



# Green, Digital and Competitive

An SME Agenda for the 21<sup>st</sup> Century

2023 Edition

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# Green, Digital and Competitive

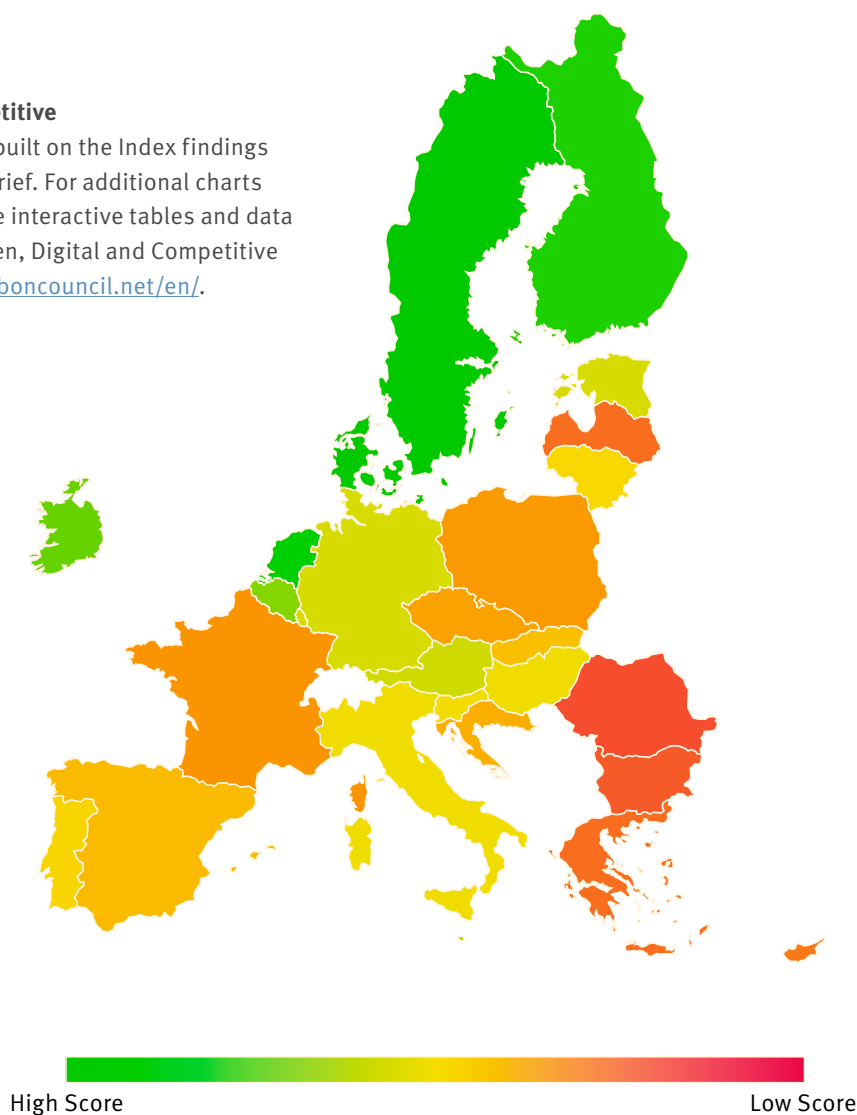
An SME Agenda for the 21<sup>st</sup> Century

2023 Edition

By Paul Hofheinz, Cristina Moise and David Osimo

## Green, Digital and Competitive

The data visualisation is built on the Index findings presented in this policy brief. For additional charts and more insight, visit the interactive tables and data visualisations on the Green, Digital and Competitive website at <https://gdc.lisboncouncil.net/en/>.



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## About Lisbon Council Research

Lisbon Council Research is the scientific arm of the Lisbon Council for Economic Competitiveness and Social Renewal asbl, a Brussels-based non-profit association committed to making Europe “the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion,” as European leaders vowed to do in Lisbon, Portugal at a landmark summit.

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# Green, Digital and Competitive

An SME Agenda for the 21<sup>st</sup> Century

2023 Edition

**The 2023 Green, Digital and Competitive SME Index** picks up where *The 2022 Green, Digital and Competitive SME Index* left off. In 2022, we took a novel approach to a key policy debate, arguing that Europe’s famous “twin transition” would only work if a crucial third pillar were added – competitiveness.<sup>1</sup> That policy brief was built around two important ideas: 1) if Europe is serious about meeting its ambitious climate targets and digital-adoption goals, it will need to mobilise and activate the energy and talent of the private sector, encouraging change and driving transition first and foremost throughout the small- and medium-sized enterprise (SME) sector, which makes up 90% of the European economy and counts for more than 50% of the employment.<sup>2</sup> And just as importantly, 2) if policymakers want to modernise the foundation of the European economy, putting it on a cleaner, more efficient, more digital basis, the first thing they need is robust indicators to identify gaps, set targets, track progress, mobilise commitment and focus delivery.

This year, we update on progress, revising 18 of the 21 sub-indicators with more recent data.<sup>3</sup> We introduce a few methodological refinements, too. First and foremost, to take into account problems arising from the long COVID-19 virus-led slowdown, we add new time-series tables – looking at progress across a multi-year perspective – to each of the sub-indicators. This was done to give additional insight into long-term trends and to help factor out non-structural swings in cases where the COVID-19 lockdown might have hit unusually hard. Also, we add a new sub-indicator – Circular Material Use – to the Natural Resource Conservation indicator. The aim is to continue the trend away from survey-based data – which, as we noted in the 2022 edition, remains the main point of departure in most efforts to measure the progress of green transition – and move towards more objective, measurable goals and metrics.<sup>4</sup>

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*‘The progress  
seen year-on-year  
can be dramatic.’*

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The progress seen year-on-year can be dramatic.<sup>5</sup> **Italy** (No. 16), for one, rises five places in the overall ranking this year – the result of steady progress at the working level in all three core areas (green, digital and competitive). **Germany** (No. 10), too, is an impressive winner in this edition, rising two places in the overall ranking thanks to solid progress across the board.

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1 Paul Hofheinz, Cristina Moise and David Osimo, *Green, Digital and Competitive: An SME Agenda for the 21<sup>st</sup> Century* (Brussels: The Lisbon Council, 2022).

2 On climate, Europe has legally binding targets for reducing greenhouse gas emissions to 55% of their 1990 levels by 2030 and “net zero” by 2050, which would make Europe the first “climate neutral” continent in the world. On digital, the goals are set out in *Europe’s Digital Decade: Digital Targets for 2030* (also known as the “Digital Compass.” According to that programme, 80% of the population should have basic skills and 90% of SMEs should have a basic level of “digital intensity” by 2030. There are 75% adoption targets for data analytics and cloud services – and a 100% commitment for access to electronic identity, access to medical records and key public services. See European Commission, “Regulation Establishing the Framework for Achieving Climate Neutrality (European Climate Law),” *Official Journal of the European Union*, 21 June 2021 and Ibid, Digital Compass: The European Way for the Digital Decade,” *Communication of the European Commission*, 09 March 2021.

3 More recent data was not available in three of the 22 sub-indicators: Consumption, Recycling and SME Green Products, all in the green transition pillar.

4 Data on green transition remains the most speculative – too reliant, as the Lisbon Council and others have noted – on self-reporting and surveys and lacking a sufficiently deep basis in hard, measurable and verifiable data. *The 2022 Green, Digital and Competitive SME Index* ended with a plea: “We call on policymakers to work with organisations like the Lisbon Council and others to improve the ‘data scarcity’ in this area,” adding “we need more granular indicators on greenhouse gas emissions, including the role of households and small businesses in generating them and the myriad ways that fossil fuel dependency is holding back Europe’s broader transition in many key areas. We cannot rely forever on self-reporting and company surveys.” Op cit, *Green, Digital and Competitive: An SME Agenda for the 21<sup>st</sup> Century* (2022).

5 The data used throughout this policy brief is publicly available, gathered by Eurostat and the European Commission. Only the methodology for building the composite indicator is original. Throughout the policy brief, we use the official European Commission definition of what constitutes an SME. According to that definition, SMEs are enterprises which have fewer than 250 employees and have either an annual turnover of less than €50 million or a balance sheet total of less than €43 million. For more, see the Methodology and Sensitivity Analysis, which begins on page 104.

**Table 1. The 2023 Green, Digital and Competitive SME Index Framework**

Pillar	Indicator	Sub-Indicator	Source
I. Digital Transition	I.1 SME Digitalisation	I.1.1 <b>Data Analytics.</b> SMEs using big data analytics as percentage of total number of SMEs	Eurostat (2020)
		I.1.2 <b>Cloud Computing.</b> SMEs using cloud computing as percentage of total number of SMEs	Eurostat (2021)
		I.1.3 <b>Social Media.</b> SMEs using two or more social media channels as percentage of total number of SMEs	Eurostat (2021)
		I.1.4 <b>High Digital Intensity.</b> SMEs with high and very high digital intensity as percentage of total number of SMEs	Eurostat (2022)
		I.1.5 <b>ICT Security.</b> SMEs using any type of information and communication technology (ICT) security as percentage of total number of SMEs	Eurostat (2022)
	I.2 E-Commerce	I.2.1 <b>E-Commerce Sales.</b> SMEs with e-commerce sales as percentage of total number of SMEs	Eurostat (2022)
		I.2.2 <b>E-Commerce Turnover.</b> SME total turnover from e-commerce sales in total turnover	Eurostat (2022)
	I.3 Digital Skills	I.3.1 <b>ICT Specialists.</b> SMEs that employ ICT specialists as percentage of total number of SMEs	Eurostat (2022)
		I.3.2 <b>ICT In-House.</b> SMEs where ICT functions are performed by own employees as percentage of total number of SMEs	Eurostat (2022)
		I.3.3 <b>ICT Training.</b> SMEs providing training to develop or upgrade ICT skills of personnel as percentage of total number of SMEs	Eurostat (2022)
II. Green Transition	II.1 Natural Resource Conservation	II.1.1 <b>Consumption.</b> SMEs reducing consumption of natural resources (e.g. saving water, energy and materials or switching to sustainable resources) as percentage of total number of SMEs	European Commission Flash Eurobarometer 498 (2021)
		II.1.2 <b>Recycling.</b> SMEs recycling by reusing materials or waste within the company as percentage of total number of SMEs	European Commission Flash Eurobarometer 498 (2021)
		II.1.3 <b>Circular Material Use Rate.</b>	Eurostat (2021)
	II.2 Emission Reduction	II.2.1 <b>SME Emissions.</b> Share of greenhouse gas emissions produced by SMEs in total greenhouse gas emissions	Eurostat (2021)
		II.2.2 <b>Overall Change in Greenhouse Gas Emissions.</b> (index 1990 = 100)	Eurostat (2021)
	II.3 Green Output	II.3.1 <b>SME Green Products.</b> SMEs offering green products or services as percentage of total number of SMEs	European Commission Flash Eurobarometer 498 (2021)
		II.3.2 <b>SMEs in Green Sectors.</b> SMEs in low intensive greenhouse gas emission sectors in total SMEs as percentage of total number of SMEs	Eurostat (2021)
III. SME Competitiveness	III.1 Exports	III.1.1 <b>Exporting SMEs.</b> SMEs with export activities as percentage of total number of SMEs	Eurostat (2020)
		III.1.2 <b>SME International Trade.</b> SMEs trade to GDP ratio	Eurostat (2020)
	III.2 Productivity	III.2.1 <b>SME Labour Productivity.</b> Gross value added per person employed (in thousands of euros)	Eurostat (2020)
	III.3 Growth	III.3.1 <b>High-Growth Enterprises.</b> High-growth enterprises as percentage of total number of active enterprises (10+ employees)	Eurostat (2020)
		III.3.2 <b>High-Growth Employment.</b> People employed in high-growth enterprises as percentage of total employment (in active enterprises with 10+ employees)	Eurostat (2020)

Here is a summary of the key findings:

**1** Overall, **Europe** is running in place on key deliverables – not really losing position but not doing much to gain it, either. Digital Transition is one exception – there all 27 countries seem to be improving with visible progress on SME Digitalisation, E-Commerce and Digital Skills (See the chapter on Digital Transition that begins on page 17 for more detail).

**2** But, with the long-term, seven-year perspective which we introduce to most sub-indicators, results on Green Transition and SME Competitiveness can best be described as “stable” with small gains in some areas offset by small losses in others.<sup>6</sup> See Table 3 on page 12 for a dashboard-summary of the findings on current trends and speed of improvement (or decline) across Europe, using the rolling time-series perspective.

**3** This broad picture points to a stark conclusion: Europe will need to step up its game in all areas if it really wants to become the first carbon-neutral continent by 2050. Progress in some areas is good – particularly on SME Digitalisation – where SMEs in most countries can be seen making evident use of modern technology which, among other things, opens bigger, larger niche markets to them. But there is not yet a substantial link between competitiveness and green transition (see Key Finding 24 below for more on this crucial nexus). Put simply, green technology and energy transition still come as a cost to most SMEs – and sometimes a very high one. This puts a substantial responsibility on policymakers. The green premium must be brought down – which can be done through investment, market opening, smart regulation and more innovation. The sweet spot – where addiction to fossil fuel is priced out of the market and clean tech becomes the norm (and a growth industry itself) – has not yet been reached. The market is still too small; the cost to consumers still too high. And the overall European approach – based on legally binding targets and fines – has somehow skirted the effective instruments in use elsewhere, namely, aggressive incentives, joined-up market-building initiatives and price subsidies to spur adoption.<sup>7</sup>

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*‘Europe will need to step up its game in all areas if it really wants to become the first carbon-neutral continent by 2050.’*

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**4** **Sweden** is No. 1 again in 2023. Its outstanding result on Green Transition (No. 1) gives it a solid finish. It also does well on SME Competitiveness (No. 4 in 2023, up from No. 7) and Digital Transition (No.4). Its work, going forward, will be to continue building on these substantial achievements and to show more tangible progress in areas where it is good but not yet league leading, such as Exporting SMEs (No. 11). Its Digital Transition (No. 4) could

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<sup>6</sup> Due to data-scarcity issues, we were not able to find full data sets covering the seven-year period we wanted to cover with the time-series analysis. In the end, six of the 10 sub-indicators in the Digital Transition pillar cover the same eight-year period (2015-2022). Social Media covers a seven-year period (2015-2021). Data Analytics covers a five-year period (2016-2020). Cloud Computing also covers an eight-year period but with an earlier entry point and cut-off (2014-2021). ICT Security covers a three-year period (2019-2022). In two cases (High Digital Intensity and ICT In-House), Eurostat altered the definitions in the middle of the time series, forcing us to adopt two time series for a full picture. In the case of High Digital Intensity, the periods considered are 2015-2019 and 2021-2022, and in the case of ICT In-House, the time periods considered were 2015-2018 and 2019-2022. In the Green Transition pillar, six of the seven time series cover a seven-year period (2015-2021), and the SME Emissions time-series analysis covers a six-year period (2016-2021). In the SME Competitiveness pillar, all the time-series tables cover the same six-year period (2015-2020). Also, NB, each time series is a unique and separate field; the values computed there do not form part of the Green, Digital and Competitive SME Index. For more on the time-series calculations, see Table 3 on page 12 and the Methodology and Sensitivity Analysis, which begins on page 104.

<sup>7</sup> Boston Consulting Group, Breakthrough Energy and Third Way, “When America Leads: Competing for the Future of Clean Energy,” *Third Way*, 21 July 2023.

**Table 2. The 2023 Green, Digital and Competitive SME Index**

Rank	Change in Ranking	Country	Score	Digital Transition Rank	Green Transition Rank	SME Competitiveness Rank
1		Sweden	72.04	4	1	4
2	▲1	Denmark	71.85	2	3	3
3	▼1	Netherlands	69.36	5	2	2
4	▲1	Ireland	63.58	3	22	1
5	▼1	Finland	63.19	1	14	8
6		Belgium	61.86	6	6	9
7		Malta	55.42	7	12	13
8	▲1	Luxembourg	52.96	20	4	6
9	▲1	Estonia	52.22	17	10	5
10	▲2	Germany	51.32	8	9	11
11	▼3	Austria	51.10	9	7	14
12	▼1	Slovenia	50.39	14	15	7
European Union			47.25			
13		Spain	46.54	15	11	18
14		Lithuania	46.48	13	17	12
15	▲3	Slovakia	42.54	24	5	22
16	▲5	Italy	42.27	21	13	19
17	▼1	Hungary	42.16	19	18	16
18	▼3	Portugal	41.96	16	24	17
19	▼2	France	41.48	23	8	24
20	▼1	Croatia	40.92	12	23	23
21	▼1	Czech Republic	40.90	10	21	25
22	▲1	Poland	40.76	18	20	21
23	▼1	Greece	38.75	25	19	15
24		Latvia	37.96	22	27	10
25		Cyprus	35.89	11	25	26
26		Bulgaria	30.26	27	26	20
27		Romania	28.19	26	16	27

Sources: European Commission, Eurostat (Lisbon Council calculations)

also rise faster, though the result is already solid. Policymakers need to make it easier for Swedish SMEs to reach larger markets outside their borders and to adopt digital technology as effectively as other league leaders in this area [**Finland** (No. 1), **Denmark** (No. 2) and **Ireland** (No. 3)]. And it is a triple win for consumers, policymakers and SMEs every time they do. Most Swedish companies have a healthy dose of green culture in their DNA. The success of those companies outside of their home country is an important way for consumers to get the green products and services they need in a timely way at reasonable prices. And it is also a way for those green values – backed by attractive, affordable and leading-edge products and services – to bring Swedish green standards to the world at large. See the Box on page 64 for an example of how one Swedish enterprise (Luthman Backlund Foods AB) used cross-border success to drive a progressive agenda across multiple markets.

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***‘Most Swedish companies have a healthy dose of green culture in their DNA.’***

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**5** **Denmark** (No. 2) goes up the ranking this year, overtaking **The Netherlands** (No. 3 in 2023). Denmark’s biggest improvement comes in SME-based greenhouse gas emission reduction, where it rises to No. 1, up from No. 7 last year.<sup>8</sup> A seven-year comparison shows the trend is not a fillip. Greenhouse gas emissions attributable to the SME sector fell 13.6% in Denmark last year after hovering above 30% for half a decade. Danes still rate themselves as slow movers in this area; in a study based on self-reporting, only 26.1% of Danes said they were doing enough to conserve natural resources. The statistics show they may be right. **Sweden** (No. 1) leads Europe in greenhouse gas reductions, emitting only 26.8% of their 1990 level; Denmark, by contrast, still emits 59.3% of its 1990 level, a No. 7 place finish. See Table 2 on page 10 and Table 39 on page 55 for more.

**6** **The Netherlands** is No. 3, a solid finish, making this progressive, low-lying economic powerhouse one of only two non-Nordic countries to finish in the top five [the other is **Ireland** (No. 4)]. The Netherlands slips one place on SME Competitiveness (No. 2), though the result says more about improvements elsewhere (notably in **Denmark** and Ireland, which surged). The Netherlands remains a very healthy, SME-based economy – with a strong exporting SME sector [only **Estonia** (No. 1), **Slovenia** (No. 2) and **Latvia** (No. 3) do better on Exports]. The Netherlands is No. 6 on SME Growth this year, down from No. 3 last year but still 12 places above the **EU Average**. The surprise this year remains the same as last: The Netherlands’ very high score on Green Transition (No. 2), where it is second only to **Sweden** (No. 1).

**7** The top three countries (**Sweden**, **Denmark** and **The Netherlands**) all finish in the top five on each of the three main pillars, demonstrating an important policy-related point: success, when it comes, is not a matter of trading underperformance in one area for overperformance in others. Or, to put it differently, competitiveness – in economies which are fully dedicated to green transition – is not a drag on environmental performance; to the contrary, economic success is a crucial way in which the values behind those decisions will be transported across borders and out into the global economy. A modern country needs to

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<sup>8</sup> The calculation is based on national greenhouse gas emissions and the share of national enterprises classifiable as SMEs. See the Methodology and Sensitivity Analysis section, which begins on page 104, for a detailed description of the indicator.

**Table 3. Evolution Over Time**

How do the indicators evolve over time, i.e., what are the main trends? The table here refers to the EU Average.

Pillar	Indicator	Sub-Indicator	Compound Annual Growth	
<b>I. Digital Transition</b>	<b>I.1 SME Digitalisation</b>	<b>I.1.1 Data Analytics (2016-2020).</b> SMEs using big data analytics as percentage of total number of SMEs	11.82%	●
		<b>I.1.2 Cloud Computing (2014-2021).</b> SMEs using cloud computing as percentage of total number of SMEs	12.67%	●
		<b>I.1.3 Social Media (2015-2021).</b> SMEs using two or more social media channels as percentage of total number of SMEs	11.86%	●
		<b>I.1.4 High Digital Intensity (2015-2019, 2020-2022).</b> SMEs with high and very high digital intensity as percentage of total number of SMEs	9.80%	●
		<b>I.1.5 ICT Security (2019-2022).</b> SMEs using any type of information and communication technology (ICT) security as percentage of total number of SMEs	-0.22%	●
	<b>I.2 E-Commerce</b>	<b>I.2.1 E-Commerce Sales (2015-2022).</b> SMEs with e-commerce sales as percentage of total number of SMEs	2.80%	●
		<b>I.2.2 E-Commerce Turnover (2015-2022).</b> SME total turnover from e-commerce sales in total turnover	2.36%	●
	<b>I.3 Digital Skills</b>	<b>I.3.1 ICT Specialists (2015-2022).</b> SMEs that employ ICT specialists to as percentage of total number of SMEs	0.84%	●
		<b>I.3.2 ICT In-House (2015-2018, 2019-2022).</b> SMEs where ICT functions are performed by own employees as percentage of total number of SMEs	0.0%	●
		<b>I.3.3 ICT Training (2015-2022).</b> SMEs providing training to develop or upgrade ICT skills of personnel as percentage of total number of SMEs	1.07%	●
<b>II. Green Transition</b>	<b>II.1 Natural Resource Conservation</b>	<b>II.1.1 Consumption (2015-2021).</b> SMEs reducing consumption of natural resources (e.g. saving water, energy and materials or switching to sustainable resources) as percentage of total number of SMEs	0.60%	●
		<b>II.1.2 Recycling (2015-2021).</b> SMEs recycling by reusing materials or waste within the company as percentage of total number of SMEs	3.34%	●
		<b>II.1.3 Circular Material Use Rate (2015-2021).</b>	0.58%	●
	<b>II.2 Emission Reduction</b>	<b>II.2.1 SME Emissions (2016-2021).</b> Share of greenhouse gas emissions produced by SMEs in total greenhouse gas emissions	-1.17%	●
		<b>II.2.2 Overall Change in Greenhouse Gas Emissions (index 1990 = 100) (2015-2021).</b>	-1.38%	●
	<b>II.3 Green Output</b>	<b>II.3.1 SME Green Products (2015-2021).</b> SME offering green products or services as percentage of total number of SMEs	3.10%	●
		<b>II.3.2 SMEs in Green Sectors (2015-2021).</b> SMEs in low intensive greenhouse gas emission sectors in total SMEs as percentage of total number of SMEs	-0.97%	●
<b>III. SME Competitiveness</b>	<b>III.1 Exports</b>	<b>III.1.1 Exporting SMEs (2015-2020).</b> SMEs with export activities as percentage of total number of SMEs	1.19%	●
		<b>III.1.2 SME International Trade (2015-2020).</b> SMEs Trade to GDP ratio	-0.85%	●
	<b>III.2 Productivity</b>	<b>III.2.1 SME Labour Productivity (2015-2020).</b> Gross value added per person employed (in thousands of euros)	0.63%	●
	<b>III.3 Growth</b>	<b>III.3.1 High-Growth Enterprises (2015-2020).</b> High-growth enterprises as percentage of total number of active enterprises (10+ employees)	-0.56%	●
		<b>III.3.2 High-Growth Employment (2015-2020).</b> People employed in high-growth enterprises as percentage of total employment (in active enterprises with 10+ employees)	-0.77%	●

● Progress on schedule for goal achievement ● Some progress but too slow for goal achievement ● Progress stalled or reversed

be successful in all three areas: green, digital and competitive. There are no trade-offs here – only the need for clear ambition to write rules that deliver the change we want to see and enable the innovation we need.

**8 Ireland** (No. 4) rises on the back of a surge in SME Competitiveness (No. 1, up from No. 5). SME Labour Productivity (measured as value-added per person employed per annum) has risen dramatically there, bringing Ireland to the No. 1 spot on this key sub-indicator, ahead of **Denmark** (No. 2) and **Luxembourg** (No. 3), according to Eurostat statistics. But the country remains a surprising underperformer on Exports (No. 24 based on 2020 data, the most recent available). This is a sign that too many Irish SMEs still focus exclusively on narrow domestic markets and not enough on reaching the larger markets that e-commerce and digital technology make possible. Also, the country underperforms on Green Transition (No. 22, down from No. 14) with greenhouse gas emissions running well above the 1990 base year (112%) and well above the **EU Average** (70.3%).

**9 Finland** (No. 5) presents an interesting picture. In an impressive surge, Finland scores high on Digital Transition (No. 1) – pulling ahead of **Denmark** (No. 2) this year. But Finland's scores on Green Transition (No. 14) and SME Competitiveness (No. 8) are less impressive. On Green Transition, the country suffers from underperformance in recycling (No. 15) and curbing greenhouse gas emissions (No. 25). The seven-year perspective – seen in the time-series perspective introduced in this year's edition – shows that the limited reduction in greenhouse gas emissions has deep roots and may be part of a longer-term trend; Finland is well above its 1990 emissions level in almost all of the previous seven years and prone to wild swings (See Table 40 on page 56 for more).<sup>9</sup> SME Competitiveness is another area where Finland could improve. Its No. 14 finish on Exports means that Finnish entrepreneurs and policymakers have not yet figured out how to turn all of that digital excellence into penetrating new markets.

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*‘Finnish entrepreneurs and policymakers have not yet figured out how to turn all of that digital excellence into penetrating new markets.’*

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**10 Germany** is No. 10, up from No. 12 last year. The country shows improvement on Digital Transition (No. 8, up from No. 11) with advances on E-Commerce (No. 15, up from No. 18). These are not one-off successes, either. One can see impressive improvements in the time-series tables (Tables 7, 10, 11, 14, 19 and 20), such as in adoption of cloud computing (where Germany shows a compound annual growth rate of 21% over an eight-year period) and data analytics (with a compound annual analytical growth rate of 33.6% over a five-year period). Scores are also improving in SME Competitiveness (No. 11, up from No. 19). It's important progress for a country that outsiders often criticise for the stately pace of reform in key areas. But it is equally important that the momentum continue if Europe's biggest economy plans to join the overall leaders. See the Germany Country Profile on page 87 for more detail.

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<sup>9</sup> Time series data for the Green Transition pillar were only available for a six-year period (2015-2021). See the Methodology and Sensitivity Analysis section, which begins on page 104, for more.

**11** The most improved country this year is **Italy** (No. 16, up from No. 21), moving ahead of **France** (No. 19). Improvement is visible in and attributable to enhanced performance in several sub-indicators, including cloud computing adoption (No. 5), E-Commerce (No. 17), Natural Resource Conservation (No. 6), Green Output (No. 14) and Productivity (No. 11). However, Italy's progress is held back by a famous Italian problem: Digital Skills (No. 26). Emission Reduction (No. 19) is also declining too slowly. And SME Growth (No. 18) is weak. All in all, the Italian SME sector shows signs of progress. Policymakers need to attack the digital skills problem in earnest – and help Italy's plethora of innovative small businesses find new markets through digital technology adoption and growth. The Italy Country Profile begins on page 91.

**12** **France** is No. 19, down from No. 17 last year. Despite much talk in France about digital technology, the merits of aggressive regulation and the leading role that France would like to play in this area, France is falling further and further behind on Digital Transition (No. 23, down six spots and well below the **EU Average**) – including underperformance on E-Commerce (No. 24). On the bright side, France has a strong position on Green Transition (No. 8), where its evidently deep commitment to this flagship European policy initiative is robust and clearly visible. SME Competitiveness (No. 24), by contrast, remains the lowest rank of any major, G7 economy in this survey. Performance is worst on Exports (No. 27),

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***'France is falling further and further behind on Digital Transition.'***

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which measures SMEs that trade outside their national borders (France is dead last in Europe). And, the weak performance in Growth (No. 23) does not help improving the SME Competitiveness either. France has relatively few fast-growing companies compared to the overall size of its economy and a relatively low number of people employed in them.

**13** **Cyprus** (No. 25), **Bulgaria** (No. 26) and **Romania** (No. 27) make up the bottom of the league table, as they did in the 2022 edition with no change in position among them.

**14** **Romania** (No. 27) performs badly on Digital Transition (No. 26) and SME Competitiveness (No. 27). But its scores perk up on Green Transition (No. 16) with a particularly strong standing on Emission Reduction (No. 3). The result has much to do with the peculiarities of the post-Communist Romanian business cycle and the base year 1990 used for these calculations. But let the facts reflect: Romania is one of only six EU countries (along with **Bulgaria**, **Estonia**, **Lithuania**, **Slovakia** and **Sweden**) which have reached their 2030 Fit for 55 targets by curbing greenhouse gas emissions to 55% below their 1990 level. Productivity (No. 26, down from No. 23) is another perennial problem – and is an area where Romania's idiosyncratic business cycle may also have an impact on statistical performance.

**15** **Estonia** (No. 9), **Slovenia** (No. 12) and **Latvia** (No. 24) remain the leaders in Exports (Nos. 1, 2 and 3, respectively) thanks partly to the unique structure of their economies. All three countries have relatively small economies and small populations – so success of any sort means going out and finding business partners elsewhere. Still, the performances are impressive – and not something which every small economy in Europe can boast.

**16** **Spain** is No. 13, just below the **EU Average**. Growth seems to be a problematic area, with Spain falling to a No. 11 position, down five places. Spain has an average score on Green Transition (No. 11, which is below the EU Average, down from No. 10, which was above). Spanish SMEs give themselves a No. 1 grade on cutting consumption of natural resources, but the Index's newest indicator – the Circular Material Use Rate – shows that public perception may outweigh actual performance. The subjective indicator sees Spain in the No. 1 spot, but the objective one (Circular Material Use Rate) has them at No. 13 in the use of circular materials.

**17** **Estonia** is No. 9, up one position from last year, thanks to better scores on Green Transition (No. 10, up six positions). But this important Baltic economy scores remarkably poor on Digital Skills (No. 19); its digital strength seems to be largely a public-sector phenomenon and has not taken on similar momentum in the private realm.

**18** **Slovenia** (No. 12) is a top performer in Exports (No. 2), but it struggles to convert that strength to Growth (No. 16). It enjoys one of the fast-growing compound growth rates for high-growth companies as a share of overall enterprises (4.78% compound annual growth, third fastest growth rate), but its overall position at No. 16 on this key indicator has to count for underperformance given its high marks in the export sector. Slovenia is improving on Green Transition (No. 15) thanks to a strong performance on Circular Material Use (No. 10) and an improved result on Emission Reduction (No. 22, up from No. 26).

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*‘Slovenia is improving on Green Transition thanks to a strong performance on circular material use and an improved result on emission reduction.’*

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**19** **Greece** is an interesting story. It ranks No. 1 in Growth – a legacy, perhaps, of the long recession, which saw the economy shrink 24.8% over a six-year period, and the sheer number of new companies that started up when growth finally returned to this long-suffering economy.<sup>10</sup> But its strong performance on growth is held back by singularly low scores on Digital Transition (No. 25) and Digital Skills (No. 23).

**20** Overall, countries making most progress in the rankings are **Italy** (up five places), **Slovakia** (up three places) and **Germany** (up two places).

**21** Those losing the most positions are **Austria** and **Portugal** (down three places) and **France** (down two places).

**22** Every country has areas where it could improve – even the winners. **Ireland**, for one, is No. 24 on Exports – a sign that Irish SMEs remain too focused on their domestic market. Sweden scores well pretty much across the board – but its relatively low score on Exports (No. 13) shows entrepreneurs could do more there to reach across borders as well.

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<sup>10</sup> The Greek data deserves to be treated gently; the most recently available official company growth data – and the data upon which this No. 1 finish is based, is from 2018. Company growth in Greece remains robust – as is observed and informally reported – so the trend captured by this single data point fits the overall picture as it is known. But the world awaits updated figures from Greece – and from Eurostat. Also, the estimate of the size of Greece's six-year contraction cited here is from Pierre-Olivier Gourinchas, Thomas Philippon and Dimitri Vayanos, "The Analytics of the Greek Crisis," *NBER Macroeconomics Annual* (Chicago: University of Chicago Press, 2016).

**23** At the end of the day, success in the Green, Digital and Competitive SME Index is not about achievement in any one, individual area; it's about success across the board. From a policymakers' perspective, the best success would be high scores in all indices and strong correlations among them. Alas, that is not the outcome this year. Of the three pillars (green, digital and competitive), success in the Digital Transition pillar has the highest correlation with the overall index – meaning countries that did well on digital transition are the same ones that did well in all areas.<sup>11</sup> But the SME Competitiveness pillar also showed a high correlation with other pillars this year, rising to 0.85, up from 0.76.<sup>12</sup> Correlations are not the same as causation. But the improving correlation between success

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*‘Success in the Green, Digital and Competitive SME Index is not about achievement in any one, individual area; it’s about success across the board.’*

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on SME Competitiveness and overall three-pillar success is an encouraging sign that the framework presented in this policy brief is the right one. It shows not just that competitiveness is rising at the SME level (albeit at a slower rate than many would like), but also that the increase is having a positive effect in helping Europe grow closer to its other goals.

**24** Unfortunately, the lowest correlation for success among the three pillars is Green Transition. This is a sign that success in green transition does not yet correlate with greater competitiveness and that success on digital is not yet a driver of faster green transition (though these claims are often made in free-wheeling debate despite the absence of any evidence). This is the dynamic which policymakers must work to reverse. A separate policy brief, **Green, Digital and Competitive: The Politics of Green Transition**, will look more deeply at policy and how a renewed, modernised competitiveness agenda could contribute to faster success on the green transition – and the ultimate achievement of Europe's ambitious goals in this key field.

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<sup>11</sup> The correlation for Digital Transition and the overall index is 0.9, a near-perfect match. See the Methodology and Sensitivity Analysis section, which begins on page 104, for a more detailed look.

<sup>12</sup> See the Methodology and Sensitivity Analysis section, which begins on page 104, for more.

Chapter I

# Digital Transition



**Table 4. Digital Transition**

Rank	Change in Ranking	Country	Score	SME Digitalisation Rank	E-Commerce Rank	Digital Skills Rank
1	▲1	Finland	85.02	1	4	1
2	▼1	Denmark	82.48	2	2	2
3	▲1	Ireland	77.73	7	1	7
4	▼1	Sweden	77.38	3	3	5
5	▲1	Netherlands	71.77	4	6	6
6	▼1	Belgium	70.97	6	7	4
7		Malta	68.83	5	11	3
8	▲3	Germany	52.86	8	15	10
9	▲1	Austria	50.84	10	14	9
10	▲2	Czech Republic	48.83	16	9	18
11	▲7	Cyprus	48.23	9	19	8
12	▼3	Croatia	47.79	19	8	17
13	▼5	Lithuania	47.71	20	5	21
European Union			46.24			
14		Slovenia	46.14	18	12	15
15		Spain	44.94	17	10	20
16		Portugal	44.72	14	16	16
17	▼4	Estonia	43.07	15	13	19
18	▲6	Poland	39.76	21	23	11
19		Hungary	38.00	25	18	12
20		Luxembourg	37.84	12	27	13
21		Italy	37.47	11	17	26
22	▲1	Latvia	35.95	23	20	14
23	▼6	France	33.16	13	24	22
24	▲1	Slovakia	30.15	22	21	24
25	▼3	Greece	27.90	24	22	23
26		Romania	19.84	26	25	25
27		Bulgaria	17.32	27	26	27

Sources: Eurostat (Lisbon Council calculations)

Digital Transition measures the speed with which SMEs are adopting digital technology and ranks that performance in a national context.<sup>13</sup> The goal is not to name and shame. To the contrary, the aim is to bring transparency, to define the leaders, to show what is possible with “best-in-class” policymaking and private-sector application – and to encourage all countries to track progress and benchmark actively. The management consultants put it well: “what gets measured is what gets improved.”<sup>14</sup>

For *The 2023 Green, Digital and Competitive SME Index*, we introduce two innovations. The 10 sub-indicators are the same ones used to measure Digital Transition in *The 2022 Green, Digital and Competitive SME Index*. But we have

added a new time-series analysis to each of the sub-indicators to help us better understand long-term trends. The time series has an additional function – with the onset of the global pandemic and lockdown in 2021 and 2022 – both base years for this study – we wanted an additional reference point to cross-check the results, i.e., to help us determine what is long-term achievement, to weed out pandemic-related underperformance and to focus more on the underlying trends than the business-cycle swings. The 10 sub-indicators are grouped into three indicators (SME Digitalisation, E-Commerce and Digital Skills), which, taken together, make up the Digital Transition score, which each country receives.

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*‘If the present pace of adoption continues, the European Union is on track to meet its 2030 Digital Compass targets.’*

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Among the leaders this year, there is some movement. **Finland** (No. 1) takes the top spot, claiming dominance in this field (an improving performance on e-commerce in the SME sector accounts for the jump). **Denmark** falls to No. 2, blessed with high scores in all areas but lacking the dynamic surge of Finland, year-on-year. **Ireland** (No. 3) joins the top three league leaders for the first time, driven largely by increasing technology adoption at the SME level and a good performance in Digital Skills.

Overall, European SMEs – and the countries in which they sit – show good progress year-on-year. Adoption of Cloud Computing, for one, is 40% in the 2023 Index, up five full percentage points from last year (See Table 8 on page 24 for more). SMEs with “high digital intensity,” as the European Commission defines it, are now 30.8% of all SMEs, up from 20% in 2022.<sup>15</sup> Adoption of e-commerce is improving, too, but at a slow pace; it rose to 22.2% in 2022, up from 21.7% in the previous edition, and its share of overall turnover actually fell to 11.3%, down from 11.6% last year. Digital Skills is another sore subject. On paper, many countries rose in 2022. But the analysis of long-term trends here – using mostly data from the 2015-2022 period – shows very limited progress from 2015 onwards.<sup>16</sup> See Tables 24, 25 and 27 for more detail on the long-term trend.

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13 The data for the digital sub-indicators in this section does not include micro-enterprises (fewer than 10 employees).

14 The quotation is often attributed to Peter Drucker, though the precise place where Prof Drucker wrote or said this is not identifiable. It is, however, an accurate one-line summary of a key thread throughout his work. See, *inter alia*, Peter Drucker, *The Practice of Management* (New York: Harper, 1954).

15 The Digital Intensity Index is a European Commission-led composite indicator that measures “digital intensity” in enterprises. It contains four pillars: skills, infrastructure, digital transformation of businesses and public services. For more, visit [https://ec.europa.eu/eurostat/cache/metadata/en/isoc\\_e\\_dii\\_esmsip2.htm](https://ec.europa.eu/eurostat/cache/metadata/en/isoc_e_dii_esmsip2.htm). One important caveat: the European Commission measures the “basic” digital intensity of SMEs. The Green, Digital and Competitive SME Index uses a tighter definition, counting only “high and very high” digital intensity SMEs.

16 Only six sub-indicators had enough data to offer full eight-year comparisons. Four of the 10 Digital Transition indicators had to take shorter periods for comparison due to data scarcity. For a full explanation, see Footnote 6. See also the Methodology and Sensitivity Analysis that begins on page 104.

When it comes to Europe's digital decade targets, the message is again good. Some 69% of European SMEs now show "basic digital intensity" – a great improvement and a mere stone's throw from the 90% target proclaimed in this 2022 initiative. Much of the improvement has been in the adoption of cloud-computing solutions (for more on this indicator, see Table 8 on page 24). But there is an evident divide on progress in other areas. Adoption of social

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***'Much of the improvement has been in the adoption of cloud-computing solutions.'***

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media and cloud computing are relatively easy reforms; they require little change in the way organisations are structured and adoption is happening relatively quickly. The harder areas of digital transition – use of data analytics, adoption of e-commerce and the spread of skills and knowledge – are proving more difficult to attack and change.

## **Alma Secret: Green, Digital and Very Competitive**

Alma Secret took shape in 1982 in the laboratory of Rocío Cuesta's father – a pharmacist in Murcia, an autonomous region of Spain. Enamoured with the local flora and fauna, Mr Cuesta began to experiment with new ways of producing skin products – substituting natural ingredients where manufactured ones had been used before. His daughter, Rocío, avidly followed the results – including the enthusiastic response of local users to these innovative, nature-based solutions. But how does one turn something so rooted in local tradition into a viable global business? That's where digital comes in. After pursuing a doctorate in pharmacology – including a deep dive on phytotherapy, phytocosmetics, botany and cosmetic formulation, Ms Cuesta, the daughter, returned to the family business. She picked up her father's recipes and – with the help of an attractive website, aggressive social media and an eager embrace of platform-based sales – she began selling her Murcia-made products extensively across Europe. Today, the company has 25 employees and retails in Czech Republic, Lithuania, Estonia, Germany – even Hong Kong. But the story hardly ends there. On top of producing only with organic and natural ingredients, Alma Secret reduced its energy costs – and doubled down on its nature-conscious image – with the addition of a 222-panel solar farm to power operations and a commitment to carbon neutrality and responsible sourcing. The formula seems to have caught the spirit of the times: consumers are willing to pay a premium for natural beauty and healthcare products produced in a sustainable way and the environmental pillar saves energy even as it strengthens the brand. Says CEO Cuesta: "Alma Secret is a conscious and clean brand that is firmly committed to sustainability – good for people, good for the planet." Visit <https://www.almasecret.com/en/>.

Source: *Muy Segura*, "Cuando uno está bien por dentro, ese bienestar se fleja por fuera," *Muy Segura*, 10 marzo 2023

## I.1 SME Digitalisation

The SME Digitalisation indicator is made up of five sub-indicators: On a national basis, it tracks the share of SMEs using 1) big data analytics, 2) cloud services, 3) social media channels and 4) information and communication technology (ICT) security as well as 5) the number of SMEs with a “high or very high digital intensity” according to the European Commission’s definition. The data is all publicly available on the Eurostat website. The methodology and analysis deployed here are original.

Broadly speaking, European SMEs are adopting technology swiftly. **Finland** (No. 1) remains at the top of SME Digitalisation, a category which it led last year. But **Denmark** (No. 2) and **Sweden** (No. 3) switch places. Some of the most interesting action is in and around “digital intensity,” a complex calculation led by the European Commission.<sup>17</sup> Some 69% of European SMEs have attained “basic digital intensity” according to the latest European Commission report on *2030 Digital Decade* (NB: that figure includes three levels of digital intensity – low, high and very high. The Green, Digital and Competitive SME Index only counts “high and very high digital intensity” in its calculation; there, the **EU Average** drops to 30.8% of reporting SMEs).<sup>18</sup> **Sweden** (No. 1), **Denmark** (No. 2) and **Finland** (No. 3) take the top spots on this sub-indicator (See Table 12 on page 27). All three have “high or very high digital intensity” in more than 50% of SMEs and “basic digital intensity” in more than 85%, making them a stone’s throw from the Digital Compass’s 90% target.<sup>19</sup> **Ireland** (No. 4) also shows vast improvement with a 22% improvement in performance in 2022

**Table 5. SME Digitalisation**

Rank	Change in Ranking	Country	Score
1		Finland	92.43
2	▲1	Denmark	87.08
3	▼1	Sweden	84.94
4		Netherlands	84.30
5		Malta	81.18
6		Belgium	75.66
7		Ireland	71.99
8		Germany	60.53
9	▲6	Cyprus	55.21
10		Austria	52.38
European Union			51.57
11		Italy	51.15
12	▼3	Luxembourg	49.10
13	▼1	France	48.62
14		Portugal	45.60
15	▲2	Estonia	45.10
16	▲3	Czech Republic	45.04
17	▼4	Spain	44.68
18	▲3	Slovenia	42.71
19	▼3	Croatia	40.77
20	▼2	Lithuania	39.57
21	▲2	Poland	37.43
22		Slovakia	31.68
23	▼3	Latvia	30.21
24		Greece	26.09
25		Hungary	21.13
26	▲1	Romania	19.76
27	▼1	Bulgaria	16.45

Source: Eurostat (Lisbon Council calculations)

<sup>17</sup> Put simply – which isn’t easy – the digital intensity indicator developed by the European Commission tracks adoption of 12 key technologies by companies, assigning them a score and later aggregating that score into a “digital intensity” index. It includes four categories of “digital intensity:” very low, low, high and very high. The European Union target covers “basic” digital intensity and includes three of them: low, high and very high. Visit <https://digital-strategy.ec.europa.eu/en/policies/desi> for more.

<sup>18</sup> European Commission, *2030 Report on the State of the Digital Decade*, 27 September 2023.

<sup>19</sup> The 90% target of the Digital Compass refers to “basic” digital intensity, while the Green, Digital and Competitive SME Index uses “high or very high” as a threshold for the indicator. In 2022, the “basic digital intensity” for the three countries are: Finland (No. 1 at 89.5%), Denmark (No. 2 at 88.8%) and Sweden (No. 3 at 86.9%).

compared to 2021.<sup>20</sup> The eight-year time series tells an interesting story, too. If the present pace of adoption continues, the European Union is on track to meet its 2030 Digital Compass target in this area on schedule. See Table 14 on page 28 for a look at the underlying trends.

### *‘Cloud adoption is another area where immense regional discrepancies exist.’*

But there are glaring disparities. On digital intensity, **Romania** (No. 25), **Greece** (No. 26) and **Bulgaria** (No. 27) make up the bottom of the league table with digital intensity adoption figures under 20%, less than half the 50% target already achieved by league leaders. Cloud adoption is another area where immense regional discrepancies exist: League leaders **Sweden** (No. 1) and **Finland** (No. 2) both have cloud adoption rates above 70%; league laggards **Romania** (No. 26) and **Bulgaria** (No. 27) are both under 15%. For a country-by-country comparison of cloud adoption statistics, see Table 8 on page 24.

Multi-year trends also deliver some insights. Use of big data analytics by SMEs is growing throughout Europe, rising to 13.6% of all enterprises in 2020, up from 8.7% in 2016 (a compound annual growth rate of 11.8%). The fastest growing countries are **Germany**, **Cyprus** and **Denmark** with 33.6%, 28.4% and 24.4% compound growth rates, respectively – well ahead of league laggards **Slovakia** (with a 15.9% decline over 2016-2020 to a 5.1% adoption rate, down from 10.2% in 2016) and **Romania** (with an 18.7% decline over the same period to a 4.8% adoption rate, down from 11% in 2016). Social media adoption is growing even faster, reaching an **EU Average** of 28.4% in 2021. Leading countries there are **Finland** (No. 1), **The Netherlands** (No. 2) and **Sweden** (No. 3) – all above 47% adoption levels. Laggards are **Bulgaria** (No. 25), **Hungary** (No. 2) and **Romania** (No. 27), all with adoption rates below 13%.

**Table 6. Data Analytics**

Rank	Country	Share of SMEs Using Big Data Analytics	Score
1	Malta	29.5%	100.00
2	Denmark	26.1%	87.61
-	Netherlands	26.1%	87.61
4	Ireland	22.0%	72.67
5	Belgium	21.8%	71.94
6	France	21.1%	69.39
7	Finland	20.6%	67.57
8	Sweden	18.5%	59.92
9	Luxembourg	18.0%	58.10
10	Germany	17.2%	55.18
	<b>European Union</b>	<b>13.6%</b>	<b>42.06</b>
11	Croatia	12.9%	39.51
12	Greece	12.5%	38.06
13	Lithuania	10.3%	30.04
14	Portugal	10.0%	28.95
15	Estonia	9.4%	26.76
16	Czech Republic	8.5%	23.48
-	Spain	8.5%	23.48
18	Italy	8.2%	22.39
19	Austria	8.1%	22.02
20	Latvia	7.8%	20.93
-	Poland	7.8%	20.93
22	Hungary	6.6%	16.56
23	Bulgaria	5.9%	14.01
24	Slovenia	5.8%	13.64
25	Cyprus	5.7%	13.28
26	Slovakia	5.1%	11.09
27	Romania	4.8%	10.00

Source: Eurostat

<sup>20</sup> Ireland had the fifth highest compound annual growth rate for the period 2021-2022, with 81% growth. The other countries in the top five are Romania (231% growth), Hungary (121%), Bulgaria (113%) and Poland (105%), but they have a lower performance in 2021 compared to Ireland.

**Table 7. Data Analytics Evolution Over Time (2016-2020)**

Rank	Country	2016	2018	2020	Compound Annual Growth Rate (2016-2020)
1	Germany	5.4%	14.4%	17.2%	33.6%
2	Cyprus	2.1%	4.2%	5.7%	28.4%
3	Denmark	10.9%	12.6%	26.1%	24.4%
4	Austria	n/a	5.6%	8.1%	20.3%
5	Sweden	9.4%	8.8%	18.5%	18.4%
6	France	10.9%	15.6%	21.1%	18.0%
7	Malta	17.7%	23.7%	29.5%	13.6%
	<b>European Union</b>	<b>8.7%</b>	<b>11.7%</b>	<b>13.6%</b>	<b>11.8%</b>
8	Luxembourg	11.9%	15.9%	18.0%	10.9%
9	Finland	14.0%	18.2%	20.6%	10.1%
10	Croatia	8.8%	9.8%	12.9%	10.0%
11	Netherlands	18.3%	20.9%	26.1%	9.3%
12	Poland	5.5%	7.3%	7.8%	9.1%
13	Belgium	16.2%	19.4%	21.8%	7.7%
14	Ireland	n/a	19.5%	22.0%	6.2%
15	Greece	11.2%	12.5%	n/a	5.6%
16	Latvia	n/a	7.2%	7.8%	4.1%
17	Czech Republic	7.9%	7.4%	8.5%	1.8%
18	Spain	8.0%	10.2%	8.5%	1.5%
19	Hungary	6.8%	5.9%	6.6%	-0.7%
20	Italy	8.7%	6.7%	8.2%	-1.5%
21	Lithuania	11.8%	13.3%	10.3%	-3.3%
22	Bulgaria	6.8%	6.2%	5.9%	-3.5%
23	Estonia	12.2%	10.2%	9.4%	-6.3%
24	Portugal	13.1%	12.4%	10.0%	-6.5%
25	Slovenia	10.2%	9.3%	5.8%	-13.2%
26	Slovakia	10.2%	8.8%	5.1%	-15.9%
27	Romania	11.0%	10.7%	4.8%	-18.7%

Source: Eurostat

Notes: For Ireland, Latvia and Austria, the compound annual growth rate refers to 2018-2020 and Greece to 2016-2018. The missing values are marked "n/a."

**Table 8. Cloud Computing**

Rank	Country	Share of SMEs Using Cloud Computing Services	Score
1	Sweden	74.9%	100.00
2	Finland	74.5%	99.43
3	Denmark	64.1%	84.55
-	Netherlands	64.1%	84.55
5	Italy	60.1%	78.82
6	Ireland	57.9%	75.68
7	Estonia	57.0%	74.39
8	Malta	56.6%	73.82
9	Belgium	51.7%	66.80
10	Cyprus	49.6%	63.80
11	Czech Republic	43.0%	54.36
12	Slovenia	41.6%	52.35
13	Germany	40.6%	50.92
European Union		40.1%	50.21
14	Austria	39.4%	49.21
15	Croatia	38.2%	47.49
16	Slovakia	35.2%	43.20
17	Portugal	33.7%	41.05
18	Luxembourg	32.3%	39.05
19	Lithuania	32.2%	38.90
20	Spain	30.0%	35.76
21	France	28.3%	33.32
22	Latvia	27.6%	32.32
23	Poland	27.3%	31.89
24	Hungary	25.3%	29.03
25	Greece	20.2%	21.73
26	Romania	13.5%	12.15
27	Bulgaria	12.0%	10.00

Source: Eurostat

**Table 9. Social Media**

Rank	Country	Share of SMEs Using Two or More Social Media Channels	Score
1	Finland	49.3%	100.00
2	Netherlands	47.7%	96.20
3	Sweden	47.0%	94.54
4	Belgium	44.1%	87.65
5	Malta	42.0%	82.66
6	Cyprus	41.5%	81.48
7	Spain	38.5%	74.35
8	Austria	37.1%	71.03
9	Denmark	35.3%	66.75
10	Luxembourg	32.6%	60.34
11	Ireland	31.5%	57.73
12	Germany	28.7%	51.08
13	Slovenia	28.6%	50.84
European Union		28.4%	50.37
14	Greece	27.7%	48.71
15	Italy	26.8%	46.57
16	Portugal	25.3%	43.01
17	France	25.0%	42.30
18	Latvia	24.7%	41.58
19	Croatia	23.1%	37.78
20	Czech Republic	22.5%	36.36
21	Estonia	21.6%	34.22
22	Lithuania	21.0%	32.80
23	Slovakia	19.7%	29.71
24	Poland	16.6%	22.35
25	Bulgaria	12.4%	12.37
26	Hungary	12.1%	11.66
27	Romania	11.4%	10.00

Source: Eurostat

**Table 10. Cloud Computing Evolution Over Time (2014-2021)**

Rank	Country	2014	2015	2016	2017	2018	2020	2021	Compound Annual Growth Rate (2014-2021)
1	Latvia	5.4%	8.0%	7.8%	11.5%	14.0%	20.7%	27.6%	26.2%
2	Cyprus	9.8%	12.6%	14.8%	21.4%	26.3%	34.0%	49.6%	26.1%
3	Poland	5.4%	6.7%	7.4%	9.1%	10.4%	23.2%	27.3%	26.0%
4	Estonia	14.6%	n/a	22.2%	n/a	33.3%	55.9%	57.0%	21.5%
5	Germany	10.7%	n/a	15.5%	n/a	21.6%	32.4%	40.6%	21.0%
6	Austria	11.3%	n/a	16.5%	20.4%	22.5%	37.3%	39.4%	19.5%
7	Malta	16.9%	23.9%	27.6%	n/a	35.8%	51.6%	56.6%	18.8%
8	Hungary	7.8%	10.1%	11.6%	15.7%	17.3%	24.3%	25.3%	18.3%
9	Romania	4.7%	7.9%	7.0%	10.2%	9.7%	15.1%	13.5%	16.3%
10	Czech Republic	15.0%	n/a	17.5%	21.3%	25.7%	27.8%	43.0%	16.2%
11	Slovenia	15.0%	16.8%	21.3%	21.0%	25.1%	37.6%	41.6%	15.7%
12	Portugal	12.2%	n/a	17.3%	21.8%	23.8%	28.1%	33.7%	15.6%
13	Luxembourg	11.8%	n/a	17.9%	n/a	23.6%	27.9%	32.3%	15.5%
14	Greece	7.4%	8.9%	8.8%	10.5%	12.3%	n/a	20.2%	15.4%
15	Belgium	20.6%	23.7%	27.4%	38.5%	39.0%	52.2%	51.7%	14.0%
16	France	11.3%	n/a	16.2%	n/a	18.3%	25.8%	28.3%	14.0%
17	Lithuania	13.3%	15.9%	16.2%	22.5%	21.7%	29.7%	32.2%	13.5%
18	Netherlands	26.9%	n/a	33.7%	n/a	47.3%	51.6%	64.1%	13.2%
	<b>European Union</b>	<b>17.4%</b>	<b>n/a</b>	<b>18.2%</b>	<b>n/a</b>	<b>23.1%</b>	<b>35.3%</b>	<b>40.1%</b>	<b>12.7%</b>
19	Spain	13.5%	13.9%	17.6%	22.8%	21.1%	25.1%	30.0%	12.1%
20	Ireland	27.0%	34.5%	35.2%	n/a	44.7%	50.1%	57.9%	11.5%
21	Sweden	38.8%	n/a	47.5%	n/a	56.5%	68.9%	74.9%	9.9%
22	Slovakia	19.5%	20.3%	17.5%	21.8%	20.3%	24.6%	35.2%	8.8%
23	Croatia	22.0%	22.1%	22.0%	30.6%	30.0%	38.0%	38.2%	8.2%
24	Denmark	37.2%	35.9%	40.9%	50.0%	55.0%	66.2%	64.1%	8.1%
25	Bulgaria	7.6%	5.1%	6.4%	7.5%	7.8%	10.2%	12.0%	6.7%
26	Italy	40.0%	n/a	21.0%	n/a	21.9%	58.8%	60.1%	6.0%
27	Finland	50.1%	52.6%	56.0%	64.9%	64.5%	74.9%	74.5%	5.8%

Source: Eurostat  
Note: The missing values are marked "n/a."

**Table 11. Social Media Evolution Over Time (2015-2021)**

Rank	Country	2015	2016	2017	2019	2021	Compound Annual Growth Rate (2015-2021)
1	Latvia	9.6%	10.7%	12.2%	18.5%	24.7%	17.1%
2	Belgium	17.7%	20.5%	23.0%	32.6%	44.1%	16.4%
3	Finland	19.9%	24.3%	27.2%	42.8%	49.3%	16.3%
4	Austria	15.3%	17.9%	20.2%	28.7%	37.1%	15.9%
5	Estonia	9.0%	11.4%	12.3%	15.0%	21.6%	15.7%
6	Czech Republic	9.7%	11.1%	12.0%	19.2%	22.5%	15.1%
7	Sweden	20.4%	22.5%	23.8%	38.3%	47.0%	14.9%
8	Luxembourg	14.3%	18.5%	19.4%	28.6%	32.6%	14.7%
9	Portugal	11.2%	16.3%	15.6%	15.1%	25.3%	14.5%
10	France	11.2%	13.5%	15.0%	21.0%	25.0%	14.3%
11	Poland	7.7%	8.2%	8.7%	12.9%	16.6%	13.7%
12	Germany	13.8%	16.9%	15.1%	21.9%	28.7%	13.0%
	European Union	14.5%	16.7%	17.5%	22.4%	28.4%	11.9%
13	Italy	14.0%	15.1%	16.9%	21.6%	26.8%	11.4%
14	Spain	20.7%	23.6%	27.2%	28.5%	38.5%	10.9%
15	Slovenia	15.4%	16.0%	16.4%	22.7%	28.6%	10.9%
16	Denmark	19.1%	25.6%	27.9%	31.5%	35.3%	10.8%
17	Romania	6.3%	8.0%	8.8%	8.0%	11.4%	10.4%
18	Slovakia	11.6%	12.6%	15.9%	16.7%	19.7%	9.2%
19	Malta	25.1%	25.5%	25.2%	42.6%	42.0%	9.0%
20	Croatia	13.9%	14.0%	15.9%	21.8%	23.1%	8.8%
21	Greece	18.0%	19.3%	20.5%	18.8%	27.7%	7.4%
22	Bulgaria	8.2%	9.1%	8.5%	9.9%	12.4%	7.1%
23	Cyprus	29.5%	33.9%	36.0%	37.7%	41.5%	5.9%
24	Netherlands	36.3%	37.4%	37.8%	35.8%	47.7%	4.7%
25	Lithuania	16.3%	18.6%	19.5%	23.3%	21.0%	4.3%
26	Hungary	10.9%	12.9%	14.2%	11.2%	12.1%	1.8%
27	Ireland	33.9%	35.0%	35.4%	43.0%	31.5%	-1.2%

Source: Eurostat  
Note: The missing values are marked "n/a."

**Table 12. High Digital Intensity**

Rank	Country	Share of SMEs with High and Very High Digital Intensity Index	Score
1	Sweden	58.0%	100.00
2	Denmark	56.4%	96.49
3	Finland	55.8%	95.17
4	Ireland	49.3%	80.90
5	Malta	44.1%	69.49
6	Netherlands	41.4%	63.56
7	Belgium	40.3%	61.15
8	Germany	36.5%	52.80
9	Portugal	34.4%	48.20
10	Cyprus	32.9%	44.90
11	Slovenia	31.7%	42.27
12	Austria	31.6%	42.05
	<b>European Union</b>	<b>30.8%</b>	<b>40.29</b>
13	Estonia	30.3%	39.20
14	Czech Republic	28.9%	36.12
15	Lithuania	28.8%	35.90
-	Luxembourg	28.8%	35.90
17	Croatia	27.2%	32.39
18	Italy	26.8%	31.51
-	Spain	26.8%	31.51
20	Poland	26.7%	31.29
21	Hungary	23.6%	24.49
22	Slovakia	22.6%	22.29
23	Latvia	20.3%	17.24
24	France	20.2%	17.02
25	Romania	18.2%	12.63
26	Greece	17.9%	11.98
27	Bulgaria	17.0%	10.00

Source: Eurostat

**Table 13. ICT Security**

Rank	Country	Share of SMEs Using Any Type of ICT Security Measures	Score
1	Denmark	98.1%	100.00
-	Finland	98.1%	100.00
3	Germany	96.2%	92.66
4	Belgium	95.7%	90.73
5	Netherlands	95.4%	89.57
6	France	93.2%	81.07
7	Poland	93.1%	80.69
8	Malta	92.9%	79.91
9	Austria	92.3%	77.60
10	Italy	92.0%	76.44
11	Czech Republic	91.6%	74.89
	<b>European Union</b>	<b>91.6%</b>	<b>74.89</b>
12	Ireland	91.1%	72.96
13	Cyprus	91.0%	72.58
14	Sweden	90.4%	70.26
15	Portugal	89.5%	66.78
16	Lithuania	87.8%	60.21
17	Spain	87.3%	58.28
18	Slovenia	86.3%	54.42
19	Romania	86.2%	54.03
20	Luxembourg	85.7%	52.10
-	Slovakia	85.7%	52.10
22	Estonia	85.4%	50.94
23	Croatia	84.3%	46.70
24	Latvia	82.3%	38.97
25	Bulgaria	81.5%	35.88
26	Hungary	78.4%	23.91
27	Greece	74.8%	10.00

Source: Eurostat

**Table 14. High Digital Intensity Evolution Over Time (2015-2022)**

Rank	Country	2015	2016	2017	2018	2019	2020	2021	2022	Compound Annual Growth Rate (2021-2022)
1	Romania	11.4%	7.8%	10.9%	11.0%	9.8%	4.3%	5.5%	18.2%	230.9%
2	Hungary	12.9%	14.8%	14.2%	14.4%	14.7%	9.8%	10.7%	23.6%	120.6%
3	Bulgaria	11.4%	9.3%	11.6%	8.2%	11.8%	4.3%	8.0%	17.0%	112.5%
4	Poland	13.6%	12.2%	13.2%	11.4%	9.2%	10.3%	13.0%	26.7%	105.4%
5	Ireland	22.5%	19.2%	21.9%	27.9%	31.1%	26.2%	27.3%	49.5%	81.3%
6	Portugal	17.0%	19.3%	24.3%	15.1%	23.6%	11.3%	19.5%	34.4%	76.4%
7	Estonia	20.1%	20.8%	21.0%	19.7%	21.0%	24.8%	17.9%	30.3%	69.3%
8	Latvia	12.2%	10.9%	10.9%	8.9%	13.1%	6.1%	12.8%	20.3%	58.6%
9	France	18.5%	13.2%	16.6%	13.7%	22.9%	12.1%	12.8%	20.2%	57.8%
10	Germany	21.1%	13.7%	26.3%	15.5%	26.9%	12.1%	23.9%	36.5%	52.7%
11	Czech Republic	18.9%	21.0%	16.8%	16.0%	33.3%	13.1%	19.0%	28.9%	52.1%
12	Belgium	32.5%	26.4%	33.6%	26.1%	40.2%	26.2%	26.7%	40.3%	50.9%
	<b>European Union</b>	<b>19.7%</b>	<b>17.2%</b>	<b>21.1%</b>	<b>16.6%</b>	<b>24.3%</b>	<b>14.5%</b>	<b>21.0%</b>	<b>30.8%</b>	<b>46.7%</b>
13	Slovakia	18.4%	16.8%	17.1%	12.3%	17.4%	10.0%	15.6%	22.6%	44.9%
14	Lithuania	26.7%	24.8%	29.9%	25.9%	33.3%	7.5%	20.2%	28.8%	42.6%
15	Luxembourg	23.5%	20.4%	23.9%	19.7%	30.2%	13.9%	20.3%	28.8%	41.9%
16	Croatia	18.4%	18.4%	16.1%	14.9%	22.4%	20.2%	19.5%	27.2%	39.5%
17	Italy	12.0%	11.3%	12.5%	13.4%	19.8%	17.3%	19.3%	26.8%	38.9%
18	Slovenia	17.1%	17.4%	20.9%	25.6%	20.6%	22.1%	23.5%	31.7%	34.9%
19	Denmark	46.0%	52.9%	40.6%	48.4%	52.0%	43.9%	42.0%	56.4%	34.3%
20	Cyprus	17.5%	11.5%	22.1%	14.1%	26.0%	10.9%	24.9%	32.9%	32.1%
21	Sweden	28.4%	40.2%	31.1%	39.9%	48.6%	24.6%	46.3%	58.0%	25.3%
22	Finland	34.2%	47.1%	34.1%	48.1%	51.1%	44.7%	45.2%	55.8%	23.5%
23	Netherlands	40.6%	34.4%	39.2%	35.9%	38.4%	26.5%	35.3%	41.4%	17.3%
24	Austria	25.9%	20.7%	24.4%	15.5%	31.9%	13.5%	27.2%	31.6%	16.2%
25	Malta	27.7%	31.3%	24.4%	31.3%	40.6%	26.8%	39.0%	44.1%	13.1%
26	Greece	8.4%	18.5%	13.3%	9.2%	5.8%	0.0%	16.1%	17.9%	11.2%
27	Spain	24.6%	23.1%	26.9%	12.5%	24.4%	14.8%	24.5%	26.8%	9.4%

Source: Eurostat

Note: The methodology of computation changed several times since 2015: in 2020 (version 2), in 2021 (version 3) and in 2022 (version 4).  
Due to the methodological change in 2021, the compound annual growth rate was computed only for the 2021-2022.

**Table 15. ICT Security Evolution Over Time (2019-2022)**

Rank	Country	2019	2022	Compound Annual Growth Rate (2019-2022)
1	Romania	72.3%	86.2%	6.0%
2	Cyprus	82.5%	91.0%	3.3%
3	Poland	86.8%	93.1%	2.4%
4	Slovenia	83.9%	86.3%	0.9%
5	Belgium	93.9%	95.7%	0.6%
6	Greece	73.4%	74.8%	0.6%
7	Austria	90.9%	92.3%	0.5%
8	Malta	91.6%	92.9%	0.5%
9	Finland	97.0%	98.1%	0.4%
10	Denmark	97.2%	98.1%	0.3%
11	Estonia	85.6%	85.4%	-0.1%
12	France	93.8%	93.2%	-0.2%
	<b>European Union</b>	<b>92.2%</b>	<b>91.6%</b>	<b>-0.2%</b>
13	Italy	92.8%	92.0%	-0.3%
14	Germany	97.4%	96.2%	-0.4%
15	Ireland	92.8%	91.4%	-0.5%
16	Netherlands	97.3%	95.4%	-0.7%
17	Czech Republic	93.5%	91.6%	-0.7%
18	Bulgaria	84.7%	81.5%	-1.3%
19	Slovakia	89.3%	85.7%	-1.4%
20	Sweden	94.4%	90.4%	-1.4%
21	Spain	91.4%	87.3%	-1.5%
22	Lithuania	92.8%	87.8%	-1.8%
23	Croatia	90.1%	84.3%	-2.2%
24	Luxembourg	92.7%	85.7%	-2.6%
25	Portugal	97.7%	89.5%	-2.9%
26	Hungary	85.6%	78.4%	-2.9%
27	Latvia	98.2%	82.3%	-5.7%

Source: Eurostat

## I.2 E-Commerce

The story of e-commerce in Europe can almost be told in one word – **Ireland** (No. 1). The Celtic tiger stands mightily above its closest rivals in this area, easily outpacing **Denmark** (No. 2) and **Sweden** (No. 3) on this important indicator.

*‘Small businesses can use e-commerce to access new markets, reach niche customers in faraway places and grow businesses worldwide.’*

And e-commerce is important – particularly for the citizens and small businesses of small countries, like Ireland, which can use it to access new markets, reach niche

customers in far-away places and grow businesses worldwide without ever having to leave home. For this reason, the Green, Digital and Competitive SME Index gives e-commerce its own indicator, allowing countries and entrepreneurs to track and benchmark their performance on this key, entry-level technology. Used effectively and used well, e-commerce can generate new business and create employment, providing a crucial launching pad for company growth and rising competitiveness at the SME level.

The E-Commerce indicator has two sub-indicators. E-Commerce Sales (I.2.1) looks at the percentage of SMEs that use e-commerce for sales of any type. E-Commerce Turnover (I.2.2) looks at the share of revenue from e-commerce in overall sales on a country-wide basis. The overall indicator is arrived at by combining performance on the two sub-indicators into a single score and ranking the countries involved accordingly.

And what do we find? **Ireland** (No. 1) stands tall with 42% of SMEs using e-commerce for some sales [In **Sweden** (No. 2), the figure is 37.6% and in **Lithuania** (No. 3), the figure is 36.9%]. SME turnover from e-commerce sales tells a similar story. **Ireland** (No. 1 again) sees 26.2% of total turnover from e-commerce sales; **Denmark** (No. 2) has 18.9% and **Czech Republic** (No. 3) has 17.2%. See Table 17 and Table 18 on page 31 for a detailed breakdown.

**Table 16. E-Commerce**

Rank	Change in Ranking	Country	Score
1		Ireland	100.00
2		Denmark	74.80
3		Sweden	72.67
4	▲ 2	Finland	69.81
5	▼ 1	Lithuania	68.94
6	▲ 2	Netherlands	60.77
7	▼ 2	Belgium	59.84
8	▲ 1	Croatia	54.52
9	▼ 2	Czech Republic	54.42
10	▲ 2	Spain	52.71
11	▲ 3	Malta	47.31
12	▼ 2	Slovenia	46.31
13		Estonia	41.93
14	▼ 3	Austria	41.53
		<b>European Union</b>	<b>40.06</b>
15	▲ 3	Germany	40.05
16	▲ 3	Portugal	39.79
17	▲ 3	Italy	38.19
18	▼ 1	Hungary	37.64
19	▲ 5	Cyprus	29.22
20	▲ 2	Latvia	26.61
21	▲ 1	Slovakia	26.57
22	▼ 6	Greece	25.36
23	▼ 2	Poland	24.38
24	▼ 9	France	18.46
25		Romania	16.07
26		Bulgaria	15.46
27		Luxembourg	12.30

Source: Eurostat (Lisbon Council calculations)

The broader time-series analysis yields additional insight. **Greece** is fastest growing, though its overall performance (No. 22) on E-Commerce remains well below the **EU Average**. **France** (No. 24) has the slowest growth. Its share of turnover from e-commerce sales has actually fallen since 2015 to 5.1%, with a negative compound annual growth rate of 9.92%. See Table 20 on page 33 for a breakdown.

*'Ireland stands tall with 42% of SMEs using e-commerce and 26% of total turnover from e-commerce.'*

**Table 17. E-Commerce Sales**

Rank	Country	Share of SMEs with E-Commerce Sales in Total SMEs	Score
1	Ireland	42.2%	100.00
2	Sweden	37.6%	86.77
3	Lithuania	36.9%	84.76
4	Denmark	35.3%	80.16
5	Spain	32.6%	72.40
6	Malta	31.9%	70.38
7	Finland	31.7%	69.81
8	Netherlands	30.2%	65.50
9	Croatia	29.2%	62.62
10	Belgium	28.1%	59.46
11	Austria	25.7%	52.56
12	Slovenia	24.8%	49.97
13	Czech Republic	23.6%	46.52
European Union		22.2%	42.49
14	Germany	21.9%	41.63
-	Estonia	21.9%	41.63
16	Cyprus	21.5%	40.48
17	Hungary	21.1%	39.33
18	Portugal	19.1%	33.58
19	Greece	17.8%	29.84
20	Italy	17.7%	29.55
21	Latvia	17.5%	28.98
22	Slovakia	16.6%	26.39
23	France	16.2%	25.24
24	Poland	16.1%	24.95
25	Bulgaria	14.7%	20.93
26	Luxembourg	11.7%	12.30
27	Romania	10.9%	10.00

Source: Eurostat

**Table 18. E-Commerce Turnover**

Rank	Country	Share of SME Total Turnover from E-Commerce Sales in Total Turnover	Score
1	Ireland	26.2%	100.00
2	Denmark	18.9%	69.44
3	Czech Republic	17.2%	62.33
4	Belgium	16.7%	60.23
5	Sweden	16.3%	58.56
6	Netherlands	15.7%	56.05
7	Lithuania	15.0%	53.12
8	Italy	13.5%	46.84
9	Croatia	13.4%	46.42
10	Portugal	13.3%	46.00
11	Slovenia	12.5%	42.65
12	Estonia	12.4%	42.23
13	Germany	11.5%	38.47
European Union		11.3%	37.63
14	Hungary	10.9%	35.95
15	Spain	10.2%	33.02
16	Austria	9.6%	30.51
17	Slovakia	8.7%	26.74
18	Latvia	8.1%	24.23
-	Malta	8.1%	24.23
20	Poland	8.0%	23.81
21	Romania	7.6%	22.14
22	Greece	7.3%	20.88
23	Cyprus	6.6%	17.95
24	France	5.1%	11.67
25	Bulgaria	4.7%	10.00
Luxembourg		n/a	n/a
Finland		n/a	n/a

Source: Eurostat

Note: The missing values are marked "n/a."

**Table 19. E-Commerce Sales Evolution Over Time (2015-2022)**

Rank	Country	2015	2016	2017	2018	2019	2020	2021	2022	Compound Annual Growth Rate (2015-2022)
1	Greece	7.0%	12.0%	12.0%	11.5%	10.8%	n/a	20.4%	17.8%	14.3%
2	Cyprus	10.6%	13.2%	12.3%	13.9%	13.6%	16.1%	18.4%	21.5%	10.6%
3	Lithuania	18.8%	19.4%	22.6%	22.0%	25.3%	29.0%	35.6%	36.9%	10.1%
4	Spain	17.4%	20.1%	20.8%	19.5%	20.3%	26.8%	27.4%	32.6%	9.4%
5	Italy	9.6%	10.7%	12.1%	13.8%	13.7%	15.9%	17.9%	17.7%	9.1%
6	Latvia	9.6%	9.9%	11.8%	12.7%	13.2%	14.9%	16.5%	17.5%	9.0%
7	Malta	18.5%	19.9%	17.5%	21.9%	n/a	24.7%	29.0%	31.9%	8.1%
8	Finland	18.4%	20.7%	23.2%	22.9%	27.7%	21.5%	28.5%	31.7%	8.1%
9	Bulgaria	8.6%	8.4%	10.3%	7.9%	10.8%	10.7%	11.5%	14.7%	8.0%
10	Hungary	13.2%	14.6%	15.0%	14.5%	14.4%	15.7%	19.7%	21.1%	6.9%
11	Austria	17.1%	18.6%	20.5%	17.4%	23.6%	28.1%	29.0%	25.7%	6.0%
12	Croatia	19.5%	18.0%	17.4%	17.6%	21.3%	30.1%	29.2%	29.2%	5.9%
13	Estonia	14.7%	17.8%	18.5%	19.2%	20.5%	19.4%	21.8%	21.9%	5.9%
14	Poland	11.1%	11.6%	10.9%	13.2%	14.9%	15.6%	17.1%	16.1%	5.5%
15	Romania	7.7%	7.2%	8.1%	8.4%	11.6%	18.8%	12.9%	10.9%	5.1%
16	Sweden	27.6%	27.5%	30.2%	30.9%	32.1%	33.9%	35.4%	37.6%	4.5%
17	Ireland	31.5%	29.6%	32.1%	34.4%	38.5%	38.5%	39.5%	42.2%	4.3%
18	Denmark	26.7%	28.3%	29.5%	30.8%	32.7%	37.7%	37.7%	35.3%	4.1%
19	Netherlands	24.3%	24.6%	24.8%	26.7%	27.2%	24.7%	27.5%	30.2%	3.2%
	<b>European Union</b>	<b>18.3%</b>	<b>19.6%</b>	<b>19.4%</b>	<b>18.5%</b>	<b>19.1%</b>	<b>20.4%</b>	<b>21.7%</b>	<b>22.2%</b>	<b>2.8%</b>
20	Slovenia	20.8%	19.2%	23.6%	24.2%	23.7%	24.1%	26.2%	24.8%	2.5%
21	Luxembourg	9.9%	14.5%	12.2%	15.8%	13.3%	13.1%	11.4%	11.7%	2.4%
22	Slovakia	14.8%	14.4%	17.0%	15.5%	14.2%	19.5%	15.8%	16.6%	1.7%
23	Belgium	25.1%	24.6%	24.8%	29.0%	29.6%	24.7%	30.5%	28.1%	1.6%
24	Portugal	19.2%	18.2%	17.6%	18.2%	16.2%	19.9%	16.4%	19.1%	-0.1%
25	Czech Republic	23.9%	25.7%	22.9%	23.9%	28.9%	29.7%	24.4%	23.6%	-0.2%
26	Germany	26.3%	27.9%	25.0%	20.9%	19.5%	19.3%	21.1%	21.9%	-2.6%
27	France	20.6%	20.3%	20.0%	17.7%	18.0%	16.3%	17.8%	16.2%	-3.4%

Source: Eurostat  
Note: The missing values are marked "n/a."

**Table 20. E-Commerce Turnover Evolution Over Time (2015-2022)**

Rank	Country	2015	2016	2017	2018	2019	2020	2021	2022	Compound Annual Growth Rate (2015-2022)
1	Greece	1.2%	5.9%	3.4%	4.1%	4.0%	n/a	5.0%	7.3%	29.4%
2	Malta	4.2%	5.9%	6.3%	n/a	n/a	9.0%	6.9%	8.1%	9.8%
3	Netherlands	8.3%	9.2%	9.5%	10.3%	11.7%	12.8%	14.9%	15.7%	9.5%
4	Croatia	7.1%	8.3%	8.7%	11.2%	9.0%	13.8%	13.4%	13.4%	9.5%
5	Italy	8.2%	6.4%	5.8%	7.5%	8.4%	9.3%	9.4%	13.5%	7.4%
6	Hungary	7.0%	7.6%	10.0%	8.8%	10.9%	9.1%	10.6%	10.9%	6.5%
7	Romania	4.9%	4.3%	5.2%	4.7%	4.9%	8.3%	7.4%	7.6%	6.5%
8	Estonia	8.1%	10.7%	11.4%	12.3%	12.1%	12.2%	12.4%	12.4%	6.3%
9	Bulgaria	3.1%	1.7%	3.5%	2.0%	2.2%	3.0%	4.0%	4.7%	6.1%
10	Slovenia	8.4%	n/a	n/a	n/a	10.8%	11.7%	13.9%	12.5%	5.8%
11	Spain	7.3%	9.4%	10.1%	9.6%	9.2%	9.6%	9.1%	10.2%	4.9%
12	Ireland	19.2%	21.8%	22.9%	26.0%	29.0%	26.9%	22.3%	26.2%	4.5%
13	Lithuania	11.0%	12.2%	11.8%	13.6%	12.4%	14.9%	17.9%	15.0%	4.5%
14	Denmark	15.1%	18.0%	14.5%	16.7%	17.6%	19.5%	17.8%	18.9%	3.3%
15	Poland	n/a	6.6%	6.6%	n/a	n/a	n/a	n/a	8.0%	3.3%
16	Sweden	13.5%	14.7%	15.0%	18.5%	17.7%	15.1%	19.0%	16.3%	2.7%
17	Austria	8.0%	5.7%	6.5%	6.6%	9.3%	10.5%	10.0%	9.6%	2.6%
18	Germany	9.6%	7.0%	11.4%	8.6%	9.6%	10.6%	10.2%	11.5%	2.6%
	European Union	9.6%	9.4%	10.4%	10.0%	10.9%	11.7%	11.6%	11.3%	2.4%
20	Belgium	14.5%	19.6%	15.4%	12.5%	14.1%	n/a	14.6%	16.7%	2.0%
21	Czech Republic	16.8%	21.7%	16.3%	18.4%	20.9%	18.0%	16.6%	17.2%	0.3%
22	Portugal	13.3%	12.0%	13.1%	14.6%	15.1%	15.5%	12.7%	13.3%	0.0%
23	Latvia	n/a	8.2%	8.6%	5.4%	5.3%	7.1%	7.5%	8.1%	-0.2%
24	Cyprus	7.3%	4.7%	6.3%	5.6%	7.8%	5.2%	4.7%	6.6%	-1.4%
25	Slovakia	10.9%	10.5%	12.2%	10.6%	11.2%	10.9%	8.3%	8.7%	-3.2%
26	France	10.6%	10.3%	11.1%	10.6%	10.9%	11.9%	13.1%	5.1%	-9.9%
	Luxembourg	2.6%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Finland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: Eurostat  
Note: For Latvia and Poland, the compound annual growth rate refers to 2016-2022. No data is available for Luxembourg and Finland. The missing values are marked "n/a."

## I.3 Digital Skills

The world of digital skills is littered with surveys and data: first and foremost, the Organisation for Economic Cooperation and Development (OECD) Programme for International Student Assessment (PISA) and Programme for the International Assessment of Adult Competences (PIAAC).<sup>21</sup>

*‘With the Digital Skills indicator, we aim to measure the level of digital skills inside SMEs.’*

clear, this is not a measure of the broad level of skills within a given society; it is an effort to measure how much and how well those skills (and the human capital upon which it is based) are being deployed and developed within the SME sector.

To do this, we look at three sub-indicators: the share of SMEs that employ ICT specialists, the share of SMEs that perform their own ICT function and the share of SMEs providing digital-skill training to ICT specialists and others who work there.

The results produce some predictable – and unpredictable – winners. **Finland** (No. 1) and **Denmark** (No. 2) lead the league table on most digital indicators in this survey. But **Malta** (No. 3) is a surprising top finisher. Also performing well are **Belgium** (No. 4), **Sweden** (No. 5), **The Netherlands** (No. 6) and **Ireland** (No. 7).

But the real story lies not among the countries that do well but with the countries that underperform. **Romania** (No. 25), **Italy** (No. 26) and **Bulgaria** (No. 27) are the league laggards; digital and other skills are perennial problems there and it is hard to see how these countries will surge in other areas without a substantial effort to raise skills in an area that has come – in the modern economy – to play a role similar to basic reading and mathematics literacy.

**Table 21. Digital Skills**

Rank	Change in Ranking	Country	Score
1		Finland	92.81
2		Denmark	85.55
3	▲ 1	Malta	78.01
4	▼ 1	Belgium	77.41
5	▲ 1	Sweden	74.52
6	▲ 1	Netherlands	70.23
7	▼ 2	Ireland	61.21
8	▲ 1	Cyprus	60.28
9	▲ 4	Austria	58.62
10		Germany	58.01
11	▲ 6	Poland	57.48
12	▼ 4	Hungary	55.22
13	▼ 2	Luxembourg	52.12
14	▲ 8	Latvia	51.02
15	▲ 5	Slovenia	49.39
16	▼ 1	Portugal	48.78
17	▼ 5	Croatia	48.08
European Union			47.09
18	▼ 2	Czech Republic	47.02
19	▼ 5	Estonia	42.18
20	▼ 2	Spain	37.44
21	▼ 2	Lithuania	34.63
22	▼ 1	France	32.41
23		Greece	32.26
24		Slovakia	32.21
25		Romania	23.68
26	▲ 1	Italy	23.08
27	▼ 1	Bulgaria	20.04

Source: Eurostat (Lisbon Council calculations)

<sup>21</sup> Visit <https://www.oecd.org/skills/piaac/> for an overview of this landmark study and its most recent findings.

**Table 22. ICT Specialists**

Rank	Country	Share of SMEs that Employ ICT Specialists in Total SMEs	Score
1	Denmark	32.3%	100.00
2	Malta	31.9%	98.37
3	Belgium	30.8%	93.89
4	Ireland	29.0%	86.56
-	Netherlands	29.0%	86.56
6	Hungary	28.9%	86.15
7	Poland	28.8%	85.75
8	Finland	27.0%	78.42
9	Cyprus	23.5%	64.16
10	Luxembourg	21.6%	56.43
11	Austria	21.5%	56.02
12	Sweden	21.4%	55.61
13	Germany	20.3%	51.13
	<b>European Union</b>	<b>19.3%</b>	<b>47.06</b>
14	Greece	19.2%	46.65
15	Slovenia	18.8%	45.02
16	Portugal	18.7%	44.62
17	Latvia	17.3%	38.91
18	Czech Republic	17.0%	37.69
19	Estonia	15.9%	33.21
-	France	15.9%	33.21
21	Lithuania	15.3%	30.77
22	Slovakia	15.2%	30.36
23	Croatia	15.1%	29.95
24	Bulgaria	14.8%	28.73
25	Spain	14.7%	28.33
26	Italy	12.2%	18.14
27	Romania	10.2%	10.00

Source: Eurostat

**Table 23. ICT In-House**

Rank	Country	Share of SMEs for Which ICT Functions Are Performed by Own Employees in Total SMEs	Score
1	Finland	68.1%	100.00
2	Latvia	60.9%	86.39
3	Sweden	59.6%	83.93
4	Austria	56.7%	78.45
5	Denmark	55.5%	76.18
6	Croatia	52.2%	69.94
7	Malta	51.6%	68.80
8	Germany	46.9%	59.92
9	Belgium	46.6%	59.35
10	Netherlands	45.2%	56.70
11	Czech Republic	44.4%	55.19
12	Estonia	44.1%	54.62
13	Luxembourg	43.2%	52.92
14	Lithuania	42.8%	52.16
15	Romania	42.2%	51.03
16	Cyprus	41.1%	48.95
17	Portugal	40.7%	48.19
18	Ireland	39.5%	45.92
	<b>European Union</b>	<b>39.4%</b>	<b>45.74</b>
19	Hungary	38.2%	43.47
20	Spain	36.5%	40.25
21	Slovakia	36.2%	39.68
22	France	34.7%	36.85
23	Slovenia	34.1%	35.71
24	Poland	32.6%	32.88
25	Greece	28.6%	25.32
26	Bulgaria	25.9%	20.21
27	Italy	20.5%	10.00

Source: Eurostat

**Table 24. ICT Specialists Evolution Over Time (2015-2022)**

Rank	Country	2015	2016	2017	2018	2019	2020	2022	Compound Annual Growth Rate (2015-2022)
1	Poland	10.1%	10.4%	10.2%	11.1%	21.5%	23.2%	28.8%	16.1%
2	Denmark	22.8%	23.8%	22.8%	26.1%	27.8%	27.1%	32.3%	5.1%
3	Malta	24.3%	24.4%	22.1%	22.1%	26.0%	27.1%	31.9%	4.0%
4	Estonia	13.1%	13.2%	13.6%	12.2%	13.6%	15.5%	15.9%	2.8%
5	Hungary	23.9%	24.3%	25.8%	24.6%	24.4%	27.3%	28.9%	2.8%
6	Sweden	17.9%	16.2%	18.9%	17.7%	16.8%	19.5%	21.4%	2.6%
7	Finland	23.2%	22.5%	24.2%	23.9%	23.8%	25.9%	27.0%	2.2%
8	Belgium	26.5%	23.9%	27.6%	26.3%	26.0%	28.4%	30.8%	2.2%
9	Lithuania	13.5%	13.9%	16.5%	15.4%	13.5%	14.1%	15.3%	1.8%
10	Netherlands	26.3%	24.5%	25.0%	25.6%	23.6%	22.5%	29.0%	1.4%
11	France	14.5%	13.9%	15.7%	15.4%	15.8%	16.4%	15.9%	1.3%
	European Union	18.2%	18.4%	17.4%	17.3%	17.7%	17.6%	19.3%	0.8%
12	Germany	19.2%	20.5%	17.1%	18.2%	17.1%	17.4%	20.3%	0.8%
13	Slovenia	17.8%	18.1%	17.1%	18.4%	16.0%	14.8%	18.8%	0.8%
14	Czech Republic	16.8%	16.8%	17.9%	16.8%	17.9%	15.8%	17.0%	0.2%
15	Portugal	18.5%	17.6%	18.4%	17.2%	19.7%	18.3%	18.7%	0.2%
16	Ireland	29.0%	33.9%	31.7%	31.0%	30.2%	28.8%	29.0%	0.0%
17	Latvia	17.3%	16.0%	12.1%	14.0%	18.7%	18.6%	17.3%	0.0%
18	Austria	22.0%	23.1%	21.5%	18.4%	18.0%	17.7%	21.5%	-0.3%
19	Cyprus	25.1%	23.4%	23.7%	21.5%	22.0%	23.8%	23.5%	-0.9%
20	Luxembourg	23.2%	22.3%	23.0%	22.0%	22.9%	20.4%	21.6%	-1.0%
21	Slovakia	17.2%	17.5%	17.1%	15.1%	15.3%	14.4%	15.2%	-1.8%
22	Romania	11.9%	10.1%	8.6%	10.1%	9.4%	14.5%	10.2%	-2.2%
23	Italy	15.7%	15.9%	15.2%	15.2%	15.0%	11.6%	12.2%	-3.5%
24	Croatia	19.5%	15.0%	17.9%	18.0%	17.2%	16.6%	15.1%	-3.6%
25	Bulgaria	19.4%	18.9%	18.1%	18.7%	19.1%	14.9%	14.8%	-3.8%
26	Greece	25.2%	28.6%	19.4%	21.0%	20.7%	18.4%	19.2%	-3.8%
27	Spain	24.0%	23.9%	19.7%	16.6%	15.4%	15.6%	14.7%	-6.8%

Source: Eurostat

**Table 25. ICT In-House Evolution Over Time (2015-2022)**

Rank	Country	2015	2016	2017	2018	2019	2020	2022	Compound Annual Growth Rate (2019-2022)
1	Latvia	20.8%	23.8%	n/a	26.2%	30.9%	22.7%	60.9%	25.4%
2	Czech Republic	10.3%	11.5%	12.8%	18.0%	27.1%	35.7%	44.4%	17.9%
3	Cyprus	21.9%	15.4%	14.7%	12.5%	28.4%	32.4%	41.1%	13.1%
4	Greece	16.2%	13.0%	10.0%	9.9%	n/a	25.2%	28.6%	6.5%
5	Malta	17.0%	15.8%	n/a	16.7%	43.1%	49.9%	51.6%	6.2%
6	Austria	18.9%	18.9%	20.3%	17.3%	49.6%	48.4%	56.7%	4.6%
7	Croatia	18.1%	15.0%	17.9%	19.0%	46.5%	47.1%	52.2%	3.9%
8	Portugal	n/a	14.7%	15.3%	13.8%	37.4%	35.9%	40.7%	2.9%
9	Slovakia	18.6%	17.5%	15.5%	13.8%	33.4%	34.0%	36.2%	2.7%
10	Poland	15.6%	14.0%	14.2%	14.2%	30.4%	26.3%	32.6%	2.4%
11	Spain	17.4%	18.1%	n/a	16.0%	34.6%	37.2%	36.5%	1.8%
12	Romania	14.9%	13.6%	14.5%	14.0%	40.1%	40.8%	42.2%	1.7%
13	Belgium	18.8%	15.7%	16.6%	16.4%	44.6%	49.7%	46.6%	1.5%
14	Slovenia	n/a	15.5%	16.0%	18.5%	32.7%	31.1%	34.1%	1.4%
15	Sweden	25.6%	26.5%	26.5%	23.0%	57.4%	60.3%	59.6%	1.3%
16	Finland	25.0%	26.0%	25.9%	25.8%	67.3%	66.8%	68.1%	0.4%
17	Denmark	19.4%	19.2%	17.7%	17.5%	55.3%	58.2%	55.5%	0.1%
	<b>European Union</b>	<b>16.5%</b>	<b>16.9%</b>	<b>n/a</b>	<b>15.4%</b>	<b>39.4%</b>	<b>39.4%</b>	<b>39.4%</b>	<b>0.0%</b>
18	Germany	19.2%	20.0%	n/a	17.2%	48.5%	48.8%	46.9%	-1.1%
19	Netherlands	18.3%	17.9%	n/a	19.1%	n/a	47.9%	45.2%	-2.9%
20	Hungary	17.1%	16.3%	16.7%	15.8%	41.8%	38.5%	38.2%	-3.0%
21	Luxembourg	24.3%	24.7%	24.0%	23.1%	47.9%	42.4%	43.2%	-3.4%
22	Estonia	22.8%	26.5%	n/a	31.8%	49.4%	54.5%	44.1%	-3.7%
23	France	14.2%	16.6%	n/a	13.0%	39.2%	38.6%	34.7%	-4.0%
24	Italy	12.0%	11.9%	n/a	10.6%	23.8%	22.7%	20.5%	-4.9%
25	Lithuania	20.0%	21.2%	22.7%	18.9%	50.0%	50.6%	42.8%	-5.1%
26	Ireland	16.7%	16.4%	n/a	16.7%	n/a	47.7%	39.5%	-9.0%
27	Bulgaria	15.4%	13.0%	14.7%	13.5%	34.7%	28.9%	25.9%	-9.3%

Source: Eurostat

Note: The definition for the indicator changed in 2019: from 2015 until 2018, the data refers to SMEs where ICT functions are mainly performed by their own employees; since 2019, the data refers to SMEs where ICT functions are performed by their own employees. Due to the methodological change, the compound annual growth rate is computed only for 2019-2022. For Greece, Ireland and The Netherlands, the compound annual growth rate refers to 2020-2022. The missing values are marked "n/a."

In terms of long-term trends, progress across the board is relatively slow. The share of SMEs employing SME specialists, the share of SMEs for which ICT functions are performed in-house and the share of SMEs providing digital-skill training all were flat over the period 2015-2022. The **EU Average** in these three sub-indicators only grew at 0.84%, 0.0% and 1.1% compound annual rates, respectively.

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***‘In terms of digital skills, progress across the board is relatively slow.’***

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**Table 26. ICT Training**

Rank	Country	Share of SMEs Providing Training to Develop or Upgrade ICT Skills of Personnel in Total SMEs	Score
1	Finland	38.3%	100.00
2	Sweden	32.9%	84.01
3	Denmark	31.7%	80.46
4	Belgium	31.2%	78.98
5	Cyprus	27.4%	67.73
6	Netherlands	27.3%	67.43
-	Slovenia	27.3%	67.43
8	Malta	27.1%	66.84
9	Germany	25.8%	62.99
10	Poland	22.7%	53.82
11	Portugal	22.6%	53.52
12	Ireland	21.8%	51.15
	<b>European Union</b>	<b>20.9%</b>	<b>48.49</b>
13	Czech Republic	20.8%	48.19
14	Luxembourg	20.4%	47.01
15	Croatia	19.5%	44.34
16	Spain	19.3%	43.75
17	Austria	18.5%	41.38
18	Italy	18.4%	41.09
19	Estonia	17.6%	38.72
20	Hungary	16.7%	36.05
21	Latvia	13.9%	27.76
22	France	13.7%	27.17
23	Slovakia	13.5%	26.58
24	Greece	12.9%	24.80
25	Lithuania	11.6%	20.95
26	Bulgaria	8.3%	11.18
27	Romania	7.9%	10.00

Source: Eurostat

**Table 27. ICT Training Evolution Over Time (2015-2022)**

Rank	Country	2015	2016	2017	2018	2019	2020	2022	Compound Annual Growth Rate (2015-2022)
1	Poland	10.0%	9.9%	10.4%	11.6%	11.6%	15.9%	22.7%	12.4%
2	Romania	4.7%	4.2%	3.6%	4.4%	5.5%	5.1%	7.9%	7.7%
3	Netherlands	16.4%	20.7%	21.9%	24.0%	n/a	22.1%	27.3%	7.6%
4	Italy	11.6%	11.1%	12.2%	16.2%	18.7%	14.7%	18.4%	6.8%
5	Estonia	12.3%	12.1%	12.0%	12.0%	16.0%	15.9%	17.6%	5.3%
6	Sweden	24.5%	23.5%	26.6%	22.5%	31.1%	30.8%	32.9%	4.3%
7	Latvia	11.2%	10.5%	8.6%	9.6%	16.7%	15.7%	13.9%	3.1%
8	Cyprus	22.5%	20.7%	25.3%	25.6%	29.9%	24.7%	27.4%	2.9%
9	Lithuania	9.8%	8.7%	9.8%	7.7%	9.6%	12.3%	11.6%	2.4%
10	Hungary	14.3%	14.5%	15.7%	15.2%	15.1%	14.6%	16.7%	2.2%
11	Malta	23.3%	21.3%	24.9%	24.7%	25.3%	26.6%	27.1%	2.2%
12	Denmark	27.8%	26.9%	25.1%	26.7%	29.2%	28.7%	31.7%	1.9%
13	Bulgaria	7.4%	7.2%	8.2%	8.0%	9.3%	5.9%	8.3%	1.7%
	<b>European Union</b>	<b>19.4%</b>	<b>19.8%</b>	<b>19.4%</b>	<b>20.4%</b>	<b>21.8%</b>	<b>18.3%</b>	<b>20.9%</b>	<b>1.1%</b>
14	Finland	35.8%	32.7%	36.1%	34.4%	35.0%	36.1%	38.3%	1.0%
15	Czech Republic	19.6%	19.4%	20.6%	22.5%	22.2%	22.5%	20.8%	0.9%
16	Portugal	21.4%	21.8%	19.5%	18.3%	26.9%	21.7%	22.6%	0.8%
17	Slovenia	26.7%	25.9%	25.1%	26.8%	26.8%	24.0%	27.3%	0.3%
18	Belgium	30.6%	32.1%	33.1%	34.1%	34.8%	30.8%	31.2%	0.3%
19	Spain	20.6%	21.6%	21.4%	20.0%	20.6%	18.9%	19.3%	-0.9%
20	Greece	13.8%	14.0%	10.7%	13.4%	14.6%	n/a	12.9%	-1.0%
21	Germany	28.0%	27.5%	26.2%	28.4%	29.9%	22.1%	25.8%	-1.2%
22	Croatia	22.7%	20.4%	21.7%	22.3%	21.6%	21.2%	19.5%	-2.1%
23	Luxembourg	23.8%	27.4%	26.5%	25.7%	25.7%	19.8%	20.4%	-2.2%
24	Slovakia	16.7%	18.3%	14.8%	15.7%	16.2%	14.3%	13.5%	-3.0%
25	Ireland	29.2%	29.1%	28.9%	29.0%	29.4%	25.6%	21.8%	-4.1%
26	France	19.8%	19.1%	17.6%	17.8%	20.0%	13.4%	13.7%	-5.1%
27	Austria	31.8%	35.3%	29.1%	25.3%	16.6%	16.3%	18.5%	-7.4%

Source: Eurostat  
Note: The missing values are marked "n/a."

Chapter II

# Green Transition



**Table 28. Green Transition**

Rank	Change in Ranking	Country	Score	Natural Resource Conservation Rank	Emission Reduction Rank	Green Output Rank
1		Sweden	74.62	3	2	3
2		Netherlands	68.59	1	16	4
3	▲8	Denmark	66.71	26	1	1
4	▼1	Luxembourg	61.69	10	14	2
5		Slovakia	60.69	4	12	7
6		Belgium	60.39	5	10	8
7	▼3	Austria	57.11	8	17	6
8		France	56.34	9	5	10
9		Germany	53.59	7	8	18
European Union			52.85			
10	▲6	Estonia	52.34	20	4	11
11	▼1	Spain	51.95	2	24	15
12		Malta	51.75	12	6	12
13	▲4	Italy	48.87	6	19	14
14	▼7	Finland	48.30	18	25	5
15	▲5	Slovenia	46.52	16	22	9
16	▼1	Romania	46.11	14	3	25
17	▲1	Lithuania	44.48	25	7	16
18	▼5	Hungary	44.44	13	13	22
19	▲3	Greece	43.78	15	20	13
20	▼1	Poland	42.62	17	11	24
21	▲2	Czech Republic	41.17	11	15	27
22	▼8	Ireland	39.53	22	18	21
23	▲1	Croatia	38.57	23	21	20
24	▼3	Portugal	37.69	21	23	19
25	▲2	Cyprus	34.35	19	26	17
26		Bulgaria	33.50	27	9	26
27	▼2	Latvia	29.33	24	27	23

Source: European Commission, Eurostat (Lisbon Council calculations)

Small- and medium-sized enterprises have an important role to play in the green transition. For starters, they make up an enormous part of the European economy: 24.3 million firms, employing 64.4% of the workforce and delivering 51.8% of the economic value.<sup>22</sup> If just half of Europe's 24.3 million SMEs could be incentivised to adopt renewable energy sources, deliver green products to market, purchase green products through their supply chains, commit to circular-economy principles and consistently deliver newer, greener products in newer, greener ways, Europe would be well along the way towards its ambitious goal to lead the world in carbon-neutrality and energy transition. But the opposite scenario is true, too. As the OECD puts it: there can be “no net-zero without SMEs.”<sup>23</sup>

And there's a key point lurking just behind these facts, too. The biggest problem the energy transition faces is the so-called “green premium.” The fact that green products – including energy – too often cost more than other, older products. This means that green items too often remain luxury goods – available only to the wealthy or to serve as one-off purchases to satisfy some vague urge to “help the environment.”

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***‘The biggest problem the energy transition faces is the so-called “green premium”.’***

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But SMEs – with their broad geographic reach, their leading role in the communities they serve and their ability to get innovation off the

shelf and into the hands of consumers – could play a crucial role in bringing that premium down. Green products, if and where they exist, often have relatively small markets, forcing producers to take large margins on low volumes. But the opposite can happen, too; larger markets bring prices down – giving producers access to larger groups of consumers and allowing them to take smaller margins on larger volumes of sales. It's an age-old principle. And it was one of the founding ideas of the European Union, too – the notion that by stitching together 27 separate markets into a single whole, smart companies would find the fertile soil they needed to grow.<sup>24</sup> And the success of those companies, in turn, would have geopolitical implications; it would create a generation of consumer-driven, responsive European companies ready to use their success at home to build international champions, capable of conquering global markets and taking Europe's talent and values out into the world at large.

Put simply, Europe urgently needs to bring the European Green Deal and the Single Market together. It needs to create a single economy of size and stature where great ideas that originated in, say, Slovenia, can find large markets in France, Germany and elsewhere. And where the opposite route – French and German goods making their way to Slovenia – is possible as well. Among other things, this would create jobs and contribute mightily to the spread of green technology. It would put local producers under greater pressure to deliver

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<sup>22</sup> Laura Di Bella, Markus Hell, Anastasis Katsinis, Jaime Laguera Gonzalez, Borut Lozar and Ludger Odenthal, *Annual Report on European SMEs 2022/2023* (Luxembourg: Publication Office of the European Union, 2023). As mentioned in Footnote 6, we use the official European Commission definition of what constitutes an SME throughout this study. According to that definition an SME has fewer than 250 employees and either an annual turnover of less than €50 million or a balance sheet total of less than €43 million.

<sup>23</sup> OECD, “No Net Zero without SMEs: Exploring the Key Issues for Greening SMEs and Green Entrepreneurship,” *OECD SME and Entrepreneurship Papers* (Paris: OECD, 2021).

<sup>24</sup> For an overview of the Europe 1992 project – the plans, objectives and the politics behind it – see “Préface” by Jacques Delors in Anthony Giddens and Tony Blair, *La Troisième Voie: Le renouveau de la social-démocratie* (Paris: Seuil, 2002).

green products at affordable prices. It would stimulate innovation in a market that is already hungry for it. And it would bring the green premium down – and not a moment too soon.

But the problem is, the Single Market is still mostly a mirage. It exists more on paper or in politicians' pledges than in the real world.<sup>25</sup> Even in this, the 30<sup>th</sup> year, of Single Market success, entrepreneurs report a myriad of relatively-easy-to-solve

issues slowing down and sometimes blocking their expansion into neighboring markets – including with modern green products. To be sure, none of the rules are ill-intended. But the cumulative effect of – for example – complicated processes requiring national registration

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***‘Put simply, Europe urgently needs to bring the European Green Deal and the Single Market together.’***

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<sup>25</sup> For a recent assessment, see European Commission, *2023 Annual Single Market Report: Single Market at 30* (Brussels: European Commission 2023). See also Matthias Bauer, “What is Wrong with Europe’s Shattered Single Market,” *ECIPE Occasional Paper*, 2023; Fredrik Erixon, Oscar Guinea, Philipp Lamprecht, Vanika Sharma, Elena Sisto and Erik van der Marel, “A Compass to Guide EU Policy in Support of Business Competitiveness,” *ECIPE Occasional Paper*, 2022.

## Enpal GmbH: Solar Panels as a Service

Enpal GmbH is only six years old. But its unique model of providing sustainable energy services has already taken it to the heights of the industry – and made it something of a “golden boy” in the clean tech sector. Its unique value proposition: instead of selling you solar panels, Enpal will let you rent them – a proposal requiring no up-front cash and ensuring hassle-free usage through the promise to maintain the working panels throughout the life of the rental agreement. It’s “solar panels as a service,” in other words, deploying a popular model used often for software services to the very real-world arena of sustainable energy and energy transition. For most customers, monthly payments are less than what they previously spent on electricity and gas combined – making the entire transaction into what some would call a “no-brainer.” After two decades, customers can purchase the whole setup for just one symbolic euro. Already, Enpal has left behind its SME roots. It now boasts annual revenue of €400 million, has 1,700 employees and a market valuation of €2.2 billion – giving it unicorn status. The trouble is, most of its growth has been centred on home-country Germany, where Enpal panels are now present on the roofs of more than 40,000 homes and businesses and roughly 2,000 new ones going up each month. A plethora of complicated permitting rules have tied up the German roll out – and left managers leary of what might be involved in offering a similar service in neighbouring European Union member states. As Mario Kohle, founder and CEO put it: “Anyone who wants to put a solar system on their roof must get through a bureaucratic paper war beforehand. Solar energy systems that could have been producing electricity long ago are thus at a standstill for months. We currently employ 80 people in our grid operations team only to solve the bureaucracy for our customers.” And that’s just in Germany. He cites “complex grid operator registration and technical regulations for smart meters” as areas where bureaucracy rules. Visit <https://www.enpal.de/>.

Source: Maricel Sanchez, “Going Global with a Solar System for Rent-Interview with Mario Kohle, Founder and CEO of Enpal,” *EU-Startups*, 24 March 2023

of all potentially recyclable products every time one is sold across a border or a VAT regime that requires separate VAT registration for any inventory held in non-home countries – can be a huge disincentive to taking recyclable products across borders in any case. Entrepreneurs do it any way; but many of them report a growing body of difficulties brought on by recent legislation. The biggest problem seems to be that Europe lacks an effective feedback loop to correct wobbly legislation, offer regular reviews as to how the legislation could be made to work better and bring whole ecosystems together (consumers, producers and regulators) to share their knowledge for better outcomes. A separate policy brief – **Green, Digital and**

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*‘The biggest problem seems to be that Europe lacks an effective feedback loop to correct wobbly legislation, offer regular reviews as to how the legislation could be made to work better and bring whole eco-systems together (consumers, producers and regulators) to share their knowledge for better outcomes.’*

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**Competitive: The Politics of Green Transition** – will look at the policy situation. Today, our modest goal is to track progress on the green transition among EU member states.

And there Europe boasts a clear and evident champion: **Sweden** (No. 1). Sweden is the only country to finish top three in all three Green Transition indicators with strong performance in conserving natural resources,

cutting emissions and delivering green products to market. It is also the only country with an overall Green Transition score above 70 – more than twice the league laggard **Latvia** (No. 27). Second and third are **The Netherlands** (No. 2) and **Denmark** (No. 3). Meanwhile, **Luxembourg** (No. 4), **Slovakia** (No. 5) and **Belgium** (No. 6) all score above 60 – behind the league leaders, but comfortably above the **EU Average** (52.8) as well. See Table 28 on page 41 for a breakdown.

More broadly speaking, the index shows progress in all three key areas (Natural Resource Conservation, Emission Reduction and Green Output). But the pace of change is uneven. More than 18 countries come in under the **EU Average**.<sup>26</sup> And even in the places where the green transition is happening, the pace of change is stately, as will be analysed below. Put simply, the direction of travel is good. But the pace is nothing like what Europe will need to meet the ambitious 2050 target to become the first carbon-neutral continent.

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<sup>26</sup> The 18 countries are Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Finland, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovenia and Spain.

## II.1 Natural Resource Conservation

The Natural Resource Conservation Indicator measures three things: The number of SMEs reducing consumption of natural resources, the share using materials and waste inside of the company and the country's success in using circular-economy models to cut waste and reuse materials.

This latter indicator is new – intended to add more precision to a set of indicators that have sometimes been too subjective. Indeed, when it comes to green transition, there is one evident problem with the data. Much of it is based on self-reporting – surveys, in other words, in which companies are invited to grade themselves. This includes the very fine *Flash Eurobarometer* series, commissioned and regularly updated by the European Commission, which serves to date as one of the few relatively objective measures of progress in the green field at the country or enterprise level.<sup>27</sup> With the Green, Digital and Competitive SME Index, we have endeavoured to push for harder, more concrete tools – for facts that can be measured rather than results that are “reported.”

And the Green, Digital and Competitive SME Index does produce clear winners even if the basis may sometimes seem skewed by the subjectiveness of the data. **The Netherlands** (No. 1) and **Spain** (No. 2) lead the table with Natural Resource Conservation scores above 70. **Sweden** is No. 3 with a score of 69.3. And the gap between top and bottom is enormous. Laggards are **Lithuania** (No. 25) with a 29.01 score (half of the league-leading score and well below the **EU Average**). Also low are **Bulgaria** (No. 27 with a 15.21 score) and **Denmark** (No. 26 at 26.29) – though here, we believe, the result tells us more about the shallowness of the data than the performance of the countries. As mentioned above, the results are based on self-reported surveys. And, in Denmark, local entrepreneurs continue to rate themselves low on natural-resource conversation, giving this famously green Nordic economy a surprisingly low No. 26

*‘We have endeavoured to push for harder, more concrete tools.’*

**Table 29. Natural Resource Conservation**

Rank	Change in Ranking	Country	Score
1	▲3	Netherlands	79.37
2	▼1	Spain	76.11
3	▼1	Sweden	69.37
4	▼1	Slovakia	61.73
5	▲3	Belgium	61.28
6	▲4	Italy	58.01
7	▼2	Germany	57.19
8	▼1	Austria	55.20
European Union			52.60
9	▲12	France	48.03
10	▼4	Luxembourg	47.89
11	▲2	Czech Republic	47.70
12	▲3	Malta	46.32
13	▼1	Hungary	43.48
14	▼5	Romania	43.12
15	▼4	Greece	40.99
16	▲4	Slovenia	40.43
17	▲2	Poland	39.18
18	▼4	Finland	38.78
19	▼3	Cyprus	36.72
20	▲5	Estonia	36.31
21	▼4	Portugal	34.79
22	▼4	Ireland	33.41
23	▼1	Croatia	33.17
24		Latvia	30.70
25	▼2	Lithuania	29.01
26		Denmark	26.29
27		Bulgaria	15.21

Sources: European Commission, Eurostat (Lisbon Council calculations)

<sup>27</sup> The most recent iteration – in which much of the data used in this study is presented – is European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2022).

place finish in this category. We believe Danish entrepreneurs are being way too hard on themselves in their self-reporting – perhaps because the standards and values there run so deep that what looks like underperformance to Danes might count as overperformance to others.<sup>28</sup>

Similar caveats apply to the time-series data, where a host of countries report progress while some evident league leaders have given themselves very negative self-assessment. Data in this field is very hard to come by; put simply, it is entirely reliant on survey data gathered sporadically by European Commission’s Eurobarometer and recent data is only available for 2015, 2017 and 2021. When it comes to overall performance on Consumption – the sub-indicator covering SMEs that are working to reduce consumption of natural resources as a percentage of the total share of SMEs – **Spain** (No. 1), **Sweden** (No. 2) and **Slovakia** (No. 3) lead with scores more than 20% above the **EU Average**. **Denmark** (No. 25), **Ireland** (No. 26), and **Bulgaria** (No. 27) make up the bottom of the ranking, though, as mentioned, we believe the Danish entrepreneurs are too hard on themselves in the self-reporting process. In terms of progress over time, **Romania** (with a compound annual growth rate improvement of 11% over the seven-year period measured), **Estonia** (with a 9% improvement over the same period) and **Italy** (with an 8.7% improvement) show the most improvement over time. At the other end of the spectrum are the countries that are improving least: **France** (with an -8.9% decline), **Denmark** (with a -9.6% fall) and **Portugal** (with a -10.6% drop). Taken together, European Union SMEs report a 0.6% compound annual growth rate for resource conservation over the seven-year period measured here. This means the **EU Average** performance in 2021 (43.1) is better than in 2015 (41.6) but it is still below 2017 (45), the last year for which usable data was gathered prior to the COVID 19-related business slowdown. Progress will need to come more quickly in this area.

**Table 30. Consumption**

Rank	Country	Share of SMEs Reducing Consumption of Natural Resources (e.g. Saving Water, Energy and Materials or Switching to Sustainable Resources)	
			Score
1	Spain	60.60%	100.00
2	Sweden	59.20%	96.94
3	Slovakia	56.00%	89.95
4	Belgium	50.00%	76.84
5	Romania	48.00%	72.48
6	Netherlands	47.80%	72.04
7	Germany	46.20%	68.54
8	Austria	46.00%	68.11
9	Hungary	45.00%	65.92
10	Italy	44.80%	65.49
11	Luxembourg	43.40%	62.43
	<b>European Union</b>	<b>43.20%</b>	<b>61.99</b>
12	Lithuania	42.20%	59.81
13	Finland	40.60%	56.31
14	Malta	39.00%	52.82
15	Czech Republic	38.20%	51.07
-	Poland	38.20%	51.07
17	Greece	37.80%	50.19
18	Latvia	37.00%	48.45
19	Cyprus	35.40%	44.95
20	Slovenia	34.80%	43.64
21	Croatia	33.60%	41.02
22	Estonia	30.00%	33.16
-	France	30.00%	33.16
24	Portugal	28.40%	29.66
25	Denmark	26.20%	24.85
26	Ireland	25.80%	23.98
27	Bulgaria	19.40%	10.00

Source: European Commission

<sup>28</sup> Either way, to move data in this category towards more objective criteria, we added a new sub-indicator to *The 2023 Green, Digital and Competitive SME Index* – Circular Material Use Rate – which measures, objectively, the countries’ rates in using circular-economy-based materials. As we will see in the next section, using that yardstick, Denmark is No. 14 – a middle-of-the-pack finish.

**Table 31. Consumption Evolution Over Time (2015-2021)**

Rank	Country	2015	2017	2021	Compound Annual Growth Rate (2015-2021)
1	Romania	25.3%	22.2%	47.9%	11.2%
2	Estonia	17.9%	12.0%	30.0%	9.0%
3	Italy	27.3%	42.2%	44.9%	8.7%
4	Spain	43.6%	51.0%	60.6%	5.6%
5	Slovakia	46.4%	37.7%	55.9%	3.2%
6	Greece	31.9%	35.7%	37.7%	2.9%
7	Sweden	51.3%	48.4%	59.2%	2.4%
8	Lithuania	36.6%	28.5%	42.3%	2.4%
9	Germany	39.9%	48.2%	45.9%	2.4%
10	Hungary	39.9%	37.5%	45.1%	2.0%
11	Netherlands	42.9%	46.2%	47.9%	1.9%
12	Luxembourg	39.5%	36.8%	43.5%	1.6%
13	Cyprus	32.6%	28.2%	35.2%	1.3%
14	Slovenia	33.2%	37.8%	34.8%	0.8%
	<b>European Union</b>	<b>41.6%</b>	<b>45.0%</b>	<b>43.1%</b>	<b>0.6%</b>
15	Belgium	48.1%	49.3%	49.8%	0.6%
16	Austria	47.6%	49.6%	46.0%	-0.6%
17	Latvia	41.3%	40.2%	37.1%	-1.8%
18	Czech Republic	43.2%	39.4%	38.1%	-2.1%
19	Finland	46.1%	36.2%	40.5%	-2.1%
20	Poland	46.1%	42.7%	38.2%	-3.1%
21	Malta	47.0%	38.3%	38.8%	-3.1%
22	Croatia	42.9%	46.1%	33.7%	-4.0%
23	Bulgaria	29.8%	25.2%	19.5%	-6.8%
24	Ireland	41.5%	50.9%	25.7%	-7.7%
25	France	52.7%	51.0%	30.2%	-8.9%
26	Denmark	47.7%	39.2%	26.1%	-9.6%
27	Portugal	55.4%	55.6%	28.3%	-10.6%

Source: European Commission

The SME Recycling story is similar. **Spain** (No. 1) is a run-away standout – with 76% of SMEs reporting that they do recycle waste. **Bulgaria** (No. 26) and **Lithuania** (No. 27) draw up the bottom of the league table; fewer than 20% of SMEs in those countries report that they recycle – a massive gap with the league-leading Spanish rate. Meanwhile, the time-series results tell a different story. **Hungary** surprises with the highest rate of reported improvement (10.7%) over a seven-year period (2015-2021); the number of SMEs that say they recycle there

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*‘In the Circular Materials Use Rate category, The Netherlands, Belgium and France top the league table.’*

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has risen to 34.6%, up from 18.9% in 2015. It is closely followed in the time series by **Slovakia** (with 10.06% compound annual growth over the seven-year period covered) and **Italy** (a 9.37% rate), which also shows fast progress.

Given the evident subjectivity of this data, the Lisbon Council is adding a new sub-indicator to this category: Circular Materials Use Rate. Data here is much more robust and based on economy-wide material flows and other waste-management statistics.<sup>29</sup> On this criteria, **The Netherlands** (No. 1), **Belgium** (No. 2) and **France** (No. 3) top the league table; entrepreneurs there have embraced the circular economy concept and are advancing at pace. Meanwhile, entrepreneurs in **Ireland** (No. 26), **Finland** (No. 27) and **Romania** (No. 28) have yet to be convinced. Meanwhile, the compound growth figures tell a different story. **Malta** (with a 16.3% improvement over a seven-year period), **Slovakia** (with a 10.2% improvement over the same period) and **Czech Republic** (8.7%) report the most progress – but from very different bases. **Poland**, **Luxembourg** and **Finland** report the least improvement over the seven-year period – and, indeed, all three report net declines on circular material use since 2016.

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<sup>29</sup> Eurostat writes “the circular material use rate, also called ‘circularity rate,’ measures in percentage the share of material recycled and fed back into the economy - thus saving extraction of primary raw materials - in overall material use. The circularity rate is thus defined as the ratio of the circular use of materials to the overall material use. The circular use of materials is approximated by the amount of waste recycled in domestic recovery plants, minus imported waste destined for recycling (IMPw), plus exported waste destined for recycling abroad.” The result is an indicator based more directly on measurable performance than self-evaluation. For more, visit Eurostat’s circular economy material use rate reference page at [https://ec.europa.eu/eurostat/cache/metadata/en/env\\_ac\\_cur\\_esms.htm](https://ec.europa.eu/eurostat/cache/metadata/en/env_ac_cur_esms.htm).

**Table 32. Recycling**

Rank	Country	Share of SMEs Recycling by Reusing Material or Waste Within the Company	Score
1	Spain	76.00%	100.00
2	Sweden	67.00%	86.72
3	Netherlands	53.00%	66.07
-	Slovakia	53.00%	66.07
5	Ireland	52.00%	64.59
-	Luxembourg	52.00%	64.59
7	Germany	50.00%	61.64
-	Portugal	50.00%	61.64
9	Austria	47.00%	57.21
-	Greece	47.00%	57.21
European Union		47.00%	57.21
11	Czech Republic	45.00%	54.26
12	Cyprus	43.00%	51.31
-	Italy	43.00%	51.31
14	France	42.00%	49.84
15	Finland	41.00%	48.36
-	Malta	41.00%	48.36
17	Romania	40.00%	46.89
18	Belgium	38.00%	43.93
19	Slovenia	36.00%	40.98
20	Hungary	35.00%	39.51
21	Croatia	33.00%	36.56
22	Poland	32.00%	35.08
23	Estonia	27.00%	27.70
24	Denmark	26.00%	26.23
25	Latvia	22.00%	20.33
26	Bulgaria	19.00%	15.90
27	Lithuania	15.00%	10.00

Source: European Commission

**Table 33. Circular Material Use Rate**

Rank	Country	Circular Material Use Rate	Score
1	Netherlands	33.8%	100.00
2	Belgium	20.5%	63.06
3	France	19.8%	61.11
4	Italy	18.4%	57.22
5	Estonia	15.1%	48.06
6	Germany	12.7%	41.39
7	Austria	12.3%	40.28
European Union		11.7%	38.61
8	Czech Republic	11.4%	37.78
-	Malta	11.4%	37.78
10	Slovenia	11.0%	36.67
11	Poland	9.1%	31.39
12	Slovakia	8.3%	29.17
13	Spain	8.0%	28.33
14	Denmark	7.8%	27.78
15	Hungary	6.8%	25.00
16	Sweden	6.6%	24.44
17	Latvia	6.2%	23.33
18	Croatia	5.7%	21.94
19	Bulgaria	4.9%	19.72
20	Lithuania	4.0%	17.22
21	Luxembourg	3.8%	16.67
22	Greece	3.4%	15.56
23	Cyprus	2.8%	13.89
24	Portugal	2.5%	13.06
25	Ireland	2.0%	11.67
-	Finland	2.0%	11.67
27	Romania	1.4%	10.00

Source: Eurostat

**Table 34. Recycling Evolution Over Time (2015-2021)**

Rank	Country	2015	2017	2021	Compound Annual Growth Rate (2015-2021)
1	Hungary	18.9%	18.8%	34.9%	10.7%
2	Slovakia	29.6%	35.1%	52.6%	10.1%
3	Italy	25.3%	37.0%	43.3%	9.4%
4	Estonia	17.6%	12.8%	27.1%	7.4%
5	Spain	49.8%	57.0%	76.3%	7.4%
6	Romania	27.5%	21.9%	39.6%	6.2%
7	Luxembourg	37.8%	44.3%	52.3%	5.6%
8	Latvia	16.2%	14.4%	21.9%	5.1%
9	Greece	35.3%	30.2%	47.2%	5.0%
10	Cyprus	32.5%	46.7%	43.3%	4.9%
11	Germany	38.1%	38.2%	49.6%	4.5%
12	Lithuania	12.4%	6.9%	15.5%	3.8%
European Union		38.6%	40.4%	47.0%	3.3%
13	Finland	34.7%	31.3%	40.9%	2.7%
14	Slovenia	30.5%	33.0%	35.8%	2.7%
15	Netherlands	45.3%	37.1%	52.5%	2.5%
16	France	36.3%	41.3%	41.8%	2.4%
17	Sweden	60.0%	61.7%	67.4%	1.9%
18	Czech Republic	42.5%	35.2%	45.4%	1.1%
19	Poland	30.9%	23.8%	31.9%	0.5%
20	Croatia	32.9%	28.2%	33.1%	0.1%
21	Austria	47.2%	47.0%	47.0%	-0.1%
22	Belgium	38.9%	40.6%	38.0%	-0.4%
23	Bulgaria	21.7%	16.6%	18.7%	-2.5%
24	Portugal	62.5%	65.9%	49.4%	-3.9%
25	Ireland	67.9%	70.7%	51.9%	-4.4%
26	Malta	58.8%	51.3%	41.2%	-5.8%
27	Denmark	39.1%	29.1%	26.2%	-6.5%

Source: European Commission

**Table 35. Circular Material Use Rate Evolution Over Time (2015-2021)**

Rank	Country	2015	2016	2017	2018	2019	2020	2021	Compound Annual Growth Rate (2015-2021)
1	Malta	4.6%	4.2%	6.5%	8.3%	7.7%	13.3%	11.4%	16.3%
2	Greece	1.9%	2.3%	2.8%	3.3%	4.1%	4.4%	3.4%	10.2%
3	Czech Republic	6.9%	7.5%	9.1%	10.5%	11.3%	11.6%	11.4%	8.7%
4	Slovakia	5.1%	5.3%	5.0%	4.9%	6.4%	10.5%	8.3%	8.5%
5	Bulgaria	3.1%	4.4%	3.5%	2.5%	2.3%	5.9%	4.9%	7.9%
6	Estonia	11.3%	11.6%	12.4%	13.5%	15.6%	15.6%	15.1%	5.0%
7	Netherlands	25.8%	28.5%	29.7%	28.9%	30.0%	30.0%	33.8%	4.6%
8	Slovenia	8.6%	8.7%	9.8%	10.0%	11.4%	9.9%	11.0%	4.2%
9	Croatia	4.6%	4.6%	5.2%	5.0%	5.2%	5.7%	5.7%	3.6%
10	Portugal	2.1%	2.1%	2.0%	2.2%	2.3%	2.3%	2.5%	2.9%
11	Hungary	5.8%	6.5%	6.9%	7.0%	7.3%	5.2%	6.8%	2.7%
12	Latvia	5.3%	6.5%	5.4%	4.7%	4.3%	5.1%	6.2%	2.6%
13	Cyprus	2.4%	2.4%	2.4%	2.8%	2.9%	3.7%	2.8%	2.6%
14	Belgium	17.7%	17.6%	18.5%	19.9%	23.5%	21.5%	20.5%	2.5%
15	Austria	10.7%	11.2%	11.4%	11.1%	11.5%	10.8%	12.3%	2.3%
16	Italy	17.2%	17.8%	18.4%	18.8%	19.5%	20.6%	18.4%	1.1%
17	Spain	7.5%	8.2%	8.8%	9.0%	9.6%	9.3%	8.0%	1.1%
18	France	18.7%	19.4%	18.8%	19.7%	20.0%	19.2%	19.8%	1.0%
19	Germany	12.0%	12.2%	11.8%	12.4%	12.9%	12.9%	12.7%	0.9%
20	Ireland	1.9%	1.7%	1.7%	1.6%	1.6%	1.7%	2.0%	0.9%
	<b>European Union</b>	<b>11.3%</b>	<b>11.5%</b>	<b>11.5%</b>	<b>11.7%</b>	<b>12.0%</b>	<b>11.7%</b>	<b>11.7%</b>	<b>0.6%</b>
21	Sweden	6.7%	6.8%	6.7%	6.6%	6.5%	6.8%	6.6%	-0.3%
22	Lithuania	4.1%	4.6%	4.5%	4.3%	3.9%	4.0%	4.0%	-0.4%
23	Denmark	8.3%	8.0%	7.9%	8.1%	7.6%	7.5%	7.8%	-1.0%
24	Romania	1.7%	1.7%	1.7%	1.5%	1.3%	1.5%	1.4%	-3.2%
25	Poland	11.6%	10.2%	9.9%	9.8%	10.3%	7.5%	9.1%	-4.0%
26	Luxembourg	9.7%	7.1%	10.6%	10.8%	10.5%	9.9%	3.8%	-14.5%
27	Finland	6.4%	5.3%	5.6%	5.9%	6.3%	5.9%	2.0%	-17.6%

Source: Eurostat

## II.2 Emission Reduction

The 2022 Green, Digital and Competitive SME Index put it well: “Emission reduction is a crucial area – but oddly one around which much thinking is hardly mature and for which very little

*‘Six European countries have met their Fit for 55 emission targets, that is, have reduced overall greenhouse gas emissions to 55% of the 1990 level.’*

concrete data is available. Perhaps this is due to the distinctly “micro” nature of the question – to accurately

define SME emissions you would need robust measurements from all 24.3 million European SMEs. But there are other, objective ways of measuring this, and those are the ones we set out to cover. To arrive at an ultimate figure, we brought together two sub-indicators: 1) the share of greenhouse gas emissions coming from SMEs, and 2) overall greenhouse gas emissions in the economy, reasoning that, at 51.8% of all non-financial sector economic value added, SMEs account for the lion’s share of CO<sub>2</sub> emissions and any reduction or increase there would likely have a heavy footprint in the overall economy as well. The idea was to move as far away as possible from reported results and towards actual, measurable facts on the ground. The methodology here is new and, in some ways, tentative. But, at least, it reaches for facts and is not only based on self-assessment.<sup>30</sup>

On these two criteria, **Denmark** (No. 1), **Sweden** (No. 2) and **Romania** (No. 3) take the top three spots. The Romanian performance is a bit of a fillip. The economic turmoil of the last three decades there made its emission figures look unusually good.

Regarding the SME sector itself, the Lisbon Council did a unique assessment. For each country, we estimated the economic weight of SMEs based on the employment data in each sub-sector of the economy and divided the amount of greenhouse gas emissions

**Table 36. Emission Reduction**

Rank	Change in Ranking	Country	Score
1	▲2	Denmark	87.70
2	▼1	Sweden	82.37
3	▲1	Romania	73.45
4	▲4	Estonia	73.08
5	▼3	France	69.86
6		Malta	67.47
7	▲6	Lithuania	66.32
8	▲2	Germany	66.26
9		Bulgaria	65.50
European Union			63.81
10	▲1	Belgium	63.55
11	▼6	Poland	63.05
12	▲4	Slovakia	61.19
13	▲1	Hungary	60.17
14	▲4	Luxembourg	58.82
15	▲4	Czech Republic	56.42
16	▲1	Netherlands	54.88
17	▼5	Austria	54.54
18	▼11	Ireland	53.76
19	▲1	Italy	49.44
20	▲2	Greece	49.21
21		Croatia	49.17
22	▲4	Slovenia	44.91
23	▲1	Portugal	42.28
24	▲1	Spain	41.60
25	▼10	Finland	40.06
26	▲1	Cyprus	28.80
27	▼4	Latvia	28.73

Source: Eurostat (Lisbon Council calculations)

<sup>30</sup> Op cit, *Green Digital and Competitive: An SME Agenda for the 21<sup>st</sup> Century* (2022).

in each sub-sector by that figure, and summed up the results. The result obtained is then divided by the total amount of greenhouse gas emission in each country. The result is an effort to determine more accurately what amount of greenhouse gas emissions could directly be attributed to the SME sector in each country. And to measure changes in that output over time. The results are fascinating. **Denmark** (No. 1), **Malta** (No. 2) and **France** (No. 3) lead with the lowest share of greenhouse gas emissions attributable to the SME sector. **Greece** (No. 24), **Portugal** (No. 25) and **Latvia** (No. 26) lag with league-busting outcomes of 52.02%, 57.18% and 63.87%, respectively.<sup>31</sup> Using time-series data, **Denmark**, **France** and **Luxembourg** improved the most (using 2016-2021 data). **The Netherlands**, **Ireland** and **Malta** show the least improvement; in fact, greenhouse gas emissions attributable to SMEs is going backwards in those countries. According to this calculation, it has risen in all three countries (and 12 others) since 2016. See Table 39 on page 55 for more.

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***‘The Netherlands, Ireland and Malta show the least improvement; in fact, greenhouse gas emissions attributable to SMEs is going backwards in those countries.’***

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But proxy-based data needs robust links to hang on. And, given the enormous size of the SME sector – and given the need for indices like this to have objective, measurable components at its core – we also count the overall size of greenhouse gas emission reductions by country. There, another interesting story emerges. Six European countries have met their Fit for 55 emission targets, that is, have reduced overall greenhouse gas emissions to 55% of the 1990 level: **Sweden** (26.8%), **Romania** (29.9%) **Lithuania** (33.3%), **Estonia** (42.6%), **Slovakia** (52.2%) and **Bulgaria** (54.4%). And Sweden has done so by a wide margin, reaching and doubling its legal commitment 33 years ahead of schedule.

Getting there has not come easily, either. The reductions have not fallen from the sky; they are the result of alert and concerned consumers and aggressively forward-leaning policy, which have combined to deliver outstanding results. Indeed, if we look at effort rather than results, the fastest improving countries over the analysed period are **Slovenia**, **Sweden** and **Portugal**, all enjoying compound annual reductions in greenhouse gas emissions of more than 4% (based on 2015-2021 data). By contrast, **Lithuania**, **Latvia** and **Finland** improve the least; all three (and five other countries) report greenhouse gas emissions higher than their 2015 figure. See Table 40 on page 56 for more details.

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<sup>31</sup> 2023 data for Luxembourg is not available in this category.

**Table 37. SME Emissions**

Rank	Country	Share of Greenhouse Gas Emissions Produced by SMEs in Total Greenhouse Gas Emissions	Score
1	Denmark	15.93%	100.00
2	Malta	27.28%	78.69
3	France	28.0%	77.33
4	Ireland	30.52%	72.61
5	Poland	31.63%	70.54
6	Belgium	33.75%	66.54
7	Austria	34.48%	65.17
8	Sweden	34.72%	64.73
	<b>European Union</b>	<b>36.94%</b>	<b>60.55</b>
9	Estonia	38.24%	58.13
10	Germany	38.4%	57.81
11	Bulgaria	41.55%	51.90
12	Romania	43.33%	48.57
13	Netherlands	43.84%	47.61
14	Cyprus	43.85%	47.59
15	Hungary	44.04%	47.22
16	Czech Republic	46.44%	42.73
17	Slovakia	47.03%	41.61
18	Finland	47.94%	39.92
19	Slovenia	49.1%	37.73
20	Lithuania	49.19%	37.55
21	Spain	49.56%	36.87
22	Italy	50.08%	35.90
23	Croatia	51.09%	34.00
24	Greece	52.02%	32.25
25	Portugal	57.18%	22.56
26	Latvia	63.87%	10.00
	Luxembourg	n/a	n/a

Source: Eurostat (Lisbon Council calculations)  
Note: The missing values are marked "n/a."

**Table 38. Overall Change in Greenhouse Gas Emissions (index 1990 = 100)**

Rank	Country	Overall Change in Greenhouse Gas Emissions (index 1990 = 100)	Score
1	Sweden	26.8	100.00
2	Romania	29.0	98.33
3	Lithuania	33.3	95.08
4	Estonia	42.6	88.04
5	Slovakia	52.2	80.77
6	Bulgaria	54.4	79.11
7	Denmark	59.3	75.40
8	Germany	60.2	74.72
9	Hungary	62.3	73.13
10	Czech Republic	66.3	70.10
	<b>European Union</b>	<b>70.3</b>	<b>67.07</b>
11	Greece	71.5	66.16
12	Croatia	73.9	64.35
13	Italy	75.7	62.99
14	France	76.5	62.38
15	Netherlands	76.8	62.15
16	Portugal	77.0	62.00
17	Belgium	78.9	60.56
18	Luxembourg	81.2	58.82
19	Malta	84.6	56.25
20	Poland	85.5	55.57
21	Slovenia	90.1	52.09
22	Latvia	96.2	47.47
23	Spain	97.7	46.33
24	Austria	100.9	43.91
25	Finland	105.8	40.20
26	Ireland	112.8	34.90
27	Cyprus	145.7	10.00

Source: Eurostat

**Table 39. SME Emissions Evolution Over Time (2016-2021)**

Rank	Country	2016	2017	2018	2019	2020	2021	Compound Annual Growth Rate (2016-2021)
1	Denmark	33.1%	31.3%	33.6%	32.0%	35.9%	15.9%	-13.6%
2	France	37.4%	27.4%	27.2%	25.9%	27.4%	28.0%	-5.6%
3	Luxembourg	7.7%	7.4%	6.7%	6.7%	6.6%	6.1%	-4.7%
4	Sweden	42.8%	41.9%	31.5%	32.1%	33.4%	34.7%	-4.1%
5	Belgium	41.0%	39.0%	35.6%	37.1%	36.4%	33.8%	-3.8%
6	Estonia	45.2%	28.8%	47.4%	45.8%	47.7%	38.2%	-3.3%
7	Poland	35.4%	36.2%	32.3%	29.7%	30.4%	31.6%	-2.2%
8	Czech Republic	51.8%	49.7%	46.5%	46.3%	46.3%	46.4%	-2.2%
9	Hungary	47.1%	47.6%	43.0%	43.6%	41.5%	44.0%	-1.3%
	<b>European Union</b>	<b>39.2%</b>	<b>32.5%</b>	<b>34.8%</b>	<b>31.6%</b>	<b>35.3%</b>	<b>36.9%</b>	<b>-1.2%</b>
10	Finland	50.4%	45.3%	48.7%	41.7%	44.9%	47.9%	-1.0%
11	Italy	51.3%	48.2%	50.4%	49.8%	48.6%	50.1%	-0.5%
12	Slovakia	47.2%	48.1%	47.7%	49.4%	47.8%	47.0%	-0.1%
13	Lithuania	49.2%	52.6%	48.6%	50.1%	47.1%	49.2%	0.0%
14	Slovenia	49.0%	47.8%	42.0%	48.7%	51.6%	49.1%	0.1%
15	Croatia	50.6%	52.1%	50.4%	51.3%	49.9%	51.1%	0.2%
16	Spain	46.8%	49.5%	46.9%	47.7%	49.4%	49.6%	1.2%
17	Germany	36.1%	36.2%	40.2%	39.3%	38.5%	38.4%	1.2%
18	Latvia	58.8%	62.0%	58.9%	57.1%	63.9%	63.9%	1.7%
19	Portugal	52.5%	53.3%	53.2%	52.0%	54.8%	57.2%	1.7%
20	Greece	47.4%	47.8%	52.4%	54.4%	54.0%	52.0%	1.9%
21	Romania	38.7%	39.5%	40.0%	41.1%	42.9%	43.3%	2.3%
22	Austria	30.8%	33.7%	28.4%	26.7%	29.7%	34.5%	2.3%
23	Bulgaria	36.8%	39.2%	39.6%	39.2%	41.5%	41.6%	2.4%
24	Cyprus	38.5%	38.6%	46.5%	40.7%	44.3%	43.8%	2.6%
25	Netherlands	36.5%	37.5%	38.3%	38.5%	41.9%	43.8%	3.7%
26	Ireland	24.3%	22.4%	9.9%	22.6%	33.4%	30.5%	4.7%
27	Malta	17.0%	24.6%	24.7%	27.4%	28.5%	27.3%	9.9%

Source: Eurostat (Lisbon Council calculations)

Note: For this indicator, the ascending ranking is used as a negative compound annual growth rate corresponds to a reduction in the greenhouse gas emission produced by SMEs in total greenhouse gas emission. Low reliability for business statistics data at the sector level (NACE rev.2) for Luxembourg, with business employment data including a lot of confidential notes making the aggregates quite unreliable.

**Table 40. Overall Change in Greenhouse Gas Emissions Evolution Over Time  
(index 1990 = 100) (2015-2021)**

Rank	Country	2015	2016	2017	2018	2019	2020	2021	Compound Annual Growth Rate (2015-2021)
1	Slovenia	123.1	130.1	130.7	130.3	96.4	89	90.1	-5.1%
2	Sweden	35.3	40.8	62.5	72.3	56.7	22.1	26.8	-4.5%
3	Portugal	99.2	104	142	100.5	94	80.6	77	-4.1%
4	Greece	90.8	87.6	91.6	88.1	81.3	68.5	71.5	-3.9%
5	Spain	117.5	113.4	118.7	116.5	109.7	90.7	97.7	-3.0%
6	Netherlands	90.5	90.8	89.3	87.2	84.6	75.2	76.8	-2.7%
7	Bulgaria	64	58.8	61.3	55.9	54.4	46.8	54.4	-2.7%
8	Germany	70.1	70.2	69.3	66.9	62.9	57.6	60.2	-2.5%
9	Denmark	66.3	70.4	67.6	69.9	64.2	58.5	59.3	-1.8%
10	Estonia	47.3	53.4	58.2	61.3	43.3	38.1	42.6	-1.7%
11	Austria	110	111	119.8	127.5	125.6	103	100.9	-1.4%
	<b>European Union</b>	<b>76.4</b>	<b>76.6</b>	<b>78.7</b>	<b>76.9</b>	<b>73.8</b>	<b>66.2</b>	<b>70.3</b>	<b>-1.4%</b>
12	France	82	83.5	85.9	82.7	81.4	71.4	76.5	-1.2%
13	Belgium	83.9	82.9	82.9	83.6	83	75.7	78.9	-1.0%
14	Luxembourg	86.3	84.9	88.5	92.7	92.8	77.9	81.2	-1.0%
15	Slovakia	54.7	55.3	57.2	58.5	53.7	45.8	52.2	-0.8%
16	Malta	88.3	79.5	87.3	89.2	94.7	82.2	84.6	-0.7%
17	Italy	78.8	78.5	81.4	76.7	75.2	68.2	75.7	-0.7%
18	Croatia	75.2	76.1	82.9	76.7	76.7	71.8	73.9	-0.3%
19	Romania	29.4	27.7	30	31.2	29.7	26.9	29	-0.2%
20	Ireland	112.4	114.2	117.8	116.9	113.4	107.3	112.8	0.1%
21	Hungary	61.9	63.7	65.6	66.3	65.4	61	62.3	0.1%
22	Cyprus	142.6	153.5	156.5	154.9	155.9	138.4	145.7	0.4%
23	Czech Republic	63.9	65.2	66.5	68.5	69.1	65	66.3	0.6%
24	Poland	79.8	80.7	83.8	84.1	83.2	79.3	85.5	1.2%
25	Lithuania	28.9	31	32.7	34.4	34.2	31.8	33.3	2.4%
26	Latvia	81	68.2	58.4	80.2	67.2	82.6	96.2	2.9%
27	Finland	86.8	100	99.4	121.8	104.7	85.2	105.8	3.4%

Source: Eurostat

Note: For this indicator, the ascending ranking is used as a negative compound annual growth rate corresponds to a reduction in the greenhouse gas emission of the country.

## II.3 Green Output

The green revolution will never be real until companies themselves are producing products with ever higher levels of green content and based on ever greener methods of production. This is why – in addition to measuring the effective use of inputs – we also look at how quickly SMEs are moving to deliver green products to consumers.

*‘In terms of progress, the time-series indicators show the fastest improving are Italy, Bulgaria and The Netherlands.’*

Here the league tables assemble a recognisable league of winners – but with a couple of twists. **Denmark** (No. 1), **Luxembourg** (No. 2), **Sweden** (No. 3) and **The Netherlands** (No. 4) lead the ranking – all with composite scores over 70. **Romania** (No. 25), **Bulgaria** (No. 26) and **Czech Republic** (No. 27) lag.

Regarding green products and services, the data here tells a fairly sad story. **The Netherlands** (No. 1), **Austria** (No. 2) and **Sweden** (No. 3) lead for the number (as a share of the total) of SMEs offering green products. But no country reports more than 50% on this key indicator. And only six report above 40%. In terms of progress over time, the time-series indicators show the fastest improving are **Italy**, **Bulgaria** and **The Netherlands**. The Netherlands rides this improvement to a No. 1 position overall. But Bulgaria – despite being the second fastest improving – still finishes at No. 24 overall.

Among the slowest to improve are **Czech Republic**, **Luxembourg** and **Ireland**. Luxembourg and Ireland can afford to move slowly; they finish at No. 4 and No. 16 on the green products and services sub-indicator, respectively. But entrepreneurs need to step up their green game in Czech Republic; it combines a low position on overall green products and services with a slow-improvement rate.

Regarding SMEs in low greenhouse gas emitting sectors, **Denmark** (No. 1), **Luxembourg** (No. 2) and **Estonia** (No. 3) lead the list. **Romania** (No. 25), **Bulgaria** (No. 26) and **Greece** (No. 27) lag. But when it comes

**Table 41. Green Output**

Rank	Change in Ranking	Country	Score
1	▲3	Denmark	86.15
2	▲1	Luxembourg	78.36
3	▼1	Sweden	72.13
4	▼3	Netherlands	71.53
5	▲1	Finland	66.05
6	▼1	Austria	61.58
7	▲3	Slovakia	59.14
8	▼1	Belgium	56.34
9	▼1	Slovenia	54.23
10	▼1	France	51.14
11		Estonia	47.64
European Union			42.13
12	▲6	Malta	41.48
13	▲7	Greece	41.15
14	▲7	Italy	39.18
15	▲2	Spain	38.13
16	▼1	Lithuania	38.12
17	▲6	Cyprus	37.54
18	▼5	Germany	37.32
19	▼7	Portugal	36.00
20	▲2	Croatia	33.36
21	▼2	Ireland	31.41
22	▼6	Hungary	29.66
23	▼9	Latvia	28.55
24		Poland	25.62
25	▲1	Romania	21.76
26	▲1	Bulgaria	19.78
27	▼2	Czech Republic	19.40

Source: European Commission, Eurostat (Lisbon Council calculations)

to fastest improving, Denmark's performance really stands out as consequential. It has the fastest improvement in this sector in the 2015-2021 time frame – a performance good enough to propel it to the top of this important sub-indicator league table, up from No. 4 on this sub-

*‘Denmark’s performance really stands out as consequential. It has the fastest improvement in this sector in the 2015-2021 time frame.’*

indicator last year. Romania, Bulgaria and Greece show that entrepreneurs there are still found too often in high greenhouse gas emitting sectors; they need to work more on getting out of high-emission work to move up the league table.

**Table 42. SME Green Products**

Rank	Country	Share of SMEs Offering Green Products or Services	Score
1	Netherlands	45.0%	100.00
2	Austria	44.0%	96.54
3	Sweden	43.0%	93.08
4	Finland	41.0%	86.15
-	Luxembourg	41.0%	86.15
-	Slovakia	41.0%	86.15
7	France	38.0%	75.77
8	Denmark	37.0%	72.31
-	Greece	37.0%	72.31
-	Slovenia	37.0%	72.31
11	Belgium	35.0%	65.38
12	Spain	33.0%	58.46
13	Cyprus	32.0%	55.00
	<b>European Union</b>	<b>32.0%</b>	<b>55.00</b>
14	Lithuania	31.0%	51.54
15	Germany	30.0%	48.08
16	Ireland	29.0%	44.62
-	Malta	29.0%	44.62
18	Italy	28.0%	41.15
19	Croatia	27.0%	37.69
-	Estonia	27.0%	37.69
-	Portugal	27.0%	37.69
22	Poland	25.0%	30.77
23	Romania	24.0%	27.31
24	Bulgaria	23.0%	23.85
25	Latvia	22.0%	20.38
26	Hungary	21.0%	16.92
27	Czech Republic	19.0%	10.00

Source: European Commission

**Table 43. SMEs in Green Sectors**

Rank	Country	Share of SMEs in Low Intensive Greenhouse Gas Emission Sectors in Total SMEs	Score
1	Denmark	61.70%	100.00
2	Luxembourg	49.89%	70.56
3	Estonia	44.68%	57.58
4	Sweden	42.11%	51.17
5	Belgium	40.56%	47.30
6	Finland	40.02%	45.95
7	Netherlands	38.86%	43.07
8	Hungary	38.59%	42.40
9	Malta	36.96%	38.34
10	Italy	36.51%	37.20
11	Latvia	36.31%	36.72
12	Slovenia	36.08%	36.15
13	Portugal	35.35%	34.32
14	Slovakia	34.47%	32.13
	<b>European Union</b>	<b>33.32%</b>	<b>29.26</b>
15	Croatia	33.23%	29.02
16	Czech Republic	33.14%	28.81
17	Austria	32.26%	26.61
18	Germany	32.24%	26.57
19	France	32.22%	26.51
20	Lithuania	31.49%	24.69
21	Poland	29.80%	20.48
22	Cyprus	29.64%	20.08
23	Ireland	28.89%	18.20
24	Spain	28.73%	17.80
25	Romania	28.09%	16.22
26	Bulgaria	27.89%	15.72
27	Greece	25.59%	10.00

Source: European Commission, Eurostat (Lisbon Council calculations)  
Note: Italy (2020).

**Table 44. SME Green Products Evolution Over Time (2015-2021)**

Rank	Country	2015	2017	2021	Compound Annual Growth Rate (2015-2021)
1	Italy	14.6%	15.9%	27.9%	11.4%
2	Bulgaria	13.2%	14.5%	22.9%	9.5%
3	Netherlands	27.5%	37.1%	45.0%	8.5%
4	Belgium	24.4%	28.2%	34.7%	6.0%
5	Latvia	16.8%	20.0%	21.9%	4.5%
6	Malta	22.6%	24.9%	28.8%	4.1%
7	Greece	29.8%	26.0%	36.6%	3.5%
	<b>European Union</b>	<b>26.3%</b>	<b>24.7%</b>	<b>31.6%</b>	<b>3.1%</b>
8	Slovakia	33.8%	29.8%	40.4%	3.0%
9	Hungary	18.1%	11.4%	21.4%	2.9%
10	Croatia	23.0%	21.4%	27.0%	2.7%
11	Denmark	32.5%	32.6%	37.4%	2.3%
12	Finland	35.9%	37.3%	41.1%	2.3%
13	Slovenia	32.5%	22.6%	36.9%	2.2%
14	Sweden	38.4%	39.3%	43.2%	2.0%
15	Spain	28.8%	28.6%	32.5%	2.0%
16	Estonia	24.3%	18.3%	27.1%	1.8%
17	France	34.3%	22.8%	38.0%	1.7%
18	Lithuania	28.7%	19.6%	31.0%	1.3%
19	Portugal	26.1%	28.5%	26.7%	0.4%
20	Austria	43.1%	42.1%	43.8%	0.3%
21	Cyprus	32.0%	18.3%	31.6%	-0.2%
22	Germany	30.7%	31.7%	30.1%	-0.3%
23	Romania	25.9%	11.9%	23.6%	-1.5%
24	Poland	28.5%	26.4%	25.4%	-1.9%
25	Czech Republic	21.5%	20.9%	18.7%	-2.4%
26	Luxembourg	48.0%	24.5%	40.3%	-2.8%
27	Ireland	37.5%	23.5%	29.3%	-4.0%

Source: European Commission

**Table 45. SMEs in Green Sectors Evolution Over Time (2015-2021)**

Rank	Country	2015	2016	2017	2018	2019	2020	2021	Compound Annual Growth Rate (2015-2021)
1	Denmark	45.9%	46.9%	47.4%	47.9%	48.2%	48.5%	61.7%	5.1%
2	Cyprus	23.2%	25.2%	26.8%	28.3%	30.2%	31.5%	29.6%	4.2%
3	Malta	31.2%	33.6%	34.3%	36.2%	37.0%	29.7%	37.0%	2.8%
4	Croatia	29.8%	30.9%	32.1%	32.6%	35.6%	36.3%	33.2%	1.8%
5	Estonia	41.0%	41.1%	42.0%	42.7%	43.2%	43.5%	44.7%	1.5%
6	Slovakia	31.9%	31.7%	32.7%	33.7%	34.4%	35.3%	34.5%	1.3%
7	Italy	34.4%	34.9%	34.8%	35.5%	35.6%	36.5%	n/a	1.2%
8	Romania	26.2%	27.1%	27.6%	28.1%	28.8%	29.0%	28.1%	1.1%
9	Czech Republic	31.6%	32.0%	33.1%	33.8%	34.3%	34.8%	33.1%	0.8%
10	Bulgaria	27.1%	27.7%	28.3%	28.9%	29.5%	30.2%	27.9%	0.5%
11	Finland	38.9%	39.9%	40.9%	41.8%	42.2%	42.8%	40.0%	0.5%
12	Lithuania	31.1%	32.1%	34.1%	35.3%	36.6%	37.7%	31.5%	0.2%
13	Luxembourg	49.7%	50.2%	51.5%	52.2%	53.6%	54.0%	49.9%	0.1%
14	Poland	29.8%	31.2%	31.9%	32.0%	32.6%	33.0%	29.8%	0.0%
15	Spain	29.1%	30.7%	31.4%	31.9%	32.7%	33.0%	28.7%	-0.2%
16	Greece	27.0%	26.7%	26.5%	26.9%	27.2%	28.0%	25.6%	-0.9%
	<b>European Union</b>	<b>35.3%</b>	<b>36.0%</b>	<b>37.2%</b>	<b>37.4%</b>	<b>37.8%</b>	<b>37.5%</b>	<b>33.3%</b>	<b>-1.0%</b>
17	Slovenia	38.5%	39.5%	40.5%	41.1%	41.4%	41.8%	36.1%	-1.1%
18	Belgium	43.5%	45.1%	44.9%	44.9%	46.6%	44.5%	40.6%	-1.2%
19	Hungary	43.8%	44.5%	45.4%	45.9%	46.4%	46.1%	38.6%	-2.1%
20	France	36.8%	37.3%	37.8%	37.6%	38.9%	38.9%	32.2%	-2.2%
21	Portugal	40.6%	41.5%	42.6%	42.8%	43.1%	42.9%	35.3%	-2.3%
22	Austria	38.4%	38.5%	38.9%	37.8%	39.3%	40.2%	32.3%	-2.8%
23	Ireland	34.5%	23.2%	35.2%	35.4%	35.5%	35.9%	28.9%	-2.9%
24	Sweden	50.3%	50.6%	51.2%	50.4%	50.9%	51.1%	42.1%	-2.9%
25	Latvia	43.4%	44.3%	44.7%	45.1%	45.4%	45.7%	36.3%	-2.9%
26	Germany	40.1%	40.8%	42.5%	41.0%	40.1%	39.6%	32.2%	-3.6%
27	Netherlands	48.7%	49.1%	49.2%	49.5%	49.5%	49.3%	38.9%	-3.7%

Source: European Commission, Eurostat (Lisbon Council calculations)  
Note: For Italy, the compound annual growth rate refers to 2015-2020. The missing values are marked "n/a."

Chapter III

# SME Competitiveness



**Table 46. SME Competitiveness**

Rank	Change in Ranking	Country	Score	Exports Rank	Productivity Rank	Growth Rank
1	▲4	Ireland	73.47	24	1	2
2	▼1	Netherlands	67.72	4	6	6
3	▼1	Denmark	66.36	9	2	12
4	▲6	Sweden	64.13	13	5	3
5	▼1	Estonia	61.24	1	14	17
6	▲3	Luxembourg	59.35	19	3	13
7	▼4	Slovenia	58.51	2	12	16
8	▼2	Finland	56.26	14	7	8
9	▲2	Belgium	54.21	5	4	25
10	▲2	Latvia	48.60	3	22	19
11	▲8	Germany	47.49	12	9	20
12	▲4	Lithuania	47.26	6	17	10
13	▼5	Malta	45.66	25	10	5
14	▼1	Austria	45.35	7		24
15		Greece	44.58	26	25	1
16	▲1	Hungary	44.04	11	23	7
17	▼10	Portugal	43.46	17	21	4
18	▼4	Spain	42.73	20	13	11
European Union			42.66			
19	▲2	Italy	40.45	21	11	18
20	▼2	Bulgaria	39.96	8	24	15
21	▲1	Poland	39.89	16	18	9
22	▼2	Slovakia	36.78	10	20	22
23		Croatia	36.40	18	19	14
24		France	34.93	27	8	23
25		Czech Republic	32.70	23	16	21
26		Cyprus	25.08	15	15	27
27		Romania	18.63	22	26	26

Source: Eurostat (Lisbon Council calculations)

Europe is well into the twin transition – a multi-year effort to shift the entire economy to a fossil fuel-free future and a congruent push to bring industry and society at large up to modern standards of digital adoption, literacy and citizenship. But what if that wasn't enough? What if the model had more aspiration than policy behind it? And what if it was missing the crucial engine to deliver success in these two areas?

The central contention of this paper is that the twin transition is not enough. Europe can only succeed when it combines green and digital transition with a multi-year effort to raise its game commercially and economically. You could call it a “competitiveness” drive, and that is what **Sweden** (No. 1 in this study) called it in their recent Council of the European Union Presidency programme.<sup>32</sup> But this will need to be a new kind of competitiveness: a competitiveness designed to sit comfortably alongside the ambitious green goals, a competitiveness that works constructively with those regulations and uses commercial success to help deliver them. And, once those goals are delivered domestically, European companies have an even more important role to play, taking healthy dollops of European values out into the world on the back of commercial success in global markets. It is impossible to overstate how important this latter effect will be for realising the green goals.

The internet itself already has a healthy dose of American values written into it – the result not of U.S. legislation (which remains under-developed in the digital space) but because of the immense popularity of U.S.-originated digital services and the commercial success of leading U.S. companies in the area. China, too, has offered a disturbing glimpse of a dystopian future by offering overtly value-challenged services which – while popular – routinely violate human rights and offer the state the chance of more control. It is beyond the scope of this policy brief to discuss the merits of those approaches. But it is well within the scope to note the vehicle that brings discussion of these values into play: the success of the globally attractive companies behind them. Put simply, Europe will not reach its goals unless and until it has successful companies built around European values and is ready to take those values into the world through commercial success in global markets. This makes competitiveness a crucial pillar in Europe's Green Deal. It is not enough to foster green and digital transitions. We must lead those transitions – and not just in the form of having the world's most ambitious legislation; we must also have the world's most successful green companies – and traditional companies operating on a green basis – as well.

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*‘Europe will not reach its goals unless and until it has successful companies built around European values and is ready to take those values into the world through commercial success in global markets.’*

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But it also means we need a new definition of competitiveness. In the old days, competitiveness meant something very specific: it was often used as a wedge to attack regulation that this or that company might not like. Or to bring down labour costs and non-wage labour costs. This is no longer an adequate definition of competitiveness. Today

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<sup>32</sup> Government of Sweden, Swedish Presidency of the Council of the European Union: First Semester 2023, 14 December 2022.

competitiveness means something else: it means great companies, many of them green and most of them digital, taking their ideas with them across borders. It means attractiveness as an investment site with local laws and rules able to attract the industries of transition and

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***‘Much of the green transition will come from new companies and industries.’***

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develop the technology of change. And it means retaining that leadership through sustainable innovation on an ongoing basis.

But how does one measure that? The Lisbon Council proposes a three-pronged pillar as an initial way to start the discussion. We look at 1)

**Exports;** this measures how many SMEs are selling goods and services outside of their home country, including through intra-EU trade. This is a crucial measure because it tells us how “competitive” a company or industry is regardless of the strength of their domestic market; 2) **Productivity.** Paul Krugman once said “productivity isn’t everything; but in the long run, it is

## Luthman Backlund Foods AB: Healthy Solutions

For sure, it’s possible to sell goods across borders in Europe, but the plethora of unharmonised rules and local divergence for health-related disclosures have created a patchwork of difficult reporting requirements for many venturesome SMEs to meet. There is nothing wrong with these standards, per se – no one wants a market where health standards are missing or non-existent. But the trouble is every country sometimes seems to have a different one. The experience of Luthman Backlund Foods AB is a case in point. Founded in 2013 in Sweden, the company boasts a line of products clearly built around their innovative health advantages. Its main lines are chocolates, protein bars and ice cream – but made with a twist. All products use particular sweeteners that don’t affect the blood-sugar level and are gluten free. The company is R&D intensive and holds several patents. In six years, it has grown to 150 employees, up from six in the beginning. The only break on Luthman Backlund’s growth has been the many layers of “friction” within the nominally unified European market, so that the expansion has been mostly limited to the Nordic countries and the United States. Product labelling rules remain different across Europe, and health-related claims are treated differently country by country. Packaging requirements and recycling rules are different, too. Ultimately, this means that “you need to create the exact new product and a new package only for that market,” according to Pierre Magnusson, head of eCommerce at Luthman Backlund Foods. Moreover, differing VAT requirements remain problematic with countries such as Spain requiring official translations of Swedish government certificates in order to register. The situation is so gnarly that it is often difficult to get good advice. Experts in one country frequently don’t know enough about the divergence with other countries. And market-access requirements are often set out only in local language. Still, despite this, the ten-year-old company’s products are available in 16 countries. Online sales grew 150% in Europe in 2022 and account now for 25% of turnover.

Source: Interview with Pierre Magnusson, head of eCommerce, Luthman Backlund Foods

almost everything.”<sup>33</sup> We include this traditional economic measurement as a good, unbiased element, objectively verifiable, of national “competitiveness” vis-à-vis other countries with which one's products might compete. And 3) **Growth**. This looks at how quickly companies are growing, adding employees, increasing sales or making the transition from generator of great ideas to vendor of great products and services. Much of the green transition will come from new companies and industries. Policymakers are counting on innovation, big and small, to fill in the missing variables in the advanced problem that curbing climate change poses. For this reason, tracking company growth is a good proxy for European competitiveness in the green era; it shows how and where European companies are generating new ideas and taking them to commercial success at scale.

And it measures how well those companies are taking their values – the European values around which all modern EU companies will be built – into the world where other companies will be forced to match and adopt.

And on this basis, we see some winners.

**Ireland** (No. 1), **The Netherlands** (No. 2) and **Denmark** (No. 3) lead the pack – but with widely diverging profiles behind them. Ireland,

for one, excels at Productivity and Growth; but its export performance is surprisingly low (surprising because Ireland is often seen as an export titan with an economy built around the presence of large multinationals). Denmark, meanwhile, boasts a high score on Productivity, but lags the leaders on other indicators. Only The Netherlands offers relatively high scores across the board; it finishes No. 4, No. 6 and No. 6 on Exports, Productivity and Growth, respectively.

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*‘Policymakers are counting on innovation, big and small, to fill in the missing variables in the advanced problem that curbing climate change poses.’*

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33 Paul Krugman, *The Age of Diminished Expectations: U.S. Economic Policy in the 1990s: Third Edition* (Boston: MIT Press, 1997).

### III.1 Exports

The export league table is heterogenous – reflecting the vastly different domestic market situation that local entrepreneurs face. **Estonia** (No. 1), **Slovenia** (No. 2) and **Latvia** (No. 3) top the league – all of them relatively small economies where local entrepreneurs must look abroad to find markets in which they might find the success they need. But equally interesting is who lags in this league table: **Malta** (No. 25), **Greece** (No. 26) and **France** (No. 27).

In terms of the share of SMEs that export in the overall economy, **Slovenia** (No. 1) and **Estonia** (No. 2) lead the league, each with 15% of SMEs reporting some success in export markets. **Austria** (No. 3), **Latvia** (No. 4), **Germany** (No. 5) and **Belgium** (No. 6) are close behind, all

**Table 47. Exports**

Rank	Change in Ranking	Country	Score
1		Estonia	99.91
2		Slovenia	88.91
3		Latvia	76.53
4		Netherlands	66.25
5	▲3	Belgium	60.14
6	▼1	Lithuania	58.93
7	▼1	Austria	56.29
8	▼1	Bulgaria	52.42
9	▲2	Denmark	47.45
10	▼1	Slovakia	47.45
11	▲1	Hungary	44.71
12	▲1	Germany	43.17
13	▲1	Sweden	40.01
14	▼4	Finland	36.90
15		Cyprus	36.63
16		Poland	36.52
17		Portugal	35.81
European Union			34.79
18	▲1	Croatia	34.53
19	▼1	Luxembourg	33.07
20	▲1	Spain	31.86
21	▼1	Italy	31.33
22	▲2	Romania	31.21
23	▲2	Czech Republic	27.61
24	▼1	Ireland	27.59
25	▼3	Malta	22.80
26		Greece	22.35
27		France	14.20

Source: Eurostat (Lisbon Council calculations)

**Table 48. Exporting SMEs**

Rank	Country	Share of Exporting SMEs in Total SMEs	Score
1	Slovenia	15.51%	100.00
2	Estonia	15.48%	99.82
3	Austria	10.78%	69.93
4	Latvia	10.62%	68.95
5	Germany	10.43%	67.75
6	Belgium	10.03%	65.16
7	Denmark	9.24%	60.17
8	Netherlands	8.26%	53.92
9	Finland	7.49%	49.03
10	Lithuania	7.39%	48.42
11	Sweden	7.15%	46.86
12	Bulgaria	6.58%	43.23
European Union		6.17%	40.63
13	Poland	6.1%	40.20
14	Luxembourg	6.07%	40.03
15	Spain	6.04%	39.83
16	Slovakia	5.73%	37.88
17	Hungary	5.22%	34.61
18	Italy	5.07%	33.67
19	Portugal	4.97%	33.03
20	Ireland	4.31%	28.83
21	Cyprus	4.27%	28.60
22	Romania	3.97%	26.65
23	Croatia	3.26%	22.15
24	France	2.67%	18.39
25	Greece	2.36%	16.47
26	Malta	1.88%	13.41
27	Czech Republic	1.35%	10.00

Source: Eurostat (Lisbon Council calculations)

**Table 49. Exporting SMEs Evolution Over Time (2015-2020)**

Rank	Country	2015	2016	2017	2018	2019	2020	Compound Annual Growth Rate (2015-2021)
1	Ireland	n/a	n/a	3.1%	3.3%	4.0%	4.3%	11.0%
2	Belgium	6.9%	7.3%	7.1%	11.1%	11.3%	10.0%	7.7%
3	Germany	8.0%	10.4%	10.2%	9.8%	10.3%	10.4%	5.4%
4	Finland	6.1%	5.9%	6.1%	7.9%	8.9%	7.5%	4.2%
5	Sweden	6.2%	6.1%	6.3%	7.2%	7.2%	7.1%	2.9%
	<b>European Union</b>	<b>5.8%</b>	<b>6.0%</b>	<b>6.5%</b>	<b>6.2%</b>	<b>6.2%</b>	<b>6.2%</b>	<b>1.2%</b>
6	Bulgaria	6.3%	6.2%	6.5%	6.8%	6.8%	6.6%	0.9%
7	Slovakia	5.6%	5.4%	5.2%	6.1%	6.0%	5.7%	0.4%
8	Cyprus	4.2%	4.3%	4.6%	4.2%	4.2%	4.3%	0.2%
9	Slovenia	15.4%	15.7%	15.8%	16.1%	16.1%	15.5%	0.1%
10	Luxembourg	6.1%	6.5%	6.1%	6.1%	6.1%	6.1%	0.0%
11	Spain	6.2%	5.8%	5.5%	6.2%	6.1%	6.0%	-0.4%
12	Latvia	10.9%	10.5%	10.9%	10.8%	11.1%	10.6%	-0.5%
13	Italy	5.2%	5.2%	5.3%	5.2%	5.4%	5.1%	-0.7%
14	Netherlands	8.9%	9.5%	9.1%	9.0%	9.2%	8.3%	-1.5%
15	France	2.9%	2.7%	3.0%	2.9%	2.8%	2.7%	-1.7%
16	Greece	n/a	n/a	n/a	2.4%	2.4%	2.4%	-1.8%
17	Lithuania	8.2%	8.0%	7.9%	7.7%	7.7%	7.4%	-2.1%
18	Portugal	5.6%	5.4%	5.2%	5.1%	5.0%	5.0%	-2.4%
19	Poland	7.0%	7.0%	7.1%	6.4%	6.3%	6.1%	-2.7%
20	Hungary	6.0%	7.0%	6.7%	6.2%	5.7%	5.2%	-2.8%
21	Czech Republic	1.6%	1.5%	1.6%	1.5%	1.5%	1.3%	-2.8%
22	Estonia	17.9%	17.6%	17.2%	17.1%	16.2%	15.5%	-2.9%
23	Romania	4.6%	4.5%	4.4%	4.2%	4.2%	4.0%	-2.9%
24	Denmark	10.8%	9.8%	9.7%	9.7%	9.6%	9.2%	-3.1%
25	Austria	12.8%	12.7%	12.6%	12.6%	11.4%	10.8%	-3.4%
26	Croatia	4.6%	4.6%	4.4%	4.2%	3.4%	3.3%	-6.8%
27	Malta	3.2%	2.8%	2.7%	2.3%	2.4%	1.9%	-10.0%

Source: Eurostat (Lisbon Council calculations)

Note: For Ireland, the compound annual growth rate refers to 2017-2020 and for Greece, to 2018-2020. The missing values are marked "n/a."

reporting more than 10% of SMEs successfully exporting. More worrisome are **Malta** (No. 26) and **Czech Republic** (No. 27) both with 2% or fewer of SMEs active in external markets. Equally interesting is the time-series comparison. **Ireland** and **Belgium** are improving the fastest over time. In the case of Belgium, the result is enough to catapult the country to a No. 6 finish overall. In the case of Ireland, the improved performance in this indicator can't overcome a steep decline in the overall size of SME trade as a percentage of economic activity over the last five years, resulting in the country dropping one place overall to a No. 24 place finish in the Exports indicator. Overall, cross-border trade has grown throughout Europe – but at a relative snail's pace. The **EU Average** of exporting SMEs shows an almost imperceptible compound annual growth rate of 1.19% over the last six years.

On the SME International Trade, **Estonia** (No. 1), **Latvia** (No. 2), **The Netherlands** (No. 3) and **Slovenia** (No. 4) lead with performances above 60%. Of these, The Netherlands' strong performance is perhaps the most significant; it boasts the largest economy of the four and it is the only mid-sized country to place near the top of this export-led indicator. By contrast, **Spain** (No. 25), **Germany** (No. 26) and **France** (No. 27) trail on this indicator; exports are led by larger companies there. The time series also tells an interesting story. **Malta** shows the highest improvement rate (5.97%) over the six years, followed by **Cyprus** (3.76%) and **Slovenia** (2.92%). But for Malta and Cyprus, it is still not enough to raise them definitively or historically in the ranking (where they finish No. 19 and No. 12, respectively, in the overall share of SME trade in exports).

**Table 50. SME International Trade**

Rank	Country	SMEs Trade to GDP Ratio (as a Percentage of GDP)	Score
1	Estonia	78.29%	100.00
2	Latvia	66.1%	84.10
3	Netherlands	61.86%	78.57
4	Slovenia	61.29%	77.83
5	Lithuania	54.87%	69.45
6	Bulgaria	48.86%	61.60
7	Slovakia	45.34%	57.02
8	Belgium	43.89%	55.12
9	Hungary	43.65%	54.81
10	Croatia	37.59%	46.91
11	Czech Republic	36.29%	45.21
12	Cyprus	35.86%	44.65
13	Austria	34.34%	42.66
14	Portugal	31.21%	38.59
15	Romania	29.05%	35.77
16	Denmark	28.26%	34.74
17	Sweden	27.05%	33.16
18	Poland	26.81%	32.84
19	Malta	26.31%	32.19
20	Italy	23.85%	28.99
European Union		23.82%	28.95
21	Greece	23.28%	28.24
22	Ireland	21.84%	26.36
23	Luxembourg	21.64%	26.10
24	Finland	20.62%	24.78
25	Spain	19.95%	23.89
26	Germany	15.88%	18.59
27	France	9.3%	10.00

Source: Eurostat (Lisbon Council calculations)

**Table 51. SME International Trade Evolution Over Time (2015-2020)**

Rank	Country	2015	2016	2017	2018	2019	2020	Compound Annual Growth Rate (2015-2020)
1	Malta	19.7%	14.3%	26.6%	34.2%	37.2%	26.3%	5.97%
2	Cyprus	29.8%	27.6%	39.5%	48.5%	37.9%	35.9%	3.76%
3	Slovenia	53.1%	62.2%	64.9%	65.6%	64.6%	61.3%	2.92%
4	Greece	20.3%	21.7%	22.4%	22.2%	21.3%	23.3%	2.79%
5	Sweden	24.9%	25.4%	27.3%	28.7%	28.7%	27.1%	1.70%
6	Croatia	35.7%	36.1%	36.9%	36.5%	36.6%	37.6%	1.04%
7	Italy	23.2%	22.8%	23.8%	23.9%	24.0%	23.9%	0.57%
8	Netherlands	60.8%	62.2%	62.9%	63.0%	64.3%	61.9%	0.35%
9	France	9.3%	9.9%	12.4%	9.6%	10.0%	9.3%	-0.04%
10	Poland	27.0%	27.7%	27.6%	27.3%	26.6%	26.8%	-0.16%
11	Germany	16.2%	17.0%	16.8%	16.8%	16.6%	15.9%	-0.42%
12	Denmark	28.9%	28.8%	28.6%	28.8%	27.7%	28.3%	-0.44%
	<b>European Union</b>	<b>24.9%</b>	<b>25.4%</b>	<b>26.4%</b>	<b>25.3%</b>	<b>24.6%</b>	<b>23.8%</b>	<b>-0.85%</b>
13	Finland	21.9%	21.8%	24.0%	23.2%	24.4%	20.6%	-1.20%
14	Portugal	33.8%	33.0%	33.4%	33.2%	31.9%	31.2%	-1.58%
15	Latvia	72.4%	67.6%	71.1%	69.5%	65.7%	66.1%	-1.81%
16	Estonia	86.4%	78.8%	80.8%	84.8%	79.7%	78.3%	-1.94%
17	Slovakia	50.9%	48.1%	49.7%	51.3%	51.2%	45.3%	-2.27%
18	Spain	22.4%	22.3%	23.0%	23.4%	19.3%	19.9%	-2.33%
19	Bulgaria	55.6%	53.7%	56.4%	55.2%	53.8%	48.9%	-2.55%
20	Belgium	52.1%	59.4%	59.8%	56.3%	49.6%	43.9%	-3.35%
21	Lithuania	65.4%	62.5%	64.3%	57.0%	55.7%	54.9%	-3.46%
22	Luxembourg	26.0%	30.2%	28.3%	28.1%	25.9%	21.6%	-3.59%
23	Czech Republic	44.1%	41.1%	40.3%	40.1%	37.2%	36.3%	-3.84%
24	Romania	35.5%	35.0%	33.6%	24.8%	24.2%	29.1%	-3.92%
25	Austria	43.5%	42.2%	44.1%	35.8%	35.1%	34.3%	-4.64%
26	Ireland	31.1%	30.5%	30.1%	29.5%	25.9%	21.8%	-6.84%
27	Hungary	71.5%	73.7%	73.6%	45.6%	42.1%	43.6%	-9.40%

Source: Eurostat (Lisbon Council calculations)

## III.2 Productivity

No surprises here. The leaders on Productivity are – perhaps not coincidentally – the leaders on many other indicators as well. **Ireland** (No. 1), **Denmark** (No. 2) and **Luxembourg** (No. 3) lead the pack; all three boast value-added per person employed above €80,000. **Bulgaria** (No. 24), **Greece** (No. 25) and **Romania** (No. 26) lag, with value added of €15,119, €13,591 and €12,310 per person employed, respectively. The time series tells an interesting story. Ireland, Bulgaria and **Estonia** are the fastest growing. In the case of Bulgaria, the compound annual growth rate of 7.78% over the 2015-2020 period translated into a one place advance in the league table. But Ireland is a different tale. Its No. 1 finish in the overall ranking this year, up two places from last, is in many ways due to its fast-improving productivity performance. Overall, SME Labour Productivity grew modestly through Europe. The six-year time series shows a 0.63% compound yearly growth for labour productivity at the **EU Average** level. See Table 53 on page 71 for a breakdown.

**Table 52. Productivity**

Rank	Change in Ranking	Country	SME Labour Productivity (Value Added per Person Employed)	Score
1	▲ 2	Ireland	€96,045	100.00
2	▼ 1	Denmark	€89,050	92.48
3	▼ 1	Luxembourg	€84,921	88.04
4		Belgium	€69,726	71.71
5	▲ 3	Sweden	€66,995	68.78
6		Netherlands	€65,488	67.16
7		Finland	€63,193	64.69
8	▲ 1	France	€50,965	51.55
9	▲ 2	Germany	€50,924	51.50
European Union			€41,569	41.45
10	▼ 5	Malta	€40,993	40.83
11	▲ 1	Italy	€38,830	38.50
12	▲ 2	Slovenia	€34,329	33.67
13		Spain	€33,990	33.30
14	▲ 1	Estonia	€32,191	31.37
15	▼ 5	Cyprus	€29,475	28.45
16		Czech Republic	€25,118	23.77
17	▲ 3	Lithuania	€21,313	19.68
18	▲ 1	Poland	€20,844	19.17
19	▼ 2	Croatia	€20,165	18.44
20	▲ 1	Slovakia	€19,867	18.12
21		Portugal	€19,727	17.97
22		Latvia	€19,662	17.90
23	▼ 5	Hungary	€19,556	17.79
24	▲ 1	Bulgaria	€15,119	13.02
25	▼ 1	Greece	€13,591	11.38
26	▼ 3	Romania	€12,310	10.00
		Austria	n/a	n/a

Source: Eurostat (Lisbon Council calculations)  
Note: The missing values are marked "n/a."

**Table 53. SME Labour Productivity Evolution Over Time (Value Added per Person Employed) (2015-2020)**

Rank	Country	2015	2016	2017	2018	2019	2020	Compound Annual Growth Rate (2015-2020)
1	Ireland	n/a	n/a	€76,513	€80,483	€81,427	€96,045	7.87%
2	Bulgaria	€10,394	€10,694	€11,607	€12,573	€13,864	€15,119	7.78%
3	Estonia	€24,744	€26,589	€28,705	€30,471	€32,521	n/a	7.07%
4	Lithuania	€15,469	€16,162	€17,613	€19,279	€19,934	€21,313	6.62%
5	Latvia	€14,725	€15,258	€15,950	€17,695	€19,523	€19,662	5.95%
6	Poland	€16,275	€16,183	€17,427	€19,209	€20,694	€20,844	5.07%
7	Czech Republic	€20,554	€21,032	€22,951	€24,987	€25,953	€25,118	4.09%
8	Slovenia	€28,569	€30,155	€31,695	€32,921	€33,945	€34,329	3.74%
9	Hungary	€16,287	€16,286	€18,389	€20,539	€20,777	€19,556	3.73%
10	Slovakia	€16,685	€17,762	€18,067	€18,883	€19,564	€19,867	3.55%
11	Denmark	€77,317	n/a	n/a	€88,450	n/a	€89,050	2.87%
12	Netherlands	€57,209	€59,093	€60,462	€62,313	€66,094	€65,488	2.74%
13	Croatia	€18,044	€19,492	€19,905	€21,664	€21,064	€20,165	2.25%
14	Finland	€57,106	€60,495	€61,829	€63,603	€62,862	€63,193	2.05%
15	Romania	€11,159	€7,937	€8,865	€15,455	€17,455	€12,310	1.98%
16	Portugal	€17,901	€18,544	€19,339	€20,001	€20,712	€19,727	1.96%
17	Malta	€37,849	€37,971	€42,191	€40,662	€41,932	€40,993	1.61%
18	Belgium	€65,072	€67,799	€69,489	€66,339	€75,678	€69,726	1.39%
19	Germany	€47,776	€49,162	€50,446	€48,161	€48,954	€50,924	1.28%
	<b>European Union</b>	<b>€40,293</b>	<b>€40,681</b>	<b>€41,317</b>	<b>€41,185</b>	<b>€42,335</b>	<b>€41,569</b>	<b>0.63%</b>
20	Sweden	€66,626	€66,294	€65,844	€62,808	€62,635	€66,995	0.11%
21	Luxembourg	€84,695	€84,688	€88,322	€88,875	€88,226	€84,921	0.05%
22	Greece	n/a	n/a	n/a	€13,712	€14,974	€13,591	-0.44%
23	Spain	€35,128	€34,113	€35,324	€34,836	€36,245	€33,990	-0.66%
24	Italy	€40,323	€41,303	€38,816	€39,977	€42,568	€38,830	-0.75%
25	Cyprus	€30,713	€31,649	€31,636	€32,461	€31,500	€29,475	-0.82%
26	France	€56,207	€52,757	n/a	€53,648	€54,912	€50,965	-1.94%
	Austria	n/a	€60,958	n/a	n/a	n/a	n/a	n/a

Source: Eurostat (Lisbon Council calculations)

Note: For Estonia, the compound annual growth rate refers to 2015-2019, for Ireland to 2017-2020 and for Greece to 2018-2020. The missing values are marked "n/a."

### III.3 Growth

Company growth is an important indicator. It tells us a lot about which economies are producing new ideas and taking them to scale. And it's a sign that new industries are rising – offering important employment and wealth creation along the way. The Lisbon Council measures this using the European Commission definition of a high-growth enterprise – at least 10% growth in the number of employees per year, for three consecutive years.<sup>34</sup> And here the picture is again fascinating. **Greece** (No. 1), **Ireland** (No. 2) and **Sweden** (No. 3) lead – with Sweden showing some of the fastest, most solid growth.<sup>35</sup>

**Table 54. Growth**

Rank	Change in Ranking	Country	Score
1		Greece	100.00
2		Ireland	92.81
3	▲8	Sweden	83.61
4	▲3	Portugal	76.60
5		Malta	73.36
6	▼3	Netherlands	69.76
7	▲1	Hungary	69.62
8	▼4	Finland	67.18
9	▲1	Poland	63.98
10	▲4	Lithuania	63.17
11	▼5	Spain	63.03
12	▲11	Denmark	59.13
13	▲4	Luxembourg	56.94
14	▼1	Croatia	56.23
15	▼3	Bulgaria	54.44
16	▼7	Slovenia	52.94
17	▲1	Estonia	52.44
European Union			51.75
18	▼2	Italy	51.51
19	▲1	Latvia	51.37
20	▲2	Germany	47.81
21	▼2	Czech Republic	46.72
22	▼7	Slovakia	44.77
23	▼2	France	39.04
24		Austria	34.41
25		Belgium	30.76
26	▲1	Romania	14.67
27	▼1	Cyprus	10.15

Source: Eurostat (Lisbon Council calculations)

**Table 55. High-Growth Enterprises**

Rank	Country	Share of High Growth Enterprises in Total Active Enterprises (10+ Employees)	Score
1	Greece	16.91%	100.00
2	Ireland	15.76%	93.13
3	Sweden	15.68%	92.65
4	Finland	12.53%	73.82
5	Netherlands	12.52%	73.76
6	Malta	12.13%	71.43
7	Portugal	11.62%	68.39
8	Denmark	11.59%	68.21
9	Luxembourg	11.57%	68.09
10	Spain	11.28%	66.35
11	Croatia	11.07%	65.10
12	Slovenia	11.04%	64.92
13	Lithuania	10.87%	63.90
14	Hungary	10.37%	60.92
15	Poland	9.76%	57.27
16	Estonia	9.53%	55.90
-	Italy	9.53%	55.90
18	Latvia	9.49%	55.66
European Union		9.43%	55.30
19	Bulgaria	9.24%	54.16
20	Czech Republic	8.84%	51.77
21	France	8.63%	50.52
-	Slovakia	8.63%	50.52
23	Germany	8.25%	48.25
24	Austria	7.26%	42.33
25	Belgium	6.88%	40.06
26	Cyprus	1.9%	10.30
27	Romania	1.85%	10.00

Source: Eurostat

<sup>34</sup> Visit [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=High-growth\\_enterprises\\_-\\_statistics#Statistical\\_definitions\\_.26\\_.Methodological\\_notes](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=High-growth_enterprises_-_statistics#Statistical_definitions_.26_.Methodological_notes).

<sup>35</sup> See Footnote 10 above for important clarification on the Greek data.

**Table 56. High-Growth Enterprises Evolution Over Time (2015-2020)**

Rank	Country	2015	2016	2017	2018	2019	2020	Compound Annual Growth Rate (2015-2020)
1	Cyprus	1.4%	2.7%	3.9%	4.7%	3.5%	1.9%	6.15%
2	Sweden	12.1%	12.8%	13.6%	13.9%	12.8%	15.7%	5.32%
3	Slovenia	8.7%	10.9%	13.0%	14.6%	14.1%	11.0%	4.78%
4	Italy	7.6%	9.2%	10.4%	11.3%	11.0%	9.5%	4.69%
5	Estonia	7.7%	7.5%	7.2%	10.5%	10.7%	9.5%	4.30%
6	Luxembourg	9.6%	10.0%	10.7%	12.0%	12.5%	11.6%	3.89%
7	Netherlands	10.7%	12.3%	13.9%	16.3%	14.6%	12.5%	3.17%
8	Austria	6.5%	7.2%	8.0%	8.3%	8.6%	7.3%	2.36%
9	Ireland	14.9%	16.3%	16.5%	15.8%	n/a	n/a	1.96%
10	Portugal	11.0%	12.8%	14.2%	14.5%	14.0%	11.6%	1.18%
11	Finland	12.2%	11.7%	13.1%	14.1%	15.6%	12.5%	0.57%
12	France	8.6%	8.6%	10.7%	11.6%	12.3%	8.6%	0.16%
	<b>European Union</b>	<b>9.7%</b>	<b>10.6%</b>	<b>11.5%</b>	<b>11.9%</b>	<b>11.5%</b>	<b>9.4%</b>	<b>-0.56%</b>
13	Lithuania	11.2%	10.9%	10.2%	10.2%	10.1%	10.9%	-0.58%
14	Malta	12.5%	16.2%	13.7%	14.5%	14.8%	12.1%	-0.66%
15	Spain	11.9%	13.9%	15.0%	16.1%	15.6%	11.3%	-1.03%
16	Poland	10.3%	11.7%	12.9%	12.5%	11.7%	9.8%	-1.07%
17	Croatia	11.8%	12.2%	12.5%	12.1%	12.9%	11.1%	-1.19%
18	Bulgaria	10.7%	11.2%	11.2%	11.3%	10.8%	9.2%	-2.93%
19	Belgium	8.1%	8.6%	9.6%	7.4%	8.3%	6.9%	-3.09%
20	Czech Republic	10.6%	11.3%	11.9%	11.6%	10.5%	8.8%	-3.57%
21	Denmark	14.0%	14.4%	14.9%	14.2%	15.5%	11.6%	-3.65%
22	Hungary	12.5%	13.0%	12.7%	12.5%	12.3%	10.4%	-3.70%
23	Romania	2.3%	2.9%	2.9%	2.6%	2.4%	1.9%	-3.84%
24	Latvia	12.2%	12.5%	11.9%	11.2%	10.1%	9.5%	-4.87%
25	Germany	10.7%	11.1%	10.9%	10.7%	9.5%	8.3%	-5.14%
26	Slovakia	12.2%	12.8%	13.0%	13.0%	11.8%	8.6%	-6.74%
	Greece	n/a	n/a	n/a	16.9%	n/a	n/a	n/a

Source: Eurostat

Note: For Ireland, the compound annual growth rate refers to 2015-2018. The missing values are marked "n/a."

And the growth components we study are no less interesting as well. For starters, we look at the share of high-growth enterprises in total active enterprises, and we find a familiar list: **Greece** (No. 1), **Ireland** (No. 2) and **Sweden** (No.3) lead in this sub-indicator as well. **Cyprus** (No. 26) and **Romania** (No. 27) make up the bottom, both with fewer than 2% of active companies classifiable as fast growing.

Compound annual growth over the last five years tells a similar story. **Cyprus**, **Sweden** and **Slovenia** show the highest improvements in performance. But Cyprus's 6.15% compound annual growth is not enough to make up for the country's low starting point. Sweden, by contrast, boasts 5.32% compound growth on top of an already good base; the result is one of the things that keeps Sweden at the top of the overall league table. Company growth laggards **Germany** and **Slovakia** offer cause for concern. As Europe's largest, most consequential economy, Germany should boast more high-growth enterprises than it does at present. It's yet another sign that Europe's largest economy struggles with transition, as has been documented elsewhere.<sup>36</sup>

People employed in high-growth enterprises is another key sub-indicator.

**Greece** (No. 1), **Ireland** (No. 2) and **Portugal** (No. 3) lead on this, while **Belgium** (No. 25), **Romania** (No. 26) and **Cyprus** (No. 27) lag. In terms of growth and long-term trends, **Sweden**, **Portugal** and **Ireland** are growing the fastest in this area, boasting compound growth of 5.28%, 3.39% and 3.04%, respectively. Particularly worrying is **France** which ranks No. 23 on this sub-indicator and has a negative compound annual growth over the six-year period surveyed (declining -5.2% over the period). Growth remains problematic at the EU level, too. Based on the six-year time series, the **EU Average** for employment in high-growth enterprises declined -0,77%.

**Table 57. High-Growth Employment**

Rank	Country	Share of Persons Employed in High Growth Enterprises in Total Employment	Score
1	Greece	25.61%	100.00
2	Ireland	23.71%	92.49
3	Portugal	21.77%	84.82
4	Hungary	20.13%	78.33
5	Malta	19.36%	75.29
6	Sweden	19.18%	74.57
7	Poland	18.2%	70.70
8	Netherlands	16.95%	65.76
9	Lithuania	16.11%	62.43
10	Finland	15.63%	60.54
11	Spain	15.42%	59.71
12	Bulgaria	14.16%	54.72
13	Denmark	12.98%	50.06
14	Estonia	12.71%	48.99
	<b>European Union</b>	<b>12.51%</b>	<b>48.20</b>
15	Germany	12.3%	47.37
-	Croatia	12.3%	47.37
17	Italy	12.24%	47.13
18	Latvia	12.23%	47.09
19	Luxembourg	11.9%	45.79
20	Czech Republic	10.86%	41.67
21	Slovenia	10.68%	40.96
22	Slovakia	10.19%	39.02
23	France	7.29%	27.56
24	Austria	7.02%	26.49
25	Belgium	5.75%	21.47
26	Romania	5.21%	19.33
27	Cyprus	2.85%	10.00

Source: Eurostat

<sup>36</sup> The Economist, "Is Germany Once Again the Sick Man of Europe," *The Economist*, 17 August 2023.

**Table 58. High-Growth Employment Evolution Over Time (2015-2020)**

Rank	Country	2015	2016	2017	2018	2019	2020	Compound Annual Growth Rate (2015-2020)
1	Sweden	14.8%	16.2%	17.8%	17.8%	16.9%	19.2%	5.28%
2	Portugal	19.7%	19.6%	23.1%	21.8%	n/a	n/a	3.39%
3	Ireland	21.7%	24.9%	24.7%	23.7%	n/a	n/a	3.04%
4	Luxembourg	10.3%	9.7%	11.6%	14.0%	13.6%	11.9%	2.93%
5	Estonia	11.1%	10.0%	10.9%	15.9%	14.8%	12.7%	2.80%
6	Italy	10.8%	12.2%	15.3%	17.1%	15.3%	12.2%	2.50%
7	Finland	14.3%	17.2%	19.2%	19.4%	21.0%	15.6%	1.78%
8	Cyprus	2.7%	4.5%	6.4%	8.0%	7.9%	2.9%	1.31%
9	Lithuania	15.3%	15.9%	19.5%	17.1%	18.2%	16.1%	1.06%
10	Spain	14.8%	17.2%	22.3%	21.4%	19.6%	15.4%	0.84%
11	Germany	12.0%	13.0%	13.6%	13.7%	13.5%	12.3%	0.44%
12	Slovenia	10.6%	13.7%	16.2%	17.5%	16.8%	10.7%	0.17%
13	Netherlands	17.4%	19.9%	21.8%	28.0%	23.4%	17.0%	-0.47%
	<b>European Union</b>	<b>13.0%</b>	<b>14.2%</b>	<b>15.6%</b>	<b>15.9%</b>	<b>15.2%</b>	<b>12.5%</b>	<b>-0.77%</b>
14	Hungary	20.7%	21.1%	20.4%	20.1%	n/a	n/a	-0.91%
15	Austria	7.5%	7.8%	8.6%	8.8%	n/a	7.0%	-1.18%
16	Malta	n/a	20.8%	n/a	n/a	22.6%	19.4%	-1.79%
17	Romania	5.9%	7.9%	7.7%	6.9%	5.7%	5.2%	-2.32%
18	Croatia	14.6%	14.2%	15.3%	14.3%	14.4%	12.3%	-3.30%
19	France	9.5%	9.4%	9.4%	9.8%	9.9%	7.3%	-5.20%
20	Bulgaria	18.6%	n/a	19.5%	19.0%	n/a	14.2%	-5.31%
21	Poland	n/a	n/a	n/a	19.5%	18.2%	n/a	-6.71%
22	Latvia	17.4%	18.6%	18.7%	13.8%	13.2%	12.2%	-6.83%
23	Czech Republic	15.8%	16.2%	16.9%	15.3%	13.5%	10.9%	-7.24%
24	Denmark	19.1%	18.4%	17.6%	16.7%	n/a	13.0%	-7.40%
25	Belgium	10.4%	n/a	n/a	6.0%	7.3%	5.8%	-11.18%
26	Slovakia	n/a	18.4%	18.8%	18.6%	n/a	10.2%	-13.70%
	Greece	n/a	n/a	n/a	25.6%	n/a	n/a	n/a

Source: Eurostat  
 Note: For Hungary, Ireland and Portugal, the compound annual growth rate refers to 2015-2018, for Malta to 2016-2020 and for Poland to 2018-2019. The missing values are marked "n/a."

# Country Profiles



# Austria

Rank: **11 ▼3**

Overall Score: **51.10**

Austria ranks No. 11, falling three positions compared to 2022. Overall, the country shows a decline in both **Green Transition** (No. 7, from No. 4 in 2022) and **SME Competitiveness** (No. 14, one position lower than in 2022). Austria shows a slight improvement in **Digital Transition** (No. 9), up one place compared to 2022, driven mostly by a better performance in **I.3 Digital Skills** (No. 9), where it gained four places.

		Rank	Score	Value	
<b>I.</b>	<b>Digital Transition</b>	<b>9</b>	<b>50.84</b>		<b>▲1</b>
<b>I.1</b>	<b>SME Digitalisation</b>	<b>10</b>	<b>52.38</b>		
I.1.1	Data Analytics	19	22.02	8.1%	▼3
I.1.2	Cloud Computing	14	49.21	39.4%	▼2
I.1.3	Social Media	8	71.03	37.1%	
I.1.4	High Digital Intensity	12	42.05	31.6%	▼6
I.1.5	ICT Security	9	77.60	92.3%	▲7
<b>I.2</b>	<b>E-Commerce</b>	<b>14</b>	<b>41.53</b>		▼3
I.2.1	E-Commerce Sales	11	52.56	25.7%	▼5
I.2.2	E-Commerce Turnover	16	30.51	9.6%	▼1
<b>I.3</b>	<b>Digital Skills</b>	<b>9</b>	<b>58.62</b>		▲4
I.3.1	ICT Specialists	11	56.02	21.5%	▲2
I.3.2	ICT In-House	4	78.45	56.7%	▲5
I.3.3	ICT Training	17	41.38	18.5%	▼1
<b>II.</b>	<b>Green Transition</b>	<b>7</b>	<b>57.11</b>		▼3
<b>II.1</b>	<b>Natural Resource Conservation</b>	<b>8</b>	<b>55.20</b>		▼1
II.1.1	Consumption	8	68.11	46.0%	
II.1.2	Recycling	9	57.21	47.0%	
II.1.3	Circular Material Use Rate	7	40.28	12.3%	
<b>II.2</b>	<b>Emission Reduction</b>	<b>17</b>	<b>54.54</b>		▼5
II.2.1	SME Emissions	7	65.17	34.5%	▼3
II.2.2	Overall Change in Greenhouse Gas Emissions	24	43.91	100.9	▲1
<b>II.3</b>	<b>Green Output</b>	<b>6</b>	<b>61.58</b>		▼1
II.3.1	SME Green Products	2	96.54	44.0%	
II.3.2	SMEs in Green Sectors	17	26.61	32.3%	▼4
<b>III.</b>	<b>SME Competitiveness</b>	<b>14</b>	<b>45.35</b>		▼1
<b>III.1</b>	<b>Exports</b>	<b>7</b>	<b>56.29</b>		▼1
III.1.1	Exporting SMEs	3	69.93	10.8%	
III.1.2	SME International Trade	13	42.66	34.3%	
<b>III.2</b>	<b>Productivity</b>		<b>n/a</b>		
III.2.1	SME Labour Productivity		n/a	n/a	
<b>III.3</b>	<b>Growth</b>	<b>24</b>	<b>34.41</b>		
III.3.1	High-Growth Enterprises	24	42.33	7.3%	
III.3.2	High-Growth Employment	24	26.49	7.0%	

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/austria>

# Belgium

Rank: **6**

Overall Score: **61.86**

Belgium is No. 6, with overall good performances on all three pillars: It is No. 6 in both **Digital Transition** and **Green Transition** and No. 9 in **SME Competitiveness**. Compared to 2022, the country shows lower performances on most of the sub-indicators in **Digital Transition**, losing between one and five places. The highest fall, of five places, is in I.2.1 E-Commerce Sales where it goes from No. 5 (2022) to No. 10 (2023). The performance's improvement in **III.1 Exports** (No. 5) – up three places – and the stable performance on the other two indicators helped gain two positions in the **SME Competitiveness** result. Belgium ranks second in II.1.3 Circular Material Use Rate.

		Rank	Score	Value	
<b>I. Digital Transition</b>		<b>6</b>	<b>70.97</b>		<b>▼1</b>
<b>I.1 SME Digitalisation</b>		<b>6</b>	<b>75.66</b>		
I.1.1	Data Analytics	5	71.94	21.8%	<b>▼1</b>
I.1.2	Cloud Computing	9	66.80	51.7%	<b>▼3</b>
I.1.3	Social Media	4	87.65	44.1%	
I.1.4	High Digital Intensity	7	61.15	40.3%	<b>▼1</b>
I.1.5	ICT Security	4	90.73	95.7%	<b>▲3</b>
<b>I.2 E-Commerce</b>		<b>7</b>	<b>59.84</b>		<b>▼2</b>
I.2.1	E-Commerce Sales	10	59.46	28.1%	<b>▼5</b>
I.2.2	E-Commerce Turnover	4	60.23	16.7%	<b>▲2</b>
<b>I.3 Digital Skills</b>		<b>4</b>	<b>77.41</b>		<b>▼1</b>
I.3.1	ICT Specialists	3	93.89	30.8%	<b>▼1</b>
I.3.2	ICT In-House	9	59.35	46.6%	<b>▼3</b>
I.3.3	ICT Training	4	78.98	31.2%	<b>▼2</b>
<b>II. Green Transition</b>		<b>6</b>	<b>60.39</b>		
<b>II.1 Natural Resource Conservation</b>		<b>5</b>	<b>61.28</b>		<b>▲3</b>
II.1.1	Consumption	4	76.84	50.0%	
II.1.2	Recycling	18	43.93	38.0%	
II.1.3	Circular Material Use Rate	2	63.06	20.5%	
<b>II.2 Emission Reduction</b>		<b>10</b>	<b>63.55</b>		<b>▲1</b>
II.2.1	SME Emissions	6	66.54	33.8%	<b>▲2</b>
II.2.2	Overall Change in Greenhouse Gas Emissions	17	60.56	78.90	<b>▼1</b>
<b>II.3 Green Output</b>		<b>8</b>	<b>56.34</b>		<b>▼1</b>
II.3.1	SME Green Products	11	65.38	35.0%	
II.3.2	SMEs in Green Sectors	5	47.30	40.6%	
<b>III. SME Competitiveness</b>		<b>9</b>	<b>54.21</b>		<b>▲2</b>
<b>III.1 Exports</b>		<b>5</b>	<b>60.14</b>		<b>▲3</b>
III.1.1	Exporting SMEs	6	65.16	10.0%	<b>▲7</b>
III.1.2	SME International Trade	8	55.12	43.9%	<b>▼1</b>
<b>III.2 Productivity</b>		<b>4</b>	<b>71.71</b>		
III.2.1	SME Labour Productivity	4	71.71	69.73	
<b>III.3 Growth</b>		<b>25</b>	<b>30.76</b>		
III.3.1	High-Growth Enterprises	25	40.06	6.9%	
III.3.2	High-Growth Employment	25	21.47	5.8%	<b>▲1</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/belgium>

# Bulgaria

Rank: **26**

Overall Score: **30.26**

Similar to its performance in 2022, Bulgaria ranks No. 26. The country's performance remains unchanged in two pillars: **Digital Transition** (No. 27) and **Green Transition** (No. 26). While the **III.2 Productivity** performance gained one place, ranking No. 24, the decline in the other two indicators, did not help improve the performance on **SME Competitiveness** where it fell two places, from No. 18 (2022) to No. 20. The digital scores remained low as in the previous year; Bulgaria finishes last in **I.1 SME Digitalisation** and **I.3 Digital Skills**, and second-last in **I.2 E-Commerce**.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>27</b>	<b>17.32</b>		
<b>I.1 SME Digitalisation</b>	<b>27</b>	<b>16.45</b>		▼1
I.1.1 Data Analytics	23	14.01	5.9%	
I.1.2 Cloud Computing	27	10.00	12.0%	
I.1.3 Social Media	25	12.37	12.4%	
I.1.4 High Digital Intensity	27	10.00	17.0%	▼1
I.1.5 ICT Security	25	35.88	81.5%	▼2
<b>I.2 E-Commerce</b>	<b>26</b>	<b>15.46</b>		
I.2.1 E-Commerce Sales	25	20.93	14.7%	▲1
I.2.2 E-Commerce Turnover	25	10.00	4.7%	▼1
<b>I.3 Digital Skills</b>	<b>27</b>	<b>20.04</b>		▼1
I.3.1 ICT Specialists	24	28.73	14.8%	▼3
I.3.2 ICT In-House	26	20.21	25.9%	▼3
I.3.3 ICT Training	26	11.18	8.3%	
<b>II. Green Transition</b>	<b>26</b>	<b>33.50</b>		
<b>II.1 Natural Resource Conservation</b>	<b>27</b>	<b>15.21</b>		
II.1.1 Consumption	27	10.00	19.4%	
II.1.2 Recycling	26	15.90	19.0%	
II.1.3 Circular Material Use Rate	19	19.72	4.9%	
<b>II.2 Emission Reduction</b>	<b>9</b>	<b>65.50</b>		
II.2.1 SME Emissions	11	51.90	41.6%	▼1
II.2.2 Overall Change in Greenhouse Gas Emissions	6	79.11	54.40	
<b>II.3 Green Output</b>	<b>26</b>	<b>19.78</b>		▲1
II.3.1 SME Green Products	24	23.85	23.0%	
II.3.2 SMEs in Green Sectors	26	15.72	27.9%	▼1
<b>III. SME Competitiveness</b>	<b>20</b>	<b>39.96</b>		▼2
<b>III.1 Exports</b>	<b>8</b>	<b>52.42</b>		▼1
III.1.1 Exporting SMEs	12	43.23	6.6%	▼1
III.1.2 SME International Trade	6	61.60	48.9%	
<b>III.2 Productivity</b>	<b>24</b>	<b>13.02</b>		
III.2.1 SME Labour Productivity	24	13.02	15.12	▲1
<b>III.3 Growth</b>	<b>15</b>	<b>54.44</b>		▼3
III.3.1 High-Growth Enterprises	19	54.16	9.2%	▼2
III.3.2 High-Growth Employment	12	54.72	14.2%	▼2

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/bulgaria>

# Croatia

Rank: **20 ▼1** Overall Score: **40.92**

Croatia ranks No. 20, down one place compared to 2022. The country's best performance remains in **Digital Transition** (No. 12), despite losing three positions. The performance in **I.3 Digital Skills** fell five places, ranking currently at No. 17, and in **I.1 SME Digitalisation** fell three places, ranking No. 19. The performance in the other two pillars remains weak, ranking No. 23 in both **Green Transition** and **SME Competitiveness**. While the performance on **III.1 Exports** slightly improved (up one place), it cannot be said the same about **III.2 Productivity** (No. 19, down two places) and **III.3 Growth** (No. 14, down one place).

		Rank	Score	Value	
<b>I.</b>	<b>Digital Transition</b>	<b>12</b>	<b>47.79</b>		<b>▼3</b>
<b>I.1</b>	<b>SME Digitalisation</b>	<b>19</b>	<b>40.77</b>		<b>▼3</b>
I.1.1	Data Analytics	11	39.51	12.9%	
I.1.2	Cloud Computing	15	47.49	38.2%	<b>▼5</b>
I.1.3	Social Media	19	37.78	23.1%	
I.1.4	High Digital Intensity	17	32.39	27.2%	<b>▼1</b>
I.1.5	ICT Security	23	46.70	84.3%	<b>▼5</b>
<b>I.2</b>	<b>E-Commerce</b>	<b>8</b>	<b>54.52</b>		<b>▲1</b>
I.2.1	E-Commerce Sales	9	62.62	29.2%	<b>▼3</b>
I.2.2	E-Commerce Turnover	9	46.42	13.4%	
<b>I.3</b>	<b>Digital Skills</b>	<b>17</b>	<b>48.08</b>		<b>▼5</b>
I.3.1	ICT Specialists	23	29.95	15.1%	<b>▼7</b>
I.3.2	ICT In-House	6	69.94	52.2%	<b>▲6</b>
I.3.3	ICT Training	15	44.34	19.5%	<b>▼2</b>
<b>II.</b>	<b>Green Transition</b>	<b>23</b>	<b>38.57</b>		<b>▲1</b>
<b>II.1</b>	<b>Natural Resource Conservation</b>	<b>23</b>	<b>33.17</b>		<b>▼1</b>
II.1.1	Consumption	21	41.02	33.6%	
II.1.2	Recycling	21	36.56	33.0%	
II.1.3	Circular Material Use Rate	18	21.94	5.7%	
<b>II.2</b>	<b>Emission Reduction</b>	<b>21</b>	<b>49.17</b>		
II.2.1	SME Emissions	23	34.00	51.1%	<b>▼2</b>
II.2.2	Overall Change in Greenhouse Gas Emissions	12	64.35	73.90	
<b>II.3</b>	<b>Green Output</b>	<b>20</b>	<b>33.36</b>		<b>▲2</b>
II.3.1	SME Green Products	19	37.69	27.0%	
II.3.2	SMEs in Green Sectors	15	29.02	33.2%	<b>▲3</b>
<b>III.</b>	<b>SME Competitiveness</b>	<b>23</b>	<b>36.40</b>		
<b>III.1</b>	<b>Exports</b>	<b>18</b>	<b>34.53</b>		<b>▲1</b>
III.1.1	Exporting SMEs	23	22.15	3.3%	
III.1.2	SME International Trade	10	46.91	37.6%	<b>▲2</b>
<b>III.2</b>	<b>Productivity</b>	<b>19</b>	<b>18.44</b>		
III.2.1	SME Labour Productivity	19	18.44	20.17	<b>▼2</b>
<b>III.3</b>	<b>Growth</b>	<b>14</b>	<b>56.23</b>		<b>▼1</b>
III.3.1	High-Growth Enterprises	11	65.10	11.1%	<b>▼2</b>
III.3.2	High-Growth Employment	15	47.37	12.3%	<b>▲2</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/croatia>

# Cyprus

Rank: **25**

Overall Score: **35.89**

Cyprus is No. 25. It performs well in **Digital Transition** (No. 11), improving seven places compared to 2022, but lagging behind in **Green Transition** (No. 25) and **SME Competitiveness** (No. 26). There is a slight improvement in **II.2 Emission Reduction** (No. 26, up one place) and **II.3 Green Output** (No. 17, up eight places). However, the weak performance in **II.1.3 Circular Material Use Rate** (No. 23) drags down the **II.1 Natural Resource Conservation** score by three places, ranking No. 19. The **III.2 Productivity** (No. 15) and **III.3 Growth** (No. 27) performances also declined. Cyprus is now last in **III.3.2 High-Growth Employment** and second-last in **III.3.1 High-Growth Enterprises**.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>11</b>	<b>48.23</b>		<b>▲7</b>
<b>I.1 SME Digitalisation</b>	<b>9</b>	<b>55.21</b>		<b>▲6</b>
I.1.1 Data Analytics	25	13.28	5.7%	▼2
I.1.2 Cloud Computing	10	63.80	49.6%	▲3
I.1.3 Social Media	6	81.48	41.5%	▼1
I.1.4 High Digital Intensity	10	44.90	32.9%	▼1
I.1.5 ICT Security	13	72.58	91.0%	▲12
<b>I.2 E-Commerce</b>	<b>19</b>	<b>29.22</b>		<b>▲5</b>
I.2.1 E-Commerce Sales	16	40.48	21.5%	▲2
I.2.2 E-Commerce Turnover	23	17.95	6.6%	
<b>I.3 Digital Skills</b>	<b>8</b>	<b>60.28</b>		<b>▲1</b>
I.3.1 ICT Specialists	9	64.16	23.5%	▼2
I.3.2 ICT In-House	16	48.95	41.1%	▲5
I.3.3 ICT Training	5	67.73	27.4%	▲2
<b>II. Green Transition</b>	<b>25</b>	<b>34.35</b>		<b>▲2</b>
<b>II.1 Natural Resource Conservation</b>	<b>19</b>	<b>36.72</b>		<b>▼3</b>
II.1.1 Consumption	19	44.95	35.4%	
II.1.2 Recycling	12	51.31	43.0%	
II.1.3 Circular Material Use Rate	23	13.89	2.8%	
<b>II.2 Emission Reduction</b>	<b>26</b>	<b>28.80</b>		<b>▲1</b>
II.2.1 SME Emissions	14	47.59	43.8%	▲11
II.2.2 Overall Change in Greenhouse Gas Emissions	27	10.00	145.70	
<b>II.3 Green Output</b>	<b>17</b>	<b>37.54</b>		<b>▲6</b>
II.3.1 SME Green Products	13	55.00	32.0%	
II.3.2 SMEs in Green Sectors	22	20.08	29.6%	▲2
<b>III. SME Competitiveness</b>	<b>26</b>	<b>25.08</b>		
<b>III.1 Exports</b>	<b>15</b>	<b>36.63</b>		
III.1.1 Exporting SMEs	21	28.60	4.3%	▼1
III.1.2 SME International Trade	12	44.65	35.9%	▼2
<b>III.2 Productivity</b>	<b>15</b>	<b>28.45</b>		
III.2.1 SME Labour Productivity	15	28.45	29.48	▼5
<b>III.3 Growth</b>	<b>27</b>	<b>10.15</b>		<b>▼1</b>
III.3.1 High-Growth Enterprises	26	10.30	1.9%	
III.3.2 High-Growth Employment	27	10.00	2.9%	▼2

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/cyprus>

# Czech Republic

Rank: **21 ▼1** Overall Score: **40.90**

Czech Republic is No. 21, losing one place since 2022. It performs best in **Digital Transition** (No. 10), where it improved by two places, but it has lower performances in **Green Transition** (No. 21, up two places) and **SME Competitiveness** (No. 25). The overall performance remains rather erratic. It ranks third in I.2.2 E-Commerce Turnover but finishes last in **II.3 Green Output** and **III.1.1 Exporting SMEs**. While there is no change in **SME Competitiveness** performance, the country improved two places in **III.1 Exports** (No. 23) but fell two in **III.3 Growth** (No. 21).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>10</b>	<b>48.83</b>		<b>▲2</b>
<b>I.1 SME Digitalisation</b>	<b>16</b>	<b>45.04</b>		<b>▲3</b>
I.1.1 Data Analytics	16	23.48	8.5%	
I.1.2 Cloud Computing	11	54.36	43.0%	<b>▲5</b>
I.1.3 Social Media	20	36.36	22.5%	<b>▼1</b>
I.1.4 High Digital Intensity	14	36.12	28.9%	<b>▲2</b>
I.1.5 ICT Security	11	74.89	91.6%	<b>▼4</b>
<b>I.2 E-Commerce</b>	<b>9</b>	<b>54.42</b>		<b>▼2</b>
I.2.1 E-Commerce Sales	13	46.52	23.6%	
I.2.2 E-Commerce Turnover	3	62.33	17.2%	<b>▲2</b>
<b>I.3 Digital Skills</b>	<b>18</b>	<b>47.02</b>		<b>▼2</b>
I.3.1 ICT Specialists	18	37.69	17.0%	
I.3.2 ICT In-House	11	55.19	44.4%	<b>▲7</b>
I.3.3 ICT Training	13	48.19	20.8%	<b>▼4</b>
<b>II. Green Transition</b>	<b>21</b>	<b>41.17</b>		<b>▲2</b>
<b>II.1 Natural Resource Conservation</b>	<b>11</b>	<b>47.70</b>		
II.1.1 Consumption	15	51.07	38.2%	
II.1.2 Recycling	11	54.26	45.0%	
II.1.3 Circular Material Use Rate	8	37.78	11.4%	
<b>II.2 Emission Reduction</b>	<b>15</b>	<b>56.42</b>		<b>▲4</b>
II.2.1 SME Emissions	16	42.73	46.4%	
II.2.2 Overall Change in Greenhouse Gas Emissions	10	70.10	66.30	<b>▲1</b>
<b>II.3 Green Output</b>	<b>27</b>	<b>19.40</b>		<b>▼2</b>
II.3.1 SME Green Products	27	10.00	19.0%	
II.3.2 SMEs in Green Sectors	16	28.81	33.1%	<b>▲5</b>
<b>III. SME Competitiveness</b>	<b>25</b>	<b>32.70</b>		
<b>III.1 Exports</b>	<b>23</b>	<b>27.61</b>		<b>▲2</b>
III.1.1 Exporting SMEs	27	10.00	1.3%	
III.1.2 SME International Trade	11	45.21	36.3%	
<b>III.2 Productivity</b>	<b>16</b>	<b>23.77</b>		
III.2.1 SME Labour Productivity	16	23.77	25.12	
<b>III.3 Growth</b>	<b>21</b>	<b>46.72</b>		<b>▼2</b>
III.3.1 High-Growth Enterprises	20	51.77	8.8%	<b>▼1</b>
III.3.2 High-Growth Employment	20	41.67	10.9%	<b>▼1</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/czech-republic>

# Denmark

Rank: **2** ▲1

Overall Score: **71.85**

Denmark ranks second, gaining one position since 2022. The country performs in the top three in all pillars: it is No. 2 in **Digital Transition** and No. 3 in **Green Transition** and **SME Competitiveness**. Denmark improved significantly its performance in **Green Transition** (up by eight places), ranking No. 1 in both **II.2 Emission Reduction** and **II.3 Green Output**. Despite losing one place in the **SME Competitiveness** ranking, its performance in **III.3 Growth** improved by 11 places compared to 2022, ranking currently No. 12.

		Rank	Score	Value	
<b>I. Digital Transition</b>		<b>2</b>	<b>82.48</b>		▼1
<b>I.1</b>	<b>SME Digitalisation</b>	<b>2</b>	<b>87.08</b>		▲1
I.1.1	Data Analytics	2	87.61	26.1%	
I.1.2	Cloud Computing	3	84.55	64.1%	
I.1.3	Social Media	9	66.75	35.3%	
I.1.4	High Digital Intensity	2	96.49	56.4%	▲1
I.1.5	ICT Security	1	100.00	98.1%	▲2
<b>I.2</b>	<b>E-Commerce</b>	<b>2</b>	<b>74.80</b>		
I.2.1	E-Commerce Sales	4	80.16	35.3%	▼2
I.2.2	E-Commerce Turnover	2	69.44	18.9%	▲1
<b>I.3</b>	<b>Digital Skills</b>	<b>2</b>	<b>85.55</b>		
I.3.1	ICT Specialists	1	100.00	32.3%	▲3
I.3.2	ICT In-House	5	76.18	55.5%	▼2
I.3.3	ICT Training	3	80.46	31.7%	▲1
<b>II. Green Transition</b>		<b>3</b>	<b>66.71</b>		▲8
<b>II.1</b>	<b>Natural Resource Conservation</b>	<b>26</b>	<b>26.29</b>		
II.1.1	Consumption	25	24.85	26.2%	
II.1.2	Recycling	24	26.23	26.0%	
II.1.3	Circular Material Use Rate	14	27.78	7.8%	
<b>II.2</b>	<b>Emission Reduction</b>	<b>1</b>	<b>87.70</b>		▲2
II.2.1	SME Emissions	1	100.00	15.9%	▲6
II.2.2	Overall Change in Greenhouse Gas Emissions	7	75.40	59.30	
<b>II.3</b>	<b>Green Output</b>	<b>1</b>	<b>86.15</b>		▲3
II.3.1	SME Green Products	8	72.31	37.0%	
II.3.2	SMEs in Green Sectors	1	100.00	61.7%	▲3
<b>III. SME Competitiveness</b>		<b>3</b>	<b>66.36</b>		▼1
<b>III.1</b>	<b>Exports</b>	<b>9</b>	<b>47.45</b>		▲2
III.1.1	Exporting SMEs	7	60.17	9.2%	▼1
III.1.2	SME International Trade	16	34.74	28.3%	▲2
<b>III.2</b>	<b>Productivity</b>	<b>2</b>	<b>92.48</b>		
III.2.1	SME Labour Productivity	2	92.48	89.05	▼1
<b>III.3</b>	<b>Growth</b>	<b>12</b>	<b>59.13</b>		▲11
III.3.1	High-Growth Enterprises	8	68.21	11.6%	▲14
III.3.2	High-Growth Employment	13	50.06	13.0%	▲9

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/denmark>

# Estonia

Rank: **9** ▲1

Overall Score: **52.22**

Estonia ranks No. 9. Its performance improved by one place compared to 2022. It has good performances in **SME Competitiveness** (No. 5, down by one place) and **Green Transition** (No. 10, up by six places) but surprises with a rather modest one in **Digital Transition** (No. 17, down by four places). **III.1 Exports** (No. 1) remain the brightest spot of Estonia's performance. The good performance in **II.1.3 Circular Material Use Rate** (No. 5) helps improve the performance in **II.1 Natural Resource Conservation** (No. 20, up by five places). When it comes to competitiveness, **III.2 Productivity** (No. 14, up one place) and **III.3 Growth** (No. 17, up one place) both show an improvement.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>17</b>	<b>43.07</b>		▼4
<b>I.1 SME Digitalisation</b>	<b>15</b>	<b>45.10</b>		▲2
I.1.1 Data Analytics	15	26.76	9.4%	
I.1.2 Cloud Computing	7	74.39	57.0%	▼2
I.1.3 Social Media	21	34.22	21.6%	
I.1.4 High Digital Intensity	13	39.20	30.3%	▲6
I.1.5 ICT Security	22	50.94	85.4%	▼1
<b>I.2 E-Commerce</b>	<b>13</b>	<b>41.93</b>		
I.2.1 E-Commerce Sales	14	41.63	21.9%	
I.2.2 E-Commerce Turnover	12	42.23	12.4%	
<b>I.3 Digital Skills</b>	<b>19</b>	<b>42.18</b>		▼5
I.3.1 ICT Specialists	19	33.21	15.9%	▲2
I.3.2 ICT In-House	12	54.62	44.1%	▼8
I.3.3 ICT Training	19	38.72	17.6%	▼3
<b>II. Green Transition</b>	<b>10</b>	<b>52.34</b>		▲6
<b>II.1 Natural Resource Conservation</b>	<b>20</b>	<b>36.31</b>		▲5
II.1.1 Consumption	22	33.16	30.0%	
II.1.2 Recycling	23	27.70	27.0%	
II.1.3 Circular Material Use Rate	5	48.06	15.1%	
<b>II.2 Emission Reduction</b>	<b>4</b>	<b>73.08</b>		▲4
II.2.1 SME Emissions	9	58.13	38.2%	▲6
II.2.2 Overall Change in Greenhouse Gas Emissions	4	88.04	42.60	▼1
<b>II.3 Green Output</b>	<b>11</b>	<b>47.64</b>		
II.3.1 SME Green Products	19	37.69	27.0%	
II.3.2 SMEs in Green Sectors	3	57.58	44.7%	▲5
<b>III. SME Competitiveness</b>	<b>5</b>	<b>61.24</b>		▼1
<b>III.1 Exports</b>	<b>1</b>	<b>99.91</b>		
III.1.1 Exporting SMEs	2	99.82	15.5%	▼1
III.1.2 SME International Trade	1	100.00	78.3%	
<b>III.2 Productivity</b>	<b>14</b>	<b>31.37</b>		
III.2.1 SME Labour Productivity	14	31.37	32.19	▲1
<b>III.3 Growth</b>	<b>17</b>	<b>52.44</b>		▲1
III.3.1 High-Growth Enterprises	16	55.90	9.5%	▲2
III.3.2 High-Growth Employment	14	48.99	12.7%	▲2

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/estonia>

# Finland

Rank: **5 ▼1**

Overall Score: **63.19**

Finland ranks No. 5. The country ranks first in **Digital Transition** and is still No. 1 when it comes to **SME Digitalisation** and **Digital Skills**. **Green Transition** (No. 14, down by seven places) remains a weak point of Finland's performance. **II.2 Emission Reduction** (No. 25) fell 10 places compared to 2022 and, with only 2% of materials being reused, the country is only No. 25 in II.1.3 Circular Material Use Rate. Both **III.1 Exports** (No. 14) and **III.3 Growth** (No. 8) show modest performances, dragging **SME Competitiveness** (No. 8) down two places. In 2023, only 7.5% of SMEs export (down 1.4% from 2022) and trade to GDP ratio is just 20.6% (down 3.7% from 2022).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>1</b>	<b>85.02</b>		<b>▲1</b>
<b>I.1 SME Digitalisation</b>	<b>1</b>	<b>92.43</b>		
I.1.1 Data Analytics	7	67.57	20.6%	▼1
I.1.2 Cloud Computing	2	99.43	74.5%	▼1
I.1.3 Social Media	1	100.00	49.3%	
I.1.4 High Digital Intensity	3	95.17	55.8%	▼1
I.1.5 ICT Security	1	100.00	98.1%	▲2
<b>I.2 E-Commerce</b>	<b>4</b>	<b>69.81</b>		<b>▲2</b>
I.2.1 E-Commerce Sales	7	69.81	31.7%	▲2
I.2.2 E-Commerce Turnover		n/a	n/a	
<b>I.3 Digital Skills</b>	<b>1</b>	<b>92.81</b>		
I.3.1 ICT Specialists	8	78.42	27.0%	▼2
I.3.2 ICT In-House	1	100.00	68.1%	
I.3.3 ICT Training	1	100.00	38.3%	
<b>II. Green Transition</b>	<b>14</b>	<b>48.30</b>		<b>▼7</b>
<b>II.1 Natural Resource Conservation</b>	<b>18</b>	<b>38.78</b>		<b>▼4</b>
II.1.1 Consumption	13	56.31	40.6%	
II.1.2 Recycling	15	48.36	41.0%	
II.1.3 Circular Material Use Rate	25	11.67	2.0%	
<b>II.2 Emission Reduction</b>	<b>25</b>	<b>40.06</b>		<b>▼10</b>
II.2.1 SME Emissions	18	39.92	47.9%	▼6
II.2.2 Overall Change in Greenhouse Gas Emissions	25	40.20	105.80	▼15
<b>II.3 Green Output</b>	<b>5</b>	<b>66.05</b>		<b>▲1</b>
II.3.1 SME Green Products	4	86.15	41.0%	
II.3.2 SMEs in Green Sectors	6	45.95	40.0%	▲4
<b>III. SME Competitiveness</b>	<b>8</b>	<b>56.26</b>		<b>▼2</b>
<b>III.1 Exports</b>	<b>14</b>	<b>36.90</b>		<b>▼4</b>
III.1.1 Exporting SMEs	9	49.03	7.5%	▼1
III.1.2 SME International Trade	24	24.78	20.6%	▼9
<b>III.2 Productivity</b>	<b>7</b>	<b>64.69</b>		
III.2.1 SME Labour Productivity	7	64.69	63.19	
<b>III.3 Growth</b>	<b>8</b>	<b>67.18</b>		<b>▼4</b>
III.3.1 High-Growth Enterprises	4	73.82	12.5%	
III.3.2 High-Growth Employment	10	60.54	15.6%	▼4

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/finland>

# France

Rank: **19 ▼2**

Overall Score: **41.48**

France ranks No. 19, two places lower than in 2022. The country maintains its good performance in **Green Transition** (No. 8). It ranks No.3 in II.1.3 Circular Material Use Rate (with 19.8% of recycled materials reused), improving its performance in **II.1 Natural Resource Conservation** where is No. 9 (up by 12 places). However, **Digital Transition** (No. 23) sees a significant drop of six places, with lower performances in all three indicators: **I.2 E-Commerce** (No. 24), down by nine places, and **I.1 SME Digitalisation** (No. 13) and **I.3 Digital Skills** (No. 22), down one place. **SME Competitiveness** (No. 24) remains the weakest point. France is still last when it comes to **III.1 Exports** (No. 27), while **III.3 Growth** drops two places, ranking now No. 23.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>23</b>	<b>33.16</b>		<b>▼6</b>
<b>I.1 SME Digitalisation</b>	<b>13</b>	<b>48.62</b>		<b>▼1</b>
I.1.1 Data Analytics	6	69.39	21.1%	
I.1.2 Cloud Computing	21	33.32	28.3%	<b>▼2</b>
I.1.3 Social Media	17	42.30	25.0%	<b>▼1</b>
I.1.4 High Digital Intensity	24	17.02	20.2%	<b>▼2</b>
I.1.5 ICT Security	6	81.07	93.2%	<b>▲1</b>
<b>I.2 E-Commerce</b>	<b>24</b>	<b>18.46</b>		<b>▼9</b>
I.2.1 E-Commerce Sales	23	25.24	16.2%	<b>▼5</b>
I.2.2 E-Commerce Turnover	24	11.67	5.1%	<b>▼15</b>
<b>I.3 Digital Skills</b>	<b>22</b>	<b>32.41</b>		<b>▼1</b>
I.3.1 ICT Specialists	19	33.21	15.9%	<b>▼1</b>
I.3.2 ICT In-House	22	36.85	34.7%	<b>▼7</b>
I.3.3 ICT Training	22	27.17	13.7%	<b>▲2</b>
<b>II. Green Transition</b>	<b>8</b>	<b>56.34</b>		
<b>II.1 Natural Resource Conservation</b>	<b>9</b>	<b>48.03</b>		<b>▲12</b>
II.1.1 Consumption	22	33.16	30.0%	
II.1.2 Recycling	14	49.84	42.0%	
II.1.3 Circular Material Use Rate	3	61.11	19.8%	
<b>II.2 Emission Reduction</b>	<b>5</b>	<b>69.86</b>		<b>▼3</b>
II.2.1 SME Emissions	3	77.33	28.0%	<b>▼1</b>
II.2.2 Overall Change in Greenhouse Gas Emissions	14	62.38	76.50	<b>▲1</b>
<b>II.3 Green Output</b>	<b>10</b>	<b>51.14</b>		<b>▼1</b>
II.3.1 SME Green Products	7	75.77	38.0%	
II.3.2 SMEs in Green Sectors	19	26.51	32.2%	<b>▼5</b>
<b>III. SME Competitiveness</b>	<b>24</b>	<b>34.93</b>		
<b>III.1 Exports</b>	<b>27</b>	<b>14.20</b>		
III.1.1 Exporting SMEs	24	18.39	2.7%	
III.1.2 SME International Trade	27	10.00	9.3%	
<b>III.2 Productivity</b>	<b>8</b>	<b>51.55</b>		
III.2.1 SME Labour Productivity	8	51.55	50.97	<b>▲1</b>
<b>III.3 Growth</b>	<b>23</b>	<b>39.04</b>		<b>▼2</b>
III.3.1 High-Growth Enterprises	21	50.52	8.6%	<b>▼9</b>
III.3.2 High-Growth Employment	23	27.56	7.3%	

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/france>

# Germany

Rank: **10** ▲ 2

Overall Score: **51.32**

Germany ranks No. 10, showing an overall improvement in performance. It is No. 8 in **Digital Transition** (up three places), No. 9 in **Green Transition** and No. 11 in **SME Competitiveness** (up eight places). The country shows a good performance across digital indicators and sub-indicators and slightly improved (up three places) in **I.2 E-Commerce** (No. 15). **SME Competitiveness** (No. 11) also shows improvement across indicators: **III.1 Exports** (No.12, up one place), **III.2 Productivity** (No. 9, up two places) and **III.3 Growth** (No. 20, up two places). A slight slowdown is seen in **II.3 Green Output** (No. 18, down five places).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>8</b>	<b>52.86</b>		▲ 3
<b>I.1 SME Digitalisation</b>	<b>8</b>	<b>60.53</b>		
I.1.1 Data Analytics	10	55.18	17.2%	
I.1.2 Cloud Computing	13	50.92	40.6%	▲ 1
I.1.3 Social Media	12	51.08	28.7%	
I.1.4 High Digital Intensity	8	52.80	36.5%	▲ 2
I.1.5 ICT Security	3	92.66	96.2%	
<b>I.2 E-Commerce</b>	<b>15</b>	<b>40.05</b>		▲ 3
I.2.1 E-Commerce Sales	14	41.63	21.9%	▲ 1
I.2.2 E-Commerce Turnover	13	38.47	11.5%	▲ 2
<b>I.3 Digital Skills</b>	<b>10</b>	<b>58.01</b>		
I.3.1 ICT Specialists	13	51.13	20.3%	▲ 3
I.3.2 ICT In-House	8	59.92	46.9%	
I.3.3 ICT Training	9	62.99	25.8%	▲ 1
<b>II. Green Transition</b>	<b>9</b>	<b>53.59</b>		
<b>II.1 Natural Resource Conservation</b>	<b>7</b>	<b>57.19</b>		▼ 2
II.1.1 Consumption	7	68.54	46.2%	
II.1.2 Recycling	7	61.64	50.0%	
II.1.3 Circular Material Use Rate	6	41.39	12.7%	
<b>II.2 Emission Reduction</b>	<b>8</b>	<b>66.26</b>		▲ 2
II.2.1 SME Emissions	10	57.81	38.4%	▲ 1
II.2.2 Overall Change in Greenhouse Gas Emissions	8	74.72	60.20	
<b>II.3 Green Output</b>	<b>18</b>	<b>37.32</b>		▼ 5
II.3.1 SME Green Products	15	48.08	30.0%	
II.3.2 SMEs in Green Sectors	18	26.57	32.2%	▼ 6
<b>III. SME Competitiveness</b>	<b>11</b>	<b>47.49</b>		▲ 8
<b>III.1 Exports</b>	<b>12</b>	<b>43.17</b>		▲ 1
III.1.1 Exporting SMEs	5	67.75	10.4%	
III.1.2 SME International Trade	26	18.59	15.9%	
<b>III.2 Productivity</b>	<b>9</b>	<b>51.50</b>		
III.2.1 SME Labour Productivity	9	51.50	50.92	▲ 2
<b>III.3 Growth</b>	<b>20</b>	<b>47.81</b>		▲ 2
III.3.1 High-Growth Enterprises	23	48.25	8.3%	
III.3.2 High-Growth Employment	15	47.37	12.3%	▲ 5

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/germany>

# Greece

Rank: **23 ▼1** Overall Score: **38.75**

Greece ranks No. 23. Overall, the country's performance remains modest to low in most areas, such as **Digital Transition** (No. 25, down three places) and **Green Transition** (No. 19, up three places). **SME Competitiveness** (No. 15) is still the strongest point, mainly due to its performance in **III.3 Growth** (No. 1), as the other two performances remain low: **III.1 Exports** (No. 26) and **Productivity** (No. 25, down one place). **Digital Transition** is the most worrying area. While **I.1 SME Digitalisation** (No. 24) and **I.3 Digital Skills** (No. 23) remain stable, Greece loses six places in **I.2 E-Commerce**, raking No. 22 (down from No. 15 in 2022).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>25</b>	<b>27.90</b>		<b>▼3</b>
<b>I.1 SME Digitalisation</b>	<b>24</b>	<b>26.09</b>		
I.1.1 Data Analytics	12	38.06	12.5%	
I.1.2 Cloud Computing	25	21.73	20.2%	<b>▲1</b>
I.1.3 Social Media	14	48.71	27.7%	<b>▼2</b>
I.1.4 High Digital Intensity	26	11.98	17.9%	<b>▼6</b>
I.1.5 ICT Security	27	10.00	74.8%	<b>▼1</b>
<b>I.2 E-Commerce</b>	<b>22</b>	<b>25.36</b>		<b>▼6</b>
I.2.1 E-Commerce Sales	19	29.84	17.8%	<b>▼4</b>
I.2.2 E-Commerce Turnover	22	20.88	7.3%	<b>▼9</b>
<b>I.3 Digital Skills</b>	<b>23</b>	<b>32.26</b>		
I.3.1 ICT Specialists	14	46.65	19.2%	<b>▼1</b>
I.3.2 ICT In-House	25	25.32	28.6%	
I.3.3 ICT Training	24	24.80	12.9%	<b>▼4</b>
<b>II. Green Transition</b>	<b>19</b>	<b>43.78</b>		<b>▲3</b>
<b>II.1 Natural Resource Conservation</b>	<b>15</b>	<b>40.99</b>		<b>▼4</b>
II.1.1 Consumption	17	50.19	37.8%	
II.1.2 Recycling	9	57.21	47.0%	
II.1.3 Circular Material Use Rate	22	15.56	3.4%	
<b>II.2 Emission Reduction</b>	<b>20</b>	<b>49.21</b>		<b>▲2</b>
II.2.1 SME Emissions	24	32.25	52.0%	
II.2.2 Overall Change in Greenhouse Gas Emissions	11	66.16	71.50	<b>▲6</b>
<b>II.3 Green Output</b>	<b>13</b>	<b>41.15</b>		<b>▲7</b>
II.3.1 SME Green Products	8	72.31	37.0%	
II.3.2 SMEs in Green Sectors	27	10.00	25.6%	
<b>III. SME Competitiveness</b>	<b>15</b>	<b>44.58</b>		
<b>III.1 Exports</b>	<b>26</b>	<b>22.35</b>		
III.1.1 Exporting SMEs	25	16.47	2.4%	
III.1.2 SME International Trade	21	28.24	23.3%	<b>▲3</b>
<b>III.2 Productivity</b>	<b>25</b>	<b>11.38</b>		
III.2.1 SME Labour Productivity	25	11.38	13.59	<b>▼1</b>
<b>III.3 Growth</b>	<b>1</b>	<b>100.00</b>		
III.3.1 High-Growth Enterprises	1	100.00	16.9%	
III.3.2 High-Growth Employment	1	100.00	25.6%	

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/greece>

# Hungary

Rank: **17 ▼1**

Overall Score: **42.16**

Hungary ranks No. 17. The country remains a middle performer with places mostly in the second half of the rankings: **Digital Transition** (No. 19), **Green Transition** (No. 18, down five places) and **SME Competitiveness** (No. 16, up one place). **I.2 E-Commerce** (No. 18, down one place) and **I.3 Digital Skills** (No. 12, down four places) performances declined, as well as those in **II.1 Natural Resource Conservation** (No. 13, down one place) and **II.3 Green Output** (No. 22, down six places). Only 6.8% of the recycled material is reused, placing the country in the middle of the ranking, at No.15 in II.1.3 Circular Material Use Rate.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>19</b>	<b>38.00</b>		
<b>I.1 SME Digitalisation</b>	<b>25</b>	<b>21.13</b>		
I.1.1 Data Analytics	22	16.56	6.6%	
I.1.2 Cloud Computing	24	29.03	25.3%	▼2
I.1.3 Social Media	26	11.66	12.1%	▼1
I.1.4 High Digital Intensity	21	24.49	23.6%	▲4
I.1.5 ICT Security	26	23.91	78.4%	▼5
<b>I.2 E-Commerce</b>	<b>18</b>	<b>37.64</b>		▼1
I.2.1 E-Commerce Sales	17	39.33	21.1%	
I.2.2 E-Commerce Turnover	14	35.95	10.9%	▼1
<b>I.3 Digital Skills</b>	<b>12</b>	<b>55.22</b>		▼4
I.3.1 ICT Specialists	6	86.15	28.9%	▼2
I.3.2 ICT In-House	19	43.47	38.2%	▼4
I.3.3 ICT Training	20	36.05	16.7%	
<b>II. Green Transition</b>	<b>18</b>	<b>44.44</b>		▼5
<b>II.1 Natural Resource Conservation</b>	<b>13</b>	<b>43.48</b>		▼1
II.1.1 Consumption	9	65.92	45.0%	
II.1.2 Recycling	20	39.51	35.0%	
II.1.3 Circular Material Use Rate	15	25.00	6.8%	
<b>II.2 Emission Reduction</b>	<b>13</b>	<b>60.17</b>		▲1
II.2.1 SME Emissions	15	47.22	44.0%	▼1
II.2.2 Overall Change in Greenhouse Gas Emissions	9	73.13	62.30	
<b>II.3 Green Output</b>	<b>22</b>	<b>29.66</b>		▼6
II.3.1 SME Green Products	26	16.92	21.0%	
II.3.2 SMEs in Green Sectors	8	42.40	38.6%	▼2
<b>III. SME Competitiveness</b>	<b>16</b>	<b>44.04</b>		▲1
<b>III.1 Exports</b>	<b>11</b>	<b>44.71</b>		▲1
III.1.1 Exporting SMEs	17	34.61	5.2%	▼1
III.1.2 SME International Trade	9	54.81	43.6%	
<b>III.2 Productivity</b>	<b>23</b>	<b>17.79</b>		
III.2.1 SME Labour Productivity	23	17.79	19.56	▼5
<b>III.3 Growth</b>	<b>7</b>	<b>69.62</b>		▲1
III.3.1 High-Growth Enterprises	14	60.92	10.4%	▼3
III.3.2 High-Growth Employment	4	78.33	20.1%	▲3

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/hungary>

# Ireland

Rank: **4** ▲1

Overall Score: **63.58**

Ireland ranks No.4, gaining one place since 2022. It is No. 1 in several categories: **SME Competitiveness**, **I.2 E-Commerce** and **III.2 Productivity**, and it is second-best when it comes to **III.3 Growth**. One blemish spot in its competitiveness is the performance in **III.1 Exports**, where it is only No. 24 (one place down on 2022). **Green Transition** (No. 22, down six places) is the weakest point of Ireland. The country ranks No. 25 in circular material use, with only 2% of the recycled material being reused, and the performance in both **II.2 Emission Reduction** (No. 18) and **II.3 Green Output** (No. 12) declined by 11 and two places, respectively. **I.3 Digital Skills** fell two places, ranking No. 7, with a slowdown on all related sub-indicators.

		Rank	Score	Value	
<b>I. Digital Transition</b>		<b>3</b>	<b>77.73</b>		<b>▲1</b>
<b>I.1 SME Digitalisation</b>		<b>7</b>	<b>71.99</b>		
I.1.1 Data Analytics		4	72.67	22.0%	
I.1.2 Cloud Computing		6	75.68	57.9%	<b>▲3</b>
I.1.3 Social Media		11	57.73	31.5%	
I.1.4 High Digital Intensity		4	80.90	49.3%	<b>▲2</b>
I.1.5 ICT Security		12	72.96	91.1%	<b>▼1</b>
<b>I.2 E-Commerce</b>		<b>1</b>	<b>100.00</b>		
I.2.1 E-Commerce Sales		1	100.00	42.2%	
I.2.2 E-Commerce Turnover		1	100.00	26.2%	
<b>I.3 Digital Skills</b>		<b>7</b>	<b>61.21</b>		<b>▼2</b>
I.3.1 ICT Specialists		4	86.56	29.0%	<b>▼3</b>
I.3.2 ICT In-House		18	45.92	39.5%	<b>▼9</b>
I.3.3 ICT Training		12	51.15	21.8%	<b>▼6</b>
<b>II. Green Transition</b>		<b>22</b>	<b>39.53</b>		<b>▼8</b>
<b>II.1 Natural Resource Conservation</b>		<b>22</b>	<b>33.41</b>		<b>▼4</b>
II.1.1 Consumption		26	23.98	25.8%	
II.1.2 Recycling		5	64.59	52.0%	
II.1.3 Circular Material Use Rate		25	11.67	2.0%	
<b>II.2 Emission Reduction</b>		<b>18</b>	<b>53.76</b>		<b>▼11</b>
II.2.1 SME Emissions		4	72.61	30.5%	<b>▼3</b>
II.2.2 Overall Change in Greenhouse Gas Emissions		26	34.90	112.80	<b>▼3</b>
<b>II.3 Green Output</b>		<b>21</b>	<b>31.41</b>		<b>▼2</b>
II.3.1 SME Green Products		16	44.62	29.0%	
II.3.2 SMEs in Green Sectors		23	18.20	28.9%	<b>▼4</b>
<b>III. SME Competitiveness</b>		<b>1</b>	<b>73.47</b>		<b>▲4</b>
<b>III.1 Exports</b>		<b>24</b>	<b>27.59</b>		<b>▼1</b>
III.1.1 Exporting SMEs		20	28.83	4.3%	<b>▲2</b>
III.1.2 SME International Trade		22	26.36	21.8%	<b>▼2</b>
<b>III.2 Productivity</b>		<b>1</b>	<b>100.00</b>		
III.2.1 SME Labour Productivity		1	100.00	96.04	<b>▲2</b>
<b>III.3 Growth</b>		<b>2</b>	<b>92.81</b>		
III.3.1 High-Growth Enterprises		2	93.13	15.8%	
III.3.2 High-Growth Employment		2	92.49	23.7%	

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/ireland>

# Italy

Rank: **16** ▲5

Overall Score: **42.27**

Italy ranks No. 16 (up five places). **Green Transition** (No. 13) remains the country's best performance, where with 18.4% of recycled material reused, Italy ranks No. 4 in II.1.3 Circular Material Use Rate and is No. 6 in **II.1 Natural Resource Conservation** (up four places). The other two indicators also improved – **II.2 Emission Reduction** (No. 19) gained one place and **II.3 Green Output** (No. 14) improved seven places. **Digital Transition** (No. 21) is the weakest point, with no significant improvement. Italy ranks second-to-last in **I.3 Digital Skills** and in I.3.1 ICT specialists (12.2% of SMEs) and it is last in I.3.2 ICT In-house (20.5% of SMEs).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>21</b>	<b>37.47</b>		
<b>I.1 SME Digitalisation</b>	<b>11</b>	<b>51.15</b>		
I.1.1 Data Analytics	18	22.39	8.2%	▼2
I.1.2 Cloud Computing	5	78.82	60.1%	▼1
I.1.3 Social Media	15	46.57	26.8%	
I.1.4 High Digital Intensity	18	31.51	26.8%	▼2
I.1.5 ICT Security	10	76.44	92.0%	▲1
<b>I.2 E-Commerce</b>	<b>17</b>	<b>38.19</b>		▲3
I.2.1 E-Commerce Sales	20	29.55	17.7%	▼2
I.2.2 E-Commerce Turnover	8	46.84	13.5%	▲9
<b>I.3 Digital Skills</b>	<b>26</b>	<b>23.08</b>		▲1
I.3.1 ICT Specialists	26	18.14	12.2%	▲1
I.3.2 ICT In-House	27	10.00	20.5%	▼1
I.3.3 ICT Training	18	41.09	18.4%	▲2
<b>II. Green Transition</b>	<b>13</b>	<b>48.87</b>		▲4
<b>II.1 Natural Resource Conservation</b>	<b>6</b>	<b>58.01</b>		▲4
II.1.1 Consumption	10	65.49	44.8%	
II.1.2 Recycling	12	51.31	43.0%	
II.1.3 Circular Material Use Rate	4	57.22	18.4%	
<b>II.2 Emission Reduction</b>	<b>19</b>	<b>49.44</b>		▲1
II.2.1 SME Emissions	22	35.90	50.1%	▼2
II.2.2 Overall Change in Greenhouse Gas Emissions	13	62.99	75.70	
<b>II.3 Green Output</b>	<b>14</b>	<b>39.18</b>		▲7
II.3.1 SME Green Products	18	41.15	28.0%	
II.3.2 SMEs in Green Sectors	10	37.20	36.5%	▲7
<b>III. SME Competitiveness</b>	<b>19</b>	<b>40.45</b>		▲2
<b>III.1 Exports</b>	<b>21</b>	<b>31.33</b>		▼1
III.1.1 Exporting SMEs	18	33.67	5.1%	
III.1.2 SME International Trade	20	28.99	23.9%	▲3
<b>III.2 Productivity</b>	<b>11</b>	<b>38.50</b>		
III.2.1 SME Labour Productivity	11	38.50	38.83	▲1
<b>III.3 Growth</b>	<b>18</b>	<b>51.51</b>		▼2
III.3.1 High-Growth Enterprises	16	55.90	9.5%	
III.3.2 High-Growth Employment	17	47.13	12.2%	▼3

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/italy>

# Latvia

Rank: **24**

Overall Score: **37.96**

Latvia is still No. 24. It has a relatively low performance with a few exceptions. It is second when it comes to SMEs for which ICT functions are performed by their own employees and the trade share in GDP; it also ranks third in **III.1 Exports**. It gained one place in **Digital Transition** (No. 22) and two places in **SME Competitiveness** (No. 10). **III.3 Growth** (No. 19), **I.2 E-Commerce** (No. 20) and **I.3 Digital Skills** (No. 14) show signs of improvement too. However, Latvia is the lowest performer in **Green Transition**. **II.2 Emission Reduction** (No. 27) and **II.3 Green Output** (No. 23) both declined (four and nine places, respectively).

		Rank	Score	Value	
<b>I. Digital Transition</b>		<b>22</b>	<b>35.95</b>		<b>▲1</b>
<b>I.1 SME Digitalisation</b>		<b>23</b>	<b>30.21</b>		<b>▼3</b>
I.1.1	Data Analytics	20	20.93	7.8%	<b>▼4</b>
I.1.2	Cloud Computing	22	32.32	27.6%	<b>▲2</b>
I.1.3	Social Media	18	41.58	24.7%	<b>▼2</b>
I.1.4	High Digital Intensity	23	17.24	20.3%	<b>▼1</b>
I.1.5	ICT Security	24	38.97	82.3%	<b>▼23</b>
<b>I.2 E-Commerce</b>		<b>20</b>	<b>26.61</b>		<b>▲2</b>
I.2.1	E-Commerce Sales	21	28.98	17.5%	<b>▲1</b>
I.2.2	E-Commerce Turnover	18	24.23	8.1%	<b>▲1</b>
<b>I.3 Digital Skills</b>		<b>14</b>	<b>51.02</b>		<b>▲8</b>
I.3.1	ICT Specialists	17	38.91	17.3%	<b>▼6</b>
I.3.2	ICT In-House	2	86.39	60.9%	<b>▲24</b>
I.3.3	ICT Training	21	27.76	13.9%	<b>▼5</b>
<b>II. Green Transition</b>		<b>27</b>	<b>29.33</b>		<b>▼2</b>
<b>II.1 Natural Resource Conservation</b>		<b>24</b>	<b>30.70</b>		
II.1.1	Consumption	18	48.45	37.0%	
II.1.2	Recycling	25	20.33	22.0%	
II.1.3	Circular Material Use Rate	17	23.33	6.2%	
<b>II.2 Emission Reduction</b>		<b>27</b>	<b>28.73</b>		<b>▼4</b>
II.2.1	SME Emissions	26	10.00	63.9%	
II.2.2	Overall Change in Greenhouse Gas Emissions	22	47.47	96.20	<b>▼8</b>
<b>II.3 Green Output</b>		<b>23</b>	<b>28.55</b>		<b>▼9</b>
II.3.1	SME Green Products	25	20.38	22.0%	
II.3.2	SMEs in Green Sectors	11	36.72	36.3%	<b>▼4</b>
<b>III. SME Competitiveness</b>		<b>10</b>	<b>48.60</b>		<b>▲2</b>
<b>III.1 Exports</b>		<b>3</b>	<b>76.53</b>		
III.1.1	Exporting SMEs	4	68.95	10.6%	
III.1.2	SME International Trade	2	84.10	66.1%	
<b>III.2 Productivity</b>		<b>22</b>	<b>17.90</b>		
III.2.1	SME Labour Productivity	22	17.90	19.66	
<b>III.3 Growth</b>		<b>19</b>	<b>51.37</b>		<b>▲1</b>
III.3.1	High-Growth Enterprises	18	55.66	9.5%	<b>▲2</b>
III.3.2	High-Growth Employment	18	47.09	12.2%	<b>▲3</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/latvia>

# Lithuania

Rank: **14**

Overall Score: **46.48**

Lithuania ranks No. 14 with rankings in the middle of the pack: **Digital Transition** (No. 13), **Green Transition** (No. 17) and **SME Competitiveness** (No. 12). With good performance in **III.1 Exports** (No. 6), despite the slowdown, and signs of improvement in both **III.2 Productivity** (No. 17) and **III.3 Growth** (No.10), Lithuania gains four places in overall **SME Competitiveness** (No. 12). Lithuania performs rather modestly in **Digital Transition**, where it lost five places due to weaker performances across the indicators; in **I.2 E-Commerce** (No. 5), it remained one of the top five performers. The country ranks No. 7 in **II.2 Emission Reduction** (up six places) but only No. 20 in **II.1.3 Circular Material Use Rate** (4% of recycled material is reused).

		Rank	Score	Value	
<b>I.</b>	<b>Digital Transition</b>	<b>13</b>	<b>47.71</b>		<b>▼5</b>
<b>I.1</b>	<b>SME Digitalisation</b>	<b>20</b>	<b>39.57</b>		<b>▼2</b>
I.1.1	Data Analytics	13	30.04	10.3%	
I.1.2	Cloud Computing	19	38.90	32.2%	<b>▼4</b>
I.1.3	Social Media	22	32.80	21.0%	
I.1.4	High Digital Intensity	15	35.90	28.8%	<b>▼1</b>
I.1.5	ICT Security	16	60.21	87.8%	<b>▼5</b>
<b>I.2</b>	<b>E-Commerce</b>	<b>5</b>	<b>68.94</b>		<b>▼1</b>
I.2.1	E-Commerce Sales	3	84.76	36.9%	
I.2.2	E-Commerce Turnover	7	53.12	15.0%	<b>▼4</b>
<b>I.3</b>	<b>Digital Skills</b>	<b>21</b>	<b>34.63</b>		<b>▼2</b>
I.3.1	ICT Specialists	21	30.77	15.3%	<b>▲4</b>
I.3.2	ICT In-House	14	52.16	42.8%	<b>▼9</b>
I.3.3	ICT Training	25	20.95	11.6%	
<b>II.</b>	<b>Green Transition</b>	<b>17</b>	<b>44.48</b>		<b>▲1</b>
<b>II.1</b>	<b>Natural Resource Conservation</b>	<b>25</b>	<b>29.01</b>		<b>▼2</b>
II.1.1	Consumption	12	59.81	42.2%	
II.1.2	Recycling	27	10.00	15.0%	
II.1.3	Circular Material Use Rate	20	17.22	4.0%	
<b>II.2</b>	<b>Emission Reduction</b>	<b>7</b>	<b>66.32</b>		<b>▲6</b>
II.2.1	SME Emissions	20	37.55	49.2%	<b>▼1</b>
II.2.2	Overall Change in Greenhouse Gas Emissions	3	95.08	33.30	<b>▼1</b>
<b>II.3</b>	<b>Green Output</b>	<b>16</b>	<b>38.12</b>		<b>▼1</b>
II.3.1	SME Green Products	14	51.54	31.0%	
II.3.2	SMEs in Green Sectors	20	24.69	31.5%	<b>▼4</b>
<b>III.</b>	<b>SME Competitiveness</b>	<b>12</b>	<b>47.26</b>		<b>▲4</b>
<b>III.1</b>	<b>Exports</b>	<b>6</b>	<b>58.93</b>		<b>▼1</b>
III.1.1	Exporting SMEs	10	48.42	7.4%	<b>▼1</b>
III.1.2	SME International Trade	5	69.45	54.9%	
<b>III.2</b>	<b>Productivity</b>	<b>17</b>	<b>19.68</b>		
III.2.1	SME Labour Productivity	17	19.68	21.31	<b>▲3</b>
<b>III.3</b>	<b>Growth</b>	<b>10</b>	<b>63.17</b>		<b>▲4</b>
III.3.1	High-Growth Enterprises	13	63.90	10.9%	<b>▲8</b>
III.3.2	High-Growth Employment	9	62.43	16.1%	<b>▲2</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/lithuania>

# Luxembourg

Rank: **8** ▲1

Overall Score: **52.96**

Luxembourg ranks No. 8. Overall, it is a good performer with good rankings in **Green Transition** (No. 4, down one place) and **SME Competitiveness** (No. 6, up three places). However, in **Digital Transition** (No. 20), the performance is surprisingly low – a sign that SMEs in this hyper-digitised country are perhaps not terribly keen on digitising their operations. Luxembourg ranks second in **II.3 Green Output** and in **II.3.1 SMEs in Green Sectors**, but it is only No.21 in **II.1.3 Circular Material Use Rate** with less than 4% of the recycled material reused.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>20</b>	<b>37.84</b>		
<b>I.1 SME Digitalisation</b>	<b>12</b>	<b>49.10</b>		▼3
I.1.1 Data Analytics	9	58.10	18.0%	▼1
I.1.2 Cloud Computing	18	39.05	32.3%	▼2
I.1.3 Social Media	10	60.34	32.6%	
I.1.4 High Digital Intensity	15	35.90	28.8%	▼2
I.1.5 ICT Security	20	52.10	85.7%	▼9
<b>I.2 E-Commerce</b>	<b>27</b>	<b>12.30</b>		
I.2.1 E-Commerce Sales	26	12.30	11.7%	▲1
I.2.2 E-Commerce Turnover	n/a	n/a	n/a	
<b>I.3 Digital Skills</b>	<b>13</b>	<b>52.12</b>		▼2
I.3.1 ICT Specialists	10	56.43	21.6%	
I.3.2 ICT In-House	13	52.92	43.2%	
I.3.3 ICT Training	14	47.01	20.4%	
<b>II. Green Transition</b>	<b>4</b>	<b>61.69</b>		▼1
<b>II.1 Natural Resource Conservation</b>	<b>10</b>	<b>47.89</b>		▼4
II.1.1 Consumption	11	62.43	43.4%	
II.1.2 Recycling	5	64.59	52.0%	
II.1.3 Circular Material Use Rate	21	16.67	3.8%	
<b>II.2 Emission Reduction</b>	<b>14</b>	<b>58.82</b>		▲4
II.2.1 SME Emissions	n/a	n/a	n/a	
II.2.2 Overall Change in Greenhouse Gas Emissions	18	58.82	81.20	▲2
<b>II.3 Green Output</b>	<b>2</b>	<b>78.36</b>		▲1
II.3.1 SME Green Products	4	86.15	41.0%	
II.3.2 SMEs in Green Sectors	2	70.56	49.9%	▼1
<b>III. SME Competitiveness</b>	<b>6</b>	<b>59.35</b>		▲3
<b>III.1 Exports</b>	<b>19</b>	<b>33.07</b>		▼1
III.1.1 Exporting SMEs	14	40.03	6.1%	
III.1.2 SME International Trade	23	26.10	21.6%	▼2
<b>III.2 Productivity</b>	<b>3</b>	<b>88.04</b>		
III.2.1 SME Labour Productivity	3	88.04	84.92	▼1
<b>III.3 Growth</b>	<b>13</b>	<b>56.94</b>		▲4
III.3.1 High-Growth Enterprises	9	68.09	11.6%	▲6
III.3.2 High-Growth Employment	19	45.79	11.9%	▼1

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/luxembourg>

# Malta

Rank: **7**

Overall Score: **55.42**

Malta is No. 7. It has a relatively good performance, ranking often at or above the **EU Average**, in **Digital Transition** (No. 7), **Green Transition** (No. 12) and **SME Competitiveness** (No. 13, down five places). Malta shows some improvement in **I.2 E-Commerce** (No. 11, up three places), but I.2.2 E-Commerce Turnover remains low (just 8.1% of total turnover with a No. 18 rank). **III.1 Exports** (No. 25) did not improve among Maltese SMEs and less than 2% of them are exporting in 2023 (No. 26); III.1.2 SME International Trade declined by 8%, falling down to No. 19. **II.1 Natural Resource Conservation** (No. 12) improved, mainly due to II.1.3 Circular Material Use Rate (No. 8); the share of II.3.2 SMEs in Green Sectors (No. 9) helped **II.3 Green Output** (No. 12) gain six places.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>7</b>	<b>68.83</b>		
<b>I.1 SME Digitalisation</b>	<b>5</b>	<b>81.18</b>		
I.1.1 Data Analytics	1	100.00	29.5%	
I.1.2 Cloud Computing	8	73.82	56.6%	▼2
I.1.3 Social Media	5	82.66	42.0%	
I.1.4 High Digital Intensity	5	69.49	44.1%	▼1
I.1.5 ICT Security	8	79.91	92.9%	▲7
<b>I.2 E-Commerce</b>	<b>11</b>	<b>47.31</b>		▲3
I.2.1 E-Commerce Sales	6	70.38	31.9%	
I.2.2 E-Commerce Turnover	18	24.23	8.1%	▲3
<b>I.3 Digital Skills</b>	<b>3</b>	<b>78.01</b>		▲1
I.3.1 ICT Specialists	2	98.37	31.9%	
I.3.2 ICT In-House	7	68.80	51.6%	▼1
I.3.3 ICT Training	8	66.84	27.1%	▼3
<b>II. Green Transition</b>	<b>12</b>	<b>51.75</b>		
<b>II.1 Natural Resource Conservation</b>	<b>12</b>	<b>46.32</b>		▲3
II.1.1 Consumption	14	52.82	39.0%	
II.1.2 Recycling	15	48.36	41.0%	
II.1.3 Circular Material Use Rate	8	37.78	11.4%	
<b>II.2 Emission Reduction</b>	<b>6</b>	<b>67.47</b>		
II.2.1 SME Emissions	2	78.69	27.3%	▲1
II.2.2 Overall Change in Greenhouse Gas Emissions	19	56.25	84.60	▲2
<b>II.3 Green Output</b>	<b>12</b>	<b>41.48</b>		▲6
II.3.1 SME Green Products	16	44.62	29.0%	
II.3.2 SMEs in Green Sectors	9	38.34	37.0%	▲6
<b>III. SME Competitiveness</b>	<b>13</b>	<b>45.66</b>		▼5
<b>III.1 Exports</b>	<b>25</b>	<b>22.80</b>		▼3
III.1.1 Exporting SMEs	26	13.41	1.9%	
III.1.2 SME International Trade	19	32.19	26.3%	▼5
<b>III.2 Productivity</b>	<b>10</b>	<b>40.83</b>		
III.2.1 SME Labour Productivity	10	40.83	40.99	▼5
<b>III.3 Growth</b>	<b>5</b>	<b>73.36</b>		
III.3.1 High-Growth Enterprises	6	71.43	12.1%	
III.3.2 High-Growth Employment	5	75.29	19.4%	▼1

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/malta>

# Netherlands

Rank: **3 ▼1**

Overall Score: **69.36**

The Netherlands ranks No. 3, down from No. 2 last year. Its performance remains in the upper echelon of the rankings: **Digital Transition** (No. 5), **Green Transition** (No. 2) and **SME Competitiveness** (No. 2). The weakest performance is still in **II.2 Emission Reduction** (No. 16, up one place). The II.2.2 Overall Change in Greenhouse Gas Emissions slightly improved (No. 15, up four places), but the share of greenhouse gas emissions produced by SMEs increased, placing the country at No. 13 (down four places). It is No. 1 in **II.1 Natural Resource Conservation** due to its excellent II.1.3 Circular Material Use Rate (33.8% of the recycled material is reused). **III.3 Growth** (No. 6, down three places) slows down and employment in high-growth enterprises drops five places to No. 8.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>5</b>	<b>71.77</b>		<b>▲1</b>
<b>I.1 SME Digitalisation</b>	<b>4</b>	<b>84.30</b>		
I.1.1 Data Analytics	2	87.61	26.1%	
I.1.2 Cloud Computing	3	84.55	64.1%	<b>▲3</b>
I.1.3 Social Media	2	96.20	47.7%	
I.1.4 High Digital Intensity	6	63.56	41.4%	<b>▼1</b>
I.1.5 ICT Security	5	89.57	95.4%	<b>▼2</b>
<b>I.2 E-Commerce</b>	<b>6</b>	<b>60.77</b>		<b>▲2</b>
I.2.1 E-Commerce Sales	8	65.50	30.2%	<b>▲2</b>
I.2.2 E-Commerce Turnover	6	56.05	15.7%	
<b>I.3 Digital Skills</b>	<b>6</b>	<b>70.23</b>		<b>▲1</b>
I.3.1 ICT Specialists	4	86.56	29.0%	<b>▲5</b>
I.3.2 ICT In-House	10	56.70	45.2%	<b>▼1</b>
I.3.3 ICT Training	6	67.43	27.3%	<b>▲4</b>
<b>II. Green Transition</b>	<b>2</b>	<b>68.59</b>		
<b>II.1 Natural Resource Conservation</b>	<b>1</b>	<b>79.37</b>		<b>▲3</b>
II.1.1 Consumption	6	72.04	47.8%	
II.1.2 Recycling	3	66.07	53.0%	
II.1.3 Circular Material Use Rate	1	100.00	33.8%	
<b>II.2 Emission Reduction</b>	<b>16</b>	<b>54.88</b>		<b>▲1</b>
II.2.1 SME Emissions	13	47.61	43.8%	<b>▼4</b>
II.2.2 Overall Change in Greenhouse Gas Emissions	15	62.15	76.80	<b>▲4</b>
<b>II.3 Green Output</b>	<b>4</b>	<b>71.53</b>		<b>▼3</b>
II.3.1 SME Green Products	1	100.00	45.0%	
II.3.2 SMEs in Green Sectors	7	43.07	38.9%	<b>▼4</b>
<b>III. SME Competitiveness</b>	<b>2</b>	<b>67.72</b>		<b>▼1</b>
<b>III.1 Exports</b>	<b>4</b>	<b>66.25</b>		
III.1.1 Exporting SMEs	8	53.92	8.3%	<b>▼1</b>
III.1.2 SME International Trade	3	78.57	61.9%	<b>▲1</b>
<b>III.2 Productivity</b>	<b>6</b>	<b>67.16</b>		
III.2.1 SME Labour Productivity	6	67.16	65.49	
<b>III.3 Growth</b>	<b>6</b>	<b>69.76</b>		<b>▼3</b>
III.3.1 High-Growth Enterprises	5	73.76	12.5%	
III.3.2 High-Growth Employment	8	65.76	17.0%	<b>▼5</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/netherlands>

# Poland

Rank: **22 ▲1** Overall Score: **40.76**

Poland ranks No. 22. It has a modest performance with rankings in the lower echelon: **Digital Transition** (No. 18), **Green Transition** (No. 20) and **SME Competitiveness** (No. 21). **I.3 Digital Skills** (No. 11, up six places) improved as well as **Digital Transition** performance (up six places). However, **I.2 E-Commerce** (No. 23) declined with only 16.1% of SMEs having e-commerce sales (No. 24) and 8% of total turnover coming from e-commerce sales (No. 20). The performance in **II.2 Emission Reduction** (No. 11, down six places) declined mainly due to the decline in the II.2.2 Overall Change in Greenhouse Gas Emissions (No. 20, down two places).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>18</b>	<b>39.76</b>		<b>▲6</b>
<b>I.1 SME Digitalisation</b>	<b>21</b>	<b>37.43</b>		<b>▲2</b>
I.1.1 Data Analytics	20	20.93	7.8%	<b>▼4</b>
I.1.2 Cloud Computing	23	31.89	27.3%	
I.1.3 Social Media	24	22.35	16.6%	
I.1.4 High Digital Intensity	20	31.29	26.7%	<b>▲2</b>
I.1.5 ICT Security	7	80.69	93.1%	<b>▲13</b>
<b>I.2 E-Commerce</b>	<b>23</b>	<b>24.38</b>		<b>▼2</b>
I.2.1 E-Commerce Sales	24	24.95	16.1%	<b>▼3</b>
I.2.2 E-Commerce Turnover	20	23.81	8.0%	
<b>I.3 Digital Skills</b>	<b>11</b>	<b>57.48</b>		<b>▲6</b>
I.3.1 ICT Specialists	7	85.75	28.8%	<b>▲1</b>
I.3.2 ICT In-House	24	32.88	32.6%	
I.3.3 ICT Training	10	53.82	22.7%	<b>▲6</b>
<b>II. Green Transition</b>	<b>20</b>	<b>42.62</b>		<b>▼1</b>
<b>II.1 Natural Resource Conservation</b>	<b>17</b>	<b>39.18</b>		<b>▲2</b>
II.1.1 Consumption	15	51.07	38.2%	
II.1.2 Recycling	22	35.08	32.0%	
II.1.3 Circular Material Use Rate	11	31.39	9.1%	
<b>II.2 Emission Reduction</b>	<b>11</b>	<b>63.05</b>		<b>▼6</b>
II.2.1 SME Emissions	5	70.54	31.6%	
II.2.2 Overall Change in Greenhouse Gas Emissions	20	55.57	85.50	<b>▼2</b>
<b>II.3 Green Output</b>	<b>24</b>	<b>25.62</b>		
II.3.1 SME Green Products	22	30.77	25.0%	
II.3.2 SMEs in Green Sectors	21	20.48	29.8%	<b>▲2</b>
<b>III. SME Competitiveness</b>	<b>21</b>	<b>39.89</b>		<b>▲1</b>
<b>III.1 Exports</b>	<b>16</b>	<b>36.52</b>		
III.1.1 Exporting SMEs	13	40.20	6.1%	<b>▼1</b>
III.1.2 SME International Trade	18	32.84	26.8%	<b>▲1</b>
<b>III.2 Productivity</b>	<b>18</b>	<b>19.17</b>		
III.2.1 SME Labour Productivity	18	19.17	20.84	<b>▲1</b>
<b>III.3 Growth</b>	<b>9</b>	<b>63.98</b>		<b>▲1</b>
III.3.1 High-Growth Enterprises	15	57.27	9.8%	<b>▼1</b>
III.3.2 High-Growth Employment	7	70.70	18.2%	<b>▲1</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/poland>

# Portugal

Rank: **18 ▼3** Overall Score: **41.96**

Portugal is No. 18. It is a modest, mid-range performer: **Digital Transition** (No. 16), **Green Transition** (No. 24) and **SME Competitiveness** (No. 17). The country does best in **II.3 Growth** (No. 4, up three places), but the low score on **III.2 Productivity** (No. 21), drags **SME Competitiveness** ten places down to No. 17. Another area in need for further improvement is Green Transition, where the indicators scores are all in the lower echelon: **II.1 Natural Resource Conservation** (No. 21, down four places), **II.2 Emission Reduction** (No. 23, up one place) and **II.3 Green Output** (No. 19, down two places). Portugal remains a modest performer in the digital sphere: **I.1 SME Digitalisation** (No. 14), **I.2 E-Commerce** (No. 16) and **I.3 Digital Skills** (No. 16).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>16</b>	<b>44.72</b>		
<b>I.1 SME Digitalisation</b>	<b>14</b>	<b>45.60</b>		
I.1.1 Data Analytics	14	28.95	10.0%	▼1
I.1.2 Cloud Computing	17	41.05	33.7%	▼1
I.1.3 Social Media	16	43.01	25.3%	
I.1.4 High Digital Intensity	9	48.20	34.4%	▲5
I.1.5 ICT Security	15	66.78	89.5%	▼14
<b>I.2 E-Commerce</b>	<b>16</b>	<b>39.79</b>		▲3
I.2.1 E-Commerce Sales	18	33.58	19.1%	▲4
I.2.2 E-Commerce Turnover	10	46.00	13.3%	▼1
<b>I.3 Digital Skills</b>	<b>16</b>	<b>48.78</b>		▼1
I.3.1 ICT Specialists	16	44.62	18.7%	▼3
I.3.2 ICT In-House	17	48.19	40.7%	▲1
I.3.3 ICT Training	11	53.52	22.6%	▼1
<b>II. Green Transition</b>	<b>24</b>	<b>37.69</b>		▼3
<b>II.1 Natural Resource Conservation</b>	<b>21</b>	<b>34.79</b>		▼4
II.1.1 Consumption	24	29.66	28.4%	
II.1.2 Recycling	7	61.64	50.0%	
II.1.3 Circular Material Use Rate	24	13.06	2.5%	
<b>II.2 Emission Reduction</b>	<b>23</b>	<b>42.28</b>		▲1
II.2.1 SME Emissions	25	22.56	57.2%	▼3
II.2.2 Overall Change in Greenhouse Gas Emissions	16	62.00	77.00	▲6
<b>II.3 Green Output</b>	<b>19</b>	<b>36.00</b>		▼7
II.3.1 SME Green Products	19	37.69	27.0%	
II.3.2 SMEs in Green Sectors	13	34.32	35.3%	▼4
<b>III. SME Competitiveness</b>	<b>17</b>	<b>43.46</b>		▼10
<b>III.1 Exports</b>	<b>17</b>	<b>35.81</b>		
III.1.1 Exporting SMEs	19	33.03	5.0%	
III.1.2 SME International Trade	14	38.59	31.2%	▲2
<b>III.2 Productivity</b>	<b>21</b>	<b>17.97</b>		
III.2.1 SME Labour Productivity	21	17.97	19.73	
<b>III.3 Growth</b>	<b>4</b>	<b>76.60</b>		▲3
III.3.1 High-Growth Enterprises	7	68.39	11.6%	▲1
III.3.2 High-Growth Employment	3	84.82	21.8%	▲2

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/portugal>

# Romania

Rank: **27**

Overall Score: **28.19**

Romania ranks No. 27 without significant improvement from last year: **Digital Transition** (No. 26), **Green Transition** (No. 16) and **SME Competitiveness** (No. 27). Its best performance remains the **Green Transition** (No. 16, down one place). It ranks No. 3 on **II.2 Emission Reduction** (up one place), but lags on **II.3 Green Output** (No. 25). Romania ranks second in **II.2.2 Overall Change of Greenhouse Gas Emissions**, but it is last when it comes to **II.1.2 Circular Material Use Rate** (1.4% of recycled material is reused). A lot needs to be done in the digital area and SME competitiveness. In both areas the performance is very low: it is second-to-last in **I.1 SME Digitalisation**, **III.3 Growth** and **III.2 Productivity**, and third-to-last in **I.2 E-Commerce** and **I.3 Digital Skills**.

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>26</b>	<b>19.84</b>		
<b>I.1 SME Digitalisation</b>	<b>26</b>	<b>19.76</b>		▲ 1
I.1.1 Data Analytics	27	10.00	4.8%	▼ 1
I.1.2 Cloud Computing	26	12.15	13.5%	▼ 1
I.1.3 Social Media	27	10.00	11.4%	
I.1.4 High Digital Intensity	25	12.63	18.2%	▲ 2
I.1.5 ICT Security	19	54.03	86.2%	▲ 8
<b>I.2 E-Commerce</b>	<b>25</b>	<b>16.07</b>		
I.2.1 E-Commerce Sales	27	10.00	10.9%	▼ 2
I.2.2 E-Commerce Turnover	21	22.14	7.6%	
<b>I.3 Digital Skills</b>	<b>25</b>	<b>23.68</b>		
I.3.1 ICT Specialists	27	10.00	10.2%	▼ 6
I.3.2 ICT In-House	15	51.03	42.2%	▼ 1
I.3.3 ICT Training	27	10.00	7.9%	
<b>II. Green Transition</b>	<b>16</b>	<b>46.11</b>		▼ 1
<b>II.1 Natural Resource Conservation</b>	<b>14</b>	<b>43.12</b>		▼ 5
II.1.1 Consumption	5	72.48	48.0%	
II.1.2 Recycling	17	46.89	40.0%	
II.1.3 Circular Material Use Rate	27	10.00	1.4%	
<b>II.2 Emission Reduction</b>	<b>3</b>	<b>73.45</b>		▲ 1
II.2.1 SME Emissions	12	48.57	43.3%	▲ 1
II.2.2 Overall Change in Greenhouse Gas Emissions	2	98.33	29.00	▼ 1
<b>II.3 Green Output</b>	<b>25</b>	<b>21.76</b>		▲ 1
II.3.1 SME Green Products	23	27.31	24.0%	
II.3.2 SMEs in Green Sectors	25	16.22	28.1%	▲ 1
<b>III. SME Competitiveness</b>	<b>27</b>	<b>18.63</b>		
<b>III.1 Exports</b>	<b>22</b>	<b>31.21</b>		▲ 2
III.1.1 Exporting SMEs	22	26.65	4.0%	▼ 1
III.1.2 SME International Trade	15	35.77	29.1%	▲ 7
<b>III.2 Productivity</b>	<b>26</b>	<b>10.00</b>		
III.2.1 SME Labour Productivity	26	10.00	12.31	▼ 3
<b>III.3 Growth</b>	<b>26</b>	<b>14.67</b>		▲ 1
III.3.1 High-Growth Enterprises	27	10.00	1.9%	
III.3.2 High-Growth Employment	26	19.33	5.2%	▲ 1

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/romania>

# Slovakia

Rank: **15** ▲3

Overall Score: **42.54**

Slovakia is No. 15. It has rather modest to low performances in **Digital Transition** (No. 24, up one place) and **SME Competitiveness** (No. 22, down two places). **Green Transition** (No. 5) is the country's best performance, with indicators ranking in the upper echelon: **II.1 Natural Resource Conservation** (No. 4, down one place), **II.2 Emission Reduction** (No. 12, up four places) and **II.3 Green Output** (No. 7, up three places). The performance on digital indicators remains relatively weak: **I.1 SME Digitalisation** (No. 22), **I.2 E-Commerce** (No. 21) and **I.3 Digital Skills** (No. 24). **SME Competitiveness** weakened, with declining performances on **III.1 Exports** (No. 10, down one place) and **III.3 Growth** (No. 22, down seven places).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>24</b>	<b>30.15</b>		▲1
<b>I.1 SME Digitalisation</b>	<b>22</b>	<b>31.68</b>		
I.1.1 Data Analytics	26	11.09	5.1%	
I.1.2 Cloud Computing	16	43.20	35.2%	▲4
I.1.3 Social Media	23	29.71	19.7%	
I.1.4 High Digital Intensity	22	22.29	22.6%	▼1
I.1.5 ICT Security	20	52.10	85.7%	▼1
<b>I.2 E-Commerce</b>	<b>21</b>	<b>26.57</b>		▲1
I.2.1 E-Commerce Sales	22	26.39	16.6%	
I.2.2 E-Commerce Turnover	17	26.74	8.7%	▲2
<b>I.3 Digital Skills</b>	<b>24</b>	<b>32.21</b>		
I.3.1 ICT Specialists	22	30.36	15.2%	▲3
I.3.2 ICT In-House	21	39.68	36.2%	▼1
I.3.3 ICT Training	23	26.58	13.5%	
<b>II. Green Transition</b>	<b>5</b>	<b>60.69</b>		
<b>II.1 Natural Resource Conservation</b>	<b>4</b>	<b>61.73</b>		▼1
II.1.1 Consumption	3	89.95	56.0%	
II.1.2 Recycling	3	66.07	53.0%	
II.1.3 Circular Material Use Rate	12	29.17	8.3%	
<b>II.2 Emission Reduction</b>	<b>12</b>	<b>61.19</b>		▲4
II.2.1 SME Emissions	17	41.61	47.0%	▲1
II.2.2 Overall Change in Greenhouse Gas Emissions	5	80.77	52.20	
<b>II.3 Green Output</b>	<b>7</b>	<b>59.14</b>		▲3
II.3.1 SME Green Products	4	86.15	41.0%	
II.3.2 SMEs in Green Sectors	14	32.13	34.5%	▲6
<b>III. SME Competitiveness</b>	<b>22</b>	<b>36.78</b>		▼2
<b>III.1 Exports</b>	<b>10</b>	<b>47.45</b>		▼1
III.1.1 Exporting SMEs	16	37.88	5.7%	▼1
III.1.2 SME International Trade	7	57.02	45.3%	▲1
<b>III.2 Productivity</b>	<b>20</b>	<b>18.12</b>		
III.2.1 SME Labour Productivity	20	18.12	19.87	▲1
<b>III.3 Growth</b>	<b>22</b>	<b>44.77</b>		▼7
III.3.1 High-Growth Enterprises	21	50.52	8.6%	▼8
III.3.2 High-Growth Employment	22	39.02	10.2%	▼7

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/slovakia>

# Slovenia

Rank: **12 ▼1**

Overall Score: **50.39**

Slovenia ranks No. 12. Its overall performance is relatively good: **Digital Transition** (No. 14), **Green Transition** (No. 15, up five places) and **SME Competitiveness** (No. 7, down four places). Slovenia is second-best in **III.1 Exports**, and it is No. 1 in **III.1.1 Exporting SMEs** (15.5% of SME exports) and No. 4 in **III.1.2 SME International Trade**, which accounts for 61.3% of GDP. However, it lags in the other indicators: No. 12 in **III.2 Productivity** and No. 16 in **III.3 Growth**. Slovenia shows some improvements in the digital indicators: **I.3 Digital Skills** (No. 15, up five places) and **I.1 SME Digitalisation** (No. 18, up three places). With 11% of recycled material reused, the country is No. 10 in **II.1.3 Circular Material Use Rate**, improving by four places in **II.1 Natural Resource Conservation** (No.16).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>14</b>	<b>46.14</b>		
<b>I.1 SME Digitalisation</b>	<b>18</b>	<b>42.71</b>		▲3
I.1.1 Data Analytics	24	13.64	5.8%	▼1
I.1.2 Cloud Computing	12	52.35	41.6%	▼2
I.1.3 Social Media	13	50.84	28.6%	▼1
I.1.4 High Digital Intensity	11	42.27	31.7%	▲1
I.1.5 ICT Security	18	54.42	86.3%	▲6
<b>I.2 E-Commerce</b>	<b>12</b>	<b>46.31</b>		▼2
I.2.1 E-Commerce Sales	12	49.97	24.8%	
I.2.2 E-Commerce Turnover	11	42.65	12.5%	▼3
<b>I.3 Digital Skills</b>	<b>15</b>	<b>49.39</b>		▲5
I.3.1 ICT Specialists	15	45.02	18.8%	▲6
I.3.2 ICT In-House	23	35.71	34.1%	▼1
I.3.3 ICT Training	6	67.43	27.3%	▲2
<b>II. Green Transition</b>	<b>15</b>	<b>46.52</b>		▲5
<b>II.1 Natural Resource Conservation</b>	<b>16</b>	<b>40.43</b>		▲4
II.1.1 Consumption	20	43.64	34.8%	
II.1.2 Recycling	19	40.98	36.0%	
II.1.3 Circular Material Use Rate	10	36.67	11.0%	
<b>II.2 Emission Reduction</b>	<b>22</b>	<b>44.91</b>		▲4
II.2.1 SME Emissions	19	37.73	49.1%	▲4
II.2.2 Overall Change in Greenhouse Gas Emissions	21	52.09	90.10	▲5
<b>II.3 Green Output</b>	<b>9</b>	<b>54.23</b>		▼1
II.3.1 SME Green Products	8	72.31	37.0%	
II.3.2 SMEs in Green Sectors	12	36.15	36.1%	▼1
<b>III. SME Competitiveness</b>	<b>7</b>	<b>58.51</b>		▼4
<b>III.1 Exports</b>	<b>2</b>	<b>88.91</b>		
III.1.1 Exporting SMEs	1	100.00	15.5%	▲1
III.1.2 SME International Trade	4	77.83	61.3%	▼1
<b>III.2 Productivity</b>	<b>12</b>	<b>33.67</b>		
III.2.1 SME Labour Productivity	12	33.67	34.33	▲2
<b>III.3 Growth</b>	<b>16</b>	<b>52.94</b>		▼7
III.3.1 High-Growth Enterprises	12	64.92	11.0%	▼5
III.3.2 High-Growth Employment	21	40.96	10.7%	▼9

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/slovenia>

# Spain

Rank: **13**

Overall Score: **46.54**

Spain is No. 13. Its best performance remains in **Green Transition** (No. 11, down one place), where it is second in **II.1 Nature Resource Conservation** due to a modest performance on II.1.3 Circular Material Use Rate (No. 13), with just 8% of recycled material reused. **I.2 E-Commerce** (No. 10, up two places) improved and with 32.6% of SMEs having e-commerce sales (an increase of five percentage points), the country ranks No. 5. However, the other two performances remain modest: **I.1 SME Digitalisation** (No. 17, down four places) and **I.3 Digital Skills** (No. 20, down two places). The slowdown of **III.3 Growth** (No. 11, down five places) impacted also Spanish **SME Competitiveness** (No. 18, down four places): 11.3% of enterprises are high-growth enterprises (No. 10, down seven places), accounting for only 15.4% of employment (No. 11, down two places).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>15</b>	<b>44.94</b>		
<b>I.1 SME Digitalisation</b>	<b>17</b>	<b>44.68</b>		▼4
I.1.1 Data Analytics	16	23.48	8.5%	
I.1.2 Cloud Computing	20	35.76	30.0%	
I.1.3 Social Media	7	74.35	38.5%	
I.1.4 High Digital Intensity	18	31.51	26.8%	▼8
I.1.5 ICT Security	17	58.28	87.3%	▼1
<b>I.2 E-Commerce</b>	<b>10</b>	<b>52.71</b>		▲2
I.2.1 E-Commerce Sales	5	72.40	32.6%	▲5
I.2.2 E-Commerce Turnover	15	33.02	10.2%	▲2
<b>I.3 Digital Skills</b>	<b>20</b>	<b>37.44</b>		▼2
I.3.1 ICT Specialists	25	28.33	14.7%	▼7
I.3.2 ICT In-House	20	40.25	36.5%	▼3
I.3.3 ICT Training	16	43.75	19.3%	▼1
<b>II. Green Transition</b>	<b>11</b>	<b>51.95</b>		▼1
<b>II.1 Natural Resource Conservation</b>	<b>2</b>	<b>76.11</b>		▼1
II.1.1 Consumption	1	100.00	60.6%	
II.1.2 Recycling	1	100.00	76.0%	
II.1.3 Circular Material Use Rate	13	28.33	8.0%	
<b>II.2 Emission Reduction</b>	<b>24</b>	<b>41.60</b>		▲1
II.2.1 SME Emissions	21	36.87	49.6%	▼4
II.2.2 Overall Change in Greenhouse Gas Emissions	23	46.33	97.70	▲1
<b>II.3 Green Output</b>	<b>15</b>	<b>38.13</b>		▲2
II.3.1 SME Green Products	12	58.46	33.0%	
II.3.2 SMEs in Green Sectors	24	17.80	28.7%	▼2
<b>III. SME Competitiveness</b>	<b>18</b>	<b>42.73</b>		▼4
<b>III.1 Exports</b>	<b>20</b>	<b>31.86</b>		▲1
III.1.1 Exporting SMEs	15	39.83	6.0%	▲2
III.1.2 SME International Trade	25	23.89	19.9%	
<b>III.2 Productivity</b>	<b>13</b>	<b>33.30</b>		
III.2.1 SME Labour Productivity	13	33.30	33.99	
<b>III.3 Growth</b>	<b>11</b>	<b>63.03</b>		▼5
III.3.1 High-Growth Enterprises	10	66.35	11.3%	▼7
III.3.2 High-Growth Employment	11	59.71	15.4%	▼2

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/spain>

# Sweden

Rank: **1**

Overall Score: **72.04**

Sweden is No. 1 for the second year in a row. The country's best performance is in **Green Transition**, where it is No. 1, with high performance on all indicators: **II.1 Natural Resource Conservation** (No. 3), **II.3 Green Output** (No. 3) and **II.2 Emission Reduction** (No. 2). The country improved significantly in **SME Competitiveness**, ranking No. 4 (up six places). It improved in both **III.2 Productivity** (No. 5, up three places) and **III.3 Growth** (No. 3, up eight places). In **Digital Transition**, Sweden lost one place, ranking No. 4. While it improved its performance in **I.3 Digital Skills** (No. 5), it slowed down in **I.1 SME Digitalisation** (No.3).

	Rank	Score	Value	
<b>I. Digital Transition</b>	<b>4</b>	<b>77.38</b>		<b>▼1</b>
<b>I.1 SME Digitalisation</b>	<b>3</b>	<b>84.94</b>		<b>▼1</b>
I.1.1 Data Analytics	8	59.92	18.5%	
I.1.2 Cloud Computing	1	100.00	74.9%	<b>▲1</b>
I.1.3 Social Media	3	94.54	47.0%	
I.1.4 High Digital Intensity	1	100.00	58.0%	
I.1.5 ICT Security	14	70.26	90.4%	<b>▼7</b>
<b>I.2 E-Commerce</b>	<b>3</b>	<b>72.67</b>		
I.2.1 E-Commerce Sales	2	86.77	37.6%	<b>▲2</b>
I.2.2 E-Commerce Turnover	5	58.56	16.3%	<b>▼3</b>
<b>I.3 Digital Skills</b>	<b>5</b>	<b>74.52</b>		<b>▲1</b>
I.3.1 ICT Specialists	12	55.61	21.4%	<b>▼1</b>
I.3.2 ICT In-House	3	83.93	59.6%	<b>▼1</b>
I.3.3 ICT Training	2	84.01	32.9%	
<b>II. Green Transition</b>	<b>1</b>	<b>74.62</b>		
<b>II.1 Natural Resource Conservation</b>	<b>3</b>	<b>69.37</b>		<b>▼1</b>
II.1.1 Consumption	2	96.94	59.2%	
II.1.2 Recycling	2	86.72	67.0%	
II.1.3 Circular Material Use Rate	16	24.44	6.6%	
<b>II.2 Emission Reduction</b>	<b>2</b>	<b>82.37</b>		<b>▼1</b>
II.2.1 SME Emissions	8	64.73	34.7%	<b>▼2</b>
II.2.2 Overall Change in Greenhouse Gas Emissions	1	100.00	26.80	<b>▲3</b>
<b>II.3 Green Output</b>	<b>3</b>	<b>72.13</b>		<b>▼1</b>
II.3.1 SME Green Products	3	93.08	43.0%	
II.3.2 SMEs in Green Sectors	4	51.17	42.1%	<b>▼2</b>
<b>III. SME Competitiveness</b>	<b>4</b>	<b>64.13</b>		<b>▲6</b>
<b>III.1 Exports</b>	<b>13</b>	<b>40.01</b>		<b>▲1</b>
III.1.1 Exporting SMEs	11	46.86	7.1%	<b>▼1</b>
III.1.2 SME International Trade	17	33.16	27.1%	
<b>III.2 Productivity</b>	<b>5</b>	<b>68.78</b>		
III.2.1 SME Labour Productivity	5	68.78	66.99	<b>▲3</b>
<b>III.3 Growth</b>	<b>3</b>	<b>83.61</b>		<b>▲8</b>
III.3.1 High-Growth Enterprises	3	92.65	15.7%	<b>▲7</b>
III.3.2 High-Growth Employment	6	74.57	19.2%	<b>▲7</b>

Sources: European Commission, Eurostat (Lisbon Council calculations)

For a detailed interactive breakdown, visit <https://gdc.lisboncouncil.net/sweden>

# Methodology and Sensitivity Analysis



The data analysed in **The 2023 Green, Digital and Competitive SME Index** comes from public sources; only the methodology deployed here is original. The bulk of the data is from Eurostat. Three sub-indicators (II.1.1 Consumption, II.1.2 Recycling and II.3.1 Green Products) are built on data from the European Commission, which runs regular Eurobarometer surveys to inform policy debates and track impact on behalf of policymakers throughout the European institutions. We would like to thank these statistical agencies for the care, precision and robustness of the data they collect; it provides an excellent basis for policy discussions and allows for interesting intra-European Union comparisons and complex studies like this one.

The “2023 scores” cited throughout this policy brief refer to the 2023 edition of the study. The findings, however, are based on the most recent data available in each category, but there is a one- or two-year lag in some instances. Throughout, we have used the most recent data available in each category with a June 2023 cut-off date.

And there is another data constraint that we were forced to overcome. For starters, much of the data, particularly in the green transition field, is still based on surveys. There is a noticeable dearth of hard-fact and cold-measurement data available in this crucial area. In order to correct this shortcoming, we revised the methodology in the 2023 edition to lean more heavily on measurable data. In particular, we added II.1.3 Circular Material Use Rate, an important new instrument that measures material flows and resource productivity at a country level, to the Green Transition pillar. The goal was to move towards harder facts and away from subjective assessment in this crucial area.

The 2023 edition contains another departure. In order to give a longer-term perspective, we added 22 time-series tables – one for each sub-indicator – as a way to cross-check findings and bring transparency to longer-term trends. To be clear, the time-series calculations are not part of the Green, Digital and Competitive SME Index; they are a useful analytical supplement. But, in order to help us flesh out the existing trends and identify the countries with the fastest progress and those that are still lagging in a particular area, we calculated a compound annual growth rate for each sub-indicator and each member state. More details on the computation of the assumptions used in calculating the compound annual growth rate appear below.

The data needed for these time-series pictures posed additional constraints. The period we hoped to capture was 2015-2022. But full sets of annual data were not always available – and even worse were often only available with noticeable gaps and often for time periods that varied widely from sub-indicator to sub-indicator. In the end, we chose the most recent available data for each sub-indicator, adopting a sub-indicator-by-sub-indicator approach which treats each table as unique. Detailed descriptions of the available data sets used for each time-series table are given below as well as in the footnotes to the discussion of those tables throughout the text.

Regarding the sub-indicators, from an aggregation perspective, the normalisation method used to standardise the sub-indicators values is the min-max with a normalisation range of 10 to 100. For the majority of the sub-indicators (20 of 22), the highest value corresponds to the best performance (100 points), while the lowest value is considered the worst performance (10 points). For two sub-indicators, **II.2.1 SME Emissions** and **II.2.2 Overall Change in**

**Greenhouse Gas Emissions**, the method is reversed: the lowest value gets the highest score (100 points) and the highest value gets the lowest one (10 points).

The main aggregation method used is the arithmetic average. All pillars, indicators and sub-indicators have been assigned equal weights in the aggregation process. Therefore, an indicator's performance is computed as the unweighted arithmetic average of the sub-indicators included in the indicator. Similarly, a pillar's performance is the unweighted arithmetic average of the indicators included in the pillar. The overall assessment of a country is the unweighted arithmetic average of the component pillars. A full list of pillars, indicators and sub-indicators can be found in Table 1 on page 8.

Notes on the methodological assumptions, data sources and robustness testing conducted for each of the 22 sub-indicators follow:

## **I. Digital Transition**

This is a composite indicator, or “pillar” as we describe the three main areas of the Index, which aims to assess the degree of digitalisation of SMEs in the current economic context, looking at the digital uptake, e-commerce performance and level of digital skills of the labour force. The data does not include micro-enterprises (fewer than 10 employees) and covers the business economy without the financial sector.

The pillar is composed of three indicators, which will be discussed below:

### **I.1 SMEs Digitalisation**

#### **I.2 E-Commerce**

#### **I.3 Digital Skills**

The pillar's score is calculated as the unweighted average of the scores of the three indicators. The data is from Eurostat, Digital Economy and Society database.

### **I.1 SME Digitalisation**

This is a composite indicator that captures the prevalence of new digital tools and technologies, such as big data analysis, cloud computing and social media, in SMEs. The indicator is composed of five sub-indicators:

#### **I.1.1 Data Analytics**

#### **I.1.2 Cloud Computing**

#### **I.1.3 Social Media**

#### **I.1.4 High Digital Intensity**

#### **I.1.5 ICT Security**

The indicator's score is calculated as the unweighted average of the scores of the five sub-indicators. The source is Eurostat.

### **I.1.1 Data Analytics**

This sub-indicator is calculated as the share of SMEs that analyse big data analytics internally from any data source or externally in the total number of SMEs. The data does not include micro-enterprises (0-9 employed persons), covering only SMEs with at least 10 employed persons. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_EB\_BD).

Regarding the time-series table, annual data was only available for 2016, 2018 and 2020. The source is Eurostat.

### **I.1.2 Cloud Computing**

This sub-indicator is calculated as the share of SMEs that use cloud computing services over the internet in the total number of SMEs. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_CICCE\_USE).

Regarding the time-series table, annual data was available for 2014, 2015, 2016, 2017, 2018, 2020 and 2021. There was no data available for 2019. The source is Eurostat.

### **I.1.3 Social Media**

This sub-indicator is calculated as the share of SMEs that use two or more social media in the total number of SMEs. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_CISMT).

Regarding the time-series table, annual data was available for 2015, 2016, 2017, 2019 and 2021. There was no data available for 2018 or 2020. The source is Eurostat.

### **I.1.4 High Digital Intensity**

This sub-indicator looks at the SMEs with high and very high digital intensity as a percentage of the total number of SMEs. It is based on the European Commission's Digital Intensity Index (2022 edition), one of the key performance indicators in the context of the Digital Decade. It is composed of 12 indicators (listed in the table below), which receive one point if the corresponding condition is true.

## Digital Intensity Index (2022)

Enterprises where more than 50% of the persons employed used computers with access to the internet for business purposes

Employ ICT specialists

The maximum contracted download speed of the fastest fixed line internet connection is at least 30 Mb/s

Enterprises which conducted remote meetings

Enterprises make persons employed aware of their obligations in ICT security related issues

Any type of training provided to develop ICT related skills of the persons employed, during 2021

Use at least 3 ICT security measures

Enterprise with document(s) on measures, practices or procedures on ICT security

Any of the persons employed having remote access to any of the following: e-mail, documents, business apps

Use industrial or service robots

Used any computer networks for sales (at least 1%)

Enterprises where web sales are more than 1% of the total turnover and B2C web sales more than 10% of the web sales

An enterprise is considered “high digital intensive” if it scores between seven and nine points, while it is considered “very high digital intensive” if it scores between 10 and 12 points. The data does not include micro-enterprises (0-9 employees), covering only SMEs with at least 10 employees. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_E\_DII).

Regarding the time-series table, annual data was available for the full 2015-2022 period. The source is Eurostat.

### I.1.5 ICT Security

This sub-indicator is calculated as the share of SMEs that use any type of ICT security measures in the total number of SMEs. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_CISCE\_RA).

Regarding the time-series table, annual data was available for 2019 and 2022. The source is Eurostat.

## Correlation Matrix of SME Digitalisation Indicator

		I.1.1	I.1.2	I.1.3	I.1.4	I.1.5	I.1	I.
I.1.1	Data Analytics	1	<b>0.59</b>	<b>0.64</b>	<b>0.70</b>	<b>0.57</b>	<b>0.82</b>	<b>0.74</b>
I.1.2	Cloud Computing	<b>0.59</b>	1	<b>0.75</b>	<b>0.87</b>	<b>0.65</b>	<b>0.90</b>	<b>0.87</b>
I.1.3	Social Media	<b>0.64</b>	<b>0.75</b>	1	<b>0.74</b>	<b>0.57</b>	<b>0.87</b>	<b>0.78</b>
I.1.4	High Digital Intensity	<b>0.70</b>	<b>0.87</b>	<b>0.74</b>	1	0.67	<b>0.93</b>	<b>0.96</b>
I.1.5	ICT Security	<b>0.57</b>	<b>0.65</b>	<b>0.57</b>	<b>0.67</b>	1	<b>0.79</b>	<b>0.69</b>

The five sub-indicators have good correlation. Also, they are all well represented within both the indicator and the pillar compositions (correlations higher than 0.5 are marked in bold).

## I.2 E-Commerce

This is a composite indicator that captures the prevalence of e-commerce tools and their impact on the economic performance of SMEs. The indicator is composed of two sub-indicators:

### I.2.1 E-Commerce Sales

### I.2.2 E-Commerce Turnover

The indicator's score is calculated as the unweighted average of the scores of the two sub-indicators. The source is Eurostat.

### I.2.1 E-Commerce Sales

The sub-indicator is calculated as the share of SMEs with e-commerce sales in the total number of SMEs. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_EC\_ESELN2).

Regarding the time-series table, annual data was available for the full 2015-2022 period. The source is Eurostat.

### I.2.2 E-Commerce Turnover

The sub-indicator is calculated as the share of SME turnover from e-commerce sales in total turnover. The source is Eurostat, Digital Economy and Society, ICT usage in enterprises (table ISOC\_EC\_EVALN2).

Regarding the time-series table, annual data was available for the full 2015-2022 period. The source is Eurostat.

## Correlation Matrix of E-Commerce Indicator

	I.2.1	I.2.2	I.2	I.
I.2.1 E-Commerce Sales	1	<b>0.74</b>	<b>0.95</b>	<b>0.83</b>
I.2.2 E-Commerce Turnover	<b>0.74</b>	1	<b>0.92</b>	<b>0.74</b>

The two sub-indicators have very good correlations. At the same time, they are also very well represented within both the indicator and the pillar compositions (correlations higher than 0.5 are marked in bold).

### I.3 Digital Skills

This is a composite indicator that captures the digital preparedness of the labour force in SMEs, considering that digital skills are essential in the current socio-economic environment. The indicator is composed of three sub-indicators:

#### I.3.1 ICT Specialists

#### I.3.2 ICT In-House

#### I.3.3 ICT Training

The indicator's score is calculated as the unweighted average of the scores of the three sub-indicators. The source is Eurostat.

#### I.3.1 ICT Specialists

The sub-indicator is calculated as the share of SMEs that employ ICT specialists in the total number of SMEs. The source is Eurostat, Digital Economy and Society, Digital skills (table ISOC\_SKE\_ITSPEN2).

Regarding the time-series table, annual data was available for 2015, 2016, 2017, 2018, 2019, 2020 and 2022. There was no data for 2021. The source is Eurostat.

#### I.3.2 ICT In-House

The sub-indicator is calculated as the share of SMEs where the ICT functions are performed by their own employees in the total number of SMEs. The source is Eurostat, Digital Economy and Society, Digital Skills (table ISOC\_SKE\_FCT).

Regarding the time-series table, annual data was available for 2015, 2016, 2017, 2018, 2019, 2020 and 2022. There was no data for 2021. The source is Eurostat.

#### I.3.3 ICT Training

The sub-indicator is calculated as the share of SMEs that provided training to their personnel to develop their ICT skills in total SMEs. The source is Eurostat, Digital Economy and Society, Digital Skills (table ISOC\_SKE\_ITTN2).

Regarding the time-series table, annual data was available for 2015, 2016, 2017, 2018, 2019, 2020 and 2022. There was no data for 2021. The source is Eurostat.

### Correlation Matrix of Digital Skills Indicator

	I.3.1	I.3.2	I.3.3	I.3	I.
I.3.1 ICT Specialists	1	0.39	<b>0.67</b>	<b>0.85</b>	<b>0.71</b>
I.3.2 ICT In-House	0.39	1	<b>0.53</b>	<b>0.73</b>	<b>0.63</b>
I.3.3 ICT Training	<b>0.67</b>	<b>0.53</b>	1	<b>0.89</b>	<b>0.86</b>

The sub-indicators have relatively good correlations with **I.3.2 ICT In-House** having slightly lower values. At the same time, they are very well represented within both the indicator and the pillar compositions (correlations higher than 0.5 are marked in bold).

## Correlation Matrix of Digital Transition Pillar

	I.1	I.2	I.3	I.	Green Digital and Competitive SME Index
I.1 SME Digitalisation	1	0.83	0.69	0.94	0.89
I.2 E-Commerce	0.83	1	0.58	0.89	0.78
I.3 Digital Skills	0.69	0.58	1	0.85	0.74

Overall, the indicators have very good representations in both the **Digital Transition** pillar and the overall **Green, Digital and Competitive SME Index** with correlation values above 0.7.

## II. Green Transition

This is a composite indicator aiming to assess to what extent SMEs are developing and adopting green initiatives and practices in the current economic context by looking at resources, harmful emissions and available green outputs.

The pillar is composed of three indicators:

### II.1 Natural Resource Conservation

### II.2 Emission Reduction

### II.3 Green Output

The pillar's score is calculated as the unweighted average of the scores of the three indicators. The sources are the European Commission and Eurostat.

### II.1 Natural Resource Conservation

This is a composite indicator that captures the prevalence of green practices within SMEs and at the country level. It looks at natural resources' reduced consumption, recycling and reuse of materials in SMEs and the circular material use rate at the country level. The indicator is composed of three sub-indicators:

#### II.1.1 Consumption

#### II.1.2 Recycling

#### II.1.3 Circular Material Use Rate

The indicator's score is calculated as the unweighted average of the scores of the three sub-indicators. The sources are the European Commission and Eurostat.

#### II.1.1 Consumption

This sub-indicator looks at SMEs reducing consumption of natural resources (e.g. saving water, energy and materials or switching to sustainable resources) as a percentage of the total number of SMEs. It is calculated as the arithmetic average of the share of SMEs that take different actions to reduce consumption of or impact on natural resources among the total number of SMEs in a country. The sub-indicator covers the following sub-categories: the share of SMEs saving water, the share of SMEs saving energy, the share of SMEs using

predominantly renewable energy (e.g., including own production through solar panels, etc.), the share of SMEs saving materials, the share of SMEs switching to greener suppliers of materials.

The results are based on the participants who selected one of the following answer options: “saving water,” “saving energy,” “using predominantly renewable energy (e.g., including own production through solar panels, etc.),” “saving materials” or “switching to greener suppliers of materials” in answering to the *European Commission Flash Eurobarometer 498* survey’s question Q1 “What actions is your company undertaking to be more resource efficient?” The survey looked at SMEs, green markets and resource efficiency and it took place in the period November-December 2021 in all 27 European Union member states. The data is from the European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2021).

Regarding the time-series table, annual data was only available for 2015, 2017 and 2021. For 2015, the source is the European Commission, *Flash Eurobarometer 426: SMEs, Resource Efficiency and Green Markets* (Brussels: European Commission, 2015); for 2017, the source is the European Commission, *Flash Eurobarometer 456: SMEs, Resource Efficiency and Green Markets* (Brussels: European Commission, 2018); and for 2021, the source is the European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2021).

### **II.1.2 Recycling**

This sub-indicator is calculated as the percentage of SMEs that recycle or reuse materials or waste in the total number of SMEs. The results are based on the participants who selected the answer option “recycling, by reusing material or waste within the company” when answering the *European Commission Flash Eurobarometer 498* survey’s question Q1: “What actions is your company undertaking to be more resource efficient?” The survey looked at SMEs, green markets and resource efficiency and it took place in the period November-December 2021 in all 27 EU member states. The data is from the European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2021).

Regarding the time-series table, annual data was only available for 2015, 2017 and 2021. For 2015, the source is the European Commission, *Flash Eurobarometer 426: SMEs, Resource Efficiency and Green Markets* (Brussels: European Commission, 2015); for 2017, the source is the European Commission, *Flash Eurobarometer 456: SMEs, Resource Efficiency and Green Markets* (Brussels: European Commission, 2018); and for 2021, the source is the European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2021).

### **II.1.3 Circular Material Use Rate**

The sub-indicator measures the share of material recycled and fed back into the economy, thus saving the extraction of primary raw materials, in overall material use. It is defined as the ratio of the circular use of materials to overall material use. The circular use of materials is approximated by the amount of waste recycled in domestic recovery plants, minus imported waste destined for recycling, plus exported waste destined for recycling abroad. A higher

circular material use rate indicates more secondary materials substituting for primary raw materials, reducing therefore the environmental impact of extracting primary materials. The source is Eurostat, Environment and Energy, Environment – Material flows and resource productivity (table ENV\_AC\_CUR).

Regarding the time-series table, data was available for each year across the full 2015-2021 period. The source is Eurostat.

### Correlation Matrix of Natural Resource Conservation Indicator

	II.1.1	II.1.2	II.1.2	II.1	II.
II.1.1 Consumption	1	<b>0.60</b>	0.20	<b>0.83</b>	<b>0.52</b>
II.1.2 Recycling	<b>0.60</b>	1	0.10	<b>0.77</b>	0.44
II.1.3 Circular Material Use Rate	0.20	0.10	1	<b>0.58</b>	0.49

The sub-indicators have mixed correlations between them. **II.1.3 Circular Material Use Rate** has rather low correlations with the other two sub-indicators. The sub-indicators have a good representation within the corresponding indicator but have a more modest representation in the **Green Transition** pillar (correlations higher than 0.5 are marked in bold).

## II.2 Emission Reduction

This is a composite indicator that estimates greenhouse gas emissions from the SME sector as well as the evolution of those emissions at the country level compared to a reference year (1990 is the base year). In this context, the indicator is composed of two sub-indicators:

### II.2.1 SME Emissions

#### II.2.2 Overall Change in Greenhouse Gas Emissions (index 1990 = 100)

The indicator's score is calculated as the unweighted average of the scores of the two sub-indicators. The source is Eurostat.

### II.2.1 SME Emissions

This sub-indicator aims to estimate the share of greenhouse gas emissions produced by SMEs in total greenhouse gas emissions, using the share of employment in SMEs in total employment of the business economy of a country as a proxy for the economic-activity intensity of SMEs.

The sub-indicator estimates the share of greenhouse gas (GHG) emissions produced by SMEs within a Statistical Classification of Economic Activities in the European Community rev.2 sector by computing the share of employment of SMEs in the employment of the respective NACE sector (NACE is the abbreviation of the Statistical Classification of Economic Activities in the European Community, which is the basic classification system for economic activities in the European Union. The term NACE is derived from *Nomenclature statistique des activités économiques dans la Communauté européenne*, the French name of the system). The value obtained is applied to the total volume of greenhouse gas emissions corresponding to the NACE sector to estimate the amount of GHG produced by SMEs. The total amount of GHG produced by SMEs at the country level is computed by aggregating all the volumes of GHG

obtained at NACE rev.2 sector levels. The sub-indicator value is calculated by dividing the resulting aggregated value by the total GHG emissions of the country. The source is Eurostat data (tables SBS\_SC\_SCA\_R2 (persons employed), ENV\_AC\_AINAH\_R2).

Regarding the time-series table, annual data was available for the full 2016-2021 period. The source is Eurostat.

### II.2.2 Overall Change in Greenhouse Gas Emissions (index 1990 = 100)

The sub-indicator measures the change of total national emissions since 1990 and it is calculated as the ratio between the volume of greenhouse gas emissions at the national level in the current year divided by the volume of greenhouse gas emissions at the country level in 1990. The sub-indicator refers to the net total emissions at the country level from both effort sharing decisions (ESD) and emission trading scheme (ETS) sectors, including international aviation of the so-called “Kyoto basket” of greenhouse gases. It includes carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and the so-called F-gases (hydrofluorocarbons, perfluorocarbons, nitrogen trifluoride (NF<sub>3</sub>) and sulphur hexafluoride (SF<sub>6</sub>)) from all sectors of the GHG emission inventories. The sub-indicator is part of the EU Sustainable Development Goals (SDG) indicator set and it is used to monitor progress towards Goal 13 on climate action.

SMEs account for 60% of economic value-added in the European Union and have an estimated contribution of 64% of industrial pollution, according to the OECD (OECD, “No Net Zero without SMEs: Exploring the Key Issues for Greening SMEs and Green Entrepreneurship,” *OECD SME and Entrepreneurship Papers No. 30* [Paris: OECD, 2021]). In these conditions, we believe the indicator is a good estimator of the actual performance of SME emissions in the current economic context, in particular in combination with other indicators that are entirely based on self-reporting. The source is Eurostat data (table SDG\_13\_10).

Regarding the time-series table, annual data was available for 2015-2021. The source is Eurostat.

### Correlation Matrix of Emissions Indicator

	II.2.1	II.2.2	II.2	II.
II.2.1 SME Emissions	1	0.08	<b>0.72</b>	<b>0.53</b>
II.2.2 Overall Change in Greenhouse Gas Emissions (index 1990 = 100)	0.08	1	<b>0.74</b>	0.34

The indicators have no correlation between them but show very good correlations with the corresponding indicator. With the **Green Transition** pillar, the correlations are mixed with a very low correlation for **II.2.2 Overall Change in Greenhouse Gas Emissions** and a good one for the **II.2.1 SME Emissions** (correlations higher than 0.5 are marked in bold).

## II.3 Green Output

This is a composite indicator that captures the prevalence of green and sustainable results (outputs) of SMEs such as the development of sustainable products and services and eco-innovation actions. The indicator is composed of two sub-indicators:

### **II.3.1 SME Green Products**

### **II.3.2 SMEs in Green Sectors**

The indicator's score is calculated as the unweighted average of the scores of the two sub-indicators. The sources are the European Commission and Eurostat.

#### **II.3.1 SME Green Products**

This is calculated as the share of SMEs that offer green products or services in the total number of SMEs. The results are based on the participants selected the answer option “Yes” when answering the *European Commission Flash Eurobarometer 498* survey question Q9: “Does your company offer green products or services?” The survey looked at SMEs, green markets and resource efficiency and it took place in the period November-December 2021 in all 27 EU member states. The source is the European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2021).

Regarding the time-series table, annual data was available only for 2015, 2017 and 2021. For 2015, the source is the European Commission, *Flash Eurobarometer 426: SMEs, Resource Efficiency and Green Markets* (Brussels: European Commission, 2015); for 2017, the source is European Commission, *Flash Eurobarometer 456: SMEs, Resource Efficiency and Green Markets* (Brussels: European Commission, 2018); and for 2021, the source is the European Commission, *Flash Eurobarometer 498: SMEs, Green Markets and Resource Efficiency* (Brussels: European Commission, 2021).

#### **II.3.2 SMEs in Green Sectors**

This sub-indicator is computed as the share of SMEs in low intensive greenhouse gas emission sectors in total SMEs. The greenhouse gas emissions intensity of each sector was assessed by considering the volume of greenhouse gas emitted due to the economic activities of the sectors. The economic sectors considered with low intensive greenhouse gas emissions are:

- Manufacture of computer, electronic and optical products (C26)
- Manufacture of machinery and equipment (C28)
- Manufacture of furniture; other manufacturing (C31-C32)
- Information and communication (J)
- Financial and insurance activities (K)
- Real estate activities (L)
- Professional, scientific and technical activities (M)
- Administrative and support service activities (N)

The sources are European Commission and Eurostat (tables SBS\_SC\_SCA\_R2). See also, Lucian Cernat, Malgorzata Jakubiak and Nicolas Preillon, *The Role of SMEs in Extra-EU Exports: Key Performance Indicators* (Brussels: European Commission, 2020).

Regarding the time-series table, annual data was available for the full 2015-2021 period. The source is Eurostat.

## Correlation Matrix of Green Output Indicator

	II.3.1	II.3.2	II.3	II.
II.3.1 SME Green Products	1	0.30	<b>0.87</b>	<b>0.74</b>
II.3.2 SMEs in Green Sectors	0.30	1	<b>0.73</b>	<b>0.57</b>

The indicators have a low correlation between them but show very good correlations with the corresponding indicator. At the **Green Transition** level, the correlations are good and the sub-indicators maintain a good overall representation in the pillar (correlations higher than 0.5 are marked in bold).

## Correlation Matrix of Green Transition Pillar

	II.1	II.2	II.3	II.	Green Digital and Competitive SME Index
II.1 Natural Resource Conservation	1	0.04	0.35	<b>0.66</b>	0.35
II.2 Emission Reduction	0.04	1	0.27	<b>0.60</b>	0.32
II.3 Green Output	0.35	0.27	1	<b>0.82</b>	<b>0.76</b>

Overall, the indicators have relatively low to no correlations between them. The highest correlation within the pillar is 0.35 between **II.1 Natural Resource Conservation** and **II.3 Green Output**. At the same time, the three indicators have good representations in the **Green Transition** pillar (correlations above 0.5). However, when it comes to the **Green, Digital and Competitive SME Index**, only the **II.3 Green Output** indicator is very well represented with the other indicators showing much lower correlations with the overall index.

## III. SME Competitiveness

This pillar is a composite indicator aiming to assess to what extent SMEs are competitive in the market by looking at exports, labour productivity and growth. The pillar is composed of three indicators:

### III.1 Exports

### III.2 Productivity

### III.3 Growth

The pillar's score is calculated as the unweighted average of the scores of the three indicators. The source is Eurostat.

### III.1 Exports

This is a composite indicator that captures SME competitiveness in markets from an export and trade perspective. The indicator is composed of two sub-indicators:

### III.1.1 Exporting SMEs

### III.1.2 SME International Trade

The indicator's score is calculated as the unweighted average of the scores of the two sub-indicators. The underlying data source is Eurostat.

### III.1.1 Exporting SMEs

This sub-indicator is calculated as the share of exporting SMEs in the total number of SMEs. The sub-indicator looks at the exporting activities of SMEs with all countries of the world without geographic restrictions. The source is Eurostat (table EXT\_TEC01).

Regarding the time-series table, annual data was available for 2015-2020. The source is Eurostat.

### III.1.2 SME International Trade

This sub-indicator is calculated as the ratio between the total international trade of SMEs in the total gross domestic product of the country. The sub-indicator considers both imports and exports of SMEs with all countries of the world without geographical constraints. The source is Eurostat (table EXT\_TEC01).

Regarding the time-series table, annual data was available for 2015-2020. The source is Eurostat.

## Correlation Matrix of Exports Indicator

	III.1.1	III.1.2	III.1	III.
III.1.1 Exporting SMEs	1	<b>0.59</b>	<b>0.90</b>	<b>0.50</b>
III.1.2 SME International Trade	<b>0.59</b>	1	<b>0.89</b>	0.20

The sub-indicators have a good correlation between them and show very good correlations with the corresponding indicator. When it comes to the **SME Competitiveness** pillar, **III.1.2 SME International Trade** sub-indicator has a weak correlation while **III.1.1 Exporting SMEs** maintains a relatively good one (correlations higher than 0.5 are marked in bold).

## III.2 Productivity

This indicator looks at SME labour productivity in the current economic context. It is composed of one sub-indicator **III.2.1 SME Labour Productivity**, which is calculated as the value added at factor cost per person employed in thousands of euros. The value added at factor costs is the gross income from operating activities after adjusting for operating subsidies and indirect taxes without the subtraction of the value adjustments (such as depreciation). The source is Eurostat, Structural Business Statistics (table SBS\_SC\_SCA\_R2). Due to its nature, the indicator's score is the same as the sub-indicator.

Regarding the time-series table, annual data was available for the 2015-2020 period. The source is Eurostat.

## Correlation of Labour Productivity with SME Competitiveness Pillar

The indicator has a very good correlation with the **SME Competitiveness** pillar (**0.74**).

### III.3 Growth

This indicator is a composite indicator that looks at the dynamic of the business environment within a country from the perspective of high-growth enterprises. The indicator is composed of two sub-indicators:

#### III.3.1 High-Growth Enterprises

#### III.3.2 High-Growth Employment

This indicator's score is calculated as the unweighted average of the scores of the two sub-indicators. The source is Eurostat.

#### III.3.1 High-Growth Enterprises

The sub-indicator is calculated as the share of high-growth enterprises (measured in employment) in the total number of active enterprises with at least 10 employees. An enterprise is considered a high-growth enterprise if it has at least 10 employees at the beginning of its growth and has an average annualised growth in the number of employees greater than 10% per annum, over a three-year period. The source is Eurostat (table BD\_9PM\_R2).

Regarding the time-series table, annual data was available for 2015-2020. The source is Eurostat.

#### III.3.2 High-Growth Employment

The sub-indicator is calculated as the percentage of persons employed in high-growth enterprises (measured in employment) in the total employment of the enterprises with at least 10 employees. An enterprise is considered a high-growth enterprise if it has at least 10 employees at the beginning of its growth and has an average annualised growth in the number of employees greater than 10% per annum, over a three-year period. The source is Eurostat (table BD\_9PM\_R2).

Regarding the time-series table, annual data was available for 2015-2020. The source is Eurostat.

### Correlation Matrix of Growth Indicator

	III.1.1	III.1.2	III.1	III.
III.3.1 High-Growth Enterprises	1	0.85	0.96	0.68
III.3.2 High-Growth Employment	0.85	1	0.97	0.44

The sub-indicators have a very good correlation between them and show very high correlations with the corresponding indicator too. When it comes to the **SME Competitiveness** pillar, **III.3.2 High-Growth Employment** sub-indicator has a slightly weaker correlation (0.44),

while **III.3.1 High-Growth Enterprises** maintains a good one (correlations higher than 0.5 are marked in bold).

### Correlation Matrix of SME Competitiveness Pillar

	III.1	III.2	III.3	III.	Green Digital and Competitive SME Index
III.1 Exports	1	-0.07	-0.15	0.40	0.17
III.2 Productivity	-0.07	1	0.20	<b>0.74</b>	<b>0.84</b>
III.3 Growth	-0.15	0.20	1	<b>0.57</b>	0.38

Overall, the indicators have very low correlations between them (both positive and negative ones). The representations in the **SME Competitiveness** pillar are relatively good for **III.2 Productivity** and **III.3 Growth** and slightly lower for **III.1 Exports** (below 0.5). However, at the **Green, Digital and Competitive SME Index** level, only the **III.2 Productivity** indicator has a very good representation within the index. The other two indicators show much weaker correlations with the index, with **III.1 Exports** being the weakest (less than 0.2). Correlations higher than 0.5 are marked in bold.

### Correlation Matrix of Green, Digital and Competitive SME Index

	I.	II.	III.	Green Digital and Competitive SME Index
I. Digital Transition	1	0.44	<b>0.67</b>	<b>0.90</b>
II. Green Transition	0.44	1	0.45	<b>0.71</b>
III. SME Competitiveness	<b>0.67</b>	0.45	1	<b>0.85</b>

The three pillars have relatively good correlations between them with the **Digital Transition** pillar having the strongest ones in the group. All the pillars are very well represented in the **Green, Digital and Competitive SME Index** with high correlations. However, the index seems to be slightly dominated by the **Digital Transition** pillar (correlations higher than 0.5 are marked in bold).

### Correlation Table of Green, Digital and Competitive SME Index with Composing Sub-Indicators

Sub-Indicator	Green, Digital and Competitive SME Index Correlation
I.1.1 Data Analytics	<b>0.77</b>
I.1.2 Cloud Computing	<b>0.82</b>
I.1.3 Social Media	<b>0.74</b>
I.1.4 High Digital Intensity	<b>0.89</b>
I.1.5 ICT Security	<b>0.58</b>
I.2.1 E-Commerce Sales	<b>0.73</b>
I.2.2 E-Commerce Turnover	<b>0.69</b>
I.3.1 ICT Specialists	<b>0.65</b>
I.3.2 ICT In-House	<b>0.52</b>
I.3.3 ICT Training	<b>0.76</b>
II.1.1 Consumption	0.17
II.1.2 Recycling	0.27

Sub-Indicator	Green, Digital and Competitive SME Index Correlation
II.1.3 Circular Material Use Rate	0.33
II.2.1 SME Emissions	0.49
II.2.2 Overall Change in Greenhouse Gas Emissions	-0.01
II.3.1 SME Green Products	<b>0.60</b>
II.3.2 SMEs in Green Sectors	<b>0.64</b>
III.1.1 Exporting SMEs	0.33
III.1.2 SME International Trade	-0.04
III.2.1 SME Labour Productivity	<b>0.84</b>
III.3.1 High-Growth Enterprises	<b>0.51</b>
III.3.2 High-Growth Employment	0.24

Overall, the composing 22 sub-indicators have good correlations with the **Green, Digital and Competitive SME Index**. However, there are a few exceptions where the correlations are low and very low (positive and negative ones). In these cases, the sub-indicators' representativeness at the index level is missing or insignificant. Out of the 22 sub-indicators analysed, seven of them are not represented or have a rather weak presence at the index level: two – **II.2.1 Overall Change in Greenhouse Gas Emissions** and **III.1.2 SME International Trade** – have negative correlations close to zero and five have a relatively low impact on the index with correlations between 0.2 and 0.35 (**II.1.1 Consumption**, **II.1.2 Recycling**, **II.1.3 Circular Material Use Rate**, **III.1.1 Exporting SMEs** and **III.3.2 High-Growth Employment**). Correlations higher than 0.5 are marked in bold.

## Sensitivity Analysis

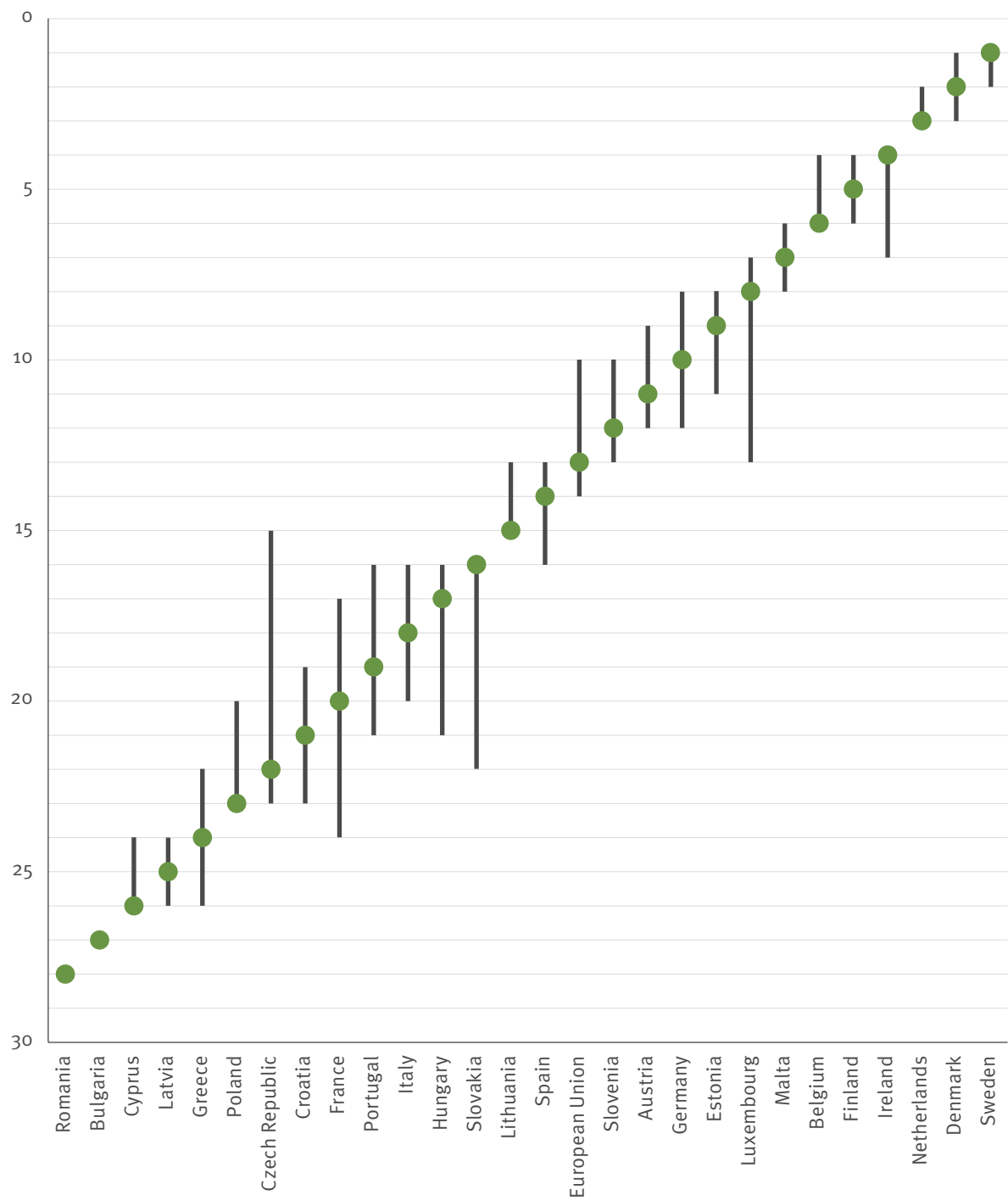
We also ran a sensitivity analysis to identify how much variation in the input values for a given variable will impact the results of the model. We used the following parameters:

- Three different methods of imputation of the missing values (or “n/a”) in data sets: the median value of the indicators, the average value of the indicators and no imputation;
- Three different methods of normalisation: the min-max method, the rank method and the distance to the maximum of each indicator;
- Weight perturbations at all three levels (pillar, indicator, sub-indicator):  $\pm 25\%$  for sub-indicators and  $\pm 20\%$  (of the original weight) for indicators.

The analysis team ran 500 Monte Carlo replications with 500 rounds of bootstrapping for confidence interval estimations (a total of 2,500 simulations). This was to compare the confidence intervals for both first-order indices and the total effect indices to estimate their reliability. Simulations included the results from changing the aggregation method (from arithmetic average to geometric average for indicators; the overall aggregation method is preserved) and the results of the elimination of indicators from the pillar's construction. The simulations were run through a composite-indicator tool developed in R by the Competence Centre on Composite Indicators and Scoreboards (COIN) at the European Commission's Joint Research Centre.

A summary of the sensitivity analysis is presented below.

Chart 1. Ranking Variations with Confidence Interval Included by Country



## Effect on Rankings in Sensitivity Analysis by Country

Rank	Country	Average Ranking	Median Ranking	5% Quartile	95% Quartile	Interquartile Range	Median Ranking Variation
1	Sweden	1.3	1	1	2	1	0
2	Denmark	2.0	2	1	3	2	0
3	Netherlands	2.7	3	2	3	1	0
4	Ireland	5.0	4	4	7	3	0
5	Finland	5.2	5	4	6	2	0
6	Belgium	5.0	5	4	6	2	+1
7	Malta	7.0	7	6	8	2	0
8	Luxembourg	9.0	8	7	13	6	0
9	Estonia	9.2	9	8	11	3	0
10	Germany	9.5	10	8	12	4	0
11	Austria	11.1	11	9	12	3	0
12	Slovenia	11.7	12	10	13	3	0
13	European Union	12.7	13	10	14	4	0
14	Spain	14.7	15	13	16	3	-1
15	Lithuania	14.2	14	13	15	2	+1
16	Slovakia	18.2	18	16	22	6	-2
17	Hungary	18.5	19	16	21	5	-2
18	Italy	17.7	17	16	20	4	+1
19	Portugal	18.1	18	16	21	5	+1
20	France	20.7	21	17	24	7	-1
21	Croatia	21.0	21	19	23	4	0
22	Czech Republic	19.8	20	15	23	8	+2
23	Poland	22.0	22	20	23	3	+1
24	Greece	24.7	25	23	26	3	-1
25	Latvia	24.7	25	24	26	2	0
26	Cyprus	25.4	26	24	26	2	0
27	Bulgaria	27.0	27	27	27	0	0
28	Romania	28.0	28	28	28	0	0

Note: The median ranking variation compares the median ranking to the original ranking of the country as the difference between the original rank and the median rank. “-1” means the country loses a place; “+1” means the country gains a place.

When it comes to interquartile range variation, the results show that:

- Two countries are unaffected: Bulgaria and Romania.
- There is a small impact on two other countries (variations of only one place): The Netherlands and Sweden.
- For 18 countries, the ranking’s variation goes up two to four places.
- The widest variation is of eight places and it affects only one country: Czech Republic.
- At the same time, the median ranking variation is much more stable. Eleven countries show differences compared to the original ranking. Five countries (France, Greece, Hungary, Slovakia and Spain) have a higher median rank than the original ranking, while six countries (Belgium, Czech Republic, Italy, Lithuania, Poland and Portugal) have a lower median rank than the original one.

Overall, the sensitivity analysis results show the construction of the **Green, Digital and Competitive SME Index** to be robust with stable country performances across the different scenarios. The highest variation of the interquartile ranges is eight places while the most frequent ones are between two and four places (18 countries). When it comes to the median ranking, it only varies a maximum of two positions compared to the model ranking.

## Methodology Evolution

The 2023 edition of this study is built on a methodology worked out in 2022 with a small methodological change in the **Green Transition** pillar. There, we added an additional sub-indicator – **II.1.3 Circular Material Use Rate** – to provide additional information on the secondary use of materials at the country level. This led to some changes in the 2022 country performances. Had the 2023 methodology been applied to the 2022 edition, the three leading countries would have been **Sweden** (No. 1), **The Netherlands** (No. 2) and **Denmark** (No. 3).

Also, as discussed at the outset of the Methodology and Sensitivity Analysis, we added time series-based tables looking at recent trends to this year's study. The data does not form part of the actual index; but it is useful to see which and how countries might be improving over time. For each country, we calculated a compound annual growth rate (CAGR) according to the formula presented below.

$$CAGR = \left( \left( \frac{v_t}{v_i} \right)^{\frac{1}{N}} - 1 \right) * 100$$

Where

- $v_t$  = the value of the sub-indicator for the end of the selected period (e.g., 2022)
- $v_i$  = the value of the sub-indicator for the beginning of the selected period (e.g., 2015)
- $N$  = the duration of the selected period in years, i.e., the difference between the end and the beginning of the assessed period (e.g.,  $N = 2015 - 2022 = 7$ )

Due to data-scarcity issues, the time-series tables are not uniform: they often refer to different time periods, reflecting the periods for which fully robust and methodologically comparable data sets were available. A summary of the periods covered by each sub-indicator time-series table follows:

Sub-Indicator	Available period
I.1.1 Data Analytics	2016-2020
I.1.2 Cloud Computing	2014-2021
I.1.3 Social Media	2015-2021
I.1.4 High Digital Intensity	2015-2022
I.1.5 ICT Security	2019-2022
I.2.1 E-Commerce Sales	2015-2022
I.2.2 E-Commerce Turnover	2015-2022

Sub-Indicator	Available period
I.3.1 ICT Specialists	2015-2022
I.3.2 ICT In-House	2015-2022
I.3.3 ICT Training	2015-2022
II.1.1 Consumption	2015-2021
II.1.2 Recycling	2015-2021
II.1.3 Circular Material Use Rate	2015-2021
II.2.1 SME Emissions	2016-2021
II.2.2 Overall Change in Greenhouse Gas Emissions	2015-2021
II.3.1 SME Green Products	2015-2021
II.3.2 SMEs in Green Sectors	2015-2021
III.1.1 Exporting SMEs	2015-2020
III.1.2 SME International Trade	2015-2020
III.2.1 SME Labour Productivity	2015-2020
III.3.1 High-Growth Enterprises	2015-2020
III.3.2 High-Growth Employment	2015-2020

In cases where the data available for a member state includes missing values (marked as “n/a”), the compound annual growth rate was computed for the longest period with valid data.

In two cases – **I.1.4 High Digital Intensity** and **I.3.2 ICT In-House** – the criteria used to calculate the sub-indicators changed during the selected period. In these cases, the growth rate refers to the most recent period that uses the same methodology (or the closest version of the methodology). The methodology for the computation of the High Digital Intensity sub-indicator, for example, changed four times in the seven-year period being studied: the first version of the methodology was applied from 2015 until 2019. A second version of the methodology was developed in 2018 and applied twice: in 2018, in parallel with the previous version, and in 2020. A third version was developed and applied in 2021, followed by the version of the methodology applied in 2022 (the fourth version).

The methodological changes make difficult comparisons over time, as the values compared do not always refer to the same definitions, causing perturbation at country level performances. In the High Digital Intensity sub-indicator case, the choice was to compute the compound annual growth rate for the period 2021-2022. However, the values show important variation between the two years chosen (with notable differences between countries) that could reflect more the methodological change rather than a potential change in performance. As an example of how this can affect the outcome, we reproduce the time-series data for two countries – Ireland and The Netherlands – along with the EU Average.

## Value Changes of High Digital Intensity Sub-Indicator

Country	2015	2016	2017	2018	2019	2020	2021	2022
Ireland	22.5	19.2	21.9	27.9	31.1	26.2	27.3	49.5
Netherlands	40.6	34.4	39.2	35.9	38.4	26.5	35.3	41.4
European Union	19.7	17.2	21.1	16.6	24.3	14.5	21.0	30.8

Source: Eurostat (table ISOC\_E\_DII)

The ICT In-House sub-indicator tells a similar story. The definition used from 2015 until 2018 refers to the share of enterprises where ICT functions are mainly performed by their own employees. But since 2019 this definition changed to the share of enterprises where ICT functions are performed by own employees (without “mainly”). This subtle change in the definition is visible at the data point level, where the differences between 2018 and 2019 are quite significant across countries’ performance. In this case, the growth rate was computed for 2019-2022, the most recent period. As an example of how this can affect the indicator’s outcome, we reproduce the time-series data for two selected countries – France and Sweden – along with the EU Average.

## Value Changes of ICT In-House Sub-Indicator

Country	2015	2016	2017	2018	2019	2020	2022
France	14.2	16.6	n/a	13	39.2	38.6	34.7
Sweden	25.6	26.5	26.5	23	57.4	60.3	59.6
European Union	16.5	16.9	n/a	15.4	39.4	39.4	39.4

Source: Eurostat (table: ISOC\_SKE\_FCT)

For more, visit <https://gdc.lisboncouncil.net/>.

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## About Green, Digital and Competitive

The Green, Digital and Competitive project was initiated in 2022 by the Lisbon Council, a Brussels-based think tank. The project takes stock of national and pan-European progress across a host of indicators, detailing how much transition is being made at the local and national level across an array of criteria. The 2023 edition was launched at The 2023 SME Assembly in Bilbao, Spain, hosted by the Spain Presidency of the European Union and the European Commission. Amazon became a full partner in the project in 2023. The findings of the co-authors are independent. Any errors of fact or judgment are theirs alone.

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