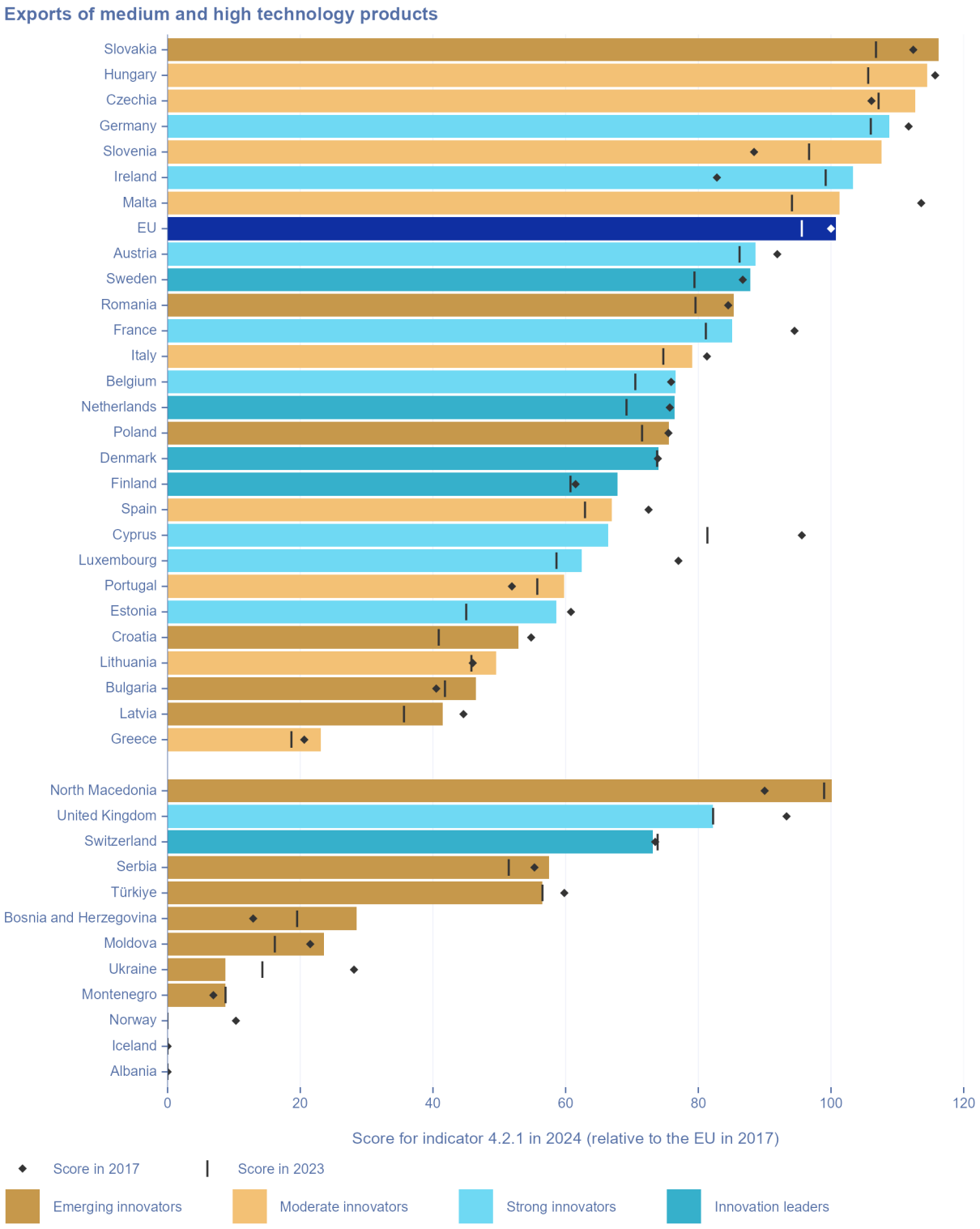
Between 2023 and 2024, performance in *Employment in innovative enterprises* improved for 17 Member States, remained stable for one Member State, and fell for 9 Member States. 15 Member States improved relatively faster than the EU average, and 12 progressed relatively slower. Ireland (+52%-points) saw the strongest performance increase since 2023, while Estonia (-32%-points) witnessed the largest decrease.

Of the non-EU countries, in 2024, 5 perform above and 6 perform below the EU average.

Between 2017 and 2024, performance in *Employment in innovative enterprises* improved for only one non-EU country, Norway (+36%-points). Performance remained stable for 3 non-EU countries and regressed for 7 non-EU countries. Practically all non-EU countries see their gap with the EU widen, improving relatively more slowly than the EU average. Switzerland (-72%-points) recorded the most significant decline in relative performance.

Between 2023 and 2024, performance in *Employment in innovative enterprises* improved for 2 non-EU countries, remained unchanged for 5 non-EU countries, and declined for 4 non-EU countries. Only one non-EU country, Türkiye (+9%-points), is catching up with the EU average. Other non-EU countries have shown smaller improvements than the EU average. Switzerland (-63%-points) saw the strongest drop in relative performance.

4.2.1 Exports of medium and high technology products as a share of total product exports



4.2.2

	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	7	> 0	15	> EU	11	> 0	26	> EU	13
	= EU	0	= 0	0	= EU	1	= 0	0	= EU	0
	< EU	20	< 0	12	< EU	15	< 0	1	< EU	14
Non-EU countries	> EU	0	> 0	5	> EU	5	> 0	4	> EU	3
	= EU	0	= 0	2	= EU	0	= 0	6	= EU	0
	< EU	12	< 0	5	< EU	7	< 0	2	< EU	9

The 2024 EU average score in *Exports of medium and high technology products* is 100.7, with 62.21% of total value of product exports in the EU being generated by medium and high-tech exports. The EU average score remained relatively stable between 2017 and 2024, improving by only 0.7%-points.

The overall best performing country in 2024 is Slovakia, with a score of 116. The best performing neighbouring country in 2024 is North Macedonia, with a score of 100.

Of the Member States, in 2024, 7 perform above and 20 perform below the EU average. Two Strong Innovators, four Moderate Innovators, and one Emerging Innovator score higher than the EU average, while all Innovation Leaders are lagging behind.

Between 2017 and 2024, performance in *Exports of medium and high technology products* improved for 15 Member States performance and declined for 12 Member States. Compared to the EU average, 11 Member States improved relative faster, and 1 Member State progressed at a similar pace, and 15 Member States saw smaller improvements than the EU average. Relative performance increased fastest for Ireland (+21%-points) and declined strongest for Cyprus (-29%-points).

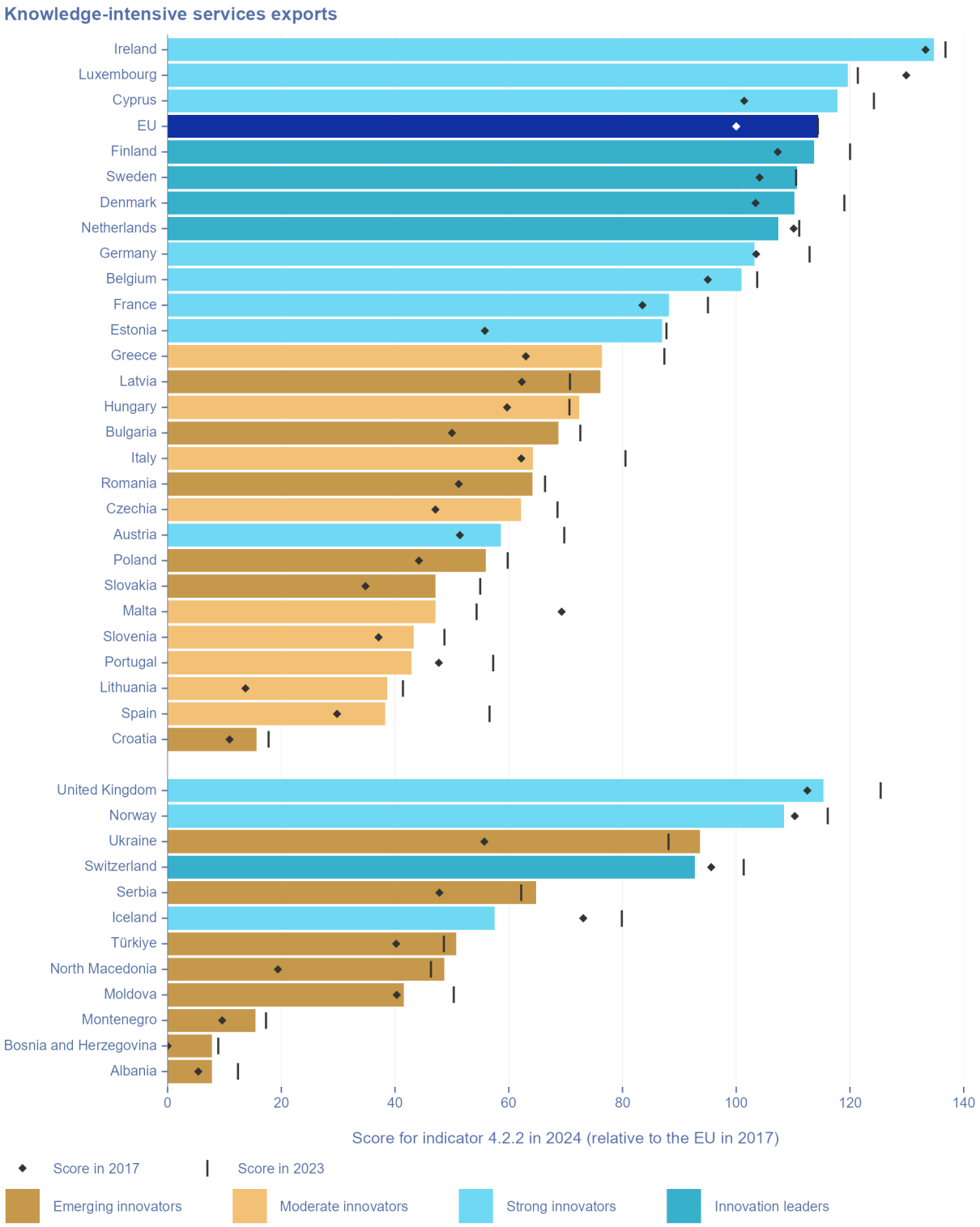
More recently, between 2023 and 2024, performance in *Exports of medium and high technology products* improved for all Member States, except for Cyprus (-15%-points). 13 Member States showed a stronger growth in relative performance than the EU average, while 14 Member States showed a slower growth. Estonia (+14%-points) saw the largest increase in relative performance.

Of the non-EU countries, in 2024, all perform below the EU average. However, North Macedonia scored only 0.6%-points below the EU average.

Between 2017 and 2024, performance in *Exports of medium and high technology products* increased for 5 non-EU countries, did not change for 2 non-EU countries, and declined for 5 non-EU countries. Compared to the EU, 5 non-EU countries improved at a higher pace, and 7 at a slower pace than the EU average. Bosnia Herzegovina (+16%-points) boasts the strongest increase in relative performance, and Ukraine (-19%-points) showed the steepest decline.

Between 2023 and 2024, performance in *Exports of medium and high technology products* improved for 4 non-EU countries, stayed the same in 6 non-EU countries, and fell for 2 non-EU countries. 3 non-EU countries experienced a larger performance growth than the EU average, while 9 non-EU countries progressed at a relatively slower pace. Bosnia Herzegovina (+9%-points) saw the greatest improvement, while Ukraine (-6%-points) witnessed the largest downturn.

4.2.3 Knowledge-intensive services exports as a percentage of total services exports



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	3	> 0	22	> EU	5	> 0	3	> EU	3
	= EU	0	= 0	0	= EU	0	= 0	0	= EU	0
	< EU	24	< 0	5	< EU	22	< 0	24	< EU	24
Non-EU countries	> EU	1	> 0	9	> EU	3	> 0	4	> EU	4
	= EU	0	= 0	0	= EU	0	= 0	0	= EU	0
	< EU	11	< 0	3	< EU	9	< 0	8	< EU	8

The 2024 EU average score for *Knowledge-intensive services exports* is 114.4, with 81.2% of total value of service exports being generated by knowledge-intensive service exports. The EU average score showed a growth of 14.4%-points since 2017, remaining stable over the past year.

The best performing country overall in 2024 is Ireland, with a score of 135. The best performing non-EU country in 2024 is the United Kingdom, with a sore of 115.3.

Of the Member States, in 2024, only three Strong Innovators (Ireland, Luxembourg and Cyprus) perform above the EU average. The remaining 24 Member States score lower than the EU average.

Between 2017 and 2024, performance in *Knowledge-intensive services exports* improved for 22 Member States performance and worsened for 5 Member States. When comparing to the EU average growth, for 5 Member States relative performance grew quicker, and for 22 Member States relative performance declined faster. Relative performance increased fastest for Estonia (+31%-points) and declined strongest for Malta (-22%-points).

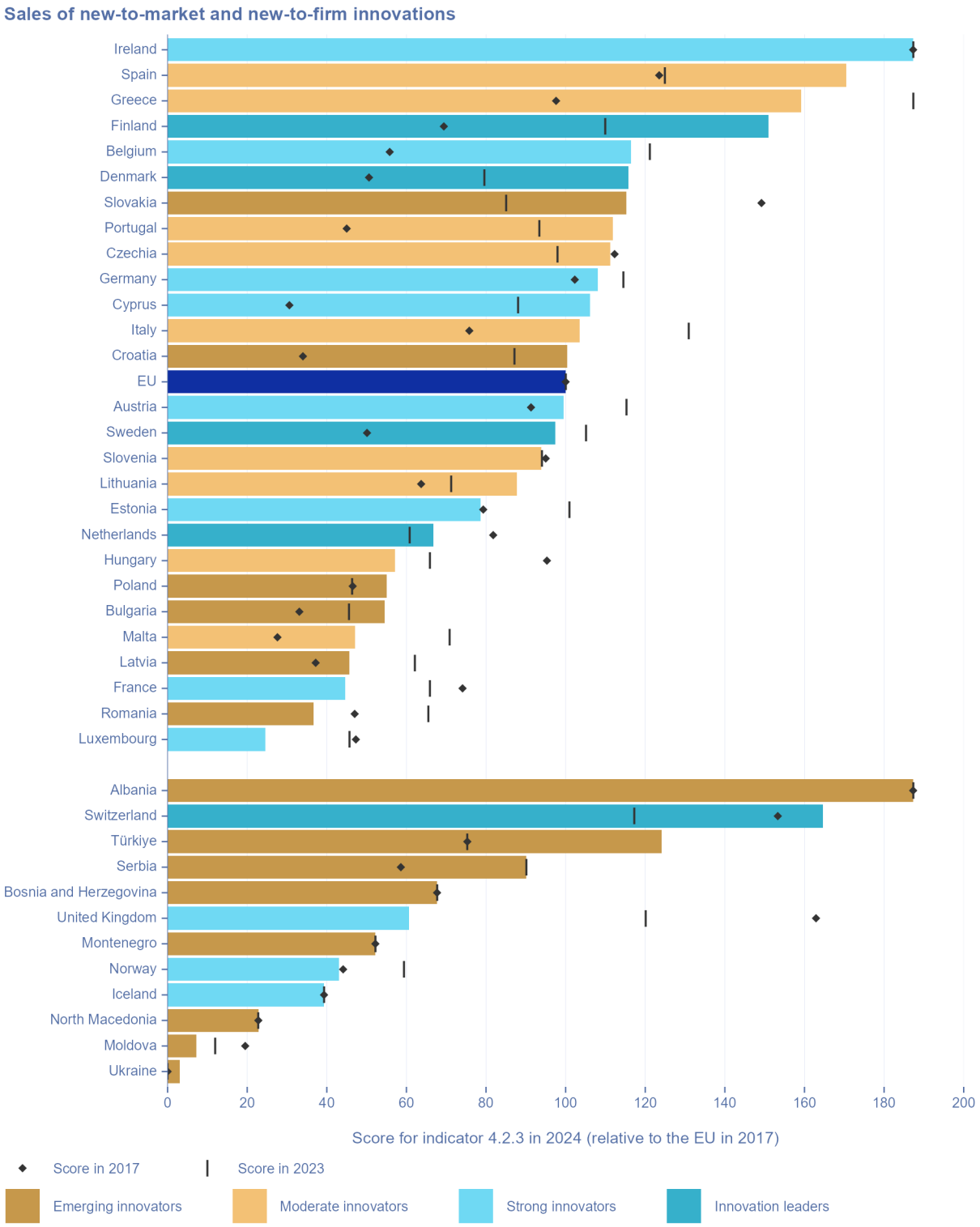
More recently between 2023 and 2024, performance in *Knowledge-intensive services exports* increased for only 3 Member States, and declined for 24 Member States. As the EU average score remained stable between 2023 and 2024, 3 Member States improved relatively faster and 24 improved relatively slower than the EU average. Latvia (+5%-points) recorded the greatest increase and Spain (-18%-points) saw the steepest decline.

Of the non-EU countries, in 2024, only the United Kingdom marginally outperforms the EU average, with the remaining 11 countries performing below it.

Between 2017 and 2024, performance in *Knowledge-intensive services exports* improved for 9 non-EU countries, and declined for 3 non-EU countries. Compared to the EU average, a majority of non-EU countries saw their gap with the EU widen, with only 3 non-EU countries experiencing faster growth. Relative performance increased fastest for Ukraine (+38%-points) and declined strongest for Iceland (-16%-points).

Between 2023 and 2024, performance in *Knowledge-intensive services exports* increased for 4 non-EU countries and fell for 8 non-EU countries. While 4 non-EU countries improved relatively faster than the EU average, 8 non-EU countries saw relatively more limited progress. Ukraine (+6%-points) had the largest growth in the 2023-2024 period, and Iceland (-22%-points) witnessed the greatest downturn.

4.2.4 Sales of new-to-market and new-to-enterprise innovations as a percentage of turnover



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	13	> 0	17	> EU	17	> 0	12	> EU	12
	= EU	0	= 0	1	= EU	1	= 0	1	= EU	1
	< EU	14	< 0	9	< EU	9	< 0	14	< EU	14
Non-EU countries	> EU	3	> 0	4	> EU	4	> 0	3	> EU	3
	= EU	0	= 0	5	= EU	5	= 0	6	= EU	6
	< EU	9	< 0	3	< EU	3	< 0	3	< EU	3

The 2024 EU average score for the indicator *Sales of new-to-market and new-to-enterprise innovations* is 100, with sales of new-to-market and new-to-enterprise innovations representing 13.05% of total turnover in the EU. The EU average score did not change between 2017 and 2024.

The overall best performing country in 2024 is Ireland, with a score of 187. The best performing non-EU country is Albania, reaching the same score as Ireland.

Of the Member States, in 2024, 13 perform above and 14 perform below the EU average. Performances are very mixed within each performance group.

From 2017 to 2024, performance in *Sales of new-to-market and new-to-enterprise innovations* improved for 17 Member States, remained unchanged for one Member State, and declined for nine Member States. As the EU average did not change, 17 Member States showed greater improvement, one evolved at a similar pace, and nine saw smaller progress than the EU average. Finland (+82%-points) had the most significant relative performance increase, while Hungary (-38%-points) experienced the largest decline.

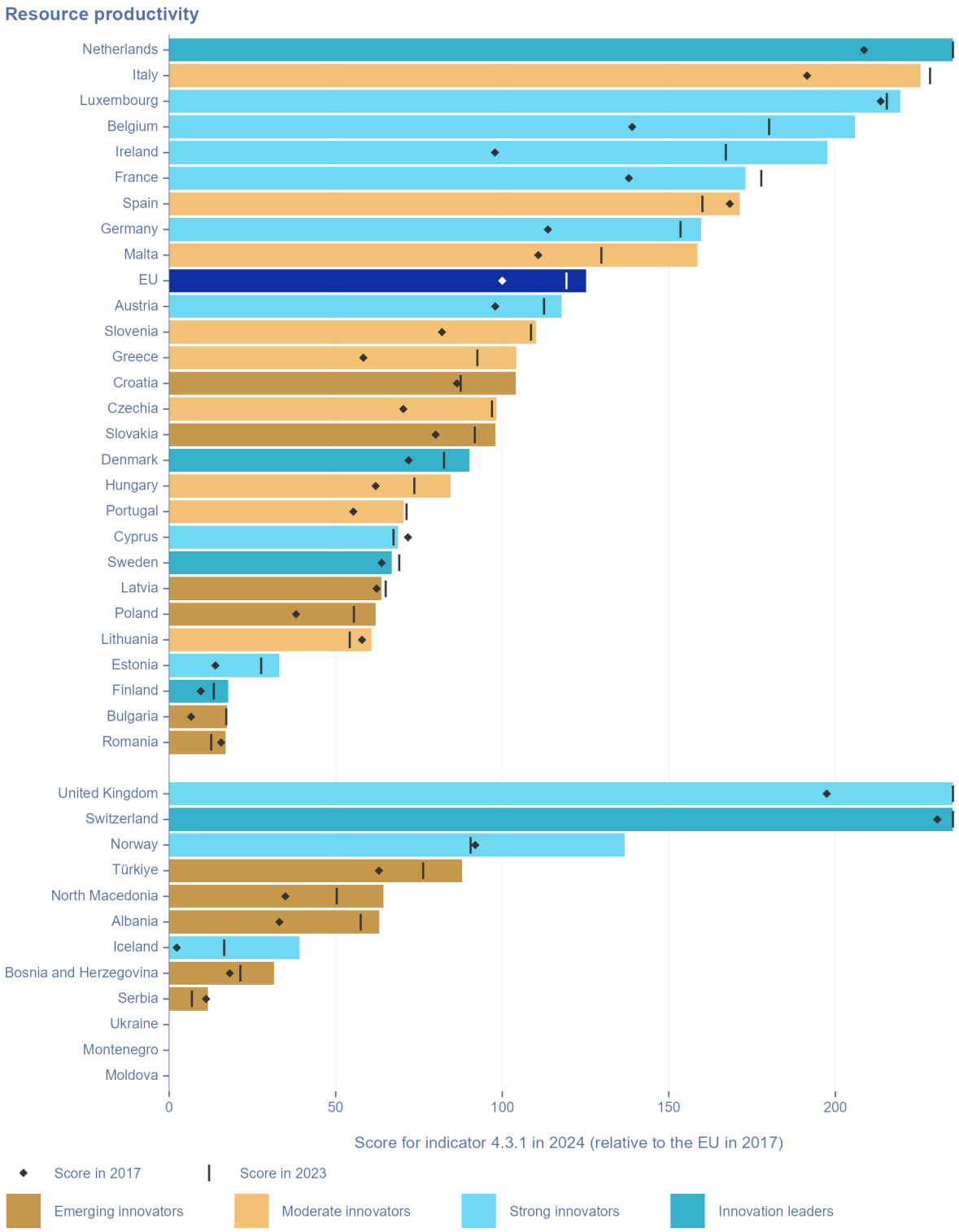
In the more recent period from 2023 to 2024, performance in *Sales of new-to-market and new-to-enterprise innovations* increased for 12 Member States, remained unchanged for one Member State, and regressed for 14 Member States. 12 Member States progressed relatively faster, one at the same pace, and 14 relatively slower than the EU average. Spain (+46%-points) showed the greatest increase in relative performance, and Romania (-29%-points) had the steepest decline.

Of the non-EU countries, in 2024, 3 outperformed the EU average, and 9 countries fell short of it.

Between 2017 and 2024, four non-EU countries saw performance improvements in *Sales of new-to-market and new-to-enterprise innovations*, five non-EU countries remained stable, and three experienced a decline. Similarly, four non-EU countries improved relatively faster, five at the same pace, and three relatively slower than the EU average. Türkiye (+49%-points) saw the highest relative performance increase, while the United Kingdom (-102%-points) witnessed the largest drop.

Between 2023 to 2024, performance in *Sales of new-to-market and new-to-enterprise innovations* improved for three non-EU countries, remained unchanged for six non-EU countries and decreased for three non-EU countries. Relative to the EU average, three non-EU countries showed stronger growth than the EU average, while six non-EU countries followed the same trend, and three experienced worse progress. Türkiye (+49%-points) saw the largest year-on-year increase, while the United Kingdom (-59%-points) had the steepest decline.

4.3.1 Resource productivity



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	9	> 0	26	> EU	10	> 0	21	> EU	12
	= EU	0	= 0	0	= EU	0	= 0	1	= EU	0
	< EU	18	< 0	1	< EU	17	< 0	5	< EU	15
Non-EU countries	> EU	3	> 0	9	> EU	5	> 0	7	> EU	5
	= EU	0	= 0	0	= EU	0	= 0	2	= EU	0
	< EU	6	< 0	0	< EU	4	< 0	0	< EU	4

For three non-EU countries (Moldova, Montenegro and Ukraine), data were not available.

The 2024 EU average score for *Resource productivity* is 125.1, with the amount of GDP generated per unit of direct material consumed being equal to 2.27 euros per kg. The EU average soared by 25.1%-points from 2017 to 2024, with a 5.9%-points increase occurring in the last year.

The overall best performing countries in 2024 for the indicator *Resource productivity,* are the Netherlands – a Member State, Switzerland and the United Kingdom – two non-EU countries, all with a score of 235.

Of the Member States, in 2024, nine perform above and 18 perform below the EU average. All Innovation Leaders, except the Netherlands, score below the EU average. A majority of Strong Innovators score higher than the EU average, while most Moderate Innovators and all Emerging Innovators rank lower than the EU average.

Between 2017 and 2024, performance in *Resource productivity* improved for almost all Member States. Cyprus (-3%-point) was the only EU country to experience a decline. Compared to the EU average, 10 Member States improved relatively faster, and 17 relatively slower. Ireland (+100%-points) saw the largest relative performance increase.

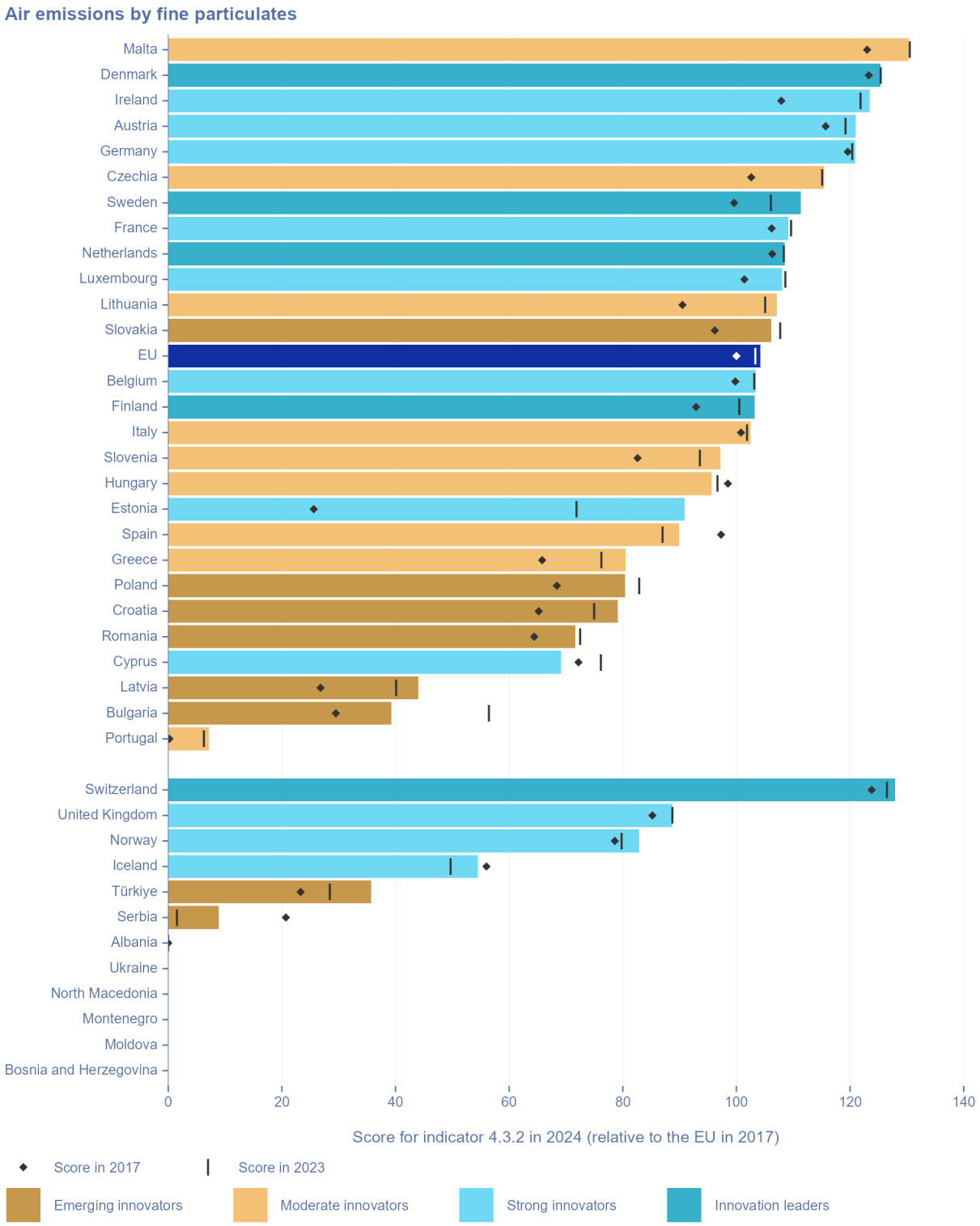
More recently, from 2023 to 2024, performance in *Resource productivity* improved for 21 Member States, remained unchanged for one Member States, and decreased for five Member States. 12 Member States showed greater progress than the EU average, while 15 Member States experienced slower growth. Ireland (+31%-points) recorded the highest jump in relative performance, while France (-5%-points) experienced the steepest decline.

Among non-EU countries, three outperformed the EU average, while six fell short.

Between 2017 and 2024, performance in *Resource productivity* improved for all nine non-EU countries. This overall improvement translated into five non-EU countries reducing their gap with the EU average. Four non-EU countries progressed relatively more slowly than the EU average. Norway (+45%-points) recorded the strongest improvement, and Serbia (+0.5%-point) the smallest one.

From 2023 to 2024, performance in *Resource productivity* improved for seven non-EU countries and remained stable for two non-EU countries, Switzerland and the United Kingdom. Relative to the EU average, five non-EU countries progressed at a faster pace, and four at a slower pace than the EU average. Norway (+46%-points) again had the greatest relative performance increase.

4.3.2 Air emissions by fine particulate matters (PM2.5) in Industry



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	12	> 0	24	> EU	18	> 0	17	> EU	11
	= EU	0	= 0	0	= EU	0	= 0	1	= EU	0
	< EU	15	< 0	3	< EU	9	< 0	9	< EU	16
Non-EU countries	> EU	1	> 0	4	> EU	2	> 0	5	> EU	5
	= EU	0	= 0	1	= EU	0	= 0	2	= EU	0
	< EU	6	< 0	2	< EU	5	< 0	0	< EU	2

For five non-EU countries (Bosnia and Herzegovina, Moldova, Montenegro, North Macedonia and Ukraine), data were not available.

The 2024 EU average score in *Air emissions by fine particulate matters (PM2.5) in Industry* is 104.2, with the ratio of air emissions by fine particulate matter in the manufacturing sector in tonnes and the value added in the manufacturing sector in million euros being equal to 0.062. The EU average increased by 4.2%-points from 2017 to 2024, with a 0.9%-points increase occurring over the past year.

The top-performing country overall in 2024 is Malta, with a score of 130. The top-performing non-EU country is Switzerland, with a score of 128.

Of the Member States, in 2024, 12 perform above and 15 perform below the EU average. All Innovation Leaders and all Strong Innovators, except Belgium and Estonia, outperform the EU average. A majority of Moderate Innovators and of Emerging Innovators score lower than the EU average.

Between 2017 and 2024, performance in *Air emissions by fine particulate matters (PM2.5) in Industry* improved for a vast majority of Member States, with only 3 Member States experiencing a decline. Compared to the EU average, 18 Member States saw greater performance improvements, while nine experienced relatively slower growth. Estonia (+65%-points) had the fastest relative performance increase, and Spain witnessed the strongest decline (-7%-points).

From 2023 to 2024, performance in *Air emissions by fine particulate matters (PM2.5) in Industry* increased for 17 Member States, remained unchanged for one Member State, and declined for five Member States. 11 Member States improved relatively faster, and 16 relatively slower than the EU average. Estonia (+19%-points) recorded the highest jump in relative performance, while Bulgaria (-17%-points) showed the largest decrease.

Of the non-EU countries, in 2024, only Switzerland outperformed the EU average. The six other non-EU countries fell short.

Between 2017 and 2024, performance in *Air emissions by fine particulate matters (PM2.5) in Industry* increased for four non-EU countries, remained the same for one non-EU country, and fell for two non-EU countries. Most non-EU countries have seen their gap with the EU widen, with only two countries experiencing relatively higher growth. Türkiye (+12%-points) saw the greatest increase in relative performance, whereas Serbia (-12%-points) had the sharpest decline.

More recently, from 2023 to 2024, performance in *Air emissions by fine particulate matters (PM2.5) in Industry* improved for five non-EU countries, and remained unchanged for two non-EU countries. Overall, non-EU countries are catching up with the EU, with a majority progressing at a faster pace. Serbia (+7%-points) showed the most significant increase in relative performance.

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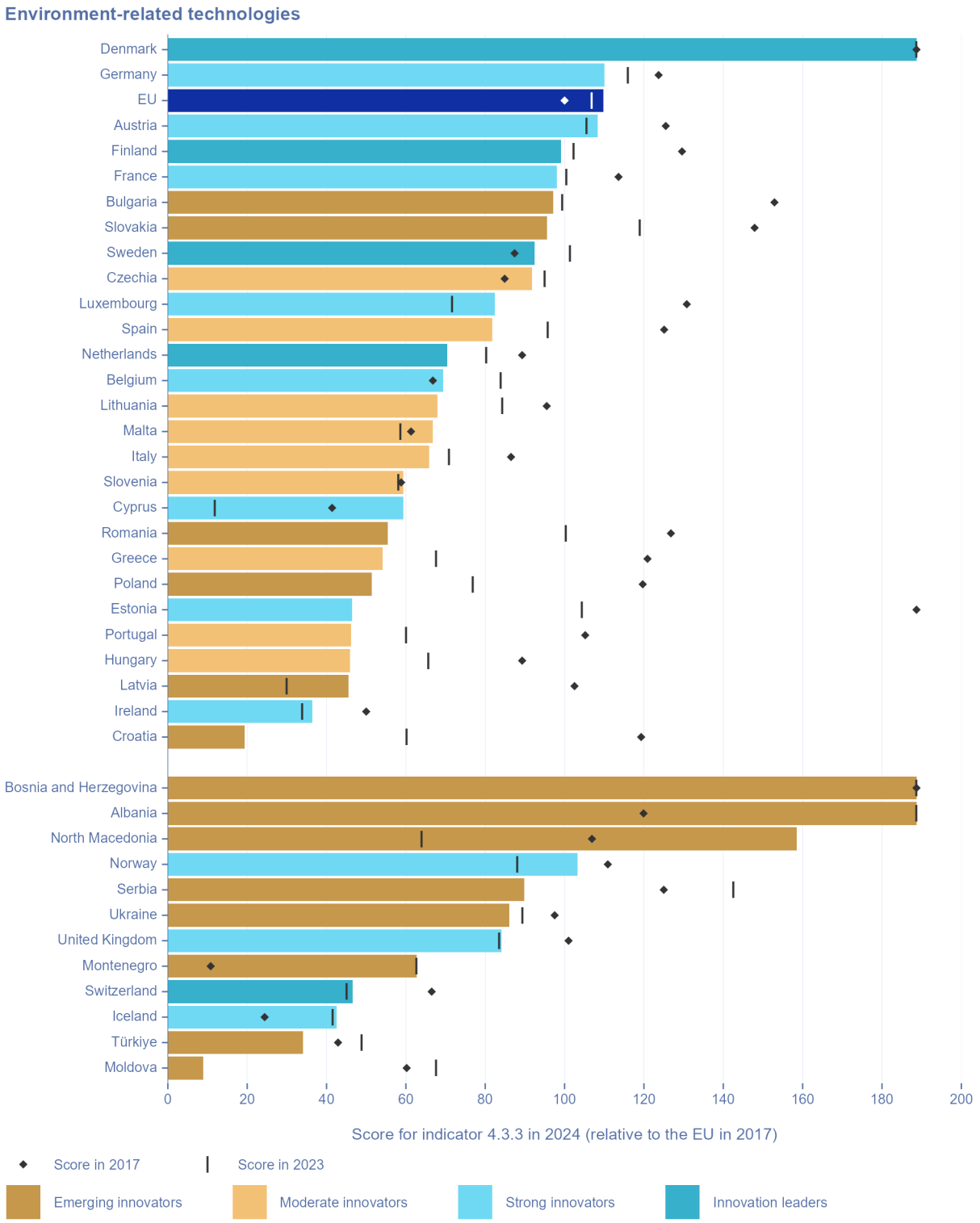
4.3.3 Development of environment-related technologies, percentage of all technologies



	Performance relative to EU in 2024 (# of countries)		Performance change 2017-2024 (# of countries)				Performance change 2023-2024 (# of countries)			
Member States	> EU	2	> 0	6	> EU	1	> 0	7	> EU	4
	= EU	0	= 0	1	= EU	0	= 0	1	= EU	0
	< EU	25	< 0	20	< EU	26	< 0	19	< EU	23
Non-EU countries	> EU	3	> 0	4	> EU	4	> 0	5	> EU	2
	= EU	0	= 0	1	= EU	0	= 0	3	= EU	0
	< EU	9	< 0	7	< EU	8	< 0	4	< EU	10

The 2024 EU average score in *Environment-related technologies* is 109.8, with 14.1% of EU patents being related to the environment. The EU average score rose by 9.8%-points from 2017 to 2024, supported by a 3%-points increase over the past year.

The best performing countries overall are Member State Denmark, and non-EU countries Albania and Bosnia and Herzegovina, all with a score of 189.

Of the Member States, in 2024, only two countries, Denmark and Germany, perform above the EU average. The remaining EU countries score lower.

Between 2017 and 2024, performance in *Environment-related technologies* increased for six Member States, remained unchanged for one, and declined for 20. Only Cyprus (+18%-points) progressed relatively faster than the EU average. On the other hand, Estonia (-142%-points) experienced the steepest decline.

Between 2023 and 2024, performance in *Environment-related technologies* also declined for most Member States, improving for only seven Member States and remaining unchanged for one. Compared to the EU average, four Member States saw relatively greater growth in relative performance, while 23 Member States progressed at a lower pace. Cyprus (+48%-points) showed the fastest increase in relative performance, while Estonia (-58%-points) recorded the most severe drop.

Of the non-EU countries, in 2024, 3 outperform the EU average, and 9 fall short of it.

Between 2017 and 2024, performance in *Environment-related technologies* improved for four non-EU countries, remained the same for one non-EU country, and declined for seven non-EU countries. Performance progressed relatively more than the EU average for four non-EU countries and relatively less for eight non-EU countries. Albania (+69%-points) saw the greatest increase in relative performance, whereas Moldova (-51%-points) had the sharpest decline.

Between 2023 and 2024, performance in *Environment-related technologies* increased for five non-EU countries, remained unchanged for three non-EU countries, and regressed for four non-EU countries. A majority of non-EU countries saw their gap with the EU widen, with only 2 non-EU countries improving relatively faster than the EU average. North Macedonia (+95%-points) recorded the greatest surge in relative performance, and Moldova (-59%-points) experienced the most significant decrease.

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This annex shows performance results for each of the indicators used in the European Innovation Scoreboard (EIS) 2024. It is part of the European Innovation Scoreboard main report.

Studies and reports