



Annual Report on European SMEs 2021/2022

SMEs and environmental sustainability



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ACRONYMS

BE	Business Economy (except activities of holding companies)
BS	Business sector
EC	European Commission
GDP	Gross Domestic Product
IPO	Initial Public Offering
MS	Member State(s)
NACE	Statistical classification of economic activities in the European Community
NFBS	Non-financial business sector
PP	Percentage point(s)
R&D	Research and Development
SAFE	EC/ECB Survey on Access to Finance
SBA	Small Business Act for Europe
SME	Small and medium-sized enterprises

Executive Summary

Since early 2020, due to the Covid-19 pandemic, the 23 million EU-27 SMEs, and more generally, SMEs throughout the world, have faced unprecedented economic uncertainty and turmoil. Moreover, through part of 2021, SMEs faced difficulties in hiring new staff to meet an unexpectedly strong rebound in demand, while also having to deal with sharp and rapid increases in the price of many of their inputs. At the same time as coping with extraordinary economic and social challenges during the last two years, SMEs have also had to prepare for the transition to a digital and sustainable economy.

This report reviews how EU-27 SMEs fared in 2020 and 2021, and how they are likely to perform in 2022. In addition, after an extensive discussion of the state of digitalisation of SMEs in last year's SME Annual Report, this year the report examines how SMEs can increase their environmental sustainability.

SMEs are enterprises which employ fewer than 250 people. In 2021, 99.8% of all enterprises in the EU-27 non-financial business sector (NFBS) were SMEs. They employed 83 million people, the equivalent of 64% of total employment in the NFBS, and generated 52% of the total value added produced by the non-financial business sector.

As in previous years, micro SMEs, i.e. enterprises which employ fewer than 10 staff, were by far the largest group of SMEs in 2021 in the EU-27 NFBS. They accounted for more than 90% of all SMEs in all but four Member States (Austria, Denmark, Germany and Luxembourg). However, even in these four Member States, micro SMEs represented more than 80% of all enterprises.

In 2021, SMEs accounted for more than 50% of the value added¹ generated by six out of the fourteen industrial ecosystems which the European Commission monitors regularly, namely 'cultural and creative industries' (57% of total ecosystem value added), 'proximity, social economy and civil security' (61%), 'retail' (61%), 'tourism' (63%), 'textiles' (65%) and 'construction' (72%). In contrast, SMEs accounted for only 35% or less of the value added generated by the industrial ecosystems of 'health' (29%), 'electronics' (33%), 'energy – renewables' (34%) and 'aerospace and defence' (35%). The differences in the value added contribution of SMEs across the various ecosystems mainly reflect differences in the value added contribution of micro SMEs.

The pandemic broke the typical link between SME value added and employment. Many enterprises experienced marked declines in sales, and a wide range of public measures were introduced to help SMEs and large enterprises to weather this crisis, and avoid or limit permanent lay-offs. Thus, while the value added generated by EU-27 SMEs in the NFBS fell by 5.5% in 2020, SME employment declined by only 2.0%.

Overall, SMEs fared slightly better than large enterprises in terms of growth in value added and employment in 2020 and, within the SME population as a whole, micro SMEs were slightly more impacted than small and medium-sized SMEs.

EU-27 SMEs rebounded in 2021, with their value added in the NFBS growing by 8.0% in current prices and their employment increasing by 0.5%. This large difference between SME value added and

¹ See Eurostat Structural Business Statistics metadata (https://ec.europa.eu/eurostat/cache/metadata/en/sbs_esms.htm). In the Eurostat Structural Business Statistics used in this report, value added is measured at factor costs and is equal to gross income from operating activities after adjusting for operating subsidies and indirect taxes. Value adjustments (such as depreciation) are not subtracted. This value added measure is used in the analysis of the performance of SMEs in the NFBS and the 14 ecosystems.

employment growth in 2021 was due to two factors. Firstly, SME value added is here measured in current prices and, as a result, the strong value added growth in 2021 partially reflects a pick-up in inflation. Secondly, the various Covid-related programmes put in place by governments in 2020 supported SME employment, so that it fell by much less than SME value added in 2020. The corollary is that the rebound in SME value added was associated with only limited employment increases in 2021. Meanwhile, in contrast to 2020, large enterprises in the EU-27 NFBS fared slightly better in 2021 than SMEs, and, within the overall SME population, micro SMEs performed better than small and medium-sized SMEs.

Although the total value added generated by SMEs increased in 2021 and was 2.1% higher in 2021 than pre-pandemic 2019, not all SMEs had recovered in 2021 from the large drops in value added of 2020. In particular, the level of SME value added in 2021 remained lower than in 2019 in 'accommodation and food services' (-9.2%), 'transportation and storage' (-2.3%), 'wholesale and retail trade' (-1.3%) and 'administrative and support services' (-0.3%).

More generally, the 'knowledge-intensive' sector² experienced an increase in SME value added, employment and number of SMEs between 2019 and 2021. In contrast, the 'low knowledge-intensive' sector experienced a decrease in all three indicators. The 'high-', 'medium-' and 'low-tech' sectors saw similar trends across the three SME performance indicators, with higher value added in 2021 than in 2019, but with lower levels of employment and number of enterprises during the same period.

Prior to Russia's unprovoked and unjustified invasion of Ukraine, the SME recovery was projected to continue in 2022. EU-27 SME value added in the NFBS was expected to increase by 6.9%, and SME employment by 1.6%, an economic performance very similar to that forecast for large enterprises. Furthermore, as in 2021, micro SMEs were projected to outperform small and medium-sized SMEs. This projection is likely to be overly optimistic in light of the potential repercussions on the European economy of the Russian war of aggression against Ukraine and the sanctions taken by the EU, the USA, the United Kingdom and many other countries against Russia and Belarus.

A preliminary assessment of the impact of the Russian war of aggression against Ukraine and the sanctions against Russia and Belarus suggests that, overall, the direct international trade effects on EU-27 SMEs may be relatively limited as the shares of Russia and Belarus in total EU exports are respectively 1.7% and 0.1% and the shares of Russia and Belarus in total EU imports are respectively 3.0% and 0.1%. However, some SMEs and some industries will be impacted much more markedly. Moreover, the indirect impacts will be more substantial. All SMEs and large enterprises will be affected by the very high energy prices and sharp increases in commodities and raw materials prices, and any potential drop in consumer confidence.

SMEs in different industries do not operate in isolation from economic organisations. Instead, they are part of broader industrial ecosystems, within which they are connected to many different organisations, such as other SMEs, large enterprises, academic institutions and customers. The European Commission focuses on the structure and dynamics of 14 industrial ecosystems ('aerospace and defence', 'agri-food', 'construction', 'cultural and creative industries', 'digital', 'electronics', 'energy-

² The 'knowledge intensive' sector in the NFBS includes the following industries 'activities of head offices, management consultancy activities', 'advertising and market research', 'air transport', 'architectural and engineering activities; technical testing and analysis', 'computer programming, consultancy and related activities', 'employment activities', 'information service activities', 'legal and accounting activities', 'motion picture, video and television programme production, sound recording and music publishing activities', 'other professional, scientific and professional services', 'programming and broadcasting services', 'publishing activities', 'scientific research and development', 'security and investigation activities', 'telecommunications', 'veterinary activities' and 'water transport' (see Eurostat [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Knowledge-intensive_services_\(KIS\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Knowledge-intensive_services_(KIS)) for further information).

intensive industries', 'energy – renewables', 'health', 'mobility - transport – automotive', 'proximity, social economy and civil security', 'retail', 'textiles' and 'tourism'). SMEs account for more than 99% of all enterprises in each of these 14 ecosystems.

The contribution of SMEs to the change in the value added across these 14 ecosystems varied greatly from 2019 to 2021. Among those ecosystems which showed an increase in value added from 2019 to 2021, it ranged from 3% in the 'health' ecosystem to 79% in the 'textiles' ecosystem.

Besides providing various types of financial help during the pandemic, many Member States also implemented a range of measures to prevent a large rise in business bankruptcies. Such measures included forbearance by creditors, temporary suspensions of the legal rules relating to when company directors or owners must file for bankruptcy, and temporary closures of the legal and administrative entities dealing with bankruptcy declarations. As a result, business bankruptcy declarations fell markedly in 2020 in the EU-27 and in most Member States. Among the 16 Member States for which detailed information is available, only two recorded an increase, albeit relatively small, in the number of bankruptcy declarations, and eleven experienced double-digit declines (in percentage terms). Business bankruptcy declarations rebounded by 4.6% in the EU in 2021. However, it is important to note that this rebound at EU level was driven mainly by very large increases in CY, DK, ES, and to a lesser extent, in RO. Seven Member States recorded a further double-digit decline in 2021. Overall, the 2021 rebound in bankruptcies has not fully offset the 2020 decline in bankruptcies.

Although no comprehensive pan-EU up-to-date information exists on business deaths (i.e. business transfers, cessation of business activity, voluntary and involuntary liquidations and bankruptcies), recent self-employment data (i.e. data on individuals running businesses with or without employees), show not only that self-employment fell from 2019 to 2021, but also that the decline was smaller for female self-employed (-3.9%) than male self-employed (-4.5%). Moreover, this smaller decline in female self-employment held true for self-employment both with and without employees (-1.5% in the case of female self-employed with workers versus -2.4% in the case of male self-employed with workers and -4.8% in the case of female self-employed without workers versus -5.5% in the case of male self-employed with workers).

While business deaths through bankruptcy were lower during the first year of the pandemic than in pre-pandemic times, business births (i.e. new business registrations) fell by 9.5% in the EU-27 in 2020. However as economic circumstances improved in the course of 2021 and confidence returned, new business registrations jumped by 15.1%. This pattern of a fall in new business registrations in 2020, followed by a rebound in 2021, was evident in almost all Member States.

The lack of economic confidence also had a delayed effect on the creation of new SME startups in 2021. New startups are businesses which rely heavily on new technologies and are created with an ambition to grow very rapidly while business births cover not only startups but a wider range of businesses which not all aim to grow very rapidly.

Data from Crunchbase show that after falling by about 1/3 in 2019 and again in 2020, the number of new SME startups in the EU fell by about 60% in 2021. However, while the creation of new SME startups declined during the pandemic, the existing population of SME startups benefited from a large funding increase of 90% in 2021, following a decline of 6% in 2020.

SMEs are critical to the success of the green transition in the EU since SMEs are currently responsible for around 60 % of all greenhouse gas emissions by enterprises. An increasing proportion of SMEs is embarking on the transition to sustainability, investing in transformation processes and viewing sustainability as an opportunity to be seized. In general, the potential contribution of SMEs to the

transition to sustainability as well as their individual transition needs vary across industrial ecosystems due to their different size, composition and economic activity.

More and more SMEs are investing in sustainable technologies and are acquiring the skills and knowledge to transform their businesses to become more sustainable and remain competitive. More than half of all SMEs have already invested or are planning to invest in reducing emissions and tackling the impact of climate change. Two-thirds of SMEs are already engaged in resource efficiency activities, mostly by minimising waste or saving energy.

Furthermore, SMEs may benefit from synergistic effects in the green and digital “twin transition”. Digitalisation offers the potential to make SMEs more productive and reduce their environmental impact. To fully leverage the potential of digital solutions for SMEs, technical advisory services and knowledge platforms can help SMEs to better understand the opportunities of digital solutions and how to implement them in their specific business.

Despite the good progress SMEs have made in their sustainability transition, it should be noted that some of the key characteristics of SMEs - limited resources (financial and human), operation in economic or geographic niches, and uncertainties in markets and policies - present challenges for SMEs’ sustainability transition. Insufficient access to finance (including payment delays, constrained liquidity, and access to loans) limits the ability of SMEs to finance investments into cleaner technologies. SMEs have limited human resources (including expertise and skills), which may imply a lack of information and awareness of opportunities, environmental regulations and support options. The fact that SMEs often operate in niche markets implies that SMEs must build their own transition paths that are specific to their niche market and can only to a limited extent rely on best practices established by firms in other markets. Uncertainties about the feasibility of adopting sustainable technologies and about the policy environment may cause SMEs to under-invest in sustainable technologies.

Moreover, the sustainability transition of SMEs is made more complex by the fact that financing the green economy is generally capital intensive and/or risky. As a result, SMEs report access to finance as a key barrier, although several solutions are currently available. These are available via the market (mostly loans and bank overdraft facilities) and via the public sector, at both Member State and EU levels (e.g. through the ‘Innovate to Transform’ platform and the Recovery and Resilience Facility (RRF)).

Given the urgency to reduce emissions and reach climate neutrality, SMEs should be supported by public policies – both at the EU and national level – to accelerate their sustainability transition. The European Commission has undertaken several policy initiatives aimed at fostering the sustainability transition of SMEs. Firstly, the European Commission’s Transition pathways framework³ represents an excellent example of a bottom-up approach to design SMEs’ sustainability policies for each ecosystem. The European Commission also manages a key initiative in the field of provision of technical assistance and tailored advisory services to SMEs, the European Enterprise Network (EEN). As of 2022, the EEN is also equipped with Sustainability Advisors who will guide SMEs in their sustainability transition. Additionally, measures supporting research and development or simplifying the regulatory framework for SMEs - such as the SME Test - will have positive spill-over effects in enabling the economic and

³ Transition pathways serve as common vision for the twin transition in the industrial ecosystems and provide a better understanding of the characteristics and challenges of each individual ecosystem. So far, together with stakeholders from the individual ecosystems, transition pathways have been developed or are being developed for the tourism, construction, mobility, textiles, proximity and social services as well as energy-intensive industries. The transition pathways are expected to support SMEs by identifying the specific constraints faced by SMEs in the industrial ecosystems and by providing the relevant digital and green tools and solutions.

legal environment for the sustainability transition of SMEs. Finally, the European Commission, partnering with the EIB Group and National Promotional Banks, provides a wide range of financial instruments aimed at supporting access to finance of SMEs, including in the area of sustainability transition.

Based on the analysis of SMEs' needs and challenges in the sustainability transition and a review of existing support policies, a set of policy recommendations aimed at improving the policy support to accelerate the sustainability transition of SMEs can be derived.

Firstly, support policies should focus on SMEs and their specific challenges, while also taking into account the high heterogeneity of SMEs, e.g. in terms of size and ecosystems. By taking an ecosystems perspective in policy design, policies can better respond to the needs of SMEs arising from their supply chain linkages. While SMEs across all ecosystems must be involved in the sustainability transition to reach the goal of climate neutrality, public policy should pay special attention to those ecosystems with the greatest potential for emission reduction, i.e. energy-intensive industries, the agri-food ecosystem, and mobility, transport and automotive ecosystem.

Secondly, the regulatory framework should facilitate the sustainability transition of SMEs and strengthen their resilience, while minimising the administrative burden of reporting requirements. New proposals need a solid SME test to ensure that the obligations are proportionate and manageable for SMEs.

Thirdly, financial resources should be combined with technical assistance, awareness-raising and advisory services. Self-assessment and diagnostic tools can also help SMEs in their sustainability transition by enabling them to better understand their economic footprint and opportunities for transformation.

Fourthly, it is important to consider that SMEs differ across ecosystems and are often part of supply chains. Policies addressing large enterprises within these supply chains also impact SMEs. This has two implications. First, the indirect impact of reporting obligations for large enterprises should be properly managed in order to avoid that these requirements are unfairly passed on in the supply chain to SMEs (this can range from requests of sustainability information to a shifting of liability). Secondly, while exempting SMEs from specific obligations can be justified in some cases, legislation should consider simplified voluntary tools and mitigating measures that allow SMEs to demonstrate their sustainability commitments. Such policies could include simplified and proportionate standards for SMEs, non-binding model contractual clauses, lower frequency for certain obligations, tailor-made guidance, one-stop-shops, or helpdesks.

Fifthly, SMEs have significant innovative capabilities. Hence, by providing incentives for SMEs to tap into green markets through innovative products and services, SMEs can become an important driver of the sustainability transition. Examples of such incentives include green prizes and certifications.

Additionally, there is an urgent need for more accurate data collection on the emission footprint and greening of SMEs to be able to monitor the effectiveness of public policies and the progress of SMEs in the sustainability transition. This recommendation is addressed to the research community at large - including academic researchers, think tanks and EU research institutions - as well as to statistical offices.

1 Introduction

This report forms part of the SME performance review (SPR) which, according to the European Commission's (EC) website, *"is one of the main tools the European Commission uses to monitor and assess countries' progress in implementing the SME strategy and the Small Business Act (SBA). With an emphasis on the priorities under the SME strategy and the SBA, the review brings comprehensive information on the performance of SMEs in EU countries and other partner countries. It consists of 2 parts: an annual report on European SMEs and SME country fact sheets"*.⁴

The SME fact sheets, which are published with this report on the EC's SMEs Performance Review website, provide an assessment of the progress in the implementation of the SME Strategy and the Small Business Act at national level. They focus on key performance indicators and national policy developments related to SME policy. The key performance indicators presented in these fact sheets are also published in the EC's annual Single Market Scoreboard.⁵

SMEs play a key role in the EU economy and the second chapter of this report provides a snapshot of the contribution of SMEs to the EU-27 economy. The data presented refer to the year 2021.

The third chapter focuses on the recent economic performance of EU SMEs. It presents information on the economic environment faced by EU-27 SMEs in 2020 and 2021, and the performance of SMEs during the pandemic.

The fourth chapter presents a projection of the performance of EU-27 SMEs in 2022.

The fifth chapter provides information on the evolution in 2020 and 2021 of the EU-27 SME population, especially startups and scaleups, new business registrations and bankruptcies, and women entrepreneurship.

The sixth chapter highlights the role and contribution of SMEs to the performance of different industrial ecosystems in the EU-27.

The seventh chapter presents the key findings of a companion study on the environmental sustainability of SMEs.

Finally, a number of annexes provide detailed information on a range of topics previously discussed in the main body of this report.

⁴ See https://ec.europa.eu/growth/smes/sme-strategy/performance-review_en

⁵ https://single-market-scoreboard.ec.europa.eu/home_en

2 Snapshot of the importance of SMEs in the EU economy and other countries

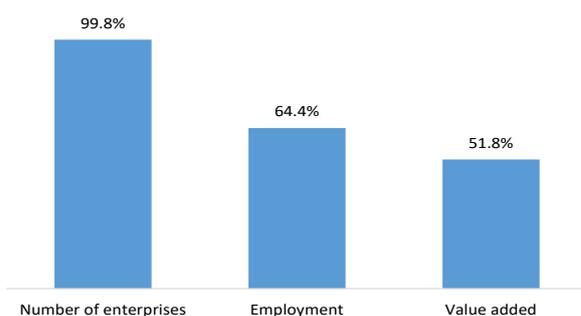
"SMEs are the backbone of our economies...the industrial fabric of many regions and cities – they are the key to social cohesion and an engine of regional job creation and well-being" (Angel Gurría).⁶

"The foundation for economies worldwide is small business" (Christopher Arnold).⁷

According to the official EC definition,⁸ SMEs in the EU are enterprises which have fewer than 250 employees and an annual turnover of less than EUR 50 million, and whose balance sheet total is less than EUR 43 million. The analysis in this report is based only on the employment definition of SMEs, since this is the definition used by the Structural Business Statistics (SBS) database maintained by Eurostat, the main data source for the report.

Within the SME population, micro SMEs are enterprises which employ fewer than 10 staff, while small SMEs employ 10 to 49 staff, and medium-sized SMEs employ between 50 and 249 staff (see Annex 1 for details).

Figure 1: Share of EU-27 SMEs in the number of enterprises in the NFBS and of NFBS employment and value added in 2021



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

In 2021⁹, about 22.8 million SMEs were active in the EU-27 and these SMEs accounted for 99.8% of all enterprises in the non-financial business sector (NFBS) (Figure 1).¹⁰ ¹¹These SMEs employed 83.2 million people in the EU-27 in 2021.

However, while almost all enterprises in the EU-27 NFBS were SMEs in 2021, the latter accounted for just under two-thirds of EU-27 NFBS employment and only slightly more than half of EU-27 NFBS value added.

The vast majority of SMEs in 2021 were micro SMEs (Figure 2). However, these very small SMEs accounted for only 35% of SME value added and 44% of SME employment in the NFBS in 2021.

In terms of employment, micro enterprises account for a greater share of total SME employment than small SMEs (31%), and

small SMEs account for more than medium-sized SMEs (25%).

The three SME size classes generated about the same proportion of SME value added in the EU-27 NFBS in 2021, with the share of value added generated by micro SMEs (35%) being only slightly larger than the share generated by small (32%) and medium-sized SMEs (33%).

⁶ <https://www.oecd.org/industry/launch-of-digital-for-smes-initiative-paris-november-2019.htm>.

⁷ IFAC (2019), <https://www.ifac.org/knowledge-gateway/contributing-global-economy/discussion/foundation-economies-worldwide-small-business-0>.

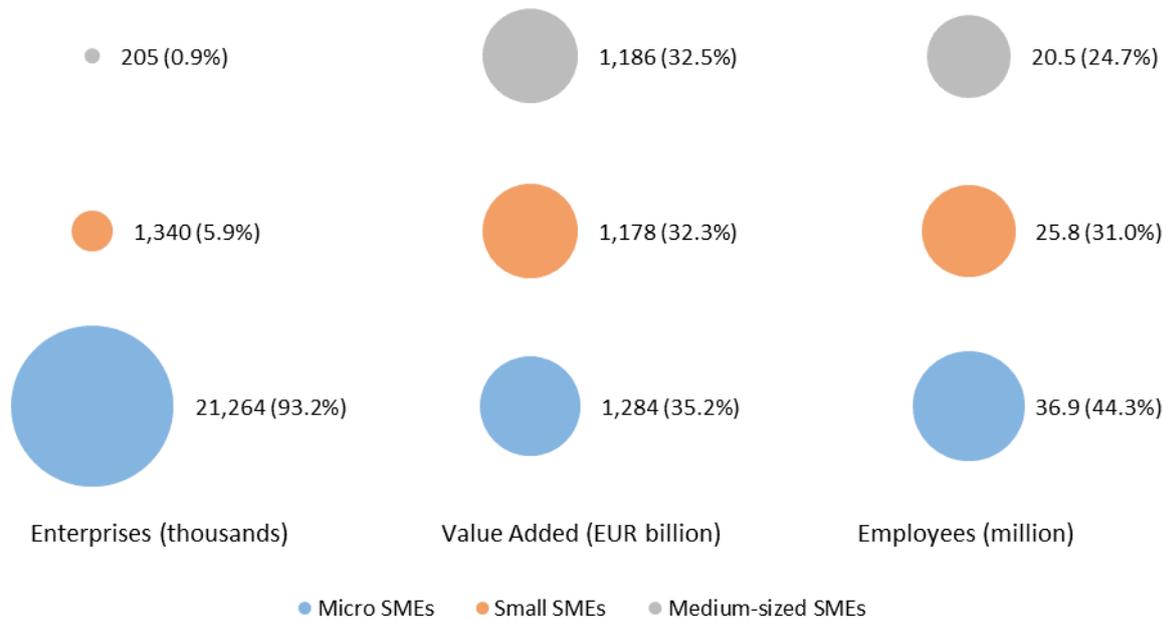
⁸ Commission Recommendation of 6 May 2003 concerning the definition of micro, small, and medium-sized enterprises (2003/361/EC), Official Journal of the European Union, L 124/36, 20 May 2003.

⁹ The 2020 data are based on estimates derived from economic data available in December 2021.

¹⁰ The non-financial business sector includes all sectors of the economy except the following: 'agriculture, forestry, and fishing' (NACE section A), 'financial and insurance activities' (NACE section K), 'public administration and defence; compulsory social security' (NACE section O), 'education' (NACE section P), 'human health and social work activities' (NACE section Q), 'arts, entertainment and recreation' (NACE section R), 'other service activities' (NACE section S), 'activities of households as employers; undifferentiated goods- and services-producing activities of households for own use' (NACE section T) and 'activities of extraterritorial organisations and bodies' (NACE section U). NACE is the Eurostat statistical classification of economic activities in the European Union.

¹¹ Information on the number of SMEs, their value added and their employment in various countries outside the EU is provided in Annex 5.

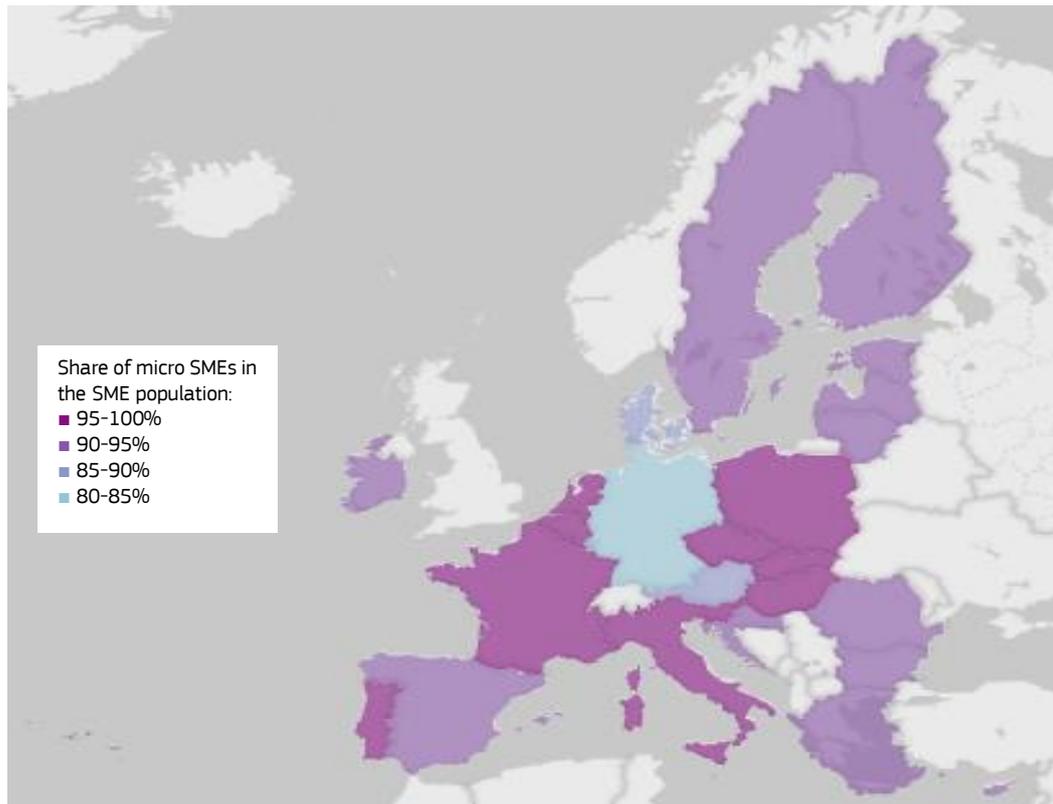
Figure 2: Share of different EU-27 SME size classes in the number of enterprises in the NFBS and of NFBS employment and value added in 2020



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

The strong prevalence of micro SMEs can be observed in all EU-27 Member States. In the majority of EU-27 Member States, 90-95% of all SMEs were micro SMEs in 2021 (Figure 3). The Member States with the largest proportion of micro SMEs were CZ (96%), NL (96%) and SK (97%). AT, DE, DK and LU were the only four Member States in which the proportion of SMEs that are micro SMEs was less than 90%.

Figure 3: Share of micro SMEs in the total number of SMEs in the NFBS of EU-27 Member States in 2021



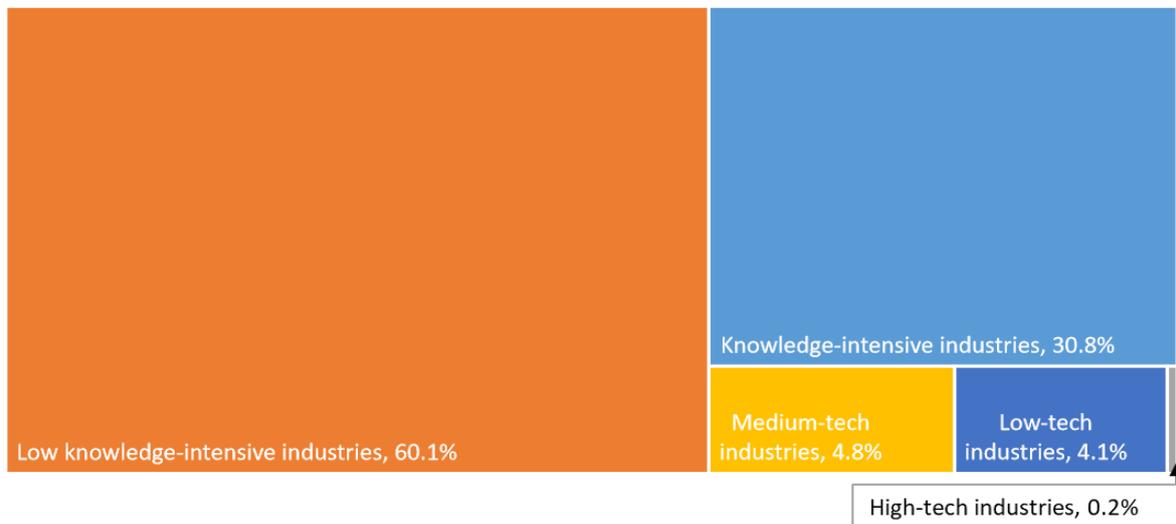
Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

In 2021, although EU-27 SMEs were active in many different industries of the EU-27 NFBS, most operated in the low knowledge-intensive industries (Figure 4).¹² Only 31% of EU-27 SMEs in the EU-27 NFBS were active in the knowledge-intensive or high-tech industries, where they employed 22% of all persons employed by SMEs in the EU-27 NFBS and generated 26% of total SME value added in the EU-27 NFBS.

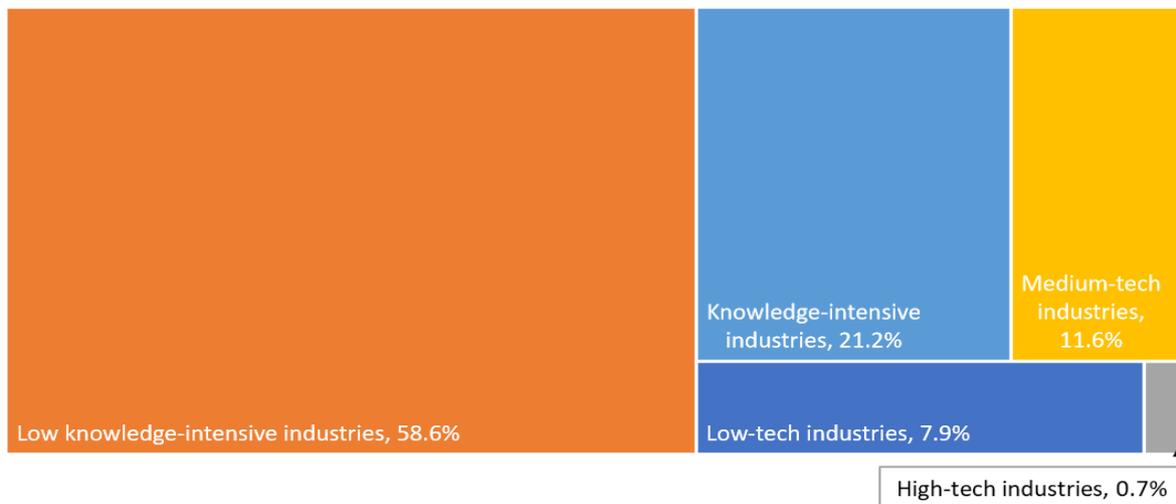
¹² See Annex 4 for the list of industries in the different knowledge and technology sectors.

Figure 4: Distribution of EU-27 SMEs across industries of different knowledge and technology intensity in 2021

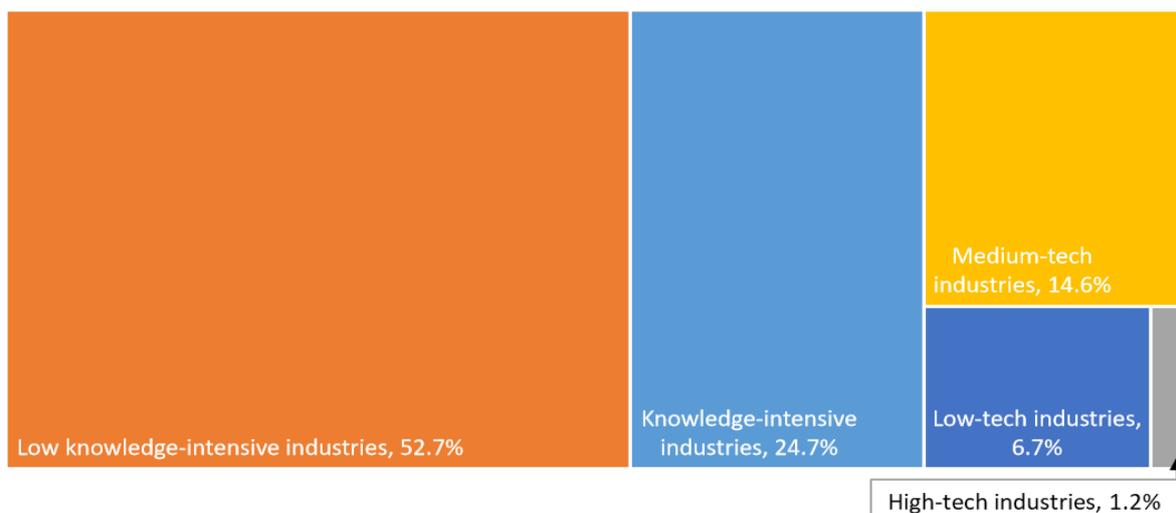
Number of SMEs



SME employment



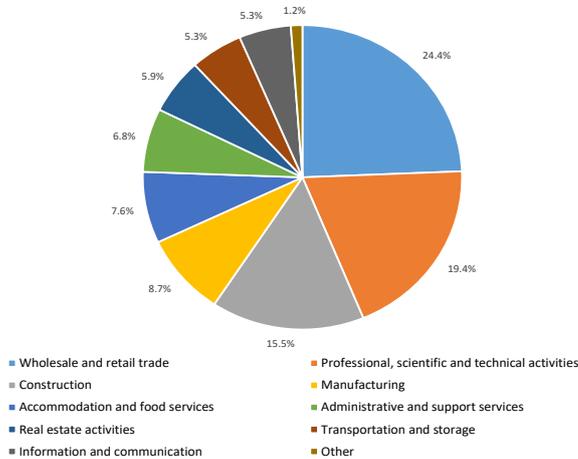
SME Value added



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

A more granular breakdown of the distribution of EU-27 SMEs across NFBS industries shows that, in 2021, these SMEs were concentrated in a few industries: namely 1) 'wholesale and retail trade', in which SMEs accounted for 24% of all EU-27 SMEs in the EU-27 NFBS, 2) 'professional, scientific and technical activities' (19%) and 3) 'construction' (16%) (Figure 5).

Figure 5: Distribution of EU-27 SMEs across the NFBS industries in 2021



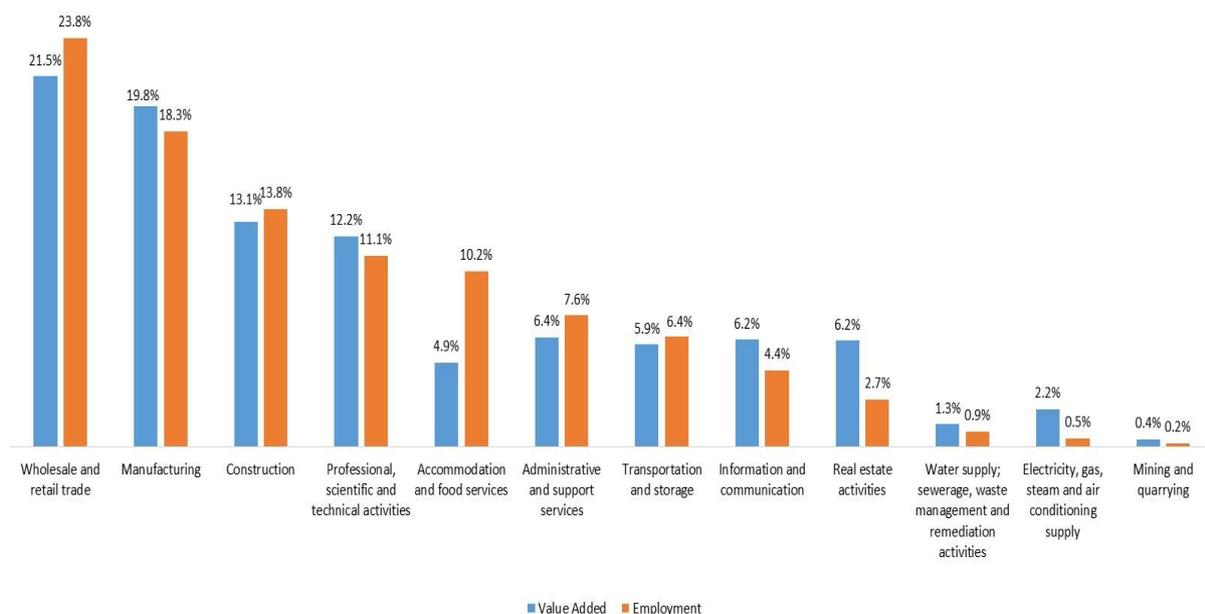
Note: Other includes 'electricity, gas, steam and air conditioning supply' (0.8%), 'water supply; sewerage, waste management and remediation activities' (0.3%) and 'mining and quarrying' (0.1%)

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

While, in general, the distributions of the number of EU-27 SMEs, SME employment and SME value added were broadly similar in 2021 across the various industries of the EU-27 NFBS, two industries stand out.

Firstly, although SMEs in 'manufacturing' accounted for only 9% of all SMEs in 2020, their employment and value added represented 18% and 20%, respectively, of total EU-27 NFBS SME employment and value added (Figure 6). Secondly, and in contrast to the 'manufacturing' industry, 19% of EU-27 NFBS SMEs undertook 'professional, scientific and technical activities'. However, in 2021, these SMEs accounted for only 11% of total employment by SMEs in the EU-27 NFBS and 12% of the value added generated by NFBS SMEs.

Figure 6: Distribution of the number of SMEs, SME employment and SME value added across EU-27 NFBS industries in 2021



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

As in previous years, SMEs accounted in 2021 for the majority of total employment in most industries, and for more than 80% of total employment in four industries ('construction', 'accommodation and food services', 'real estate activities' and 'professional, scientific and technical activities'). 'Real estate activities' and 'professional, scientific and technical activities' were also the only industries in which micro SMEs accounted for the majority of employment in the industry (Table 1). The share of value added generated by SMEs in the various EU-27 NFBS industries was somewhat smaller than their employment share in most other industries, and they accounted for the majority of total value added in a minority of industries ('construction', 'wholesale and retail trade', 'accommodation and food services', 'real estate activities' and 'professional, scientific and technical activities').

In terms of the number of enterprises, EU-27 SMEs accounted for at least 99% of the total number of enterprises in every industry of the EU-27 NFBS except 'water supply; sewerage, waste management and remediation activities'. Micro enterprises accounted for most of this figure, representing 90% or more of the total number of enterprises in all but four industries ('mining and quarrying', 'manufacturing', 'water supply; sewerage, waste management and remediation activities' and 'accommodation and food services'). These were also the four industries in which small SMEs accounted for more than 10% of the total number of enterprises.

Table 1: Proportion of total value added, employment and number of enterprises accounted for by SMEs in various EU-27 NFBS industries in 2021

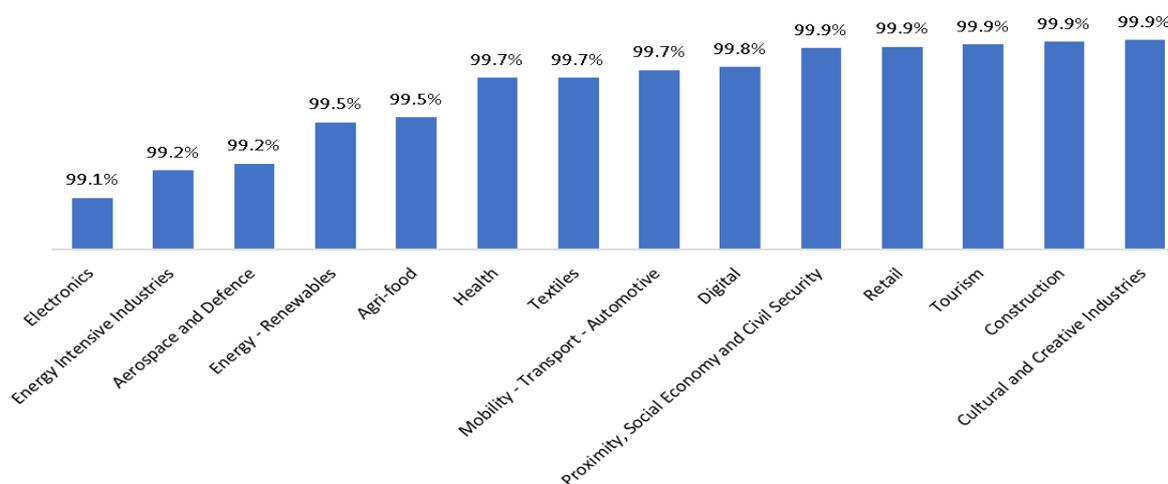
	Value Added				Employment				Number of Enterprises			
	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs
Mining and quarrying	9.3%	15.3%	17.1%	41.7%	8.2%	16.0%	16.4%	40.5%	77.9%	17.5%	3.7%	99.1%
Manufacturing	5.4%	11.3%	17.7%	34.5%	12.6%	18.0%	21.7%	52.2%	83.8%	12.5%	3.0%	99.3%
Electricity, gas, steam and air conditioning supply	16.0%	6.0%	9.6%	31.6%	15.6%	5.4%	9.9%	31.0%	97.1%	1.9%	0.7%	99.7%
Water supply; sewerage, waste management and remediation activities	7.8%	15.0%	21.1%	43.9%	8.8%	15.1%	22.7%	46.6%	80.8%	13.8%	4.3%	98.9%
Construction	34.2%	29.2%	16.1%	79.5%	46.1%	28.4%	12.6%	87.2%	93.7%	5.7%	0.5%	99.9%
Wholesale and retail trade	22.0%	21.7%	18.0%	61.7%	34.1%	20.9%	13.7%	68.7%	93.4%	5.7%	0.7%	99.9%
Transportation and storage	11.6%	15.5%	16.4%	43.4%	19.3%	17.6%	15.5%	52.4%	91.1%	7.4%	1.3%	99.7%
Accommodation and food services	29.5%	30.8%	17.7%	78.0%	38.8%	33.3%	13.7%	85.8%	88.2%	10.8%	0.9%	99.9%
Information and communication	11.1%	11.3%	15.0%	37.4%	22.5%	15.5%	16.7%	54.7%	94.5%	4.4%	0.9%	99.8%
Real estate activities	49.4%	16.1%	18.4%	83.9%	62.0%	15.7%	11.5%	89.1%	98.1%	1.6%	0.2%	100.0%
Professional, scientific and technical activities	37.6%	20.9%	15.4%	74.0%	51.1%	18.5%	11.8%	81.3%	97.1%	2.6%	0.3%	99.9%
Administrative and support services	16.9%	14.2%	16.8%	47.9%	15.8%	12.9%	16.7%	45.5%	92.7%	5.5%	1.4%	99.6%
All industries	18.2%	16.7%	16.8%	51.8%	28.5%	20.0%	15.9%	64.4%	93.1%	5.9%	0.9%	99.8%

Source: Calculations by the JRC, based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

It should be noted that the differences in the relative importance of SMEs across various industries do not vary much from year to year, as these differences reflect the long-term structural characteristics of the various industries.

SMEs in different industries do not operate in isolation from other economic entities. Instead, they are part of broader industrial ecosystems, within which they are connected to many different organisations, such as other SMEs, large enterprises, academic institutions and customers. The European Commission focuses on the structure and dynamics of 14 industrial ecosystems¹³ and SMEs account for more than 99% of all enterprises in each of these (Figure 7). A more detailed analysis of the role of SMEs in the various ecosystems is provided in chapter 0.

Figure 7: Proportion of SMEs in the enterprise population in 14 EU-27 ecosystems in the NFBS in 2021



Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Information on the role of SMEs in the NFBS of the EU-27 compared to the COSME¹⁴ countries and the UK is provided in Annex 5, alongside information on the following selected countries: Australia, Brazil, Israel, Japan, Norway, New Zealand, Russia, Singapore, Switzerland and the USA.

¹³ See, for example, European Commission (2022), Commission Staff Working Document, Annual Single Market Report 2022, Brussels, 22.2.2022, SWD(2022) 40 final, PART 1/2.

¹⁴ The EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises. The COSME countries are: Albania (AL), Armenia (AM), Bosnia and Herzegovina (BA), Iceland (IS), Kosovo (XK) Moldova (MD), Montenegro (ME), North Macedonia (MK), Serbia (RS), Turkey (TR) and Ukraine (UA).

3 The performance of SMEs in 2019 and during the pandemic in 2020 and 2021

Due to the Covid-19 pandemic, SMEs in Europe, and more generally throughout the world, have faced unprecedented economic uncertainty and turmoil since early 2020. However, the impact of the pandemic varied greatly across industries with some experiencing at times very substantial declines in sales while others saw their sales increase markedly. Moreover, throughout 2021, SMEs faced difficulties in hiring new staff to meet an unexpectedly strong rebound in demand and had to deal with sharp and rapid increases in the price of many of their inputs. Clearly, the last two years have required considerable flexibility and agility on the part of SMEs¹⁵, and substantial financial help from governments, in order to survive this extraordinary period.

This chapter examines in detail the performance of EU-27 SMEs during this challenging period. It presents information on the economic environment in which SMEs operated in 2019, 2020 and 2021 (section 3.1), reviews the economic performance of SMEs in 2019, 2020 and 2021 on the basis of the evolution of three key SME performance indicators (number of enterprises, value added and employment) (section 3.2), compares the performance of SMEs and large enterprises in the EU-27 NFBS over the period 2020-2021 in different industries (section 3.3) and presents information on the performance of SMEs in Member States (section 3.4).¹⁶

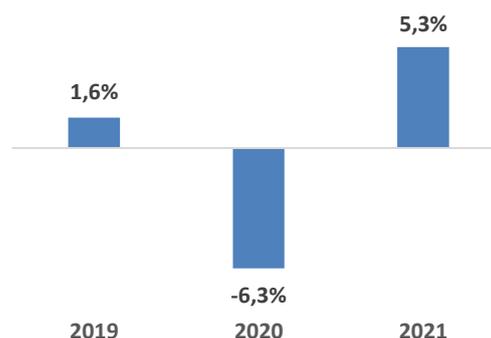
3.1 The economic environment in which SMEs operated in 2019, 2020 and 2021

Reflecting the various lockdowns and other sanitary measures taken in 2020 by governments to limit the impact of Covid-19 on their population and health services, EU-27 GDP (in constant prices) fell by 6.3% in 2020, an unprecedented drop in economic activity not seen since the great recession of 1929/1930, after having grown by 1.6% in 2019 (Figure 8).

Both domestic demand and foreign demand for goods and services produced by the EU-27 economy declined sharply in 2020 (Figure 9). Consumption by households and governments also fell, but to a lesser extent, mainly as a result of large increases in government spending, especially in the health sector.

The year 2021 saw a marked recovery in the various economic aggregates (GDP, domestic demand and foreign demand) as, for most of the year, many of the sanitary measures were eased in response to an improving sanitary situation. However, in the latter part of 2021, economic activity weakened again in a number of Member States with the arrival of new Covid-19 variants, sharp rebounds in the number of infected persons and a return to stricter sanitary measures. Without these late 2021 developments, the economic rebound would have been even stronger.

Figure 8: Annual EU-27 GDP growth in 2019, 2020 and 2021

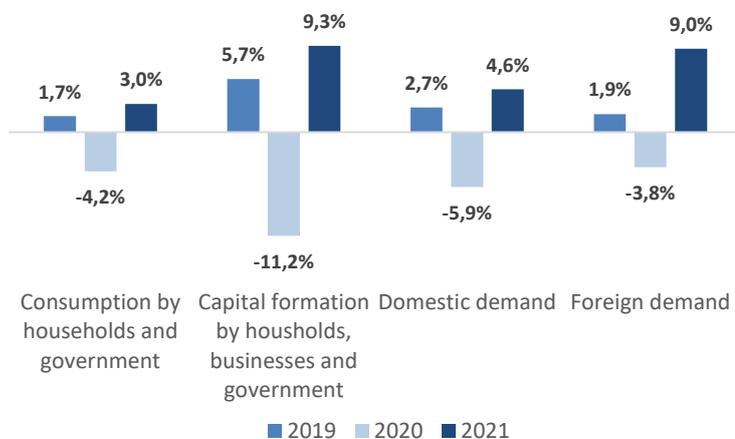


Source: EC Winter 2022 Forecast – AMECO database

¹⁵ In order to survive, SMEs pursued a wide range of strategies such as selling new services or products, changing the way they delivered services to their customers, finding new suppliers, etc.

¹⁶ The performance of SMEs in 2020 and 2021 in COSME countries and the UK is reviewed in Annex 9.

Figure 9: Four-quarters growth of major components of EU-27 GDP in 2019, 2020 and 2021



Note: the growth rates shown in the chart are the Q4 to Q4 growth rates for 2019 and 2020 and the Q3 to Q3 growth rate for 2021.

Source: Eurostat national accounts data

Obviously, the overall economic environment was very challenging for SMEs as, in 2020, many had to deal with a demand for their goods and services which had largely “disappeared”, albeit on a temporary basis, while others had to manage abrupt increases in demand. When a return to some kind of “normal” economic circumstances started to improve the outlook for SMEs, supply chain disruptions, large increases in costs and difficulties in finding staff to meet the sharp rebound in demand created new challenges for SMEs.

It is important to note that because inflation picked up in 2021, the 2021 changes in SME value added reported in the next sections overstate the actual change in SME economic activity. This is due to the fact that SME value added data from Eurostat and the JRC are expressed in current prices, i.e. they are not adjusted for inflation.

Box 1

Correlation between growth in EU SME value added in different industries and growth in different macroeconomic variables

A simple correlation analysis undertaken for the 2018/19 SME Annual Report showed that, among the 12 industries¹ in the EU-27 NFBS, developments in most industries were highly correlated² with overall EU-28 GDP growth from 2008 to 2018. However, the impact of fluctuations in the growth of the different aggregate demand components varied greatly at a broad macroeconomic level:

- 'manufacturing' value added moved strongly in line with exports of goods and services and, to a slightly lesser extent, with gross fixed capital formation;
- growth in 'construction' value added was highly correlated with growth in gross fixed capital formation and to a lesser extent with exports of goods and services;
- growth in value added in 'wholesale and retail trade and repair of motor vehicles and motorcycles' was driven by the evolution of both gross fixed capital formation and the final consumption of households³;
- growth of value added in 'transportation and storage' was driven mainly by growth in exports of goods and services and gross fixed capital formation;
- value added growth in 'accommodation and food services' mainly reflected growth in gross fixed capital formation and final consumption of households;
- value added growth in 'information and communication', 'professional, scientific and technical activities' and 'administrative and support service activities' depended on growth in export of goods and services and gross fixed capital formation;
- changes in value added in 'mining and quarrying', 'electricity, gas, steam and air conditioning supply' and 'water supply, sewerage, waste management and remediation activities' were not strongly affected by any of the aggregate demand components and were also not even strongly related to changes in GDP.

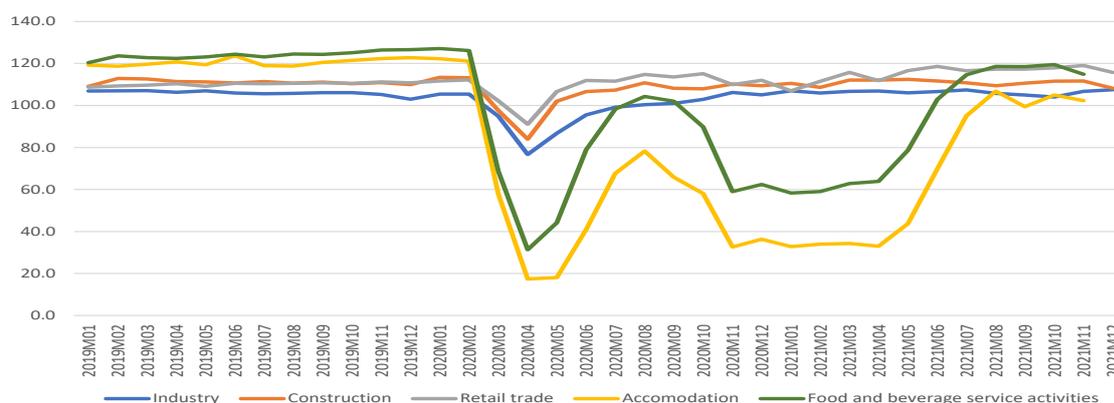
In addition to these broad macroeconomic factors, a number of more specific, largely pandemic-related developments were observed in 2020 and 2021, such as a sharp decline of 37.8% in spending by EU-27 households on restaurants and hotels in 2020 despite overall household consumption falling by only 7.4%.

Notes: 1. These 12 industries are the NACE Rev 2 1-digit industries, the highest level of industry aggregation in the NACE classification. They are 'accommodation and food service activities', 'administrative and support service activities' 'construction', 'electricity, gas, steam and air conditioning supply', 'information and communication', 'manufacturing', 'mining and quarrying', 'professional, scientific and technical activities', 'real estate', 'transportation and storage', 'water supply, sewerage, waste management and remediation activities', 'wholesale and retail trade, repair of motor vehicles and motorcycles'. 2. The correlation coefficient is 0.75 or greater over the period 2008 to 2018. 3. The correlation of the growth rate of value added in 'wholesale and retail trade, repair of motor vehicles and motorcycles' with the growth rate of gross fixed capital formation is somewhat higher than the correlation with the growth rate of the final consumption of households. This simply reflects the fact that, at the margin, value added in 'wholesale and retail trade, repair of motor vehicles and motorcycles' is more sensitive to fluctuations in the growth rate of gross fixed capital formation. However, the trend growth in the final consumption of households is a more important driver of the trend growth in 'wholesale and retail trade, repair of motor vehicles and motorcycles' than the trend growth in gross fixed capital formation.

Source: European Commission (2019) ANNUAL REPORT ON EUROPEAN SMEs 2018/2019 - Research & Development and Innovation by SMEs.

The factors driving the demand for goods and services produced by EU-27 SMEs differ across industries. It is also important to note that annual changes in the key SME performance indicators (especially value added) hide very large within-year fluctuations. For example, the monthly index of production or turnover in selected industries shows that large declines in March and April 2020 were followed by a gradual recovery, which was then followed, in some industries, by another large decline in September to November 2020 (Figure 10).

Figure 10: Monthly production or turnover in selected EU-27 industries – January 2019 to December 2021 (2015 = 100)

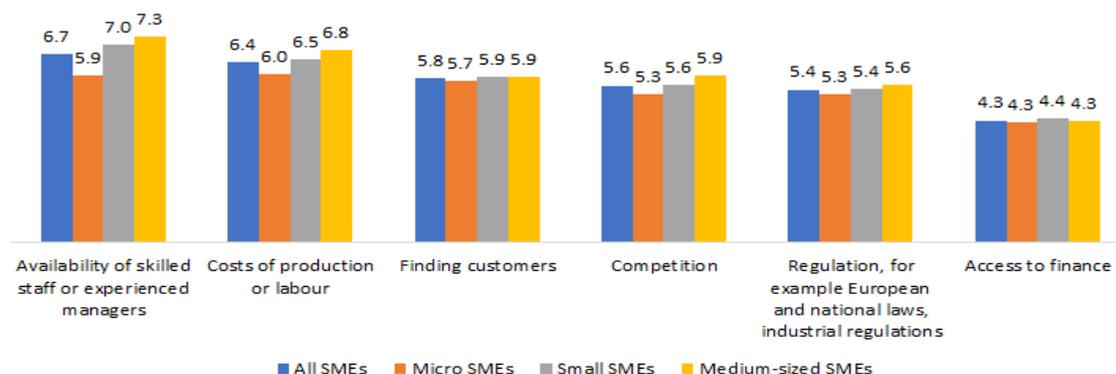


Notes: 'industry' includes the industries: 'mining and quarrying', 'manufacturing' and 'electricity, gas, steam and air conditioning supply'. The production index is shown for 'industry' and 'construction' while the turnover index is shown for 'retail trade', 'accommodation' and 'food and beverage service activities'. Data for 'industry' and 'construction' are adjusted for price movements. Data for 'retail trade', 'accommodation' and 'food and beverage service activities' are in current prices, as Eurostat does not provide price adjusted data for these industries. November 2021 is the most recent month for which data for 'accommodation' and 'food and beverage service activities' were available when this report was being prepared.

Source: Eurostat

These changing economic circumstances throughout 2020 and 2021 are clearly reflected in the 2020 and 2021 Surveys on Access to Finance of Enterprises (SAFE), in which EU-27 SMEs assessed the importance of various issues and challenges that they were facing. In 2021, the two issues viewed by EU-27 SMEs as the most important in late summer and early autumn were "availability of skilled staff or experienced managers" and "costs of production or labour" (Figure 11). In contrast, "finding customers" was the most important issue in 2020.

Figure 11: Economy-wide assessment by EU-27 SMEs of importance (on a scale of 1 to 10) of various issues and challenges faced by SMEs – September - October 2021

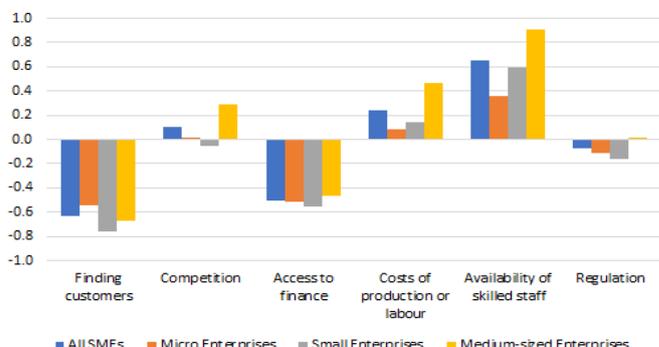


Note: The assessment reported in the figure above reflects the views of SMEs in the period of 6 September to 13 October 2021 (when the SAFE survey fieldwork was undertaken).

Source: SAFE survey¹⁷

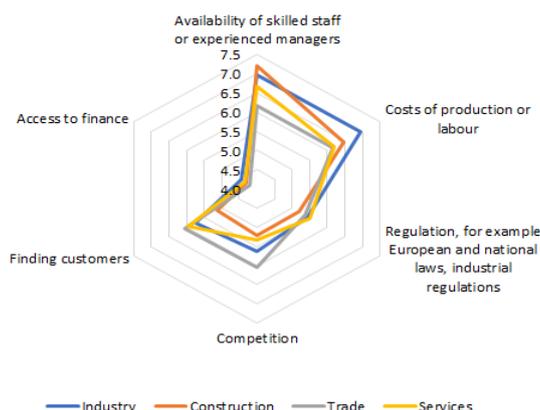
¹⁷ For the full results of the SAFE survey see European Commission (2021) Survey on the Access to Finance of Enterprises (SAFE), Analytical Report, produced by Panteia, November 2021.

Figure 12: Change in the economy-wide assessment by EU-27 SMEs of the importance (on a scale of 1 to 10) of various issues and challenges faced by SMEs – 2021 SAFE survey rating minus 2020 SAFE survey rating



Source: SAFE surveys of 2020 and 2021

Figure 13: Assessment by EU-27 SMEs in different industries of importance (on a scale of 1 to 10) of various challenges and issues – September -October 2021



Note: The assessment reported in the figure above reflects the views of SMEs in the period of 6 September to 13 October 2021 (when the SAFE survey fieldwork was undertaken).

Source: SAFE survey

In fact, in 2021 the importance of the “availability of skilled staff and experienced managers” showed the greatest increase relative to 2020 across all SME size classes, while the importance of “finding customers” showed the greatest decline, again, across all SME size classes (Figure 12).

Interestingly, the importance of “access to finance” also declined markedly in 2021, probably reflecting the continued Covid-19-related financial support provided by governments and the generally easy credit conditions.

The “availability of skilled staff or experienced managers” and “costs of production or labour” were not only the two most important issues faced economy-wide by EU-27 SMEs in 2021, but also in all industries (Figure 13).

The “availability of skilled staff or experienced managers” was also the most important issue faced by SMEs in 2021 in most Member States (Table 2) and in the vast majority of Member States, “costs of production or labour” was the second most important issue.

In contrast, “finding customers” was flagged by SMEs in only three Member States (BG, PT and RO) as an important issue.

Table 2: Economy-wide assessment by SMEs in Member States of importance (on a scale of 1 to 10) of various challenges and issues faced by SMEs – September - October 2021

	Finding customers	Competition	Access to finance	Costs of production or labour	Availability of skilled staff or experienced managers	Regulation
AT	6.58	5.57	4.10	6.29	8.00	5.51
BE	5.79	5.65	4.12	6.41	7.13	5.72
BG	7.73	6.56	5.53	7.57	8.25	6.73
CY	5.60	6.20	4.52	5.93	6.15	5.14
CZ	6.06	5.24	4.18	6.50	7.24	4.99
DE	6.39	5.36	3.83	6.03	7.38	5.41
DK	5.29	5.42	3.35	5.46	6.69	4.71
EE	4.18	5.87	3.96	5.89	6.77	3.91
EL	5.81	6.20	5.75	6.61	6.10	5.43
ES	6.52	6.13	4.85	6.81	6.04	5.62
EU-27	5.83	5.56	4.33	6.39	6.68	5.42
FI	3.62	5.07	2.96	5.05	5.98	4.14
FR	5.11	5.08	3.79	5.87	6.32	4.94
HR	3.68	4.34	3.69	4.81	5.74	4.47
HU	6.42	5.10	4.94	6.97	7.17	5.19
IE	6.49	5.81	4.51	6.96	7.20	5.48
LT	5.63	6.49	5.11	6.50	5.59	5.01
LU	5.33	4.97	3.84	5.69	6.72	5.21
LV	5.94	6.20	4.76	7.11	7.44	5.99
MT	6.49	6.75	5.01	6.80	7.24	5.92
NL	4.81	4.66	3.16	5.46	6.96	5.28
PL	5.95	5.82	4.62	7.25	6.86	6.55
PT	7.19	6.62	5.38	7.30	7.08	6.51
RO	7.41	6.50	6.08	7.82	7.86	6.71
SE	4.74	4.70	2.83	4.98	5.55	4.01
SI	6.13	5.79	4.33	6.88	7.02	5.88
SK	4.58	4.67	3.52	5.41	6.20	4.39
AT	6.58	5.57	4.10	6.29	8.00	5.51

Note: The assessment reported in the table above reflects the views of SMEs in the period of 6 September to 13 October 2021 (when the SAFE survey fieldwork was undertaken). The colours in the table correspond to the following values: dark green: 0-3, green: 3-4, light green: 4-5, light yellow: 5-6, yellow: 6-7, orange: 7-8, red: 8-10.

Source: SAFE survey

Information similar to that provided in Table 2 is presented for each SME size class in Annex 6. Whilst the “availability of skilled staff or experienced managers” and “costs of production or labour” were generally the most important issues for all enterprise size classes, they tended to be less important for micro enterprises and most important for medium-sized enterprises. The “availability of skilled staff or experienced managers” was particularly important for small enterprises in AT and BG, and for medium-sized enterprises in AT, BG, DE, IE and RO. “Access to finance” was the least important issue for all SME size classes, but particularly for micro enterprises in NL and SE, small enterprises in FI and SE, and medium-sized enterprises in EE, FI and SE.

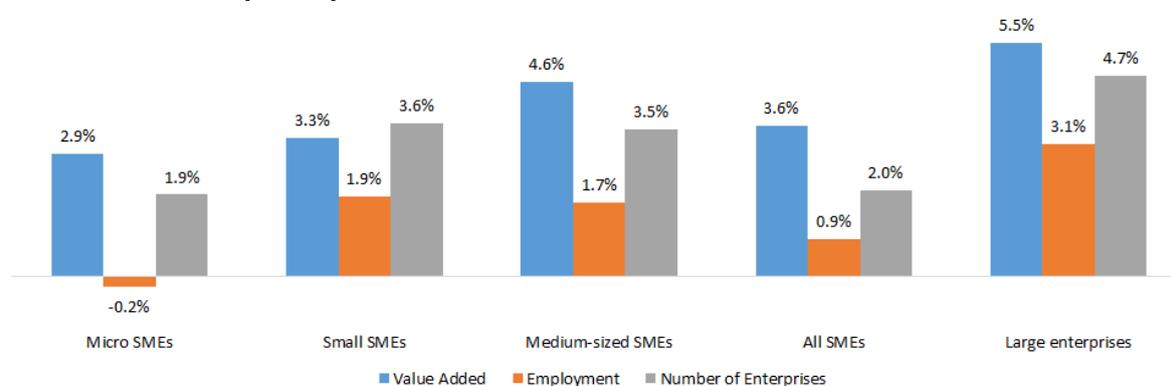
3.2 The economic performance of EU-27 SMEs in 2019, 2020 and 2021

This section first provides a quick overview of the performance of EU-27 SMEs in the pre-Covid year 2019 and in 2020, the first year of the pandemic. Next, the section reviews the economy-wide performance of EU-27 SMEs in 2021, and then examines the performance in 2021 of EU-27 SMEs in different industries. The section also compares the performance of SMEs and large enterprises over the 2020-21 period and across Member States.

3.2.1 The performance of EU-SMEs in 2019 and 2020

All enterprise size classes in the EU-27 NFBS experienced growth in value added in 2019 (i.e. in the pre-pandemic year), but this growth was faster among larger enterprise size classes than for micro SMEs (Figure 14). Overall SME employment rose in 2019 (by 0.9%) despite a small drop in employment among micro SMEs (-0.2%). The number of enterprises increased in 2019 in all enterprise size classes, but the number of micro SMEs rose the least. In short, in 2019, across all three performance indicators, micro SMEs experienced the slowest growth, and large enterprises saw the fastest growth.

Figure 14: Annual change (in %) in 2019 of value added, employment and number of enterprises in the EU-27 NFBS by enterprise size class



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

All enterprise size classes in the EU-27 NFBS experienced marked declines in value added and more moderate decreases in employment and the number of enterprises in 2020, the first year of the pandemic (Figure 15). Micro SMEs were the hardest hit within the SME population, showing the greatest drop in value added and employment among the three SME size classes, although medium-sized SMEs experienced a larger fall in the number of enterprises.

Figure 15: 2020 growth rates of value added, employment and number of enterprises by enterprise size class



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

3.2.2 Economy-wide performance of SMEs in the EU-27 NFBS in 2021

As noted above, SMEs, especially micro SMEs, were impacted negatively by the pandemic in 2020. However, EU-27 SMEs rebounded in 2021, with their value added in the NFBS growing by 8.0% in 2021 and their employment increasing by 0.5% (Table 3).

This large difference between SME value added and employment growth in 2021 was due to two factors. Firstly, SME value added is measured in current prices and, as a result, the strong value added growth in 2021 partially reflects a pick-up in inflation. Secondly, the various Covid-related programmes put in place by governments in 2020 supported SME employment, so that it fell by much less than SME value added in 2020. However, the corollary is that the rebound in SME value added was associated with only limited employment increases in 2021.

Meanwhile, in contrast to 2020, large enterprises in the EU-27 NFBS fared slightly better in 2021 than SMEs, and, within the overall SME population, micro SMEs performed better than small and medium-sized SMEs.

As a result of the strong rebound in 2021, EU-27 SME value added (in current prices) was 2.1% higher in 2021 than in 2019. However, as prices increased by about 3.5% over this period, the 2021 level of EU-27 SME value added, adjusted for inflation, was still about 1.5% below its 2019 value. Similarly, EU-27 SME employment in 2021 was also 1.5% below its 2019 level.

Table 3: Percentage change in value added, employment and number of enterprises in 2021 compared to 2020 and 2019 by enterprise size class in the NFBS

	Annual change (in %) in 2021 relative to 2020			Cumulative change (in %) in 2021 relative to 2019		
	Value Added	Employment	Enterprises	Value added	Employment	Enterprises
Micro SMEs	8.6%	1.2%	1.3%	2.1%	-1.0%	-0.5%
Small SMEs	7.7%	0.0%	-0.1%	2.2%	-1.5%	-1.4%
Medium-sized SMEs	7.7%	-0.1%	-0.4%	1.8%	-2.2%	-2.6%
Large enterprises	10.8%	0.7%	0.0%	3.9%	-1.6%	-2.7%
All SMEs	8.0%	0.5%	1.2%	2.1%	-1.5%	-0.6%
Total	9.3%	0.6%	1.2%	3.0%	-1.5%	-0.6%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

3.2.3 The performance of EU-27 SMEs in different industries

SME value added increased in 2021, relative to 2020, in every industry (Table 4). The largest increases were recorded by the 'manufacturing' (9.7%), 'construction' (9.7%) and 'wholesale and retail trade' (9.4%) industries. Overall, SME value added was higher in 2021 than in 2019 in all but four industries ('wholesale and retail trade', 'transportation and storage', 'accommodation and food services' and 'administrative and support services').

SME employment increased in 2021, compared to 2020, in all industries except 'manufacturing' (-0.4%) and 'accommodation and food services' (-6.0%) (Table 4). The industries that performed best in 2021, compared to 2020, included 'construction' (2.9%) and 'information and communication' (4.2%). These industries also accounted for the largest increases in SME employment between 2019 and 2021, with increases of 3.9% and 6.2%, respectively. SME employment was higher in 2021 than in 2019, albeit sometimes only marginally higher in only a further five industries ('administrative and support services' (0.1%), 'mining and quarrying' (0.3%), 'water supply; sewerage, waste management and remediation activities' (0.3%), 'real estate activities' (1.0%) and 'electricity, gas, steam and air conditioning supply' (3.0%)).

The number of SMEs also increased in 2021, compared to 2020, in every industry except ‘manufacturing’ (-0.5%) and ‘accommodation and food services’ (-4.7%) (Table 4). The largest increases occurred in the ‘information and communication’ (5.1%) and ‘administrative and support services’ (3.3%) industries. As a result, the number of SMEs was higher in 2021 than in 2019 in most industries. The largest increases between 2019 and 2021 were in the ‘information and communication’ (7.6%) and ‘construction’ (3.9%) industries. In contrast, the largest decrease in the number of enterprises between 2019 and 2021 was in the ‘accommodation and food services’ (8.3%) industry.

Table 4: Change (in %) in SME value added, employment and number of enterprises in 2021 compared to 2020 and 2019 in different industries

	Annual change (in %) in 2021 relative to 2020			Cumulative change (in %) in 2021 relative to 2019		
	Value Added	Employment	Enterprises	Value Added	Employment	Enterprises
Mining and quarrying	5.3%	0.8%	0.1%	14.5%	0.3%	-0.2%
Manufacturing	9.7%	-0.4%	-0.5%	2.7%	-2.3%	-2.7%
Electricity, gas, steam and air conditioning supply	8.5%	1.9%	0.3%	13.8%	3.0%	0.2%
Water supply; sewerage, waste management and remediation activities	7.9%	0.2%	0.0%	4.7%	0.3%	0.3%
Construction	9.7%	2.9%	2.9%	8.9%	3.9%	3.9%
Wholesale and retail trade	9.4%	1.0%	0.9%	-1.3%	-2.4%	-2.7%
Transportation and storage	8.7%	0.5%	0.7%	-2.3%	-2.5%	-2.3%
Accommodation and food services	4.1%	-6.0%	-4.7%	-9.2%	-9.8%	-8.3%
Information and communication	6.4%	4.2%	5.1%	8.9%	6.2%	7.6%
Real estate activities	3.1%	2.1%	2.0%	4.7%	1.0%	1.8%
Professional, scientific and technical activities	6.8%	1.7%	1.9%	0.6%	-0.2%	0.1%
Administrative and support services	6.1%	2.0%	3.3%	-0.3%	0.1%	1.2%
TOTAL	8.0%	0.5%	1.2%	2.1%	-1.5%	-0.6%

Source: Calculations by the JRC based on Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

The cumulative growth in the number of SMEs, despite the pandemic, reflects in part the considerable financial assistance provided by governments to SMEs and large enterprises in 2020 and 2021, and the range of measures taken by many Member States to prevent a large rise in business bankruptcies. Such measures included forbearance by creditors, temporary suspensions of the legal rules relating to when company directors or owners must file for bankruptcy, and temporary closures of the legal and administrative entities dealing with bankruptcy declarations. As a result, business bankruptcies in 2020 were lower than they would have been in normal circumstances (see Box 2 in section 5.1 for a detailed discussion of the “missing” bankruptcies).

3.3 Comparison of the performance of SMEs and large enterprises in the EU-27 NFBS over the period 2020-2021 in different industries

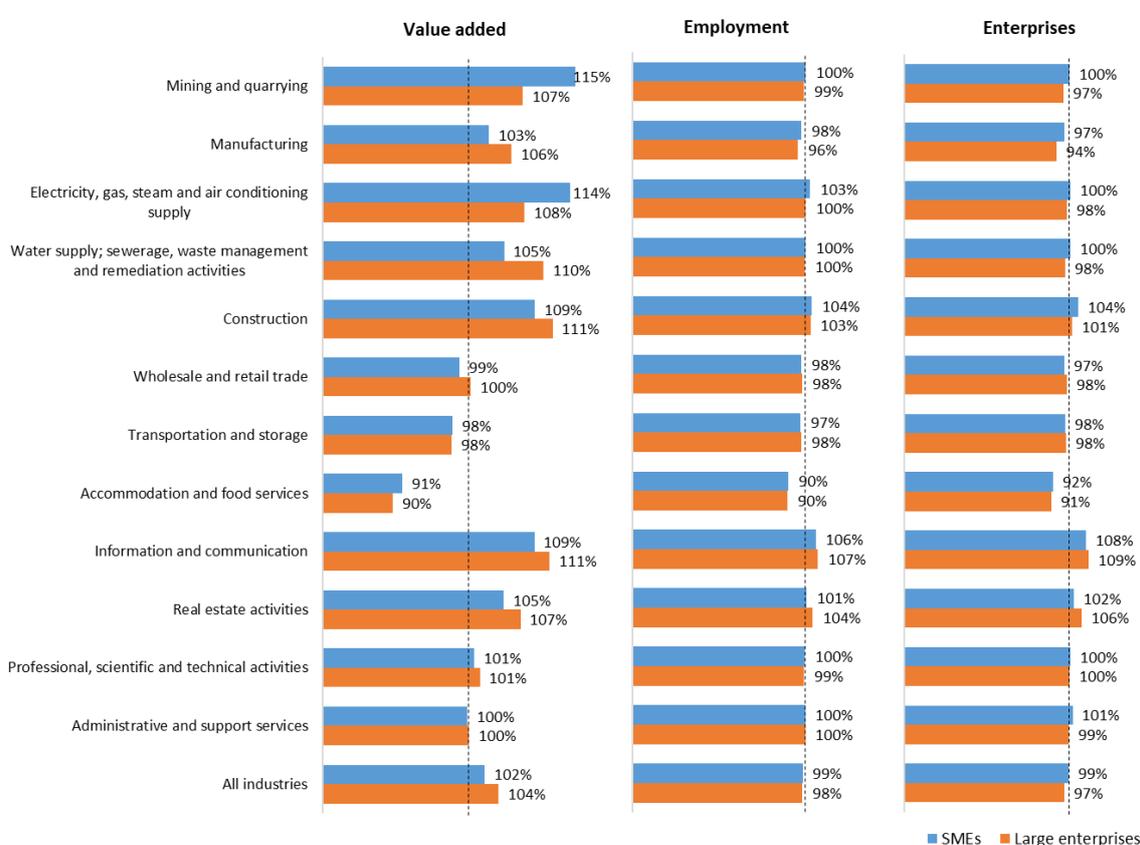
Cumulatively, over the period 2020-2021, SMEs performed less well than large enterprises in terms of value added, but slightly better with regard to employment and the number of enterprises.

In the case of value added (Figure 16), SMEs outperformed large enterprises in only three industries: 'mining and quarrying', 'electricity, gas, steam and air conditioning supply' and 'accommodation and food services'.

Although SMEs tended to outperform large enterprises in terms of employment, the differences were generally only small. SMEs only outperformed large enterprises by more than 1 percentage point (pp) in the 'manufacturing' and 'electricity, gas, steam and air conditioning supply' industries and only underperformed, compared to large enterprises, by more than 1pp in the 'real estate activities' industry.

As was the case with value added, SMEs tended to outperform large enterprises in terms of the number of enterprises, but the differences tended to be small. The differences were largest in the 'mining and quarrying', 'manufacturing' and 'construction' industries. Again, the only industry in which large enterprises outperformed SMEs by more than 1pp was the 'real estate activities' industry.

Figure 16: Level of EU-27 SME and large enterprise value added, employment and enterprises in NFBS industries in 2021 as a percentage of 2019 level



Source: Calculations by the JRC, based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Information regarding the performance of EU-27 SMEs in 2021, relative to 2019, in industries of different knowledge and technology intensities is provided in Annex 8. Knowledge-intensive industries experienced an increase in SME value added, employment and number of SMEs between 2019 and 2021. In contrast, low knowledge-intensive industries experienced a decrease in all three indicators. High-, medium- and low-tech industries saw similar trends across the three SME performance indicators, with higher value added in 2021 than in 2019, but lower levels of employment and number of enterprises.

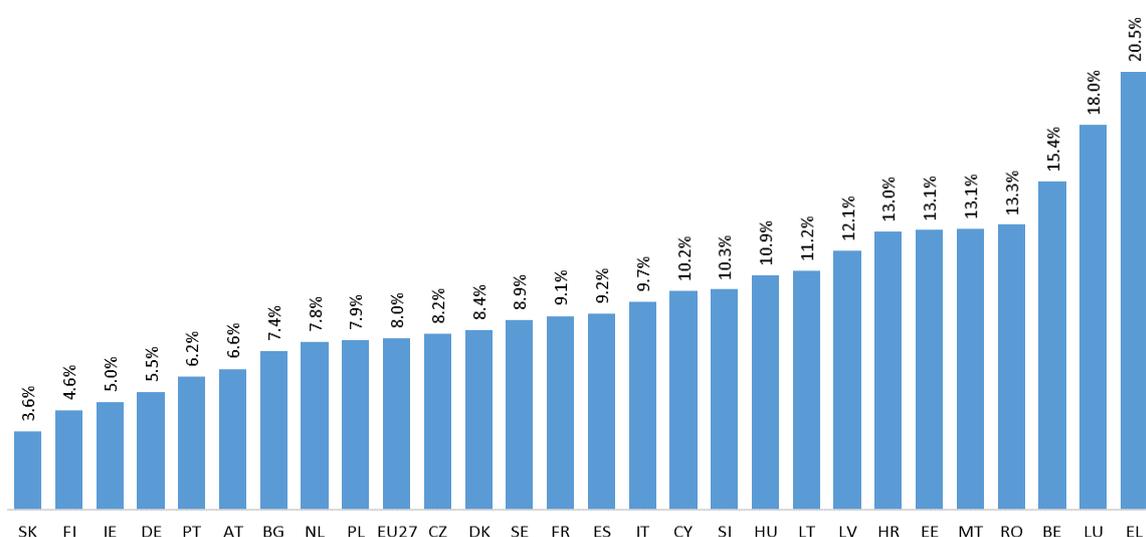
Annex 8 also provides information on the performance of SMEs at much more granular level of industrial breakdown. SMEs in only a few of these more narrowly defined industries experienced an increase in all three performance indicators of more than 5% between 2019 and 2021. These industries are all part of the 'information and communication' industry, with the exception of 'mining of coal and lignite' in the 'mining and

quarrying' industry. In contrast, only two of the narrowly defined industries showed a decrease in all three SME indicators of more than 5% between 2019 and 2021. These two industries are 'accommodation' and 'food and beverage service activities' which are part of the 'accommodation and food services' industry.

3.4 The performance of SMEs in the NFBS of EU-27 Member States

SME value added grew in all Member States in 2021, with SMEs in three Member States achieving value added growth greater than 15%: BE (15.4%), EL (20.5%) and LU (18.0%) (Figure 17). The level of SME value added was also higher in 2021 than in 2019 in most Member States (Figure 18), although there were five exceptions (CY, ES, IT, MT, PT). In contrast, two Member States saw substantial increases in SME value added of more than 20% since 2019 (LT, LU).

Figure 17: Annual growth rate of SME value added in the NFBS in 2021 in the EU-27 and across EU Member States



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 18: Percentage change in SME value added in 2021 compared to 2019 in the NFBS of the EU-27 and across EU Member States



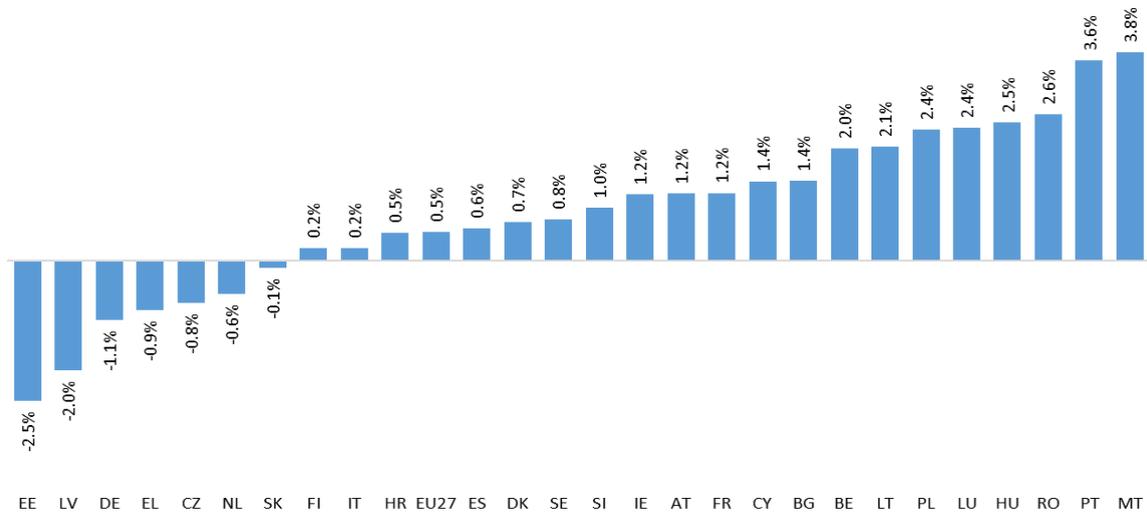
Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

SME employment also grew in most Member States in 2021, generally by between 1.0% and 3.0% (Figure 19) with SME employment increasing by more than 3% in only two Member States: MT (3.8%) and PT (3.6%). However, in seven Member States, SME employment fell in 2021, in particular in EE (-2.5%) and LV (-2.0%). These were also the two Member States with the largest decline in SME employment since 2019 (Figure 20).

SME employment fell between 2019 and 2021 in the majority of Member States, although five Member States experienced growth in SME employment between 2019 and 2021 of more than 1% (BE, LT, LU, MT, RO).

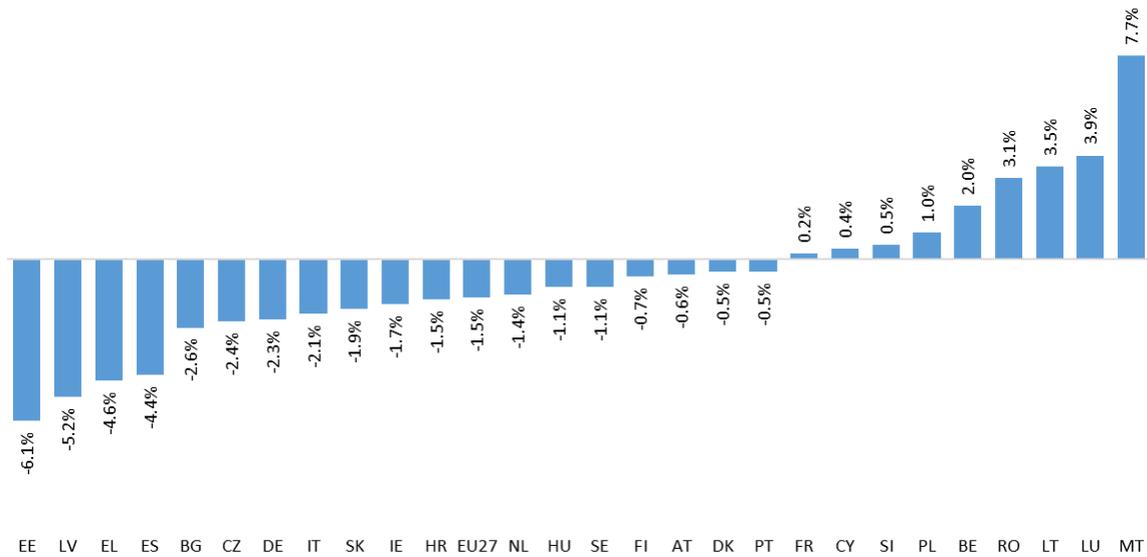
SMEs in three Member States experienced a decrease in both SME value added and SME employment in 2021 compared to 2019 (ES, IT, PT). Annex 7 provides similar information on the number of SMEs across Member States.

Figure 19: Annual growth rate of SME employment in 2021 in the EU-27 and across EU Member States



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 20: Percentage change in SME employment in 2021 compared to 2019 in the EU-27 and across EU Member States



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

4 The expected performance of EU-27 SMEs in 2022

This chapter presents the expected performance of EU-27 SMEs in 2022. It first discusses the projected annual growth in 2022 of SME value added, employment and the number of SMEs in the EU-27 overall, by Member State and by industry. Next, the chapter examines whether SMEs are expected to recover from the pandemic in 2022, and to return to or surpass their 2019 levels of value added, employment and number of enterprises. A final section discusses briefly how EU-SMEs may be impacted in 2022 by the Russian war of aggression against Ukraine and the sanctions against Russia and Belarus.

The projections presented in the present chapter are based on the Autumn 2021 Economic Forecast of the European Commission. The details of how these projections are generated are provided in a companion *Methodology Note* available on the European Commission's SME Performance Review web page.¹⁸ As the projections presented in the present chapter were produced before the start of the military aggression against Ukraine, they are likely to be too optimistic in light of the potential repercussions on the European economy of the Russian war of aggression against Ukraine and the sanctions taken by the EU, the USA, the United Kingdom and many other countries against Russia and Belarus.

4.1 Projected annual growth in key EU-27 SME performance indicators in 2022

In 2022, all enterprise size classes are expected to experience growth in all three performance indicators (Table 5). Micro enterprises are expected to perform better than any other size class and small enterprises are expected to perform least well in all three performance indicators. Value added growth is expected to be particularly strong, by 6.9%, for SMEs overall, and by 7.3% for large enterprises. As previously mentioned, value added is expressed in current prices and the inflation-adjusted value added is expected to increase somewhat less than half as fast.¹⁹

Table 5: Projected annual growth in 2022 of value added, employment and number of enterprises – SMEs and large enterprises

	Value Added	Employment	Number of Enterprises
Micro SMEs	7.2%	2.1%	1.7%
Small SMEs	6.6%	1.2%	0.8%
Medium-sized SMES	6.8%	1.1%	0.8%
Large enterprises	7.3%	1.7%	1.4%
All SMEs	6.9%	1.6%	1.6%
Total	7.1%	1.6%	1.6%

Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

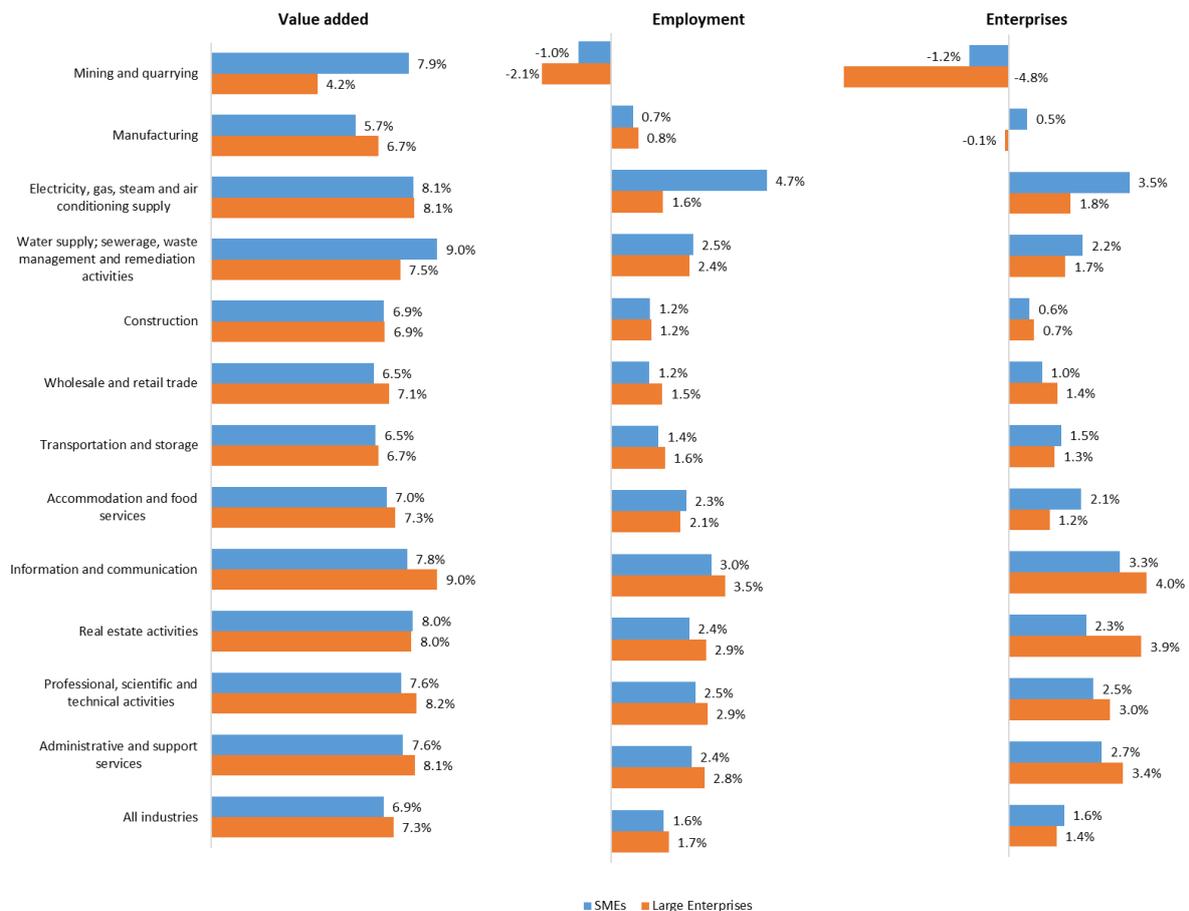
4.2 Projected EU-27 SME and large enterprise growth in value added, employment and number of enterprises in 2022, by industry

Both SMEs and large enterprises are expected to generate increases in value added in current prices in every industry (NACE 1-digit) in 2022 (Figure 21). However, SMEs are expected to increase their value added at a faster rate than large enterprises in only two industries: 'mining and quarrying' and 'water supply; sewerage, waste management and remediation activities'. The industries in which SME value added is expected to increase fastest in 2022 are 'real estate activities' (8%), 'electricity, gas, steam and air conditioning supply' (8%) and 'water supply; sewerage, waste management and remediation activities' (9%).

¹⁸ https://ec.europa.eu/growth/smes/sme-strategy/sme-performance-review_en.

¹⁹ The annual rate of growth in the inflation-adjusted value added generated by SMEs is defined as the annual rate of growth in SME value added at current prices minus the rate of growth of the GDP deflator.

Figure 21: Projected annual growth in SME and large enterprise value added, employment and number of enterprises in 2022 by industry



Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

SME and large enterprise employment is also expected to increase in most industries in 2022 (Figure 21). The only exception is 'mining and quarrying', in which employment decreases are expected for both SMEs (-1%) and large enterprises (-2%). The smallest increases in employment for both SMEs (1%) and large enterprises (1%) are expected in the 'manufacturing' industry.

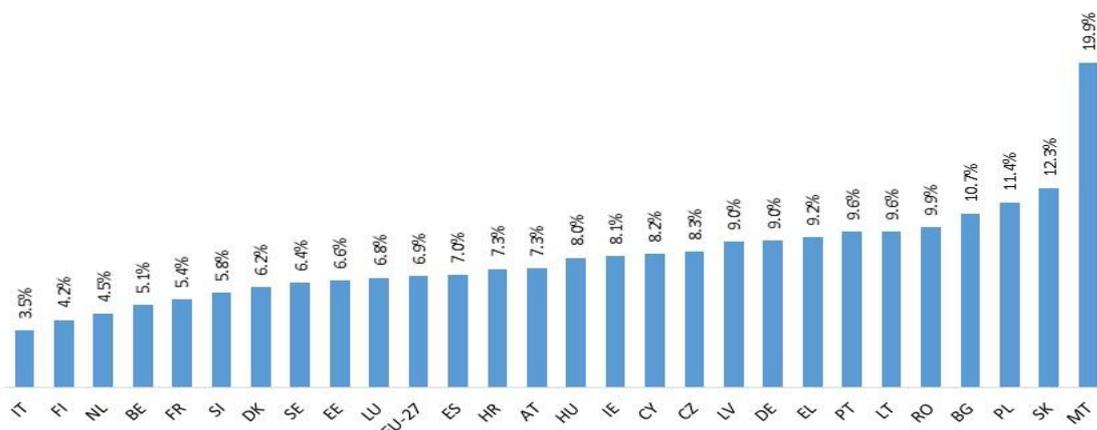
SMEs are expected to increase employment faster than large enterprises in the 'electricity, gas, steam and air conditioning supply', 'water supply; sewerage, waste management and remediation activities' and 'accommodation and food services' industries. The 'electricity, gas, steam and air conditioning supply' industry particularly stands out, with much higher expected SME employment growth (5%) than in any other industry.

As in the case of the employment projections, 'mining and quarrying' is the only industry in which the number of SMEs and large enterprises is expected to decline, by 1% and 5% respectively (Figure 21). The number of SMEs is projected to increase faster than the number of large enterprises in five industries: 'manufacturing', 'electricity, gas, steam and air conditioning supply', 'water supply; sewerage, waste management and remediation activities', 'transportation and storage' and 'accommodation and food services'. The number of SMEs is forecast to increase by more than 3% in the 'electricity, gas, steam and air conditioning supply' (4%) and 'information and communication' (3%) industries.

4.3 Expected growth of SME value added and employment, and number of SMEs in EU-27 Member States in 2022

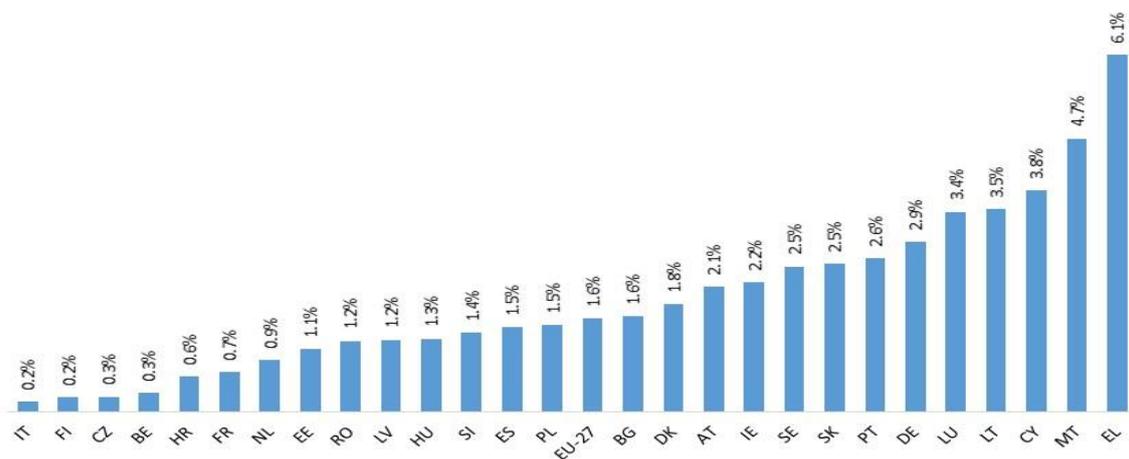
SMEs in all Member States are expected to experience increases in value added, employment and number of enterprises in 2022. (Figure 22 to Figure 24)

Figure 22: Expected growth in SME value added in the EU-27 and across EU-27 Member States in 2022



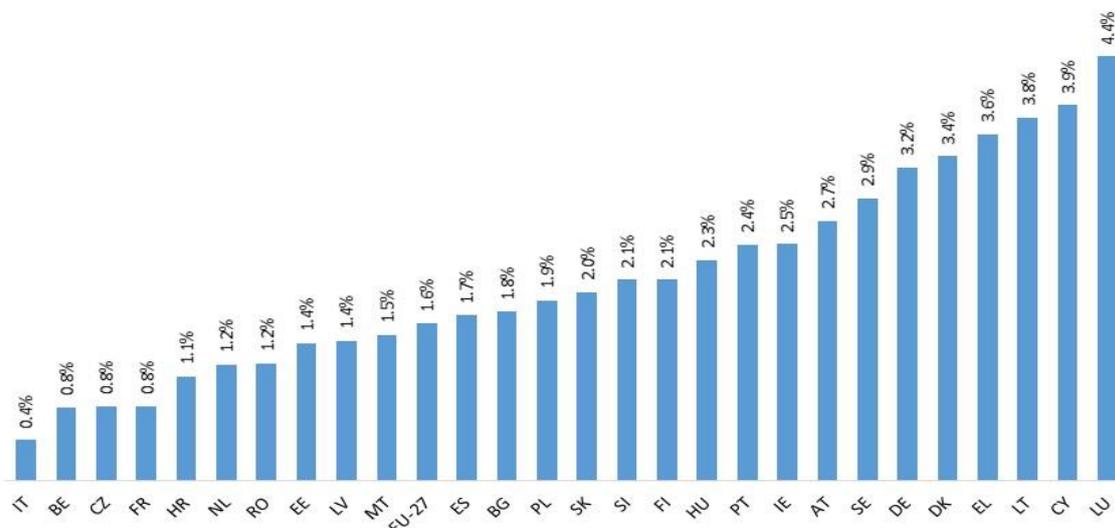
Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 23: Expected growth in SME employment in the EU-27 and across EU-27 Member States in 2022



Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 24: Expected growth in the number of SMEs in the EU-27 and across EU-27 Member States in 2022



Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Looking further ahead, growth in the number of SME enterprises is likely to be slowed, at least temporarily, by a rise in the number of bankruptcies in those Member States in which the number of bankruptcies was lower than normal during the pandemic. (See section 5.1 for a detailed analysis of the evolution of bankruptcies during the pandemic).

4.4 Key SME performance indicators in 2022 relative to their pre-pandemic levels of 2019

4.4.1 Expected recovery of EU-27 SME population

By 2022, all enterprise size classes are expected to surpass their value added level of 2019 (Table 6). Large enterprises are expected to recover from the pandemic faster than all SME size classes, increasing their value added by 11.5% in 2022 relative to 2019.

Micro enterprises are predicted to be the best performing size class in terms of employment, with their 2022 level of employment expected to be 101.1% of its 2019 level. This means that SMEs as a whole are expected to recover to their 2019 level of employment by 2022, despite a weaker predicted recovery by small (99.7%) and medium-sized (99.0%) enterprises. Employment in large enterprises is expected to be very similar in 2022 to its 2019 level, increasing by only 0.2% during the period.

Micro enterprises are also the only enterprise size class expected to show an increase (of 1.2%) in the number of enterprises in 2022, compared to 2019. The other enterprise size classes are expected to post slight decreases in the number of enterprises compared to 2019.

Table 6: Expected EU-27 value added, employment and number of enterprises in 2022 as a percentage of their 2019 values, by enterprise size class

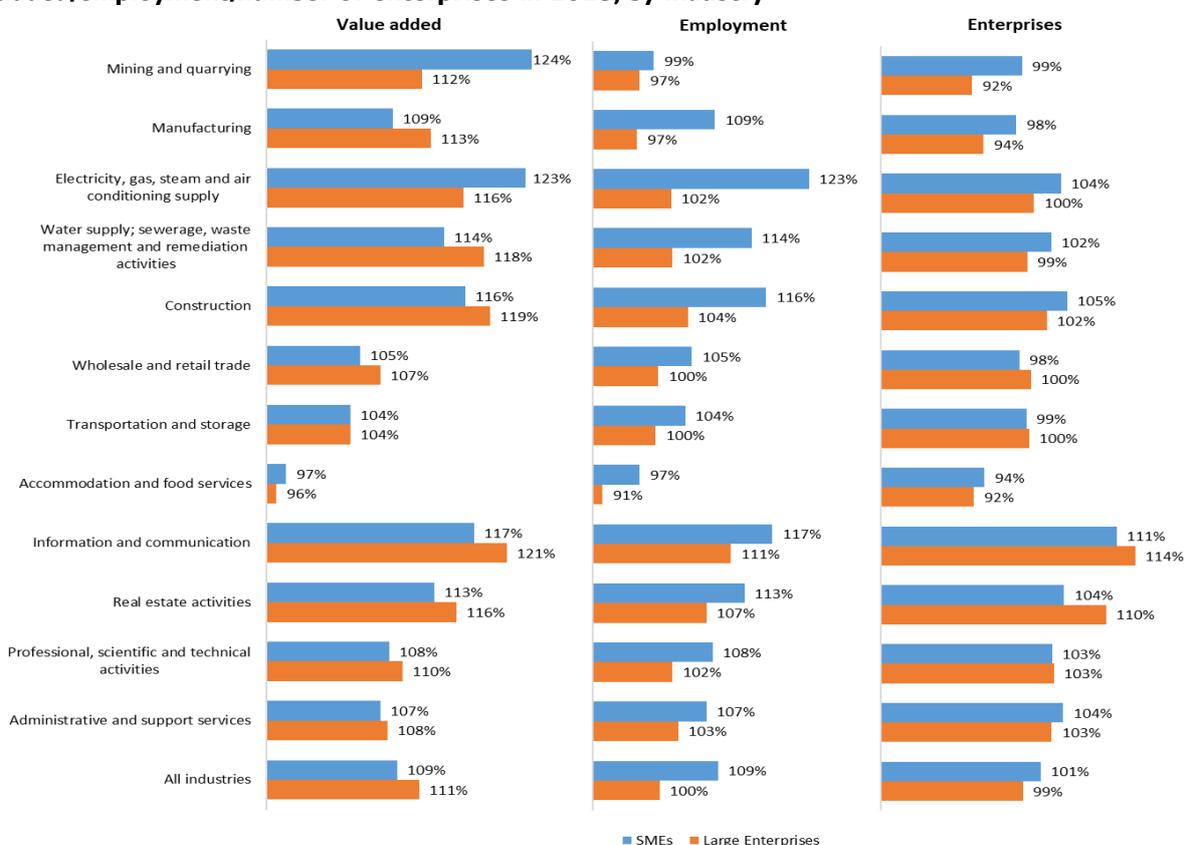
	Value Added	Employment	Number of Enterprises
Micro SMEs	109.5%	101.1%	101.2%
Small SMEs	109.0%	99.7%	99.3%
Medium-sized SMEs	108.7%	99.0%	98.1%
Large enterprises	111.5%	100.2%	98.7%
All SMEs	109.1%	100.1%	101.1%
Total	110.2%	100.1%	101.0%

Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

4.4.2 Expected recovery of SMEs in different industries

'Accommodation and food services' is the only industry (at the 1-digit NACE classification level) in which the value added generated by SMEs and large enterprises in 2022 is projected to remain below its 2019 level by respectively 3% and 4% (Figure 25). The largest increases in SME value added between 2019 and 2022 are expected in the 'mining and quarrying', 'electricity, gas, steam and air conditioning supply' and 'information and communication' industries, with SME value added in these three industries projected to be 17% - 24% higher in 2022 than in 2019. 'Mining and quarrying' and 'electricity, gas, steam and air conditioning supply' are the only two industries in which SMEs are projected to post a higher percentage increase in value added than large enterprises.

Figure 25: Expected EU-27 SME and large enterprise value added/employment/number of enterprises in 2022 as a proportion of EU-27 SME and large enterprise value added/employment/number of enterprises in 2019, by industry



Source: Calculations by the JRC based on the European Commission's Autumn 2021 Economic Forecast, Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

By 2022, SMEs are expected to have recovered to their 2019 employment level, or to have surpassed it, in all industries, except ‘mining and quarrying’ (in which SME employment in 2022 is projected to reach 99% of its 2019 level) and ‘accommodation and food services’ (at 97% of its 2019 level) (Figure 25). It is important to note that, because SME value added is measured in current prices, the sharp increases in commodity and raw materials prices in 2021 are projected to boost the growth of value added in the mining sector from 2019 to 2022, even if employment in the industry is expected to remain slightly lower in 2022 than in 2019.

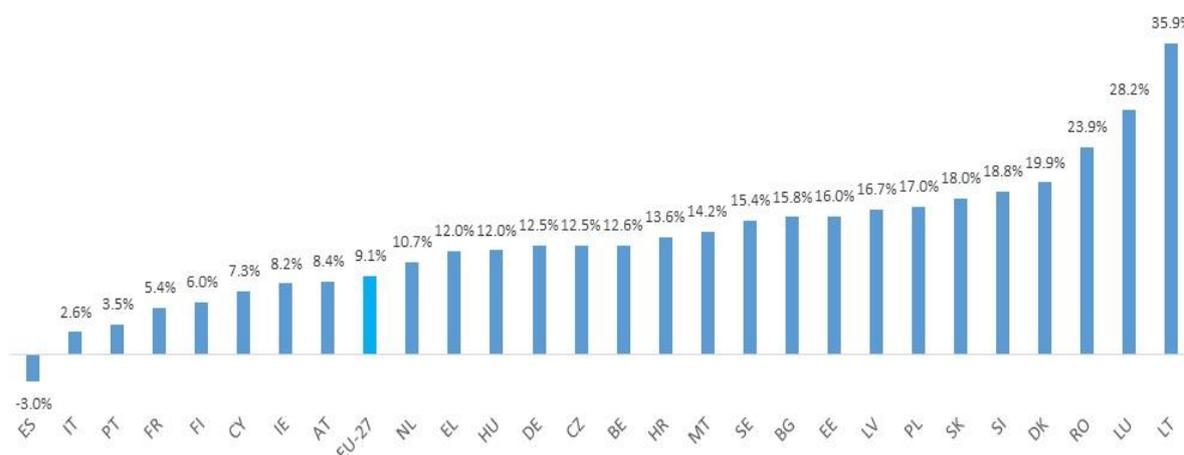
The largest increases in SME employment are expected in the two industries which are also forecast to experience the strongest value added growth, namely ‘electricity, gas, steam and air conditioning supply’ (with SME employment predicted to reach 123% of its 2019 level) and ‘information and communication’ (117% of its 2019 level). SME employment is expected to recover faster than large enterprise employment in all industries at the 1-digit NACE classification level

The number of SMEs is expected to be lower in 2022 than in 2019 in five industries: ‘mining and quarrying’ (at only 99% of its 2019 level), ‘transportation and storage’ (99%), ‘manufacturing’ (98%), ‘wholesale and retail trade’ (98%), and ‘accommodation and food services’ (94%) (Figure 25). Among those industries in which the number of SMEs is expected to be greater in 2022 than in 2019, the increase in SMEs is expected to be largest in the ‘information and communication’ industry (111%).

4.4.3 Expected recovery of key performance indicators to 2019 levels in the EU-27 and across EU-27 Member States

SMEs are expected to surpass their 2019 level of value added by 2022 in all EU-27 Member States except ES, in which SME value added in 2022 is projected to reach only 97% of its 2019 level (Figure 26). The less than complete recovery by SMEs in ES reflects a much more marked decline in SME value added in 2020 than in other Member States and hence a bigger value added gap to close. In the EU-27 economy as a whole, SMEs are projected to exceed their 2019 value added level by 9%. However, the expected gains in value added are about three to four times higher in two Member States: LT (36%) and LU (28%). SME value added had continued to grow in these two Member States in 2020, while SMEs in many of the other Member States experienced declines in value added. This stronger performance in 2020 explains the greater projected recovery of LT and LU in 2022.

Figure 26: Cumulative growth in SME value added from 2019 to 2022 in the EU-27 and EU-27 Member States

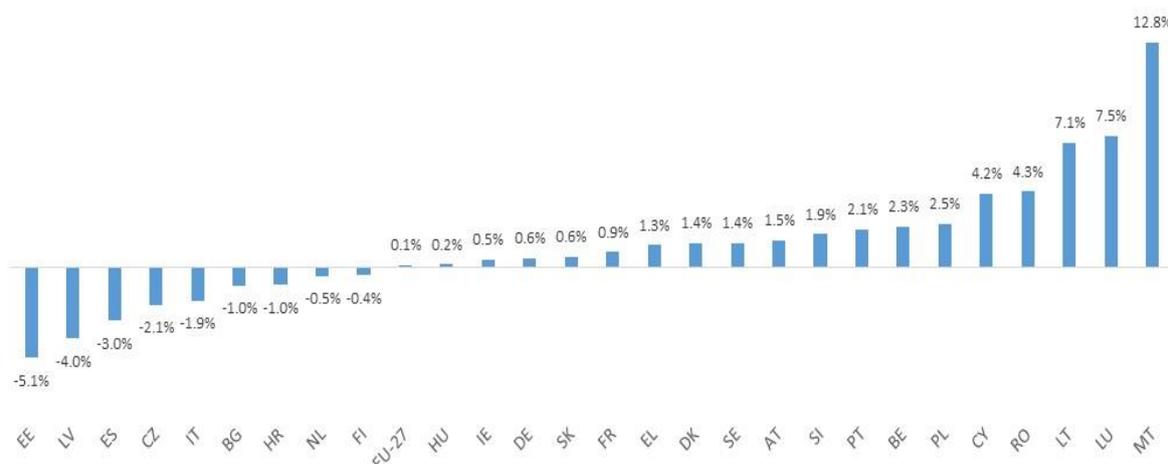


Source: Calculations by the JRC based on the European Commission’s Autumn 2021 Economic Forecast, Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Across the EU-27 as a whole, by 2022, unlike the SME value added predictions, SME employment is only expected to recover to its 2019 level (Figure 27). Member States with notably lower projected levels of SME employment in 2022, relative to 2019, include EE (-5%), LV (-4.0%) and ES (-3%). Moreover, SME employment is only expected to return to its 2019 level in four Member States, or to marginally surpass its 2019 level, by

1% or 2%, in eleven Member States. In contrast, SMEs are projected to increase their employment by more than 5% in MT (13%), LU (8%) and LT (7%) in 2022 compared to 2019.

Figure 27: Cumulative growth in SME employment added from 2019 to 2022 in the EU-27 and EU-27 Member States



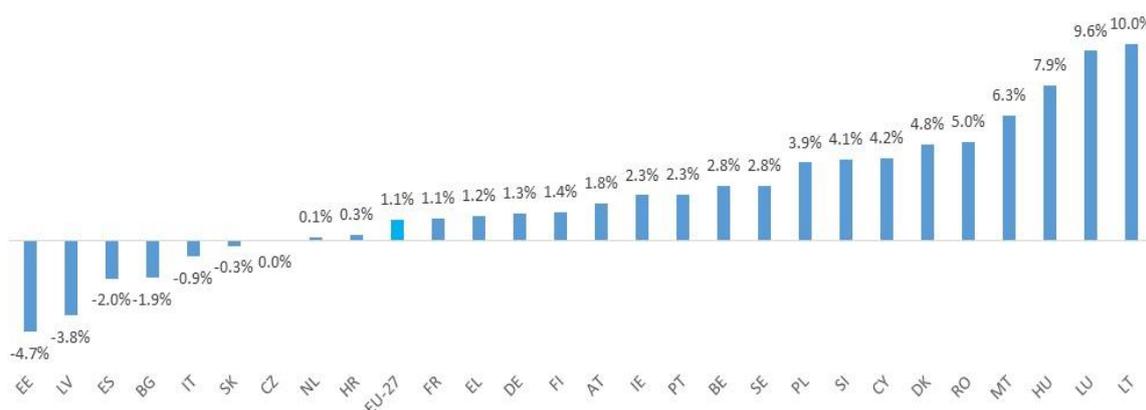
Source: Calculations by the JRC, based on the European Commission’s Autumn 2021 Economic Forecast, Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

The number of SMEs is expected to be lower in 2022 than in 2019 in six EU-27 Member States: EE (-5%), LV (-4%), ES (-2%), BG (-2%), IT (-1%) and SK (-0.3%) (Figure 28).

As with SME value added and SME employment, LT and LU are expected to outperform the other Member States in terms of growth in the number of SMEs, with identical increases of 10%.

More generally, it should be noted that ES is the only Member State in which all three SME performance indicators are projected to remain below their 2019 level in 2022.

Figure 28: Projected number of SMEs in 2022 as a proportion of the number of SMEs in 2019 in the EU-27 and across EU-27 Member States



Source: Calculations by JRC, based on the European Commission’s Autumn 2021 Economic Forecast, Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

4.5 Impact on EU-27 SMEs of the Russian war of aggression against Ukraine and sanctions against Russia and Belarus

At the time that this report was prepared, Russia's unprovoked and unjustified invasion of Ukraine was ongoing, the scope of the sanctions against Russia and Belarus adopted by the EU and many other countries continued to evolve and Russia was adopting counter-measures to respond to the sanctions. Therefore, it was impossible to estimate quantitatively the impacts of these developments on EU-27 SMEs and industrial ecosystems. Moreover, the qualitative assessments of their impact which are provided below, should be viewed as highly tentative.

Overall, the direct exposure of the EU-27 SME population through exports to and imports from Ukraine and Russia²⁰ is limited.

Exports of goods by SMEs to Ukraine accounted on average in 2019 for less than 0.1% of economy-wide SME turnover in the 13 Member States for which bilateral international trade data by enterprise size class exist²¹ and the three Member States where the SMEs are the most exposed were LT (exports to Ukraine accounted for 0.4% of total SME turnover), PL (0.3%) and LV (0.2%) (see Annex 14). In the case of exports to Russia, LV and LT were the two Member States where SMEs are the most exposed with such exports accounting for 1.2% and 1.0% of economy-wide SME turnover in 2019. In the other Member States, exports to Russia accounted for less than 0.3% of economy-wide SME turnover (see Annex 14).

As in the case of exports, LT and LV were in 2019 the Member States with the highest levels of imports of goods from Russia by SMEs (as a proportion of their turnover), but the value of these imports was less than 2% of the turnover of the SME population. Together with PL and SK, these two Member States were also the Member States with the highest SME imports of goods from Ukraine (as a percentage of SME turnover). However, such imports were less than 0.4% of economy-wide SME turnover in these countries (see Annex 14).

Although there exist no data on bilateral trade in services by enterprise size classes, economy-wide data on international trade in services suggest that SMEs in industries with a very large SME population may be impacted markedly in some countries. For example, exports in 2019 of travel services (i.e. tourism spending) to Russia by CY amounted to 2.5% of GDP and exports of transport services amounted to 2.4% in CY and 1.6% in LT.

Those SMEs which, prior to the start of the war, were exporting goods and services to Ukraine and to Russia and Belarus are experiencing a sharp drop in the demand for their goods or services. The Russian war of aggression against Ukraine is directly depressing the demand from Ukraine while the sanctions against Russia and Belarus are either prohibiting some exports or making it very difficult if not impossible to export due to payment restrictions and a sharp drop in the value of the Russian rouble. Moreover, the Russian demand for goods and services from EU SMEs is further reduced by a fall in standards of living of Russian citizens caused by high inflation.

All EU-27 SMEs will be impacted by a number of broader war-related developments.

First and foremost is the effect of higher energy and commodity/raw materials prices. The world was already facing considerable increases in these prices before the start of the Russian war of aggression against Ukraine and these upward pressures have been exacerbated by the military aggression against Ukraine and the sanctions.

Industrial ecosystems highly dependent on energy such as the 'energy-intensive industries' or 'tourism' ecosystems or dependent on various commodities or raw materials such as the 'aerospace and defence', 'agri-food', 'electronics', 'energy-renewables' and 'mobility-transport-automotive' ecosystems will be impacted the most among the 14 ecosystems discussed more extensively in chapter 6.

Second, other broader impacts on the industrial ecosystems include the following:

²⁰ No data on international trade by SMEs with Belarus exist.

²¹ BE, CZ, DE, DK, ES, FR, LT, LV, NL, PL, RO, SI and SK.

All ecosystems will be impacted by logistics issues. There are shortages of truck drivers, shipments and ports are blocked, there is uncertainty concerning payments and possible legal issues for shipping companies, and transport insurance has become expensive or impossible because of the high risk for transport going to Russia, Ukraine and Belarus. Moreover, fuel prices and the shortage of the diesel additive AdBlue are affecting the road haulage sector.

There is also a general shortage of raw materials in many ecosystems (mobility, aerospace, electronics, health). For most of these materials, alternative sources exist but they are more expensive and not always available in the short term. Critical raw materials are especially important and the EC is looking closely at how the EU can increase its production capacity, as well as how the import of such materials can be diversified.

The payments difficulties are also affecting the trade of goods with Russia and Belarus that are not within the scope of the sanctions and which prior to the military aggression against Ukraine was undertaken by enterprises in many ecosystems.

In addition, a number of ecosystems will be impacted by specific developments:

- In the mobility ecosystem, vehicle shipments to dealers in Russia have been suspended due to the rouble devaluation. Distributors are expecting price increases for vehicles of at least 20% in the short term, and Russia temporarily prohibited the export of vehicles, railway cars and locomotives. Moreover, Russia and Ukraine are important sources of raw materials like aluminium or carbon black for tyres.
- The European steel industry is facing a broad range of metallurgic raw materials and inputs supply disruption risks, including for iron ore (fines and pellets) and hot-briquetted iron, coal, ferro-alloys, rolls and certain technical equipment.
- In the agri-food ecosystem, significant market losses are expected for European exporters of products like wines and chocolate, but also in the case of agricultural machines. One of the biggest problem in this sector is a lack of sunflower oil and lecithin used in the EU food industry.
- Regarding electronics, the EU imports 30-50% of its noble gases from Ukraine and Russia. These gases are used for the production of semiconductors, lasers and other electronic and medical equipment. Moreover, Russia temporarily prohibited the export of electrical equipment, monitors, projectors, consoles. The possibility for alternative sourcing is limited. Therefore, price hikes are expected.
- In the tourism industry, there will be market losses, as Russia was the first international market for the EU in 2021. Many sectors in the tourism ecosystem cannot adapt significantly their energy consumption when demand is falling. Weaker demand as well regulatory constraints will reduce the industry's capacity to pass on price increase.
- The machinery industry will be affected by export bans and sanctions, as many of the products of EU machinery builders can be qualified as dual-use goods. Russia temporarily prohibited the export of metal and stone processing machines and turbines.
- In the chemicals industry, gas prices are affecting a number of EU fertiliser companies. The EU will be producing ammonia at a higher price.

SMEs depending directly on goods and services imported from Ukraine or Russia and Belarus may also face supply disruptions, at least until they manage to identify alternative supply sources.

Some SMEs may also be affected indirectly by supply disruptions if they are part of national or international value chains and if, because of the military aggression against Ukraine and the sanctions, either a) the production of some of their upstream suppliers is disrupted or b) the production of some of the downstream part of the value chain is disrupted. For example, such supply chain disruptions have already occurred in the European automotive and tire industry.

Third, consumer confidence in the EU will be impacted negatively by the higher inflation and the military aggression against Ukraine, and such a development together with an inflation-induced drop in consumer purchasing power will reduce the demand for goods and services produced by EU SMEs. The demand by EU-27 consumers for goods and services viewed as non-essential by consumers is likely to reduce by more than the demand for essential goods and services.

To help EU-27 enterprises, small and large, address these difficult economic challenges, the EU and Member States are putting in place programs. For example, the European Commission announced a new State Aid *Temporary Crisis Framework* to support the EU economy following the military aggression against Ukraine. This framework will enable Member States to " (i) grant limited amounts of aid to companies affected by the current crisis or by the related sanctions and countersanctions; (ii) ensure that sufficient liquidity remains available to businesses; and (iii) compensate companies for the additional costs incurred due to exceptionally high gas and electricity prices."²² Moreover, a number of Member States already have taken measures to financially support their enterprises such as the Austrian Support package "Resilience through Market Diversification" for affected companies, the extension of the Bulgarian State aid to companies to help them deal with energy price increases, the Estonian compensation scheme for gas prices, the French *Plan de résilience économique et sociale*²³ which aims to support individuals and enterprises, the Greek program to help households and businesses over the next three months to deal with a spike in energy prices, a new loan program from the German Development Bank KfW²⁴, the Latvian support for companies that exported to the Ukraine or the Spanish National Plan to respond to the economic and social impact of Russia's unprovoked and unjustified invasion of Ukraine.

²² European Commission Statement of 23 March 2022.

²³ <https://www.economie.gouv.fr/plan-resilience-economique-sociale-gouvernement>. Le Gouvernement présente son plan de résilience économique et sociale, 17 March 2022.

²⁴ Handelsblatt, 25 March 2020, <https://www.handelsblatt.com/politik/international/schutz-vor-pleiten-eu-will-staatshilfen-in-der-ukraine-krise-ermoeglichen/28168184.html>.

5 The evolution of the SME population in recent years

While the previous chapter reviewed in detail how SMEs fared during the Covid-19 pandemic, this chapter undertakes a deep dive into some of the factors that drove the dynamics of the SME population during the pandemic. The first section focuses on new business registrations and bankruptcies, as reported by Eurostat, while the second section highlights recent developments in the populations of EU-27 high-growth enterprises, startups and scaleups. This second section relies on data from Eurostat and Crunchbase. Finally, the third section focuses on women entrepreneurship and the impact of Covid-19 on women entrepreneurs.

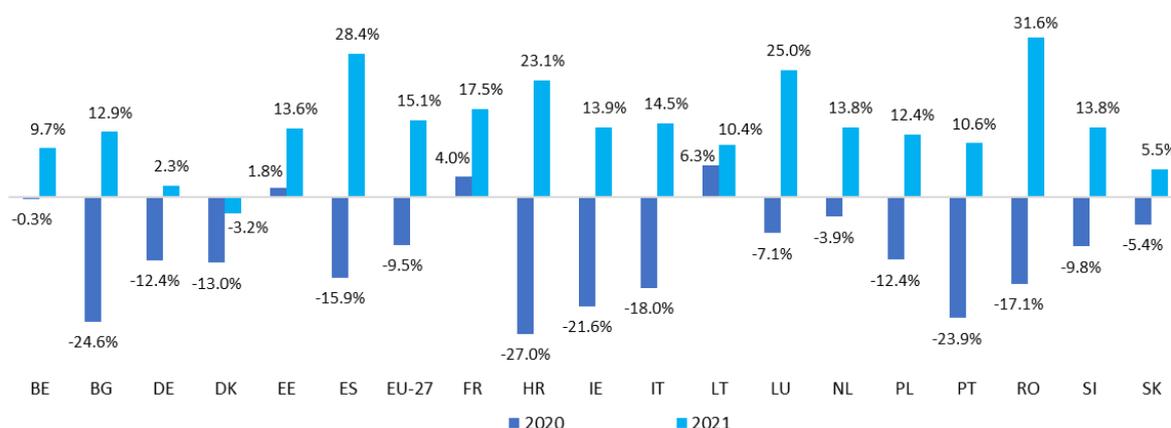
5.1 New business registrations and bankruptcies during the Covid-19 pandemic

Two key drivers of changes over time in the number of SMEs were enterprise births and deaths. Clearly, business births, as reflected by the number of new business registrations, were negatively impacted by the pandemic. In contrast, and despite initial concerns, the picture of business deaths is more mixed as, in many Member States, the number of bankruptcies fell. In short, during the pandemic, in comparison to “normal” years, fewer new SMEs were created and fewer than expected SMEs went bankrupt.

The latest figures on business registrations from Eurostat show that the number of new business registrations fell substantially (by 9.5%) in the EU-27 in 2020 (Figure 29). This marked decline was followed by a large rebound of 15.1% in new EU-27 business registrations in 2021. Although the figures refer to the total number of enterprises being registered, they provide a good indication of the impact of Covid-19 on new registrations of SMEs as, typically, almost all businesses which were being registered were SMEs.

Of the 18 Member States for which information on new business registrations is available, only three (EE, FR and LT) recorded an increase in such registrations in 2020. However, the marked recovery in new business registrations at EU-27 level in 2021 was observed in most Member States; 14 of the 18 Member States for which detailed information is available experienced double-digit growth (in percentage terms) in new business registrations in 2021, while only one Member State (DK) recorded a decline.

Figure 29: Annual percentage change in business registrations in 2020 and 2021



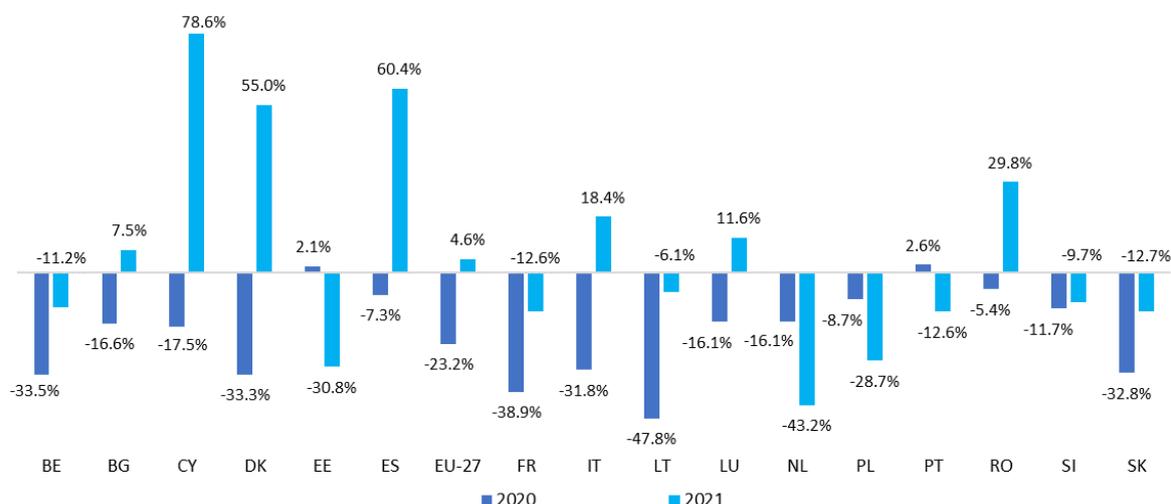
Source: Eurostat

Business bankruptcy declarations also fell markedly in 2020 in the EU-27 and in most Member States (Figure 30). Among the 16 Member States for which detailed information is available, only two recorded an increase, albeit relatively small, in the number of bankruptcy declarations, and eleven experienced double-digit declines (in percentage terms). This large drop in 2020 can be explained by the financial support provided by governments, forbearance by creditors, temporary suspensions of the legal rules relating to when company directors or owners must file for bankruptcy, and temporary closures of the legal and administrative entities dealing with bankruptcy declarations.

This large decline in 2020 at EU level was followed by a rebound in 2021, with bankruptcy declarations increasing by 4.6% in 2021. However, it is important to note that this rebound at EU level was driven mainly

by very large increases in CY, DK, ES, and to a lesser extent, RO. Seven Member States recorded another double-digit decline in 2021.

Figure 30: Annual percentage change in business bankruptcy declarations in 2020 and 2021



Source: Eurostat

Box 2

The business bankruptcies that did not materialise during the pandemic

The large decline in the number of business bankruptcies in many Member States during the Covid-19 pandemic suggests that the number of business bankruptcies is likely to be higher in future years than would have been expected if Covid-19 had not struck. Typically, a number of businesses go bankrupt every year. However, the various public support measures and other legal and administrative changes in 2020 and 2021 may have simply postponed the bankruptcy of businesses which would have gone bankrupt in normal economic circumstances. Moreover, some businesses may find that some of the repayment obligations associated with the financial support they received during the pandemic may be impossible to meet and, as a result, they may file for bankruptcy in future years.

In order to assess the magnitude of the “potential business bankruptcy overhang” (i.e. the bankruptcies that would have occurred in normal circumstances, but did not because of the special conditions which prevailed in 2020 and 2021), the level of quarterly business bankruptcies over the period 2020 Q1 to 2021 Q2 (or 2021 Q3, depending on data availability) was forecast for each country using a simple linear trend regression model estimated over the period 2017 Q1 to 2019 Q4 and compared to the actual number of business bankruptcies. More formally, the estimation model took the following form for country i : $Y_i = \alpha + \beta t$, where Y is the number of business bankruptcies and t is a time trend variable. Obviously, the model used to forecast the level of bankruptcies in 2020 and 2021, on the basis of an actual trend in business bankruptcies, may not take account of special factors which may have had an impact on the level of bankruptcies pre-2020. Nevertheless, the analysis provides a broad indication of the additional bankruptcies that may occur in the coming years, over and above the bankruptcies that would normally occur each year.

The business bankruptcies forecasts provided in Annex 10 for the countries for which detailed information is available show that these countries fall into five groups:

- 1) a group of two countries (HR and SK) in which the cumulative actual number of business bankruptcies in 2020 and the first half of 2021 was markedly higher than was forecast.
- 2) a group of two countries (CY and RO) in which the cumulative actual number of business bankruptcies in 2020 and the first half of 2021 was only marginally higher than was forecast.
- 3) a group of three countries (DE, PL and SE) in which the cumulative number of “missing” business bankruptcies (i.e. the difference between the actual number of bankruptcies and the number of bankruptcies that, according to the estimated model, would have been observed in normal economic times in 2020 and

the first half of 2021) was less than 20% of the actual number of business bankruptcies in 2019 (i.e. before the pandemic).

4) a group of five countries (DK, FI, IT, NL and SI) in which the cumulative number of “missing” business bankruptcies in 2020 and the first half of 2021 was between 20% and 50% of the actual number of business bankruptcies in 2019.

5) a group of three countries (AT, BE, and FR) in which the cumulative number of “missing” business bankruptcies in 2020 and the first half of 2021 was very large, in the range of 60% to 80% of the actual number of business bankruptcies in 2019.

The differences in “missing” bankruptcies across Member States reflect differences in the extent to which various legal, regulatory, administrative and financial measures were taken to mitigate the impact of the pandemic on businesses.

From a policy perspective, the “missing bankruptcies”, together with potential bankruptcies of businesses which over-extended themselves financially during the pandemic, suggest that a multipronged public policy approach to dealing with the bankruptcy overhang is required to avoid a wave of bankruptcies in the near future. Such an approach could include a) a gradual and measured withdrawal of the special support measures put in place during the pandemic, instead of an abrupt termination of these measures as the economy improves; b) extensive support, mentoring and guidance, focusing on how best to restore the financial viability of businesses at risk of failing; and c) facilitation of alternative mechanisms to business liquidations, such as trade sales, etc.

Looking ahead, almost 70% of the SME associations which were surveyed on different topics for this report²⁵ expect the number of bankruptcies to increase in 2022 relative to 2021 and, among the SME associations which expressed this view, 70% were of the opinion that the 2022 bankruptcy figure would be higher than the 2019 figure. Most of the SME associations, which did not think that the number of bankruptcies would rise in 2022, expected the 2022 figure to show little change compared with 2021.

5.2 Startups and Scaleups

Many businesses are born every year in the EU-27. Among these new businesses, startups form a group of enterprises which is of particular interest. They are typically involved in R&D and product, service or process innovation, with a view to developing new markets or disrupting established markets. Moreover, startups have the ambition to grow, often rapidly. They are major contributors to achieving a sustainable recovery from the Covid-19 crisis and accelerating the twin green and digital transitions, while also creating new jobs.

5.2.1 Startups

Comparable data on the EU SME startup population is not currently produced by national and international statistical organisations. Therefore, the information which follows in this section was extracted from the Crunchbase company database. This database provides information on startups throughout the world and focuses on the digital sector.²⁶

For the purposes of this report, EU SME startups were identified from the list of companies in Crunchbase which were a) active, b) for-profit companies with fewer than 250 employees c) were founded between 1st January 2017 and 31st December 2021 and were headquartered within an EU-27 Member State.

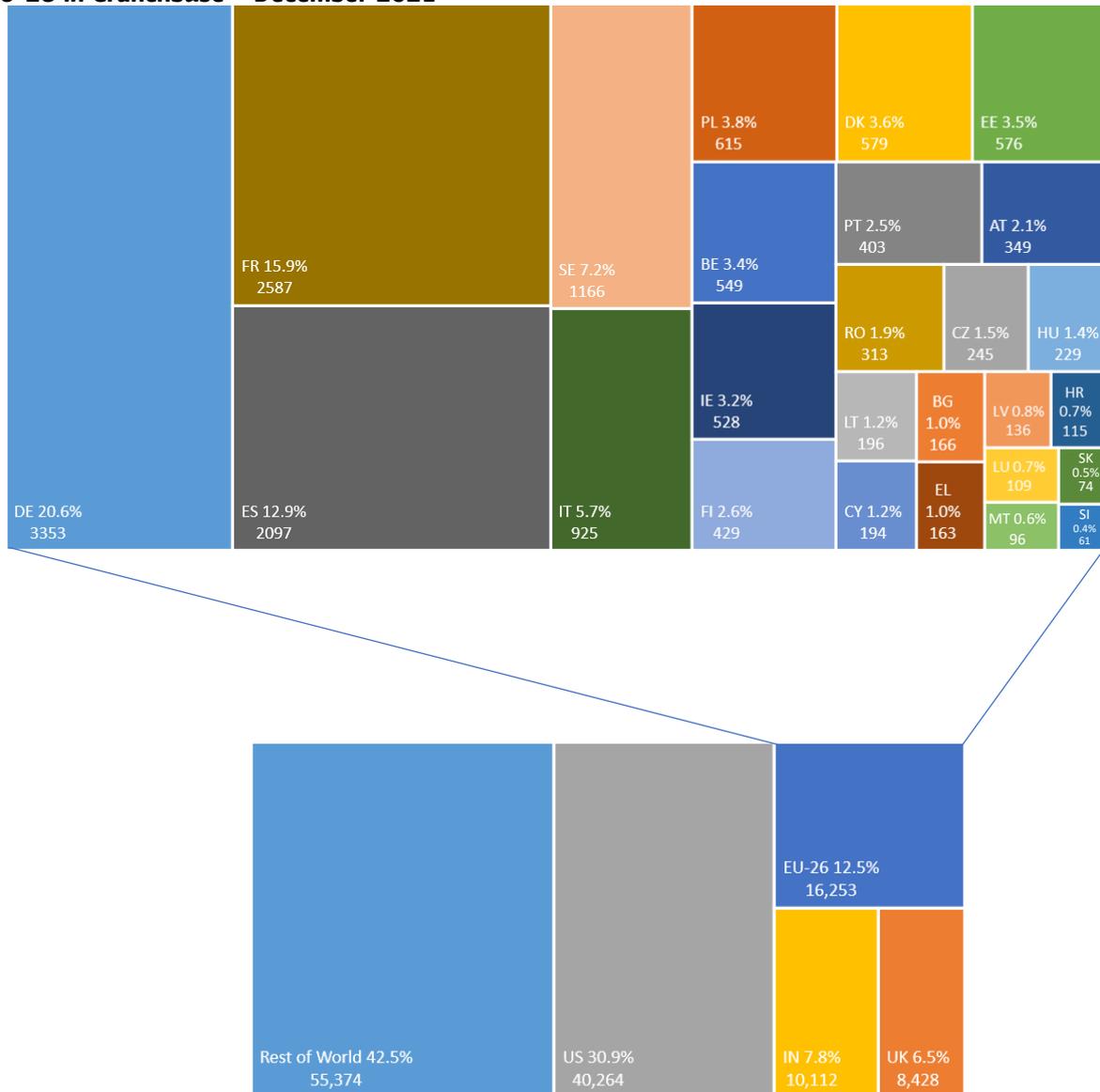
Data on Dutch companies in Crunchbase were excluded from the analysis because a detailed analysis by sector showed that, in many industries, Dutch companies accounted for a disproportionately large number of EU-27 startups (see Annex 11). This situation reflects most probably a policy easing in the requirements for setting up a new company and a strong take-up in general of self-employment rather than a strong underlying growth in “true” startups.

²⁵ SME associations of all Member States were surveyed and 15 responded to the survey.

²⁶ For more information see <https://www.crunchbase.com>. The data used in this section were downloaded from the database on 4 January 2022.

According to Crunchbase, a total of 16,253 SME startups were active in the EU-26 (EU-27 excluding NL) on 31 December 2021. These EU startups accounted for 12.5% of the world's SME startups (Figure 31). DE had the largest number of SME startups within the EU-26 (3,353 startups or 20.6% of total SME startups across the EU-26). Four more Member States (FR, ES, SE and IT) accounted for more than 5% of the total EU-26 startup population.

Figure 31: SME startup population (number of startups and % of EU-26* startup population) in EU-26 in Crunchbase – December 2021



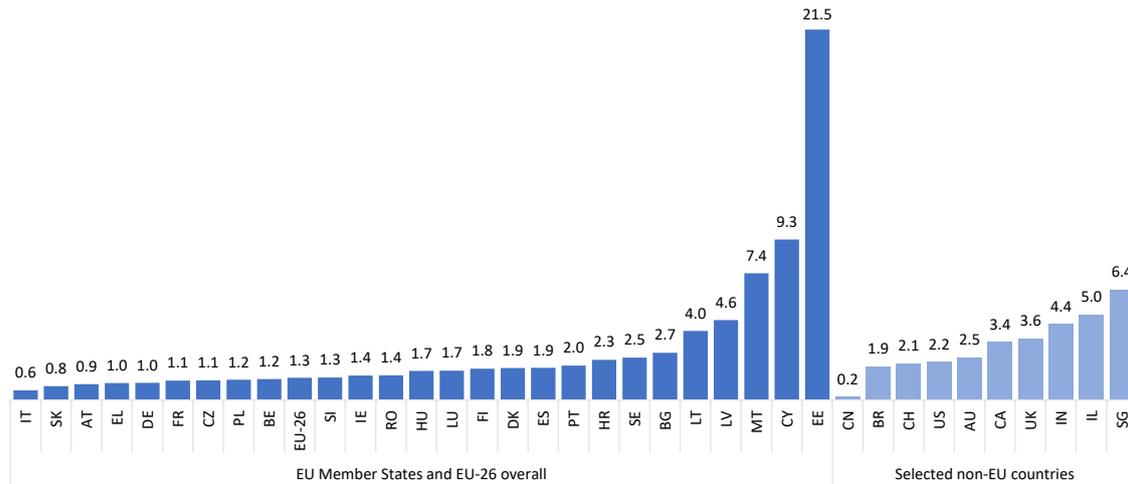
Note: SME startups are defined as active, for-profit companies with fewer than 250 employees, which were founded between 1st January 2017 and 31st December 2021. *Data on NL SMEs in Crunchbase are not included (See Annex 11 for explanations).

Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (<https://www.crunchbase.com/>)

The Member States with the largest national economies tend to account for a larger proportion of the total SME startup population within the EU and, more generally, in the world. However, in order to assess the relative importance of the SME startup population in the economies of Member States and selected other economies, it is necessary to account for differences in size of the various national economies. Such an analysis, which focuses on the number of SME startups per EUR 1 billion of 2020 GDP (at current prices), shows that most Member States have 0.6 to 2.0 SME startups per EUR 1 billion of GDP (Figure 32).

However, some Member States performed much better, particularly EE which had more than twice as many SME startups (21.5) per EUR 1 billion of GDP than CY, the Member State with the second highest number of startups per EUR 1 billion of GDP. Member States which outperformed the EU-26 average generally had smaller national economies, although ES was an exception. In contrast, three of the five Member States that accounted for more than 5% of the total EU SME startup population had less than the EU-26 average of SME startups per EUR 1 billion of GDP (DE, FR and IT). Overall, the EU-26 had 1.3 SME startups per EUR 1 billion of GDP, less than AU, BR, CA, CH, IL, IN, SG, UK, and US. Among the non-EU countries covered by the analysis, SG had the highest number of SME startups per EUR 1 billion of GDP.

Figure 32: SME startups per EUR 1 billion of 2020 GDP - EU-26 Member States, the EU-26 overall and selected non-EU countries in December 2021

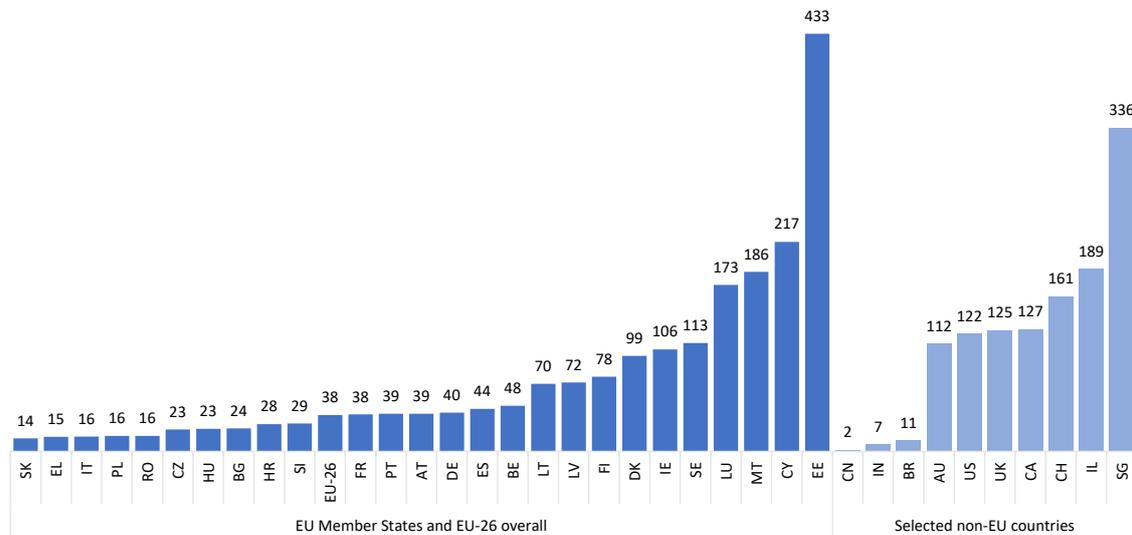


Note: Eurostat GDP figures were used for the EU-26 Member States and CH. World Bank GDP data were used for all other countries. GDP figures are 2020 figures. World Bank GDP data expressed in US dollars were converted to EUR using European Central Bank exchange rate data. EU-26 = EU-27 excluding NL.

Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (<https://www.crunchbase.com/>), Eurostat, World Bank and European Central Bank

A similar analysis can also be conducted on a per capita basis (Figure 33). Similar to SME startups per EUR 1 billion GDP, EE (433 startups per 1 million population) again outperformed all other EU-26 Member States and selected non-EU countries. Larger economies such as DE (40) and FR (38) outperformed or equalled the EU-26 average (38), despite being below the EU-26 average when looking at GDP per EUR 1 billion GDP. The EU-26 was again outperformed by most of the selected non-EU countries, with BR, CN and IN being the exceptions.

Figure 33: SME startups per 1 million population (2020 estimates) - EU-26 Member States, the EU-26 and selected non-EU countries in December 2021

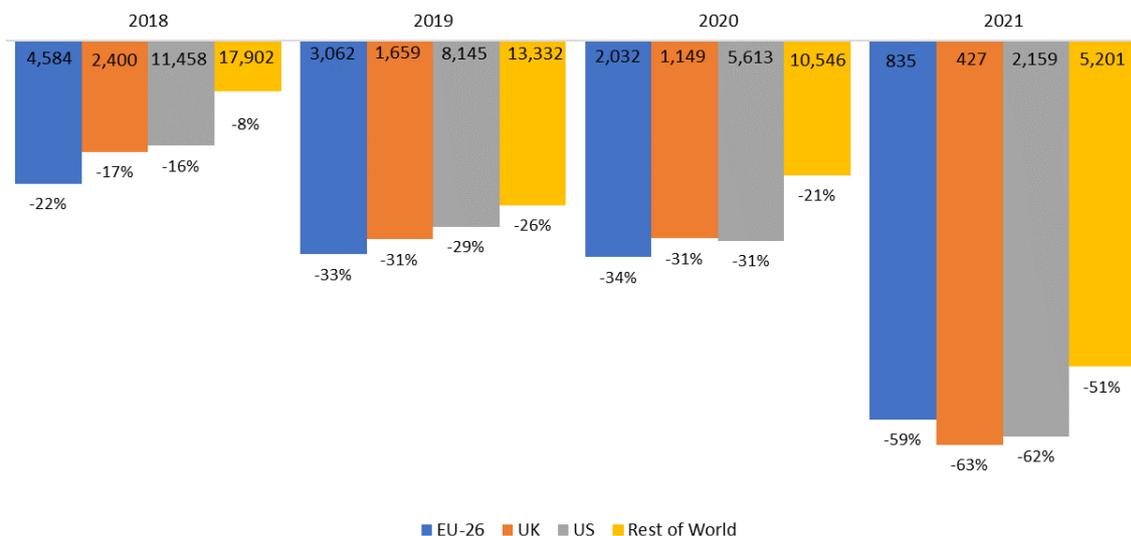


Note: Eurostat population estimates were used for the EU-26 Member States and CH. World Bank population estimates were used for all other countries. Population estimates are 2020 estimates, as this was the most recent year for which data were available. EU-26 = EU-27 excluding NL.

Source: *Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector* (<https://www.crunchbase.com/>), Eurostat and World Bank

The EU-26, the UK, the US and the rest of the world have all experienced declines in the creation of new SME startups in recent years (Figure 34). However, the Covid-19 pandemic accelerated this decline. Compared to 2020, the total for 2021 fell by 59% in the EU, 63% in the UK, 62% in the US and 51% in the rest of the world.

Figure 34: Number of new SME startups formed annually and percentage change in the number of SME startups formed with respect to the previous year - EU-26, US, UK and rest of the world

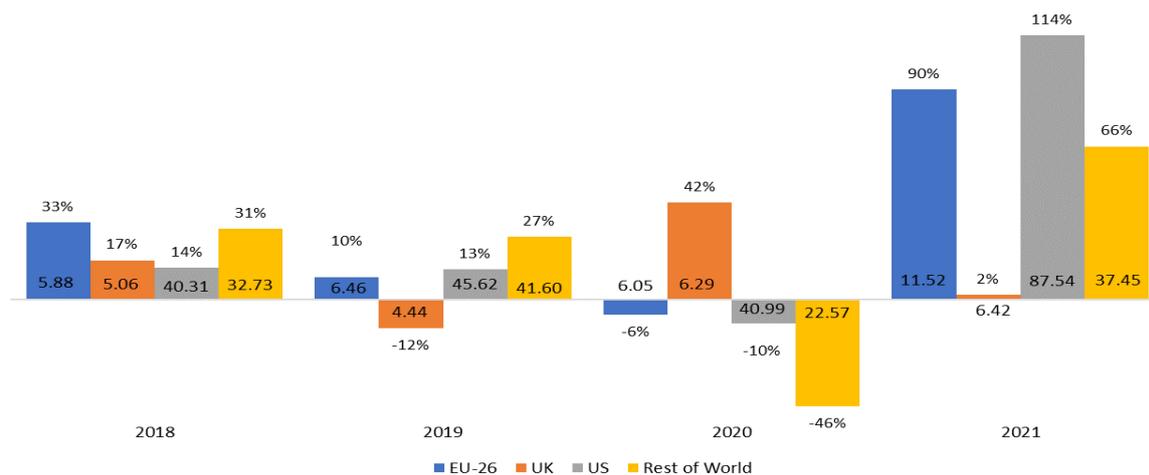


Source: *Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector* (<https://www.crunchbase.com/>)

Whilst the number of new SME startups has trended downwards across all four countries/regions since 2017, the picture is more mixed with regard to the funding of SME startups (Figure 35). All countries/regions experienced one instance of year-on-year decline in SME startup funding across the four years, and received more SME startup funding in 2021 compared to 2018. However, there was a large divergence in funding across

countries/regions in 2021, with the EU-26 and the US both experiencing substantial increases in SME startup funding compared to 2020 (with increases of 90% and 114% respectively), whereas the UK experienced very little change (i.e. only a 2% increase). US SME startups received much more additional funding than those in the other three regions before this increase. As a result, the gap between the US and other regions increased further in 2021. In fact, US SME startups received significantly more additional funding in 2021 than their peers in the other three regions, making the funding gap between the US and the other three regions substantially larger than in the previous three years.

Figure 35: Amount of funding (in EUR billion) per year received by SME startups and percentage change in funding of SME startups with respect to the previous year - EU-26, US, UK and rest of the world

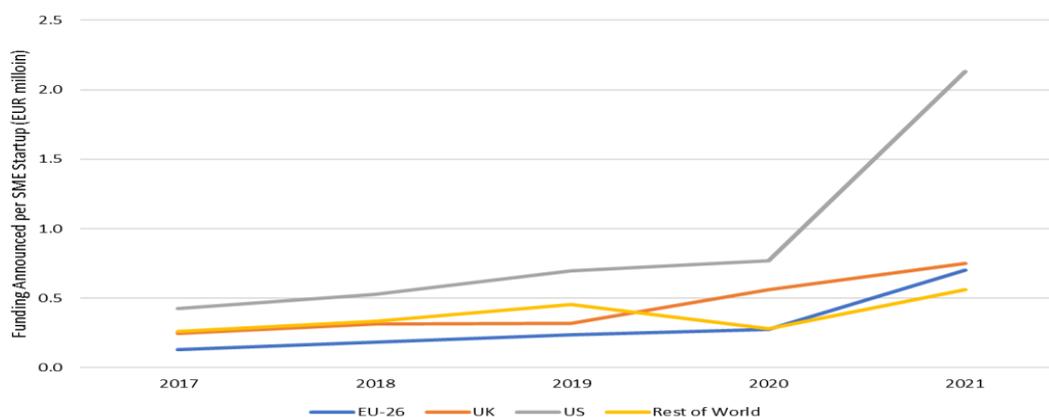


Note: Funding information is provided in US dollars in Crunchbase and was converted to EUR using ECB exchange rate data.

Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (<https://www.crunchbase.com/>) and European Central Bank

Adjusting for the large differences in the number of SME startups across the countries/regions shows that the overall level of SME startup funding in the US was not only higher because of the larger number of startups in the US, but also because funding per SME startup was substantially higher in the US (Figure 36). In contrast, the level of funding per SME startup in the EU-26 was the lowest of all four regions/countries considered by the analysis in the first three years and only slightly higher than in the rest of the world in 2021.

Figure 36: SME startup funding per SME startup - EU-26, US, UK and rest of the world



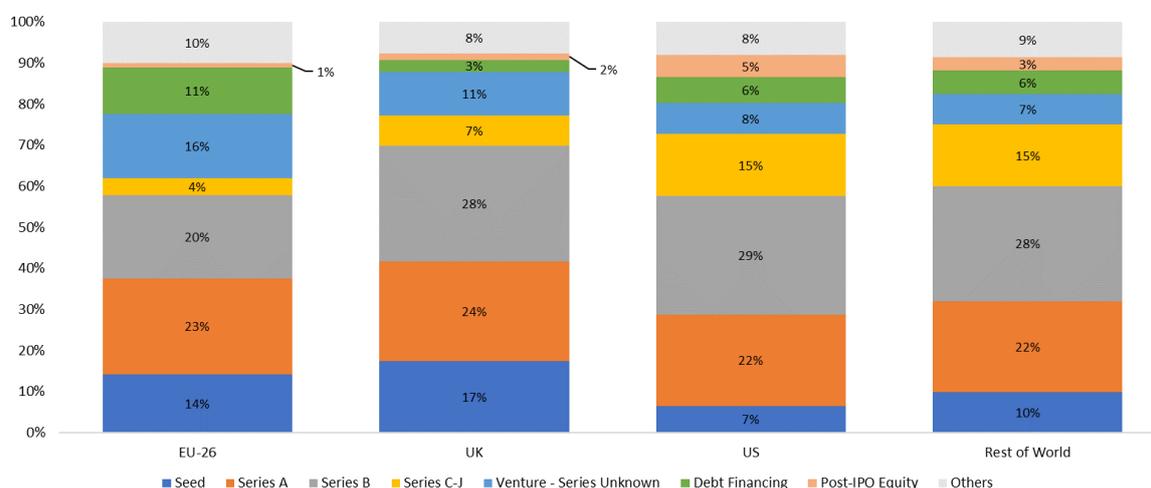
Note: Funding information is provided in US dollars in Crunchbase and was converted to EUR using ECB exchange rate data.

Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (<https://www.crunchbase.com/>) and European Central Bank

The well-known challenge faced by EU startups in accessing later stage financing persisted in 2021. EU-26 SME startups obtained proportionally more of their overall funding in early stage (i.e. seed and Series A) funding

than SME startups in any other region apart from the UK, but fared worse in terms of later stage funding (Series B-J) than those in any other region (Figure 37). EU-26 SME startups also relied proportionally more on debt financing than their peers in the other three countries/regions.

Figure 37: Proportion of SME startup funding (September 2020 – August 2021) by funding type – EU-26, UK, US and rest of the world



Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (<https://www.crunchbase.com/>)

5.2.2 Scaleups

A key policy concern is whether startups manage to scale up. SMEs rarely scale up, but when they do, they create substantial positive impacts on job creation and economic growth that persist over time. One recent study looking at five EU-27 countries found that scalers created the majority of new jobs in all the countries analysed, and that scalers contributed disproportionately to value creation.²⁷

Among the many enterprises in the non-financial business sector (NFBS), some will experience at times very rapid growth spurts. While Eurostat data on enterprises experiencing such high growth cover all enterprises in the business economy, not only in the NFBS, such data nevertheless provide a clear picture of the enterprise dynamics in the NFBS, as the NFBS accounts for most of the business sector (BS). In the discussion below, high-growth enterprises are defined as enterprises with at least 10 employees at the beginning of their growth and average annualised growth in the number of employees greater than 10% per annum over a three-year period.²⁸

In 20 of the 27 Member States, between 10% and 16% of enterprises with at least 10 employees active in the BS were high-growth enterprises in 2019 (Figure 38) and in only two Member States (CY and RO) were there fewer than 5% of high-growth enterprises among those active in the BS.

In terms of disparities across the different industries in the EU-27 BS, 'administrative and support service activities' and 'information and communication' stand out as being characterised by a much higher prevalence of high-growth enterprises (15.8% and 18.0% respectively) in 2018 than in the majority of other BS industries, in which the prevalence rate ranged from 8% to 13.3% (Figure 39).

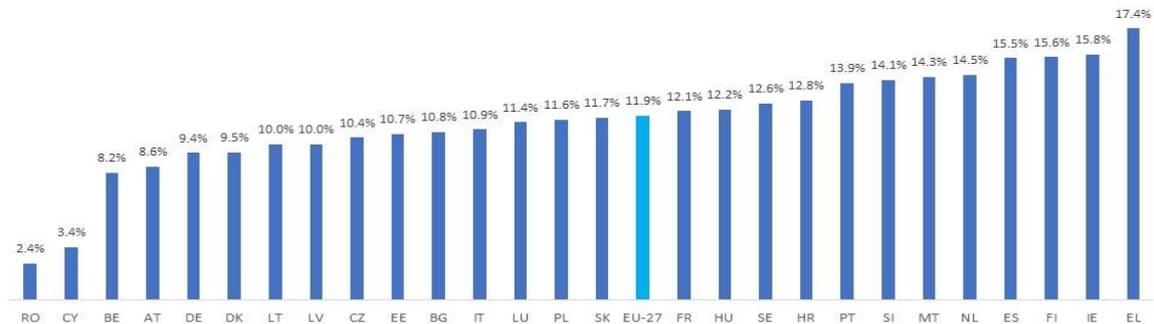
Finally, on average, high-growth enterprises in the BS were medium-sized SMEs, although in many cases these enterprises were, on average, relatively small medium-sized SMEs (Figure 40). For example, high-growth enterprises had, on average, more than 100 employees in only three Member States (NL, PL and RO), and high-

²⁷ OECD (2021) Understanding Firm Growth: Helping SMEs Scale Up, <https://www.oecd.org/fr/publications/understanding-firm-growth-fc60b04c-en.htm>.

²⁸ See Commission Implementing Regulation (EU) No 439/2014.

growth enterprises had, on average, fewer than 70 employees in ten Member States (AT, BE, DK, EE, EL, FR, HR, LU, LV and SI).

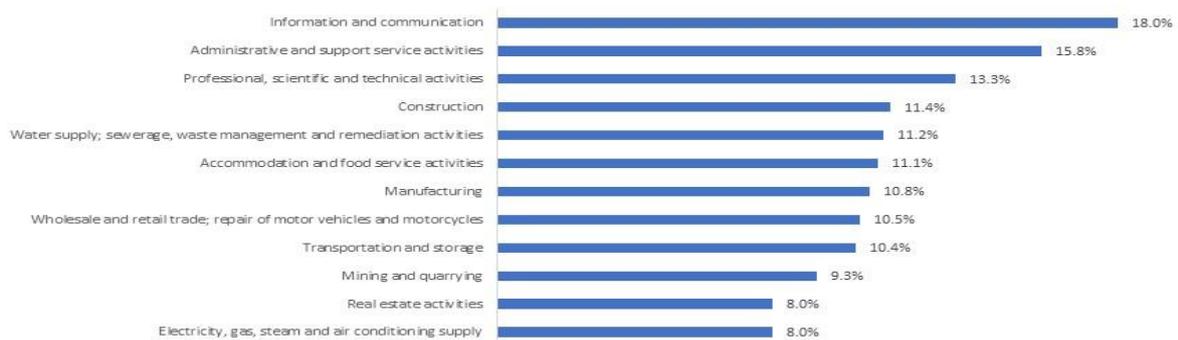
Figure 38: Share of high-growth enterprises in population of enterprises with at least 10 employees active in the business sector - 2019



Note: High-growth is defined in terms of employment. 2018 data for Ireland.

Source: Eurostat

Figure 39: Share of high-growth enterprises in population of enterprises with at least 10 employees active in different industries of the business sector – EU-27 in 2018



Note: High-growth is defined in terms of employment.

Source: Eurostat

Figure 40: Average employment of high-growth enterprises



Note: High-growth is defined in terms of employment.

Source: Eurostat

Box 3

Characteristics of micro high-growth enterprises

This box is based on experimental statistics from a recent Eurostat pilot study¹ that collected data on the characteristics of micro high-growth enterprises. Although Member States regularly provide data on high-growth enterprises with 10 or more employees when they start their high-growth phase, the pilot study was the first of its kind in Eurostat looking specifically at micro enterprises. The study defines high-growth micro enterprises as growing by at least 3.31 employees over a three-year period. The study focused on 10 EU Member States (AT, BG, DK, EE, FI, HR, LT, NL, PT and SE) and 2 European Free Trade Association (EFTA) countries (IS and NO). This box presents the key findings of the study.

Micro high-growth enterprises were more likely to be large micro enterprises. In all countries studied, micro enterprises were more likely to be a high-growth enterprise if they had between 5 and 9 employees, rather than 1 to 4 employees.

Limited liability companies were more likely to experience high growth than other legal forms of enterprise. This is thought to be the case due to the favourable conditions available to limited liability companies regarding access to finance, risk capital and skilled employees. In all the countries studied, out of all the different legal forms of micro enterprises, limited liability companies formed the highest proportion of micro high-growth enterprises, with the difference being greater than 10 percentage points (pp) in most of the countries studied.

High-growth micro enterprises which were part of an enterprise group tended to be more productive and have higher levels of employment. Of all the micro high-growth enterprises studied, those that were part of an enterprise group tended to account for greater than proportional shares of value added and employment. They also tended to account for a greater proportion of value added than employment, indicating that their apparent labour productivity was higher, on average, than that of enterprises which were not part of a group.

Micro enterprises were more likely to engage in high growth at a young age. Young firms (less than five years old) and firms that were 5-10 years old, accounted for more micro high-growth enterprise employment compared to employment growth in the micro enterprise population as a whole. Micro enterprises of 10 years or older accounted for 60% of total micro enterprise employment, but only 45% of high-growth enterprise employment.

There was large variation across industries in terms of the average age of enterprises, but younger enterprises in every industry were more likely to be high-growth enterprises. Enterprises were most likely to be young in the 'information and communication' (24%) and 'accommodation and food services' (24%) industries. Young enterprises also accounted for the greatest share of micro high-growth enterprises in these industries, accounting for 37% and 33% of these enterprises, respectively. In all the industries studied, young enterprises accounted for 8-13 percentage points more of micro high-growth enterprises than they did of all micro enterprises.

In most countries, the vast majority of micro high-growth enterprises grew organically. More than 90% of growth was organic growth in eight out of the twelve countries studied. The study distinguishes these countries from another group of countries (FI, NL and SE), in which roughly two-thirds of growth could be considered organic. The other third of growth in this case was therefore accounted for by mergers, takeovers and acquisitions.

1. See Eurostat (2021), Characteristics of micro high-growth enterprises - Statistics Explained, July

Box 4

Drivers of and barriers to scaling-up for SMEs

This box is based on an OECD pilot study¹ which undertook a novel analysis of detailed firm-level data in five EU countries (ES, FI, IT, PT, SK). It aims to give a better understanding of the characteristics of firms that scale up and the transformation process of scalers.

The report specifies two types of scaler: employment scalers and turnover scalers. Scalers are defined as non-micro SMEs that grow at an average annual rate of 10% or more in employment (or turnover) for 3 consecutive years. Roughly 25% of non-micro SMEs were found to be scalers, with most of these being turnover scalers. However, one in three turnover scalers were also employment scalers, and due to being fewer in number, most employment scalers were turnover scalers as well.

Scalers are of particular policy relevance as they are found to contribute disproportionately to positive economic indicators. Whilst 13% - 15% of non-micro SMEs were employment scalers, they generally accounted for the majority of non-micro SME employment growth. Turnover scalers accounted for 51% - 71% of growth in total sales by non-micro SMEs, and 40% - 65% of gross job creation by non-micro SMEs. Scalers also continued to contribute positively to job growth once they had scaled.

One area that was found to influence whether or not firms scale up, was the age of the firm. In particular, younger firms were more likely to scale up than firms of intermediate age, and firms of intermediate age were more likely to scale up than older firms. This was true for both employment and turnover scalers. Furthermore, younger scalers were more likely than older scalers to scale up for a second time. The study also looks at firm size and the region in which the firm is based, and found that neither seemed to have had a substantial impact on scaling.

In terms of sector groups, firms in knowledge-intensive services tended to have a higher probability of scaling up in employment than firms in other sectors. However, as knowledge-intensive services make up only a small proportion of the total number of firms, more employment scalers tended to come from other sector groups. Construction firms tended to be more likely to scale up in turnover compared to firms in other sector groups. However, scalers in the construction sector were the least likely to continue growing after they had scaled up, whereas firms in the information and communication technology sector were the most likely to continue growing or to scale up again.

The research also found characteristics independent of firm age and sector which indicate that a firm may be planning to scale up, which suggests that scaling is a strategic choice. For example, employment scalers in four of the five countries studied were 5% - 15% more productive before scaling up and tended to hire 15% - 40% more workers specialised in R&D before scaling up than their peers. Other differences included taking on more debt and becoming more integrated in foreign markets.

Whilst these factors were especially prevalent just before a firm scaled up, there were other indicators which were permanently different in scalers, and which the report suggests define the DNA of firms with the potential and ambition for fast growth. Particular factors included a greater emphasis on employing IT specialists and a typically younger workforce.

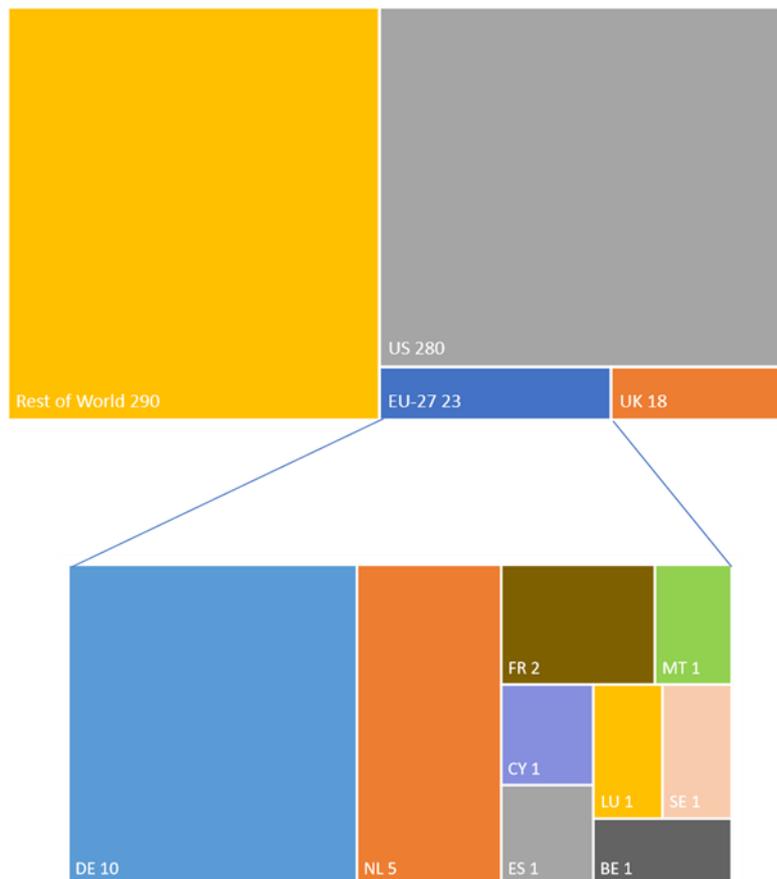
Lastly, the study stresses the importance of Covid-19 to scalers, both as a potential opportunity and as a risk. Permanent changes to the economy caused by the pandemic, such as increased digitalisation and the diffusion of e-commerce could bring opportunities for firms related to these areas. Structural changes could be harnessed by SMEs to enable them to scale up and to achieve the benefits of scalers shown in the report. However, the study notes that Covid-19 has had a greater impact on industries that tend to have a higher share of scalers already, which provides evidence for government action to ensure there is not a so-called 'lost generation of scalers'.

1. See OECD (2021), Understanding Firm Growth: Helping SMEs Scale Up.

A focus on unicorns provides another perspective on scaling up. Unicorns are defined as any company which has reached a valuation of at least US \$1 billion, at or before an initial public offering (IPO), or before an exit to private equity. SME unicorns are defined as enterprises which have less than 250 employees and currently have unicorn status.

As of January 2022, 611 SMEs across the world had achieved unicorn status, of which 23 were headquartered within the EU-27 (Figure 41). The majority of the EU-27's SME unicorns were headquartered in either DE (10) or NL (5), although seven other Member States had at least one unicorn (BE, CY, ES, FR, LU, MT and SE).

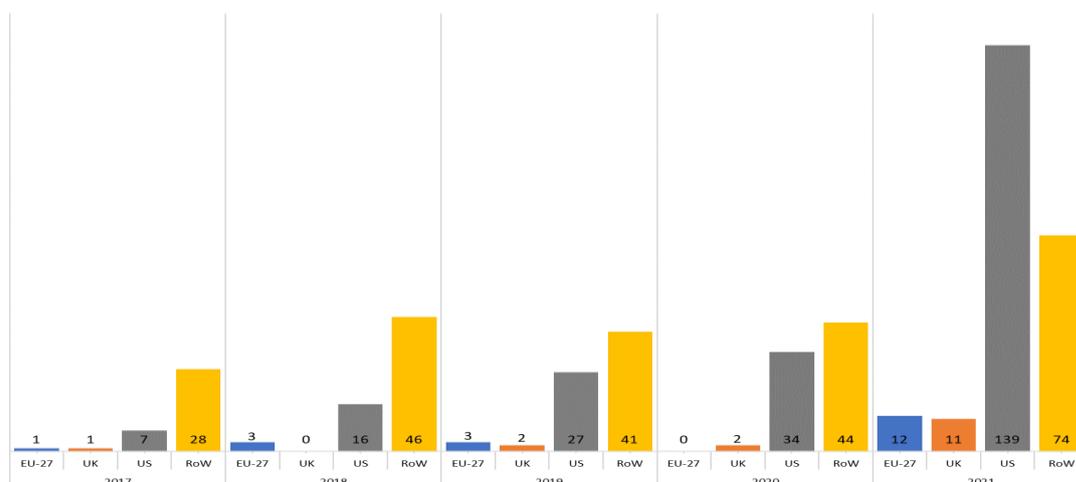
Figure 41: Total number of SME unicorns – EU-27, US, UK, rest of the world and corresponding EU-27 Member States - January 2022



Source: Dealroom (<https://app.dealroom.co/unicorns>)

Most SME unicorns had achieved this status since 2017 in all four countries/regions (Figure 42), and all four countries/regions recorded their highest number of new SME unicorns in 2021. The total of 12 new EU-27 SME unicorns recorded in 2021 was a little over half the total subsequently recorded in 2022, and a major jump from the zero SME unicorn registrations in 2020.

Figure 42: Number of new SME unicorns per year - EU-27, US, UK and rest of the world – 2017 - 2021



Source: Dealroom (<https://app.dealroom.co/unicorns>)

SME businesses which exited their unicorn status through an Initial Public Offering (IPO) between 2015 and 2019 have performed well during the Covid-19 pandemic, with the share prices of those headquartered in both the EU-27 and the US more than doubling on average by 2021 Q4 compared to 2019 Q4 (Table 7). Exited SME unicorns significantly outperformed equity market indexes²⁹ during the pandemic in both regions, and the percentage gains in share prices tended to be larger for exited unicorns headquartered in the EU-27, although they followed a similar pattern to those of exited unicorns in the US.

Out of the seven SME unicorns headquartered in the EU-27 which exited through an IPO, the majority (4) undertook their IPOs in DE. NL, UK and US each had one EU-27 SME unicorn exit. The vast majority of exited SME unicorns headquartered in the US undertook their IPOs in the US (47 out of 49). The remaining 2 exits were undertaken in HK and CA.

Table 7: Average percentage change in share price compared to 2019 Q4 for unicorns that exited through an IPO between 2015 and 2019 – EU-27 and US

Region	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4
EU-27	13%	40%	105%	166%	232%	222%	236%	187%
US	6%	23%	69%	108%	154%	131%	152%	146%
STOXX Europe 600	-4%	-14%	-9%	-6%	3%	11%	16%	18%
Dow Jones Industrial Average	-4%	-11%	-1%	6%	15%	24%	27%	29%

Note: Information on exited unicorns was taken from Crunchbase. Exited unicorns were defined as those enterprises with the 'Exited Unicorn' tag on Crunchbase. Daily share prices and the IPO location for exiting unicorns were obtained using Refinitiv Eikon. Daily prices for the Dow Jones Industrial Average and the STOXX Europe 600 were obtained from Yahoo! Finance.

Source: Crunchbase, Refinitiv Eikon and Yahoo! Finance

5.3 Women entrepreneurship

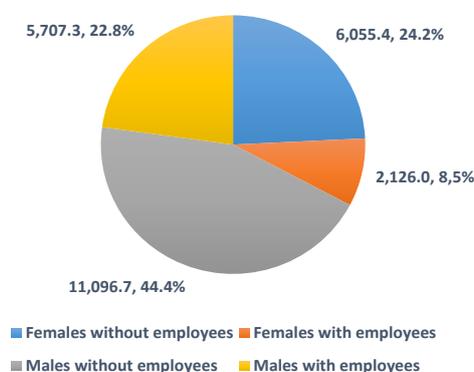
So far, the discussion in this chapter has focused on the impact of the pandemic on the evolution of the SME population as a whole, along with startups, scaleups and high-growth enterprises, without distinguishing

²⁹ STOXX Europe 600 and Dow Jones Industrial Average.

between SMEs owned and/or run by female entrepreneurs or male entrepreneurs. Unfortunately, the data required for developing a comprehensive gender-focused picture of the performance of EU-27 SMEs are scarce and incomplete. In this section, data on self-employment from the Eurostat Labour Force Statistics are used to shed some light on the gender impact of the pandemic on the number of businesses run by self-employed workers.

Self-employed workers are persons “who work in their own business, farm or professional practice. A self-employed person is considered to be working if she/he meets one of the following criteria: works for the purpose of earning profit, spends time on the operation of a business or is in the process of setting up his/her business”.³⁰ The Labour Force Statistics distinguish between self-employed persons with no employees (own-account workers) and those with employees (employers). In both cases, these self-employed persons run businesses and these businesses constitute a major component of the total SME population.³¹

Figure 43: Number of self-employed workers in 2021 by gender and type of self-employment



Source: Eurostat Labour Force Statistics

In 2021,³² there were almost 25 million self-employed workers in the EU-27, of which about 8.2 million were female self-employed workers (Figure 43).

Self-employed with no employees represented the vast majority of both female and male self-employed in 2021, and the 2.1 million female self-employed with employees accounted for 26% of total female self-employment. In contrast, male self-employed with employees accounted for 34% of total male self-employment.

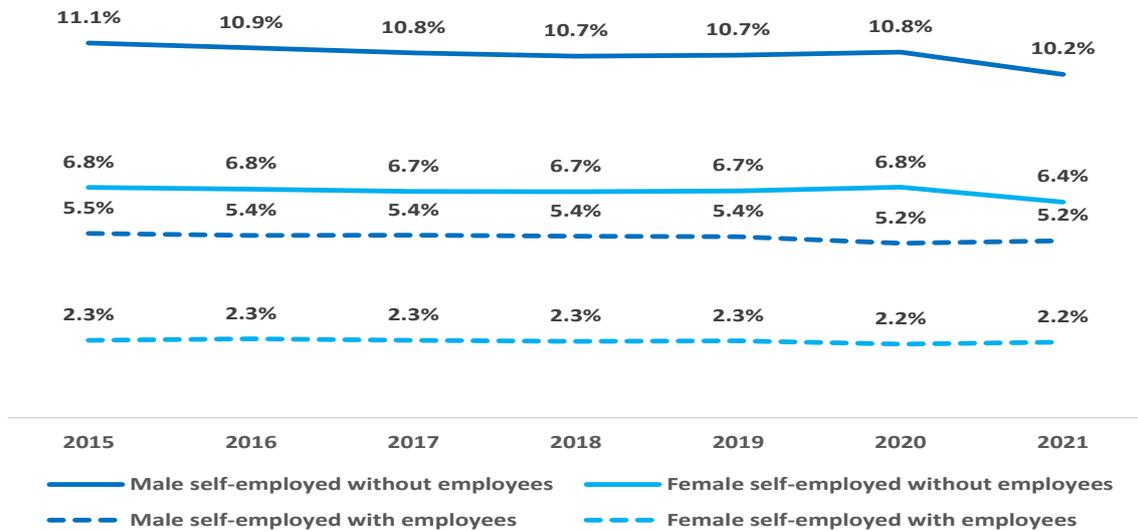
Overall, a smaller proportion of the EU-27 female labour force is self-employed compared to the EU-27 male labour force and this is the case for both self-employed without and with employees. For example, in 2021, the respective proportions were 6.4% versus 10.2% in the case of self-employed without employees and 2.2% versus 5.2% for self-employed with employees) (Figure 44). This observation holds true not only at EU-27 level but also for every Member State. Female self-employment rates (without and with employees) were lower than male self-employment rates in every Member State in 2021.

³⁰ See metadata for Labour Force Series - detailed quarterly survey results (from 1998 onwards) available at http://ec.europa.eu/eurostat/cache/metadata/en/lfsq_esms.htm.

³¹ For more detailed information on the relationship between self-employment and the number of SMEs in the EU, see the 2016/2017 Annual Report on SMEs which focused on self-employment <https://op.europa.eu/en/publication-detail/-/publication/0b7b64b6-ca80-11e7-8e69-01aa75ed71a1>.

³² In this section, 2021 refers to the average over the first three quarters of 2021.

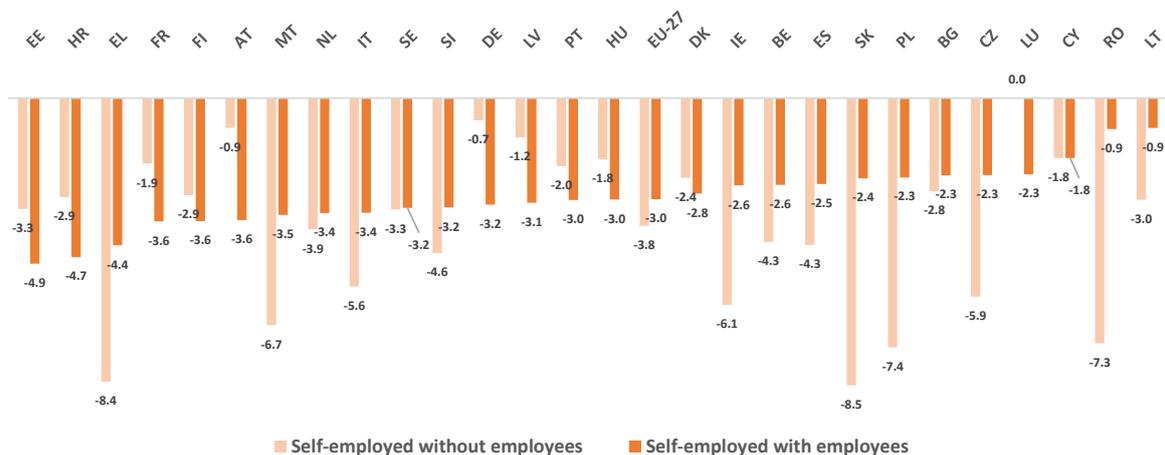
Figure 44: Proportion (in %) of female and male self-employed in female and male labour force – 2015-2021



Source: Eurostat Labour Force Statistics

However, the magnitude of the difference between female and male self-employment rates³³ varied greatly in 2021 across Member States and this difference was not always greater for self-employed with employees compared to self-employed without employees (Figure 45). For example, although it was greater (in absolute terms) in 11 Member States (AT, DE, DK, EE, FI, FR, HR, HU, LU, LV and PT), it was actually smaller in 14 Member States (BE, BG, CZ, EL, ES, IE, IT, LT, MT, NL, PL, RO, SI and SK). There were no differences in CY and SE.³⁴

Figure 45: Difference (in percentage points) between female and male self-employment rate in the EU-27 Member States in 2021

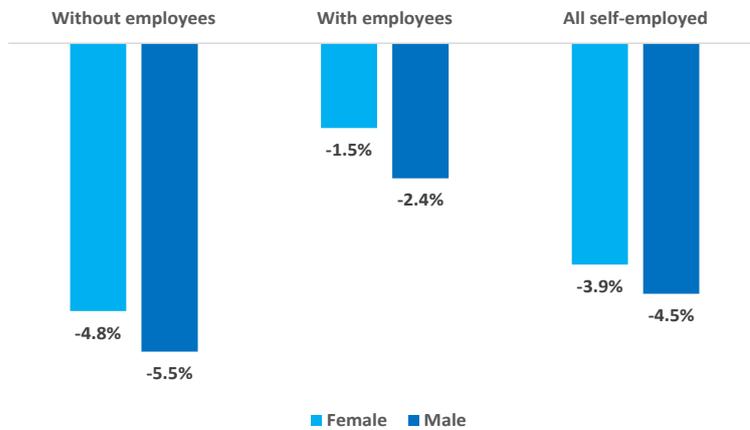


Note: The female (male) self-employment rate is the proportion of female (male) self-employed in the female (male) labour force
 Source: Eurostat Labour Force Statistics

³³ The female (male) self-employment rate is the proportion of female (male) self-employed in the female (male) labour force.

³⁴ The correlation is almost nil between a) the difference in the female and male self-employment rates for self-employment with employees and b) the difference in the female and male self-employment rates for self-employment with no employees.

Figure 46: Change (in %) in level of female and male self-employment from 2019 to 2021



Source: Eurostat Labour Force Statistics

Reflecting the general economic developments in 2020 and 2021 in the EU-27 economy, the number of self-employed in the EU-27, especially of self-employed without employees, fell during the pandemic.

However, the decline was smaller in the case of female self-employment (Figure 46).

At the present time, it is not clear whether the fall in the number of self-employed shown in Figure 46 represents a permanent change or only a temporary reduction in self-employment activity. For example, it may be the case that businesses run by the

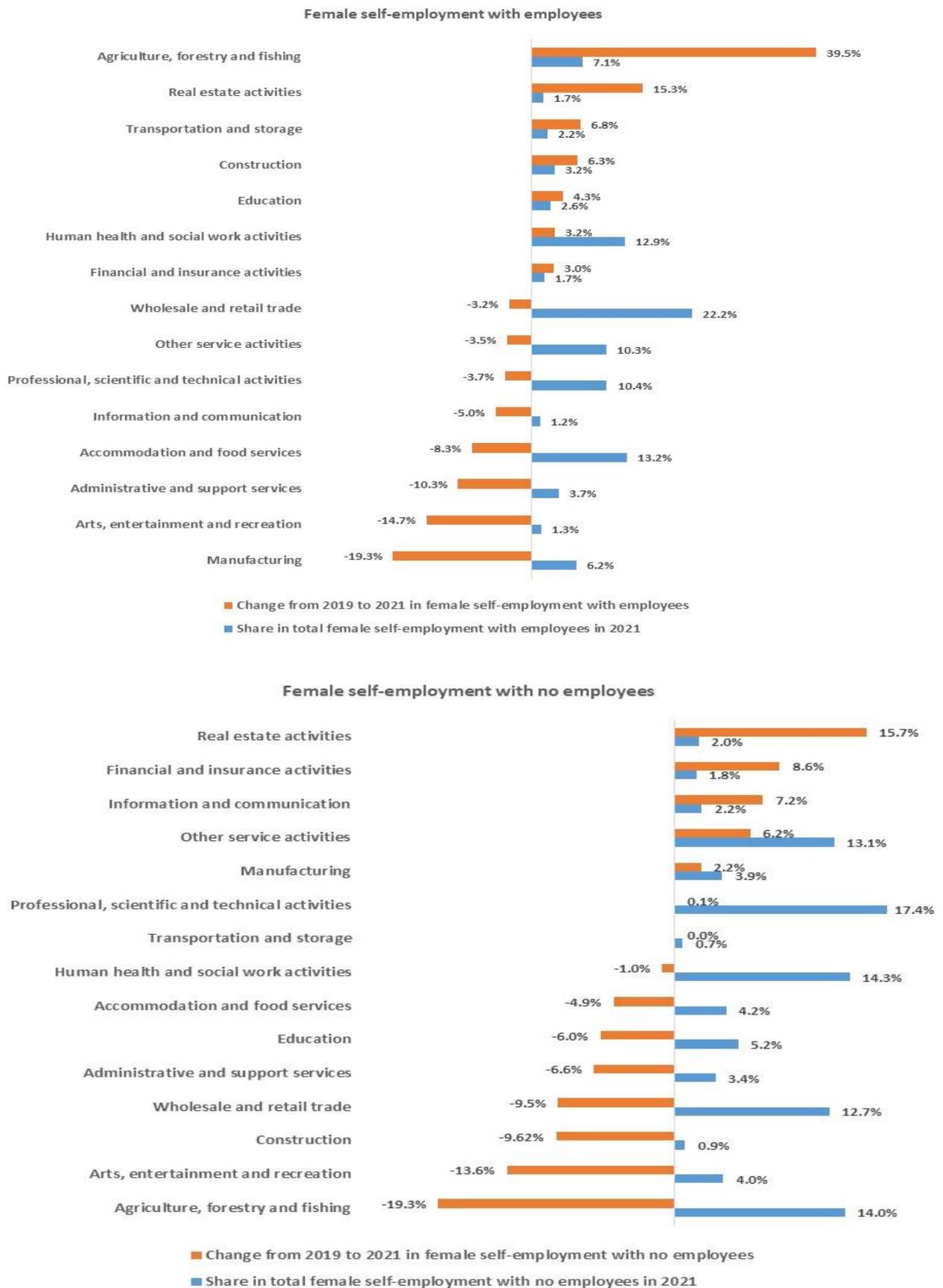
self-employed only closed temporarily during the pandemic. On the other hand, they may have been closed permanently, due to a change in the type of employment pursued by the self-employed without employees, or by the sale or liquidation of the business in the case of self-employed with employees.

However, not all industries saw female self-employment fall during the pandemic.

In fact, the number of female self-employed with employees increased in some industries ('agriculture, forestry and fishing', 'construction', 'education', 'financial and insurance activities', 'human health and social work activities', 'real estate activities' and 'transportation and storage'). Nonetheless, with the exception of 'human health and social work activities', these industries accounted for only a relatively small proportion of total female self-employment with employees in 2019 (Figure 47).³⁵

³⁵ It should also be noted that the correlation across industries between the change (in %) from 2019 to 2021 in the number of female self-employed and the ratio of female self-employment in total self-employment in 2021 is close to nil (it is -0.07 in the case self-employment with employees and 0.11 in the case of self-employment with no employees). The correlation can range from -1 (perfect negative correlation) to 1 (perfect positive correlation).

Figure 47: Distribution of female self-employment across various industries in 2021 and change from 2019 to 2021 in the level of female self-employment in various industries



Source: Eurostat Labour Force Statistics

6 The role of SMEs in industrial ecosystems

6.1 The key industrial ecosystems in the EU

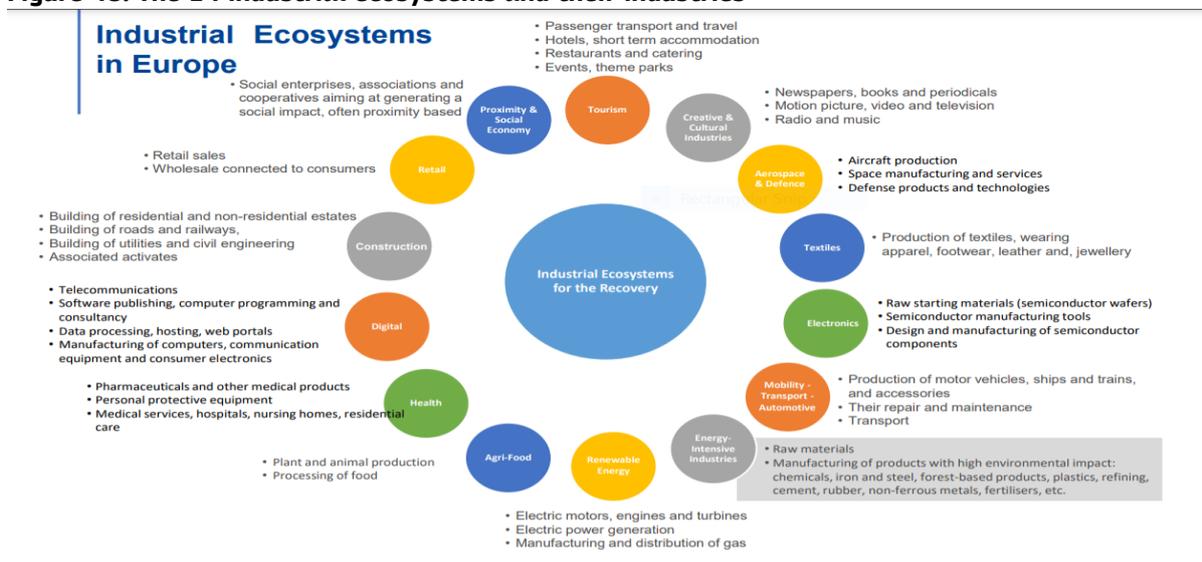
In its March 2020 Communication, “A New Industrial Strategy for Europe”, the European Commission noted that “Europe’s industry must play to its unique features and strengths: its integration across value chains and borders, its diversity, traditions and people. As the twin transitions pick up speed and global competition becomes fiercer, Europe’s industry is also transforming. As part of this, there are increasing links between different products and services across sectors. As well as focusing on specific technologies, Europe also needs to look closely at the opportunities and challenges facing industrial ecosystems. These ecosystems encompass all players operating in a value chain: from the smallest start-ups to the largest companies, from academia to research, service providers to suppliers”.³⁶ More recently, the February 2022 Single Market Report focused on the 2021 economic recovery in the following 14 industrial ecosystems (Table 8).³⁷ These industrial ecosystems regroup a number of different industries which are linked together (Figure 48).

Table 8: The 14 industrial ecosystems identified by the EC

Industrial ecosystems	
1. Aerospace and Defence	8. Energy – Renewables
2. Agri-food	9. Health
3. Construction	10. Mobility – Transport – Automotive
4. Cultural and Creative Industries	11. Proximity, Social Economy and Civil Security
5. Digital	12. Retail
6. Electronics	13. Textiles
7. Energy-Intensive Industries	14. Tourism

Source: European Commission

Figure 48: The 14 industrial ecosystems and their industries



Source: European Commission

³⁶ European Commission (2020), Communication from the Commission to the European Parliament, the European Council, the European Economic and Social Committee and the Committee of the Regions, A New Industrial Strategy for Europe, Brussels, 10.3.2020, COM(2020) 102 final.

³⁷ European Commission (2022), Commission Staff Working Document, Annual Single Market Report 2022, Brussels, 22.2.2022, SWD(2022) 40 final, PART 1/2.

SMEs play a key role in these different clusters and the next three sections provide a snapshot of the contribution of SMEs to the performance of the 14 industrial ecosystems in the EU in 2021, an overview of the outlook for the performance of SMEs in 2022 in each of the fourteen ecosystems, and a comparative analysis of the evolution, since 2018, of key performance indicators of SMEs and large enterprises in the various ecosystems.

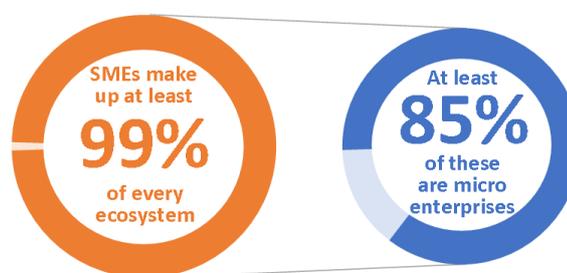
6.2 Snapshot of the contribution of SMEs to the performance of the 14 industrial ecosystems in 2021

Before reviewing the contribution of SMEs to the economic activity of the 14 industrial ecosystems, it is important to note that the definitions of the ecosystems do not always match the industry definitions of the statistical classification of economic activities in the European Community (NACE) used by Eurostat and national statistical organisations in the EU to collect and report industry data. As a result, the currently available industry data do not always fully cover the economic activities of the 14 industrial ecosystems (see Annex 12 for details).

6.2.1 Number of SMEs in each of the 14 industrial ecosystems

Figure 49: Share of SMEs in the industrial ecosystems in 2021

The 14 industrial ecosystems differ substantially in terms of the number of enterprises. ‘Construction’ and ‘retail’ were the largest industrial ecosystems in 2021, with 5.6 million and 5.3 million enterprises, respectively. In contrast, ‘electronics’ and ‘energy – renewables’ were the smallest industrial ecosystems, with 102,800 and 112,600 enterprises, respectively.

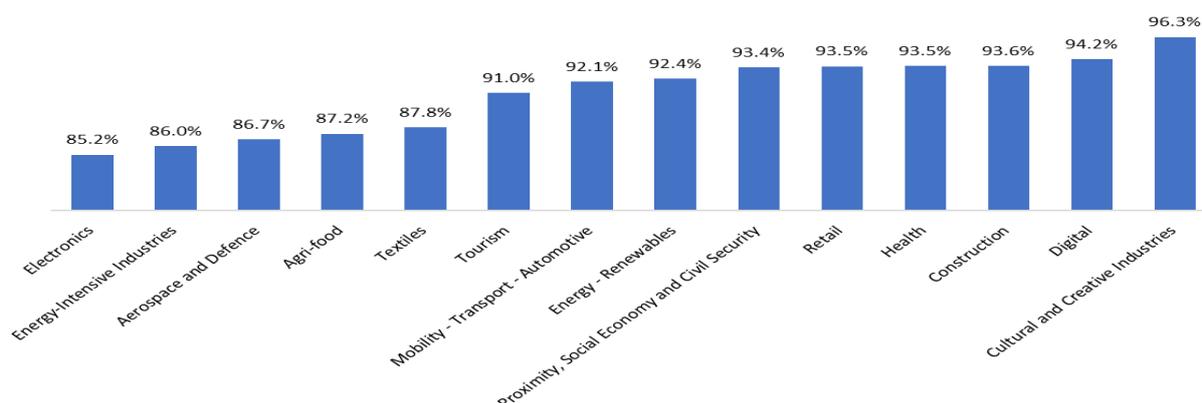


Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

As already noted in Chapter 2, SMEs account for almost all enterprises in each industrial ecosystem. Moreover, micro SMEs represent by far the largest group of SMEs in each ecosystem, although their presence was slightly lower in 2021 in the ‘electronics’, energy-intensive’, ‘aerospace and defence’, ‘agri-food’ and ‘textiles’ industrial ecosystems than in the nine other industrial ecosystems (Figure 50).³⁸

³⁸ More details on the number of enterprises by ecosystem and size class are provided in Annex 12.

Figure 50: Share of micro SMEs in the number of enterprises in each of the 14 industrial ecosystems



Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

6.2.2 SME employment in each of the 14 industrial ecosystems

As in the case of the number of enterprises, the 'construction' and 'retail' industrial ecosystems were in 2021 the largest employers across the EU-27, accounting for 19.3% and 22.4%, respectively, of total employment in the 14 ecosystems (Figure 51). The industrial ecosystems 'electronics' (1.3% of total employment) and 'energy - renewables' (0.9%) were the smallest, along with the 'textiles' ecosystem (1.6%) (Figure 51).

Figure 51: Number of persons (in thousands) per ecosystem employed by SMEs and large enterprises and percentage of ecosystem employment in total employment of the 14 ecosystems – 2021



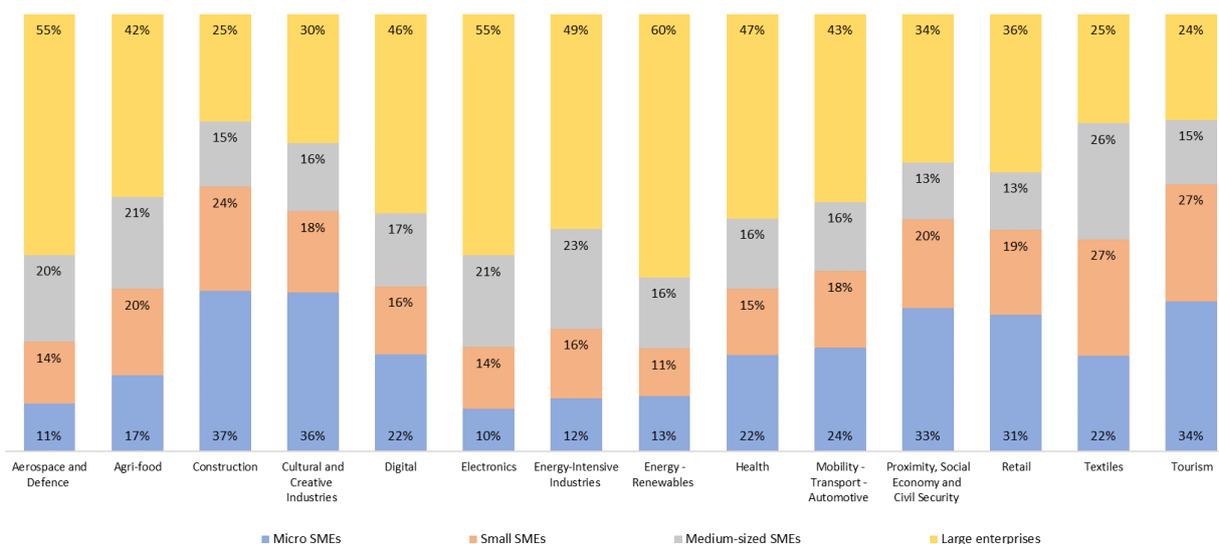
Note: Each ecosystem is represented by the same colour in Figures 51 and 53, with the darker shading showing employment by SMEs, and the lighter shading indicating the number of employees within large enterprises for the given ecosystem. The percentages in the top right hand corner of each ecosystem indicate the percentage of total SME employment accounted for by that ecosystem. Ecosystem 13 accounts for 1.6% of total SME employment across the ecosystems, and ecosystems 6 and 8 account for 1.3% and 0.9% respectively. The industrial ecosystems are as follows: 1 - Aerospace and Defence; 2 - Agri-food; 3 - Construction; 4 - Cultural and Creative Industries; 5 - Digital; 6 - Electronics; 7 - Energy-Intensive Industries; 8 - Energy - Renewables; 9 - Health; 10 - Mobility - Transport - Automotive; 11 - Proximity, Social Economy and Civil Security; 12 - Retail; 13 - Textiles; 14 - Tourism. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

The SME size class was the largest employer in 11 of 14 ecosystems. The exceptions were ‘aerospace and defence’, ‘electronics’ and ‘energy – renewables’. In fact, SMEs accounted for more than 70% of employment in the ecosystems ‘construction’, ‘textiles’; and ‘tourism’ (Figure 52).

Moreover, micro SMEs were particularly important employers in the ecosystems ‘construction’, ‘cultural and creative industries’, ‘proximity, social economy and civil society’ and ‘tourism’, in which they accounted for 37%, 36%, 33% and 34%, respectively, of total ecosystem employment.

Figure 52: Proportion of total employment of each ecosystem accounted for by micro SMEs, small SMEs, medium-sized SMEs and large enterprises – 2021



Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

6.2.3 SME value added in the 14 industrial ecosystems

The ecosystems with the largest number of employees were also those responsible for the largest proportion of the value added generated by the 14 ecosystems (Figure 53).

The ‘retail’ and ‘construction’ ecosystems generated the largest shares of the total value added of the 14 ecosystems, at 19.1% and 16.3%, respectively. Moreover, as in the case of employment, the ecosystems ‘electronics’, ‘energy –renewables’ and ‘textiles’ were the smallest in terms of value added, creating 2.1%, 1.9% and 1.1%, respectively, of total value added generated by the 14 industrial ecosystems.

SMEs accounted for more than 50% of the value added in six out of fourteen ecosystems, namely, ‘cultural and creative industries’ (57%), ‘proximity, social economy and civil security’ (61%), ‘retail’ (61%), ‘tourism’ (63%), ‘textiles’ (65%) and ‘construction’ (72%) (Figure 53).

In contrast, SMEs accounted for only 35% or less of the value added generated by the ecosystems of ‘health’ (29%), ‘electronics’ (33%), ‘energy – renewables’ (34%) and ‘aerospace and defence’ (35%) (Figure 53).

The differences in the value added contribution of SMEs across the various ecosystems mainly reflects differences in the value added contribution of micro SMEs (Figure 54).

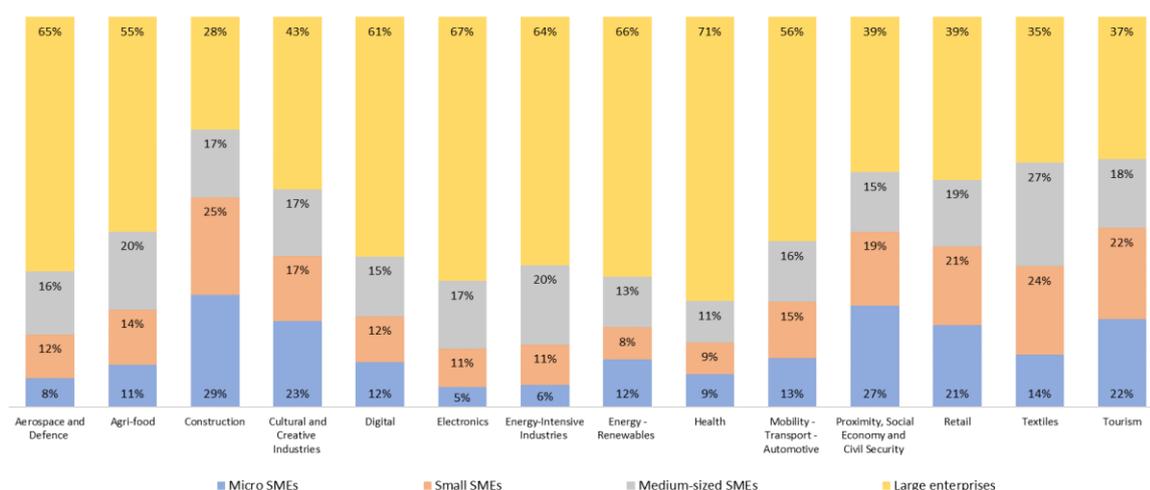
Figure 53: Value added (in EUR million) per ecosystem by SMEs and large enterprises and percentage of the ecosystem value added in the total value added generated by the 14 ecosystems - 2021



Note: Each ecosystem is represented by the same colour, with the darker shading showing value added generated by SMEs and the lighter shading indicating value added generated by large enterprises for the given ecosystem. The percentages in the top right hand corner of each ecosystem indicate the percentage of total SME value added accounted for by that ecosystem. Ecosystem 13 accounts for 1.1% of total SME value added across the ecosystems. The industrial ecosystems are as follows: 1 - Aerospace and Defence; 2 - Agri-food; 3 - Construction; 4 - Cultural and Creative Industries; 5 - Digital; 6 - Electronics; 7 - Energy-intensive Industries; 8 - Energy - Renewables; 9 - Health; 10 - Mobility - Transport - Automotive; 11 - Proximity, Social Economy and Civil Security; 12 - Retail; 13 - Textiles; 14 - Tourism. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 54: Proportion of the total value added of each ecosystem attributed to micro SMEs, small SMEs, medium-sized SMEs and large enterprises – 2021



Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

6.2.4 Relative importance of issues faced by the 14 ecosystems - views of SME associations

According to a survey of SME associations undertaken in November/December 2021 specifically for this report, 'access to finance' was rated as an important issue in 2021 (with an average rating of three out of five or

greater) in all ecosystems (Table 9). The views of the SME associations on the importance in 2021 of 'cost pressures' and 'goods and materials shortages' varied across the ecosystems, although both issues were rated as very important (with an average rating of four or more) in the 'construction' and 'energy-intensive industries' ecosystems. The least important issue faced by most ecosystems was 'finding customers'. This issue was rated three or higher on a scale of one to five for only three ecosystems: 'cultural and creative industries', 'mobility - transport - automotive' and 'tourism'.

'Cost pressures' faced by ecosystems were expected to become an even greater issue in 2022 than in 2021 (Table 10). This issue was viewed as a 'very important issue' for 2022 in eight ecosystems ('aerospace and defence', 'agri-food', 'construction', 'energy-intensive industries', 'energy - renewables', 'mobility - transport - automotive', 'retail' and 'textiles'), and was regarded as an 'important issue' in the other six ecosystems (Table 10).

In 2021, a maximum of two issues were rated as 'very important' for all ecosystems, but in 2022 both 'agri-food' and 'construction' were expected to face three very important issues out of the five from which SME associations were able to choose.

Table 9: Importance of various challenges and issues faced by SMEs in different industrial ecosystems in the second half of 2021

	Finding customers	Finding staff	Cost pressures	Shortages of goods and materials due to supply chain disruptions	Access to finance
Aerospace and Defence	2.80	3.00	3.80	4.20	4.00
Agri-food	2.50	2.91	3.91	3.10	3.55
Construction	2.23	3.92	4.15	4.43	3.45
Cultural and Creative Industries	3.70	2.30	2.67	2.11	4.00
Digital	1.89	4.10	2.78	3.00	3.11
Electronics	2.38	3.63	3.75	4.22	3.43
Energy-intensive Industries	2.57	3.00	4.70	4.25	3.88
Energy - Renewables	2.38	3.13	3.75	3.56	3.63
Health	2.20	4.27	3.44	3.10	3.67
Mobility - Transport - Automotive	3.33	3.50	4.00	3.91	3.89
Proximity, Social Economy and Civil Security	2.88	2.88	3.38	2.25	3.38
Retail	2.50	2.78	3.44	3.00	3.13
Textiles	2.78	3.38	3.44	3.33	3.63
Tourism	3.42	4.00	3.55	2.30	4.20

Note: Respondents were asked the following question: 'With regard to the second half of 2021, please rate the importance of each issue for SMEs in the 14 Industrial Ecosystems. Please rate on a scale of 1 (not an issue) to 5 (an extremely important issue)'.

Source: LE Europe survey of SME associations in Member States. 15 responses were received

Table 10: Expected importance of various challenges and issues faced by SMEs in different industrial ecosystems in 2022

	Finding customers	Finding staff	Cost pressures	Shortages of goods and materials due to supply chain disruptions	Access to finance
Aerospace and Defence	3.67	3.00	4.00	3.67	3.33
Agri-food	3.33	3.83	4.44	4.14	4.14
Construction	2.80	4.33	4.20	4.73	3.67
Cultural and Creative Industries	3.43	2.88	3.17	2.29	3.71
Digital	2.86	3.63	3.75	3.33	2.86
Electronics	3.00	3.50	3.71	4.38	3.50
Energy-intensive Industries	3.20	3.33	4.67	3.50	3.83
Energy - Renewables	2.80	3.67	4.00	4.00	3.17
Health	2.57	4.25	3.50	3.57	3.00
Mobility - Transport - Automotive	3.00	3.75	4.43	3.89	3.71
Proximity, Social Economy and Civil Security	2.40	3.33	3.40	2.00	3.83
Retail	3.13	3.38	4.00	3.17	3.80
Textiles	3.29	3.63	4.14	3.63	4.14
Tourism	2.56	4.00	3.76	2.33	4.31

Note: Respondents were asked the following question: 'Looking ahead to 2022, please rate the importance of each issue for SMEs in the 14 Industrial Ecosystems. Please rate on a scale of 1 (not an issue) to 5 (an extremely important issue)'.

Source: LE Europe survey of SME associations in Member States. 15 responses were received

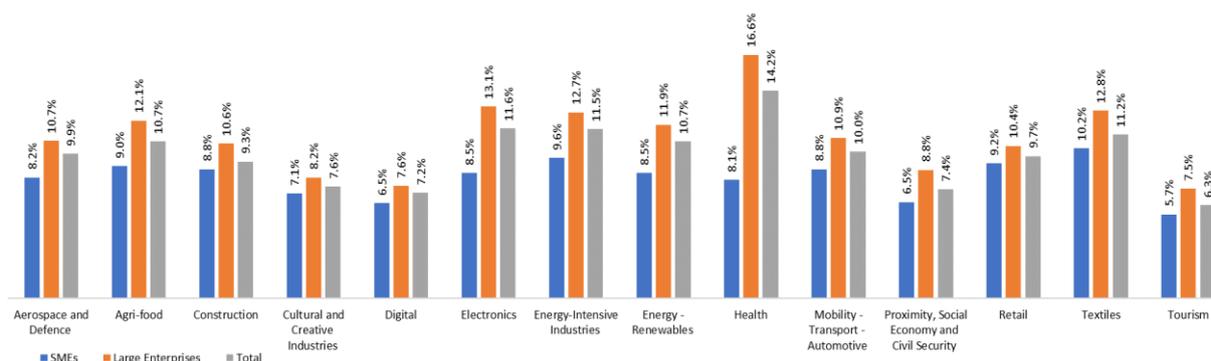
6.3 Outlook for SMEs and large enterprises in 2021 and 2022 in the 14 ecosystems

The value added of SMEs and large enterprises increased in all ecosystems in 2021 (Figure 55), and is also forecast to increase for both size classes in all ecosystems in 2022 (Figure 56). SMEs generated a smaller increase in value added than large enterprises in all ecosystems between 2020 and 2021, and this trend is forecast to continue in 2022. As previously noted in chapter 4, the 2022 projections were completed before the start of the Russian war of aggression against Ukraine and are therefore likely to be over-optimistic.

The largest difference in value added increases between SMEs and large enterprises in 2021 were in the 'health' (8.5pp) and 'electronics' (4.6pp) ecosystems. These differences are forecast to be much smaller in 2022 in these ecosystems and in general across all ecosystems, with the largest difference in 2022 expected in the 'cultural and creative industries' ecosystem (1.7pp).

SMEs performed particularly well in the 'textiles' (10.2%) and 'energy-intensive industries' (9.6%) ecosystems in 2021. However, these are the ecosystems in which SMEs are forecast to perform worst in 2022 (along with 'electronics'). The ecosystems in which SME value added showed the slowest growth in 2021 include 'digital' (6.5%), 'proximity, social economy and civil security' (6.5%) and 'tourism' (5.7%).

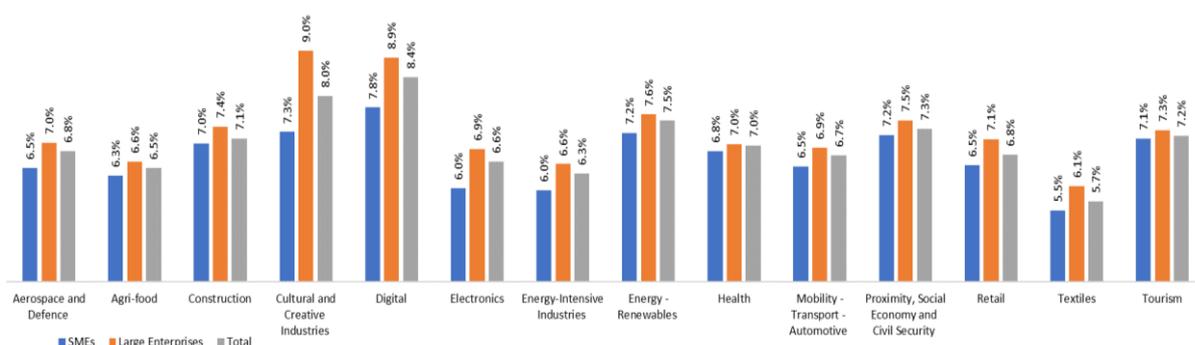
Figure 55: Percentage change from 2020 to 2021 in value added generated by SMEs, large enterprises and all enterprises, by industrial ecosystem



Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 56: Projected percentage change from 2021 to 2022 in value added generated by SMEs, large enterprises and all enterprises, by industrial ecosystem



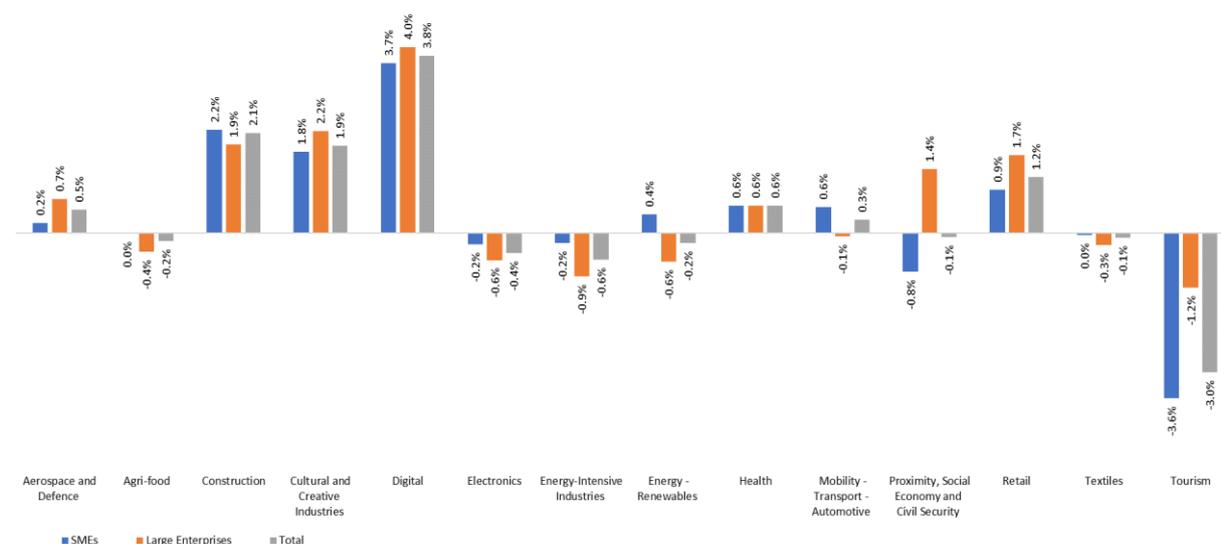
Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics (2008-2019), Short-Term Business Statistics and National Accounts Database

SME employment fared worse than large enterprise employment in six ecosystems in 2021: 'aerospace and defence', 'cultural and creative industries', 'digital', 'proximity, social economy and civil security', 'retail' and 'tourism' (Figure 57). However, SME employment only declined in two of these ecosystems in 2021: 'tourism' (-3.6%) and 'proximity, social economy and civil security' (-0.8%). The employment downturn in the tourism ecosystem was entirely driven by an employment fall of 6% in 'accommodation and food service activities'. The largest increases in SME employment were in the 'digital' (3.7%), 'construction' (2.2%) and 'cultural and creative industries' (1.8%) ecosystems.

In 2022, employment increases in all ecosystems are forecast for both SMEs and large enterprises (Figure 58). However, SMEs are expected to generate higher increases than large enterprises in only two ecosystems ('energy - renewables' and 'textiles'. SME employment is expected to rise fastest in the 'digital' (2.8%), 'cultural and creative industries' (2.2%) and 'tourism' (2.2%) ecosystems. In contrast, the slowest SME employment growth is forecast for the 'electronics' (0.8%), 'energy-intensive industries' (0.8%) and 'textiles' (0.7%) ecosystems.

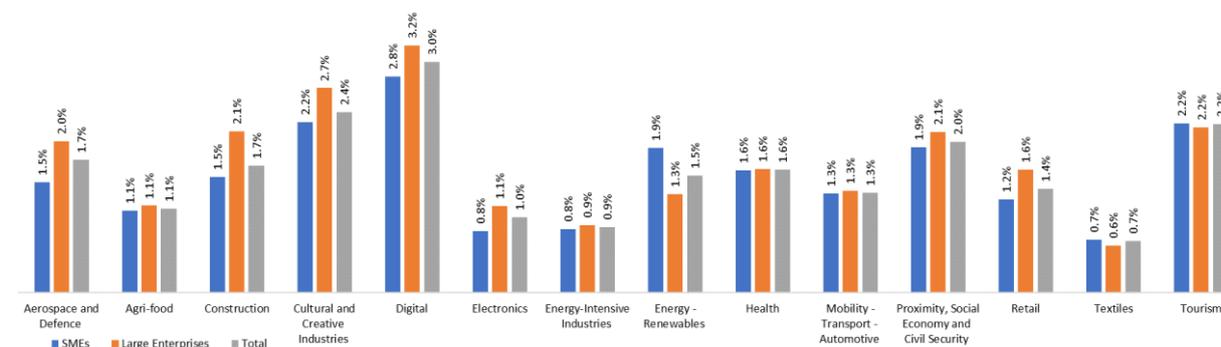
Figure 57: Percentage change from 2020 to 2021 in the employment generated by SMEs, large enterprise and all enterprises, by industrial ecosystem



Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 58: Projected percentage change from 2021 to 2022 in the employment generated by SMEs, large enterprise and all enterprises, by industrial ecosystem



Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

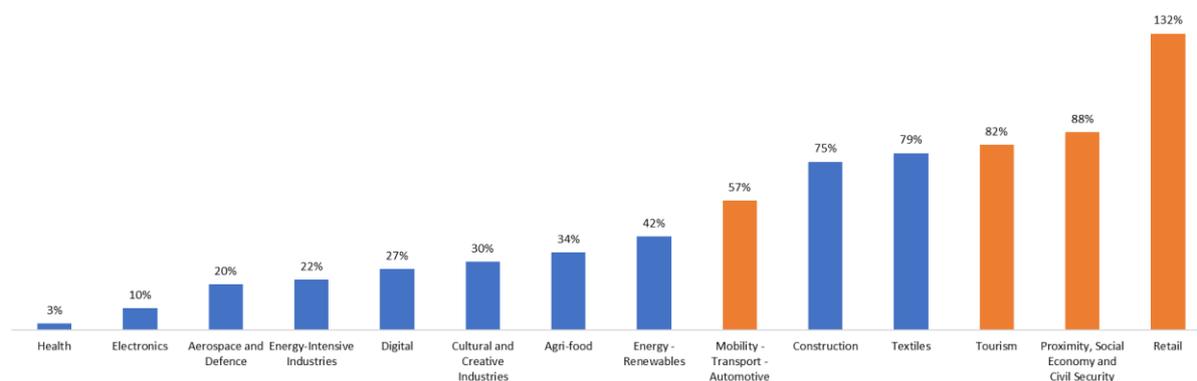
Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

6.4 Contribution of SMEs to the evolution of the industrial ecosystems' economic activity from 2019 to 2021

The contribution of SMEs to changes from 2019 to 2021 in the value added and employment of the 14 ecosystems varied greatly. For example:

- SMEs accounted for more than 80% of the change in value added between 2019 and 2021 in three ecosystems ('tourism', 'proximity, social economy and civil security' and 'retail') (Figure 59). However, these are three of the four ecosystems (along with 'mobility – transport – automotive') that experienced declines in total value added across the same period.
- In contrast, SMEs accounted for 10% or less of the total change in value added between 2019 and 2021 in two ecosystems ('health' and 'electronics').

Figure 59: Share of the cumulative change in total value added between 2019 and 2021 attributed to SMEs by industrial ecosystem

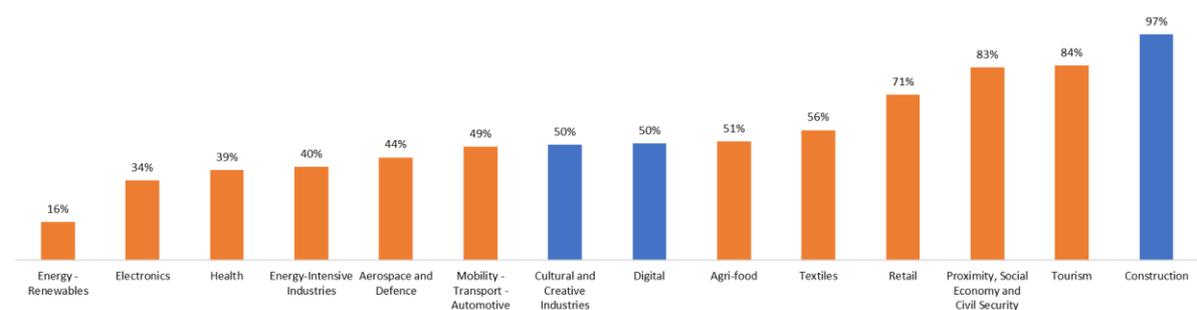


Note: Bars in orange indicate that the total value added decreased in the ecosystem between 2019 and 2021, whereas bars in blue indicate that total value added increased in the ecosystem. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R). SMEs will account for over 100% of the total change if large enterprise value added in the ecosystem changes in the opposite direction to SME value added.

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

As in the case of value added, the 'health' and 'electronics' ecosystems were among those ecosystems in which SMEs accounted for the smallest proportion of the cumulative change from 2019 to 2021 in total employment (Figure 60). However, the SME share of the employment change in these ecosystems (39% and 34%, respectively) was much larger than their share of the change in value added. SMEs accounted for at least half of the total change in employment between 2019 and 2021 in 8 of the 14 ecosystems, including all the ecosystems in which total employment grew during the period ('cultural and creative industries', 'digital' and 'construction'). The 'construction' ecosystem is particularly noteworthy in this respect as SMEs accounted for the vast majority of the change (97%) in total employment between 2019 and 2021 in this ecosystem.

Figure 60: Share of the cumulative change in total employment between 2019 and 2021 attributed to SMEs, by industrial ecosystem



Note: Bars in orange indicate that the total value added decreased in the ecosystem between 2019 and 2021, whereas bars in blue indicate that total value added increased in the ecosystem. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Micro SMEs accounted for a greater share of the change in total value added than both small and medium-sized SMEs in eight out of the fourteen ecosystems (Table 11). Their share was particularly large in the 'retail' (95%), 'proximity, social economy and civil security' (47%) and 'mobility – transport – automotive' (40%) ecosystems. Of those ecosystems in which micro SMEs did not account for the greatest share of the change in value added, small SMEs accounted for the greatest share in two ('digital' and 'aerospace and defence') and medium-sized SMEs accounted for the greatest share in three ('electronics', 'energy-intensive industries' and

'textiles'). Each of the three SME size classes accounted for 1% of the total change in value added in the 'health' ecosystem.

Micro SMEs also accounted for a very large proportion of the employment change from 2019 to 2021 in the 'construction' and 'retail' ecosystems (Table 11). However, medium-sized SMEs were also important contributors to overall employment across the ecosystems. Out of the three SME size classes, they accounted for the greatest share of the total change in employment in exactly half of the ecosystems.

Table 11: Share of the cumulative change in total value added and employment between 2019 and 2021 attributed to all SMEs and SME size classes, by industrial ecosystem

	Value Added				Employment			
	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs
Aerospace and Defence	7%	8%	6%	20%	0%	13%	31%	44%
Agri-food	17%	6%	11%	34%	-3%	17%	36%	51%
Construction	31%	28%	16%	75%	84%	22%	-8%	97%
Cultural and Creative Industries	12%	8%	10%	30%	36%	4%	9%	50%
Digital	8%	11%	8%	27%	23%	12%	14%	50%
Electronics	2%	2%	6%	10%	0%	9%	25%	34%
Energy-intensive Industries	4%	0%	18%	22%	-1%	12%	30%	40%
Energy - Renewables	35%	4%	3%	42%	-18%	7%	28%	16%
Health	1%	1%	1%	3%	-5%	14%	30%	39%
Mobility - Transport - Automotive	40%	4%	14%	57%	21%	13%	15%	49%
Proximity, Social Economy and Civil Security	47%	30%	11%	88%	44%	25%	13%	83%
Retail	95%	23%	14%	132%	49%	14%	8%	71%
Textiles	10%	22%	46%	79%	-1%	18%	39%	56%
Tourism	35%	30%	18%	82%	42%	28%	14%	84%

Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R). SMEs will account for over 100% or less than 0% of the total change if their value added/employment changes in the opposite direction to the overall change in the ecosystem.

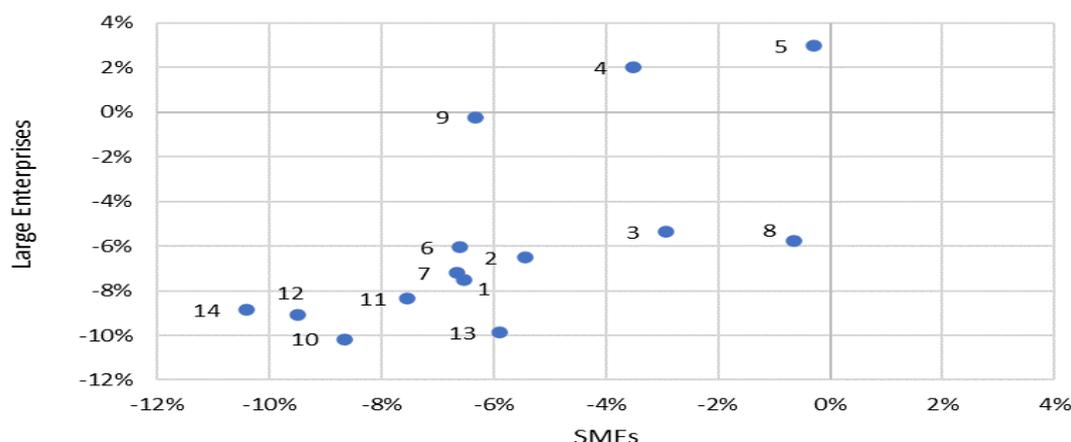
Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

6.5 Changes (in %) in value added and employment of SMEs and large enterprises by industrial ecosystem

The direction of change in SME and large enterprise value added in 2020 was generally similar (Figure 61). SME value added fell in every ecosystem in 2020 and large enterprise value added fell in all but two ecosystems ('cultural and creative industries' and 'digital').

A similar pattern was also observed in 2021. Both SME and large enterprise value added increased in every ecosystem by at least 5% (Figure 62). Moreover, as in 2020, there appeared to be a positive correlation across ecosystems between SME and large enterprise value added. One possible outlier was the 'health' ecosystem, in which the large enterprise growth rate (17%) was more than double the SME growth rate (8%). Most other ecosystems tended to show an SME value added growth rate of 8% to 10% and a large enterprise value added growth rate of 10% to 14%. However, a cluster of ecosystems saw SME and large enterprise growth rates of 5% - 7% and 7% - 9%, respectively.

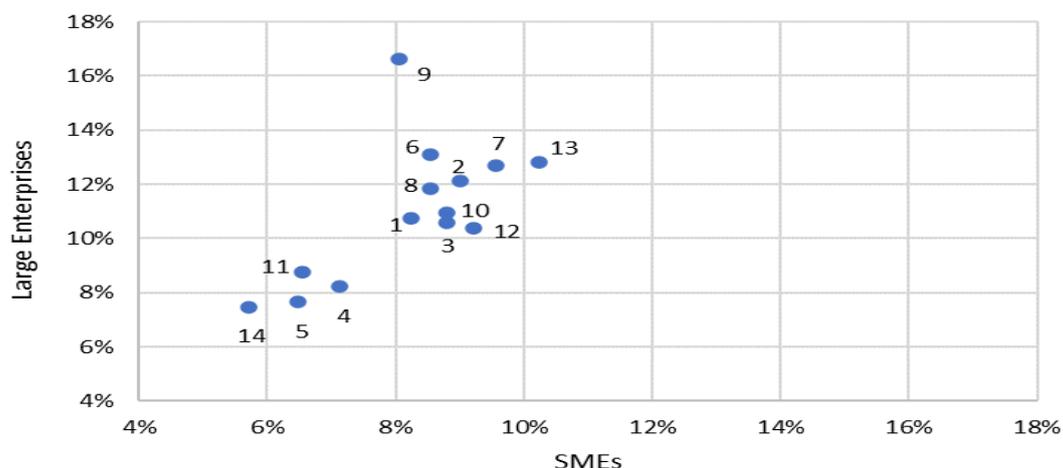
Figure 61: Change (in %) of SME and large enterprise value added in 2020, by industrial ecosystem



Note: The industrial ecosystems are as follows: 1 - Aerospace and Defence; 2 - Agri-food; 3 - Construction; 4 - Cultural and Creative Industries; 5 - Digital; 6 - Electronics; 7 - Energy-intensive Industries; 8 - Energy – Renewables; 9 - Health; 10 - Mobility - Transport – Automotive; 11 - Proximity, Social Economy and Civil Security; 12 - Retail; 13 - Textiles; 14 - Tourism. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Figure 62: Change (in %) in SME and large enterprise value added in 2021, by industrial ecosystem

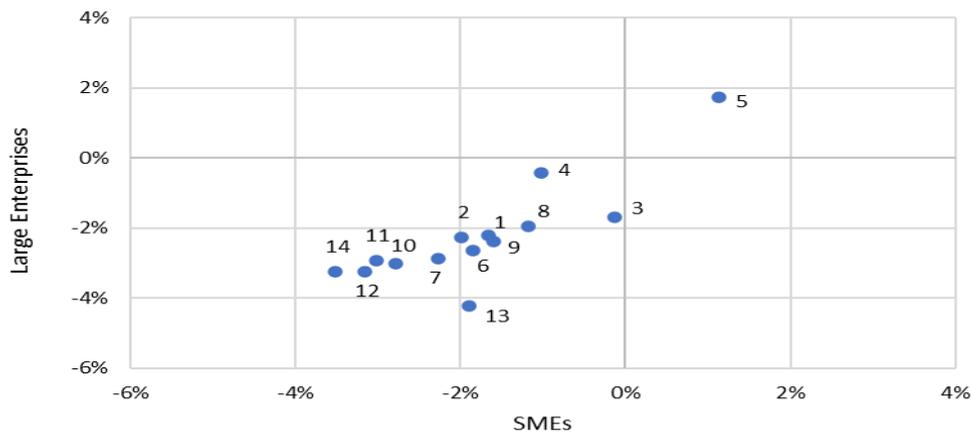


Note: The industrial ecosystems are as follows: 1 - Aerospace and Defence; 2 - Agri-food; 3 - Construction; 4 - Cultural and Creative Industries; 5 - Digital; 6 - Electronics; 7 - Energy-intensive Industries; 8 - Energy – Renewables; 9 - Health; 10 - Mobility - Transport – Automotive; 11 - Proximity, Social Economy and Civil Security; 12 - Retail; 13 - Textiles; 14 - Tourism. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

In thirteen out of fourteen ecosystems, both SME and large enterprise employment fell in 2020 (Figure 63), with those ecosystems with the largest decreases in SME employment also tending to experience the greatest declines in large enterprise employment. In most ecosystems, large enterprise employment fell by 2% - 4% and SME employment by 1% - 3%.

Figure 63: Change (in %) in SME and large enterprise employment in 2020, by industrial ecosystem

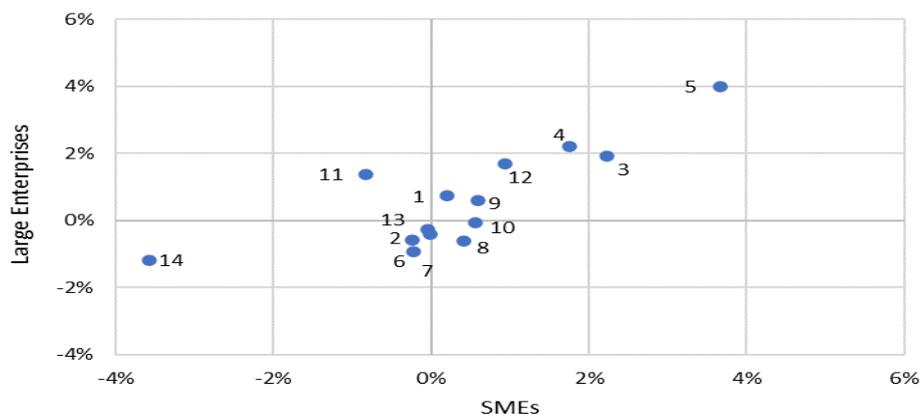


The industrial ecosystems are as follows: 1 - Aerospace and Defence; 2 - Agri-food; 3 - Construction; 4 - Cultural and Creative Industries; 5 - Digital; 6 - Electronics; 7 - Energy-intensive Industries; 8 - Energy – Renewables; 9 - Health; 10 - Mobility - Transport – Automotive; 11 - Proximity, Social Economy and Civil Security; 12 - Retail; 13 - Textiles; 14 - Tourism. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat’s Structural Business Statistics (2008-2019), Short-Term Business Statistics and National Accounts Database

The correlation between large enterprise and SME employment growth in 2021 across the ecosystems (Figure 64) was much weaker than in 2020, although those ecosystems with stronger SME employment growth still tended to experience stronger growth in large enterprise employment as well. In most ecosystems, both SME and large enterprise employment changed by between -1% and 2% in 2021 relative to 2020. However, one ecosystem which was clearly an outlier in 2021 was the ‘tourism’ ecosystem, in which SME employment fell by almost 4%, whilst large enterprise employment only declined by about 1%.

Figure 64: Change (in %) in SME and large enterprise employment in 2021, by industrial ecosystem



Note: The industrial ecosystems are as follows: 1 - Aerospace and Defence; 2 - Agri-food; 3 - Construction; 4 - Cultural and Creative Industries; 5 - Digital; 6 - Electronics; 7 - Energy-intensive Industries; 8 - Energy – Renewables; 9 - Health; 10 - Mobility - Transport – Automotive; 11 - Proximity, Social Economy and Civil Security; 12 - Retail; 13 - Textiles; 14 - Tourism. Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ, based on calculations by the JRC, which, in turn, are based on Eurostat’s Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

7 SMEs and environmental sustainability

This chapter presents information on the general trends in environmental sustainability of SMEs (section 3.1), reviews the interlinkages of digitalisation and sustainability in the context of SMEs (section 7.2), assesses the availability of finance for the sustainability transition of SMEs (section 3.3), presents information on the sustainability impacts and challenges experienced by industrial ecosystems (section 7.4), and develops recommendations for policies for the sustainability transition of SMEs (section 3.4).

7.1 SMEs and sustainability: General trends, challenges, and opportunities

The European Union has embarked on an ambitious transition towards a greener, cleaner economy. The European Green Deal responds to climate change and environmental degradation as the key challenges of the century by ensuring the decarbonisation of the economy and promoting more efficient resource use. Given its ambition, this sustainability transition is, and will be, a challenge for businesses, while these businesses also play an integral role in reaching the envisioned targets.

As a key part of the economy, the participation and inclusion of SMEs are critical to the success of the sustainability transition. SMEs feel this pressure, as evidenced in the 2021-2022 SME associations survey, which found that more than 90% of SME associations reported SMEs experiencing strong or very strong external pressure to achieve climate neutrality.³⁹ External pressure from society and the EU was particularly strongly felt, as was pressure from investors, national governments, customers and supply chain partners, albeit to a slightly lesser extent.

Although SMEs are highly heterogeneous, some key defining characteristics shape whether and how SMEs embark on the sustainability transition:

- SMEs tend to operate in a geographic and product niche, with limited diversification.
- They tend to have limited access to resources, e.g. access to finance/access to expertise, skills and human resources.
- SMEs are often owned and managed by the same person, and consequently depend on the ambitions, beliefs and values of the owner-manager.
- They have limited influence on the wider business environment (e.g. through lobbying or advocacy activities) or supply chains.

The first and third characteristics would imply a highly heterogeneous response to the sustainability transition, strongly dependent on the specific niche of an SME and individual owner-managers. On the other hand, SMEs are potentially an important driver of sustainable innovation, as highlighted by previous OECD research.⁴⁰

7.1.1 The European Green Deal

The sustainability transition is multidimensional, covering various aspects of environmental sustainability while maintaining reductions in greenhouse gas (GHG) emissions as an overarching goal. The envisioned action plans and measures are ambitious and far-reaching and consequently, also involve SMEs. Particularly worth highlighting, for their impact on SMEs, are the following EU climate initiatives of the European Green Deal:

- **EU Emissions Trading System (EU ETS):** As currently only specific sectors are addressed and exceptions are granted for small enterprises, most SMEs are not included in the ETS.⁴¹ However, SMEs are still affected, for example, through their supply chains, either as customers or as suppliers.

³⁹ The 2021-2022 SME association survey was conducted in within the framework of this Annual SME Performance Review. This special study also relies on the findings of the 2020-2021 SME association survey, which was conducted in within the framework of the previous Annual SME Performance Review.

⁴⁰ OECD (2013), *Green Entrepreneurship, Eco-Innovation and SMEs*, OECD, Paris. available at: [https://one.oecd.org/document/CFE/SME\(2011\)9/FINAL/en/pdf](https://one.oecd.org/document/CFE/SME(2011)9/FINAL/en/pdf).

⁴¹ According to calculations based on the EBRD BEEPS Business Environment and Enterprise Performance Survey (BEEPS) dataset, only about four percent of SMEs participated in the ETS. However, as this dataset is not fully representative of the population of SMEs in the EU, this figure should be seen as an approximation. Furthermore, the 2021-2022 survey of SME associations showed that the majority of SME associations do not see greenhouse gas trading and offsetting schemes as widely used by SMEs.

- The proposed **Carbon Border Adjustment Mechanism (CBAM)**: While the direct impact on SMEs would be limited, SMEs would still be affected by indirect impacts through their supply chains.
- **Circular Economy Action Plan**: Especially in the value chains addressed by the action plan, the impact on SMEs is potentially strong and widespread. Various instruments are available to SMEs that support the adoption of circular economy activities (e.g. the Circular Economy Finance Support Platform, Enterprise Europe Network or the European Resource Efficiency Knowledge Centre).
- **European industrial strategy**: The strategy is accompanied by a dedicated SME strategy, emphasising the sustainability transition, acknowledging the challenges SMEs face, and providing the instruments to overcome these challenges.⁴²
- **Other policies and actions** are also of relevance, but are often highly sector-specific (e.g. the **Farm to Fork strategy** or the **hydrogen strategy**)

In short, the impact of the European Green Deal, as well as related policies and actions aimed at SMEs, are currently fairly limited. Where the impact is felt, it is typically localised or sector-specific. However, indirect impacts through the supply chains of SMEs are potentially significant.

7.1.2 Trends in the CO₂ emissions of SMEs

Only limited quantitative evidence is available on the environmental footprint of SMEs, necessitating the proxying of the environmental footprint. Such estimation is achieved by referring to the methodology employed by the now terminated Environmental Impact Database for SMEs (EIDSME). With annual emissions of only 67 tons of CO₂ and 75 tons of greenhouse gas (GHG) emissions, the average SME enterprise emits very little, especially when compared to CO₂ emissions of 20,027 tons and GHG emissions of 22,345 tons for the average large enterprise. However, due to the large number of SMEs in the overall enterprise population, the SME share of total annual emissions is in fact high, at 63.3 % of all CO₂ and greenhouse gas emissions in the enterprise population as a whole.

The size and relative share of SME emissions vary by sector, reflecting both the CO₂ emission intensity of the sector itself, as well as differences in the prevalence of SMEs in the sector. ‘Manufacturing’, ‘electricity, gas, steam and air conditioning supply and ‘transportation and storage’ are by far the highest emitting sectors. In contrast, service sectors tend to emit far less CO₂ directly. SMEs tend to be more prevalent in sectors with relatively low CO₂ emissions, partially explaining why SMEs tend to emit lower levels than large enterprises. (Figure 65)

Additional evidence for these estimates is provided by the **Business Environment and Enterprise Performance Survey (BEEPS)** of the European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB) and World Bank.⁴³ While BEEPS does not provide quantitative evidence on CO₂ emissions themselves, electricity and natural gas consumption can serve as a proxy. The research shows that electricity and natural gas consumption increases as enterprise size increases, but remains constant in terms of average consumption per employee.

Finally, the OECD, in its “No net zero without SMEs” report, conducted a literature review of the environmental footprint of SMEs and entrepreneurs. While the scope of the review extends beyond Europe, studies focusing on the EU generally mirror the results presented earlier in this chapter. Moreover, studies with a different geographical scope add further validity to the aforementioned estimates.⁴⁴

To summarise, although individual SMEs have a small emissions footprint, given their large numbers, SMEs significantly contribute to the emission total. This poses a challenge, as any reduction in CO₂ emissions critically depends on SMEs, while SMEs – as discussed in the following section – face substantial barriers to reducing their emissions. Moreover, due to the urgency of climate change, mitigation and adaptation measures need to be rapidly implemented across the EU economy, including SMEs. Given the time pressure and the significant

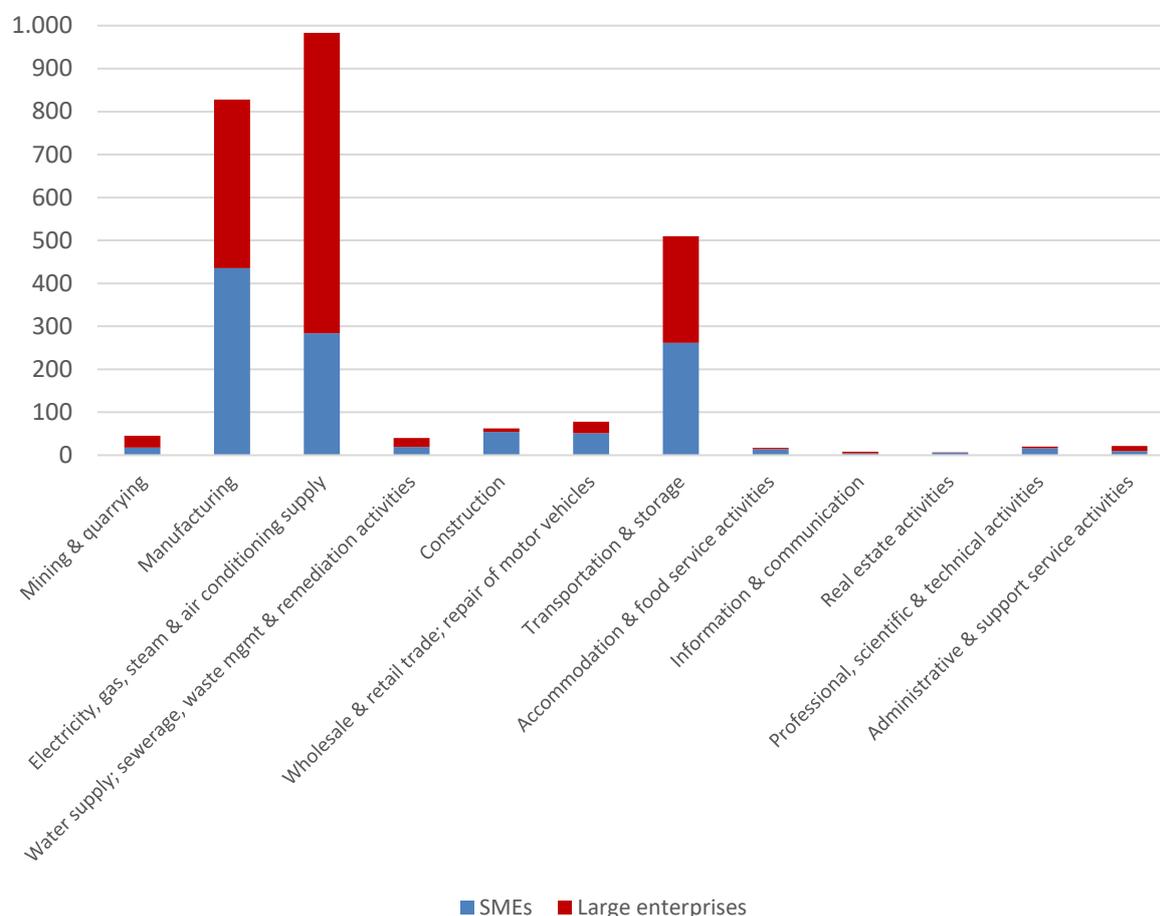
⁴² European Commission, *An SME Strategy for a sustainable and digital Europe*, Communication from the Commission, COM/2020/103 final 2020.

⁴³ EBRD BEEPS, EBRD-EIB-WBG Enterprise Surveys 2018-2020, <https://www.beeps-ebd.com/data/2018-2020/>.

⁴⁴ OECD (2021), *No net zero without SMEs: Exploring the key issues for greening SMEs and green entrepreneurship*, OECD SME and Entrepreneurship Papers, No. 30, OECD Publishing, Paris, <https://doi.org/10.1787/bab63915-en>.

environmental footprint of SMEs, efficient and effective policy support therefore is needed to accelerate SMEs' transition towards sustainability (see section 7.5).

Figure 65 CO₂ Emissions by sector, EU-27, in million tons, 2018



Note: SMEs are defined as all enterprises with less than 250 employees. Sectors correspond to NACE Revision 2 sectors.

Source: calculations based on Eurostat Structural Business Statistics and air emissions accounts

7.1.3 Challenges faced by SMEs

As previously mentioned, some of the challenges and opportunities associated with the sustainability transition of SMEs are driven by the unique characteristics of this enterprise group; for example, limited human resources, lack of access to finance, and a focus on niche markets. In the following section, the challenges faced by SMEs are assessed, based on data from various enterprise surveys, focusing in particular on the Eurobarometer special flash surveys on the circular economy, resource efficiency and green markets in 2017 and 2021.

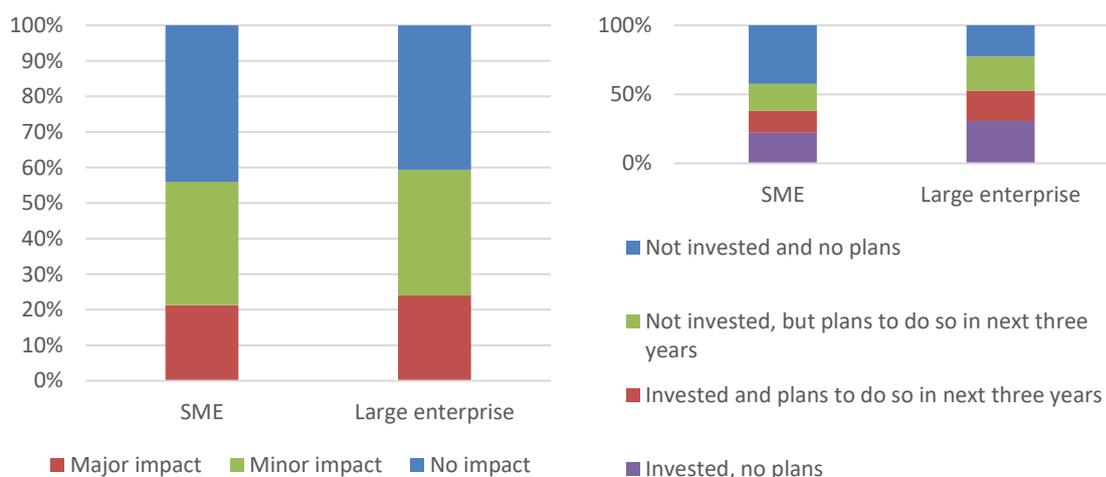
7.1.3.1 SMEs and sustainability: climate change

Climate change policies and climate change itself impact the bottom line of SMEs in four different ways. Firstly, there are costs associated with climate change policies, such as adherence to regulations and standards. Secondly, SMEs have to bear rising energy costs, due to carbon taxes and other pricing mechanisms. Thirdly, SMEs face changing demand patterns. Finally, there is the impact of climate change itself, which is also felt by

SMEs.⁴⁵ These challenges, in turn, open up several opportunities for SMEs to reap the benefits of moving towards sustainability. For example, resource efficiency measures not only improve SMEs' environmental performance but can also reduce production costs in the future.⁴⁶ Furthermore, adapting to changing demand patterns could enable SMEs to serve additional customers.

Currently, a slight majority of SMEs and large enterprises are already experiencing major or minor climate change impacts. The majority of SMEs have also invested or plan to invest in tackling the impact of climate change and reducing emissions. While both SMEs and large companies are impacted by climate change, SMEs lag behind large companies in terms of climate investment plans. (Figure 66) However, this difference between enterprise types might be a result of the more comprehensive reporting requirements of larger enterprises (see also section 7.5.3).

Figure 66 Current impact of climate change (left) and climate investment plans (right)



Note: Q57. "Thinking about climate change and the related changes in weather patterns, would you say these weather events currently have a major impact, a minor impact or no impact at all on your business?" (left) and Q59. "Now thinking about investments to tackle the impacts of weather events and reduction in carbon emissions, which of the following applies?" (right).

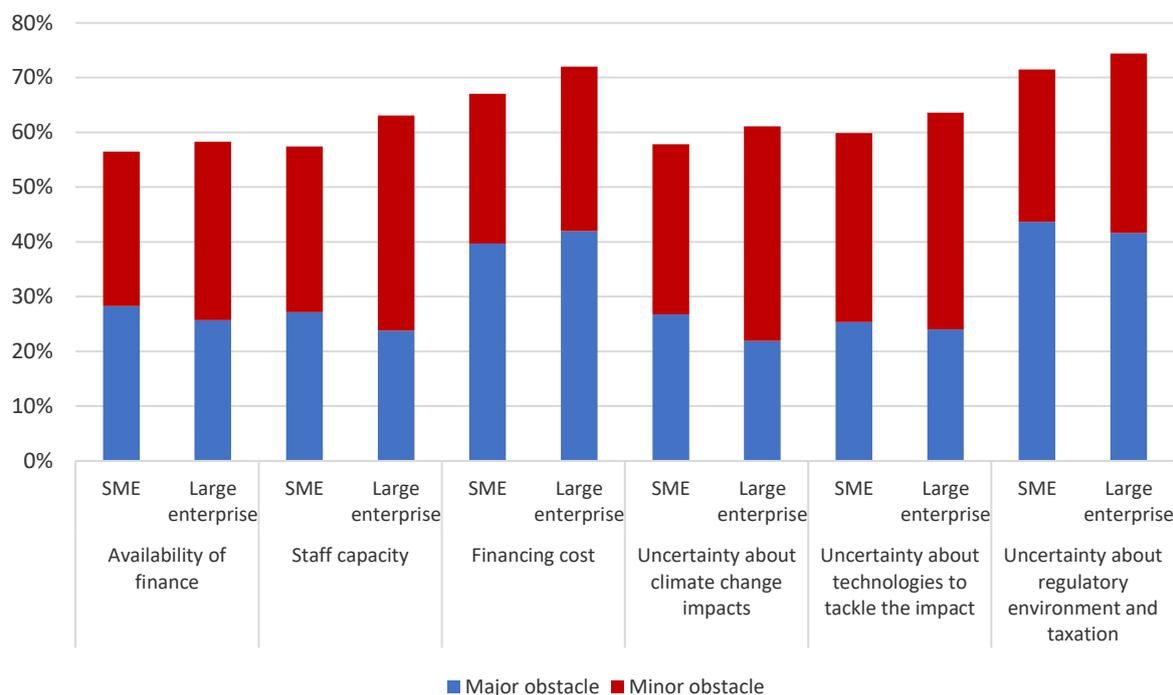
Source: EIB Investment Survey, 2020

In contrast, SMEs and large enterprises do not significantly differ with regard to the obstacles to climate change-tackling investments. 'Financing cost' and 'Uncertainty about regulatory environment and taxation' particularly stand out, with at least 39 % of SMEs citing these as major obstacles. (Figure 67)

⁴⁵ Vickers, I., Prashant, V., Corr, L., Kasparova, E., Lyon, F. (2009) *SMEs in a Low Carbon Economy*, Final Report for the Department for Business Enterprise & Regulatory Reform (BERR).

⁴⁶ Source: European Commission (2021) Flash Eurobarometer 498: SMEs, green markets and resource efficiency.

Figure 67 Factors impacting investment in activities to tackle the impacts of weather events and emissions reduction



Note: Q60. “And to what extent, if at all, is each of the following an obstacle to investing in activities to tackle the impacts of weather events and emissions reduction? Is it a major obstacle, a minor obstacle or not an obstacle at all?”.

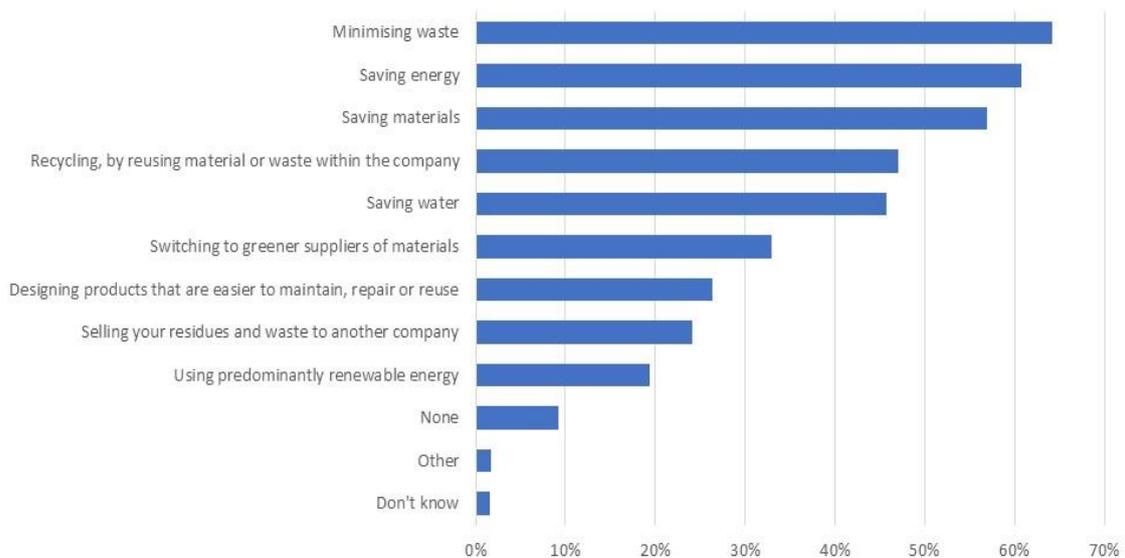
Source: EIB Investment Survey, 2020

7.1.3.2 Circular economy and resource efficiency

More than two-thirds of SMEs had undertaken at least some resource efficiency activities. Medium-sized enterprises in particular were more likely to have undertaken resource efficiency activities than small or micro enterprises.⁴⁷ In most cases, this was restricted to one or a few activities and did not entail a complete revamp of products and processes. Most SMEs minimised waste and saved energy and materials. Moreover, over 45% of SMEs recycled by reusing material or waste within the company, and about a third switched to greener suppliers of materials. Finally, around one-quarter of SMEs designed products that are easier to maintain, use or repair, or sold their residues and waste to other companies, and just less than one fifth used predominantly renewable energy. (Figure 68)

⁴⁷ European Commission (2021) Flash Eurobarometer 498: SMEs, green markets and resource efficiency.

Figure 68 Resource efficiency activities of SMEs, 2021

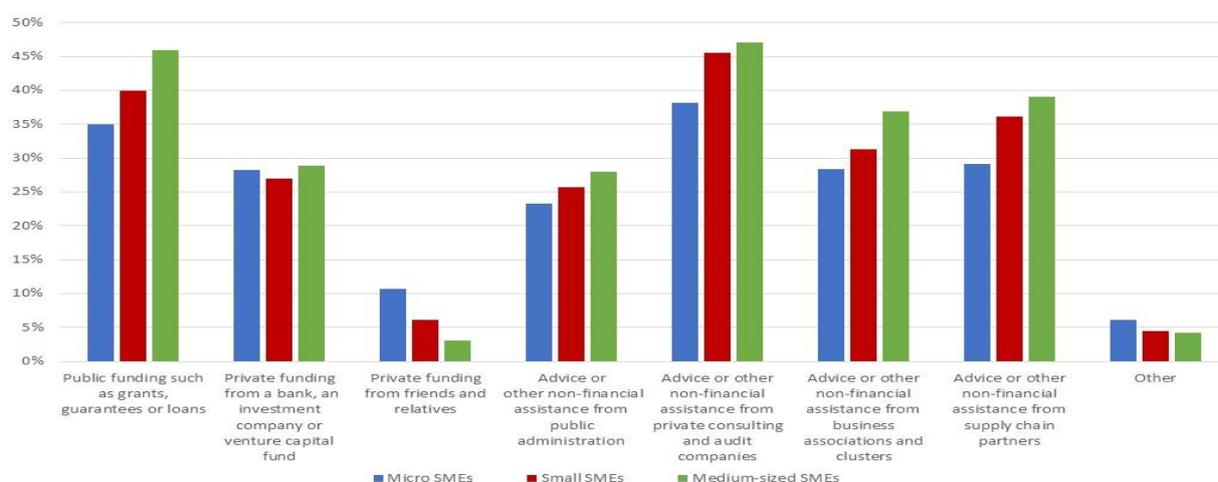


Source: European Commission (2021) Flash Eurobarometer 498: SMEs, green markets and resource efficiency

There were a variety of reasons why SMEs did not undertake further resource efficiency related activities. SMEs which had undertaken at least one resource efficiency related activity reported the costs of environmental action as being a barrier, along with difficulties arising from legislative and regulatory requirements. To a slightly lesser extent, they reported other challenges, such as lack of human resources, insufficient demand for resource-efficient outputs, and lack of supply of required inputs. The current supply chain bottlenecks stand out as an emerging issue (an increase of 10% compared to 2017). In general, a greater number of larger SMEs, compared to smaller SMEs, stated that they faced the previously mentioned barriers to undertaking resource efficiency-related activities.

To overcome cost challenges, government support programmes incorporating financial incentives could play a critical role. Such support programmes represent the predominant form of external funding support across all SME company sizes. In contrast, the private sector provides significantly more external support than the public sector when it comes to advise or other non-financial assistance. (Figure 69) Considering the aforementioned challenge of dealing with regulation, this finding highlights the increased contributions the public sector could provide in terms of advice or other non-financial assistance.

Figure 69 Types of external support that SMEs rely on, 2021



Note: Q6. “More precisely, which type of external support is it?” (asked only if SMEs stated that they received external support in the prior question).

Source: European Commission (2021) Flash Eurobarometer 498: SMEs, green markets and resource efficiency

At least as far as resource efficiency is concerned, investments and costs incurred could be partially self-financed through reduced production costs. However, there was an equal split between SMEs reporting decreased costs after the implementation of resource efficiency activities and SMEs which reported increased costs.⁴⁸ This is a marked deterioration compared to the last instance of the Flash Eurobarometer in 2017.⁴⁹ However, significant increases in the price of production inputs, e.g. natural gas, might revert this trend again in the coming years.

To summarise, while SMEs have undertaken circular economy-related or resource efficiency activities in selected areas, they have not yet transformed themselves completely by following circular economy principles. In particular, this applies to small enterprises, which tend to lag behind medium-sized enterprises. A range of factors could explain these findings: in particular, that SMEs are challenged by regulation, lack the expertise to carry out implementation or have insufficient access to finance. Given the urgent need to address climate change, the current progress of SMEs, although substantial, needs to be accelerated, potentially through increased public sector support (see section 7.5).

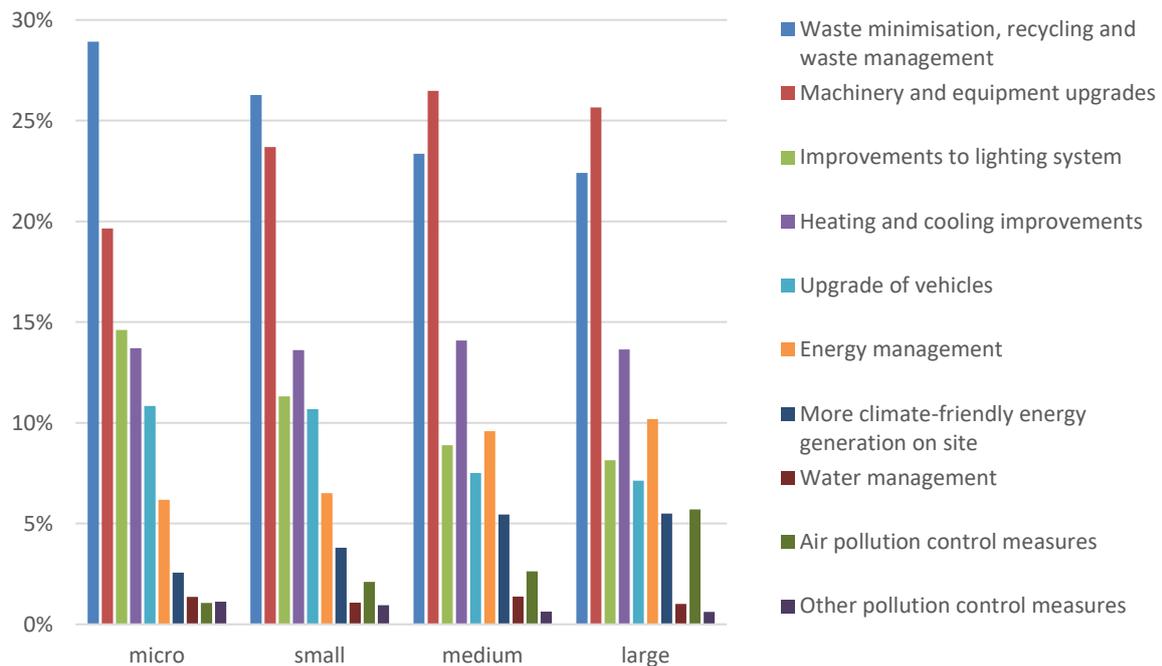
7.1.4 Addressing challenges

How do SMEs address these challenges and reduce their environmental footprint? A variety of measures are available to SMEs to reduce CO₂ emissions, improve resource efficiency and strengthen the circular economy of each SME. According to enterprises themselves, the key measures are machinery and equipment upgrades, as well as waste minimisation, recycling, and waste management. To a lesser extent, other measures matter, such as heating and cooling improvements, and improvements to lighting systems and vehicle upgrades. Air pollution control measures and more climate-friendly energy generation on-site (micro-generation) are less important and are mainly deployed by larger enterprises. (Figure 70)

⁴⁸ Source: European Commission, Flash Eurobarometer 498: SMEs, green markets and resource efficiency, 2021.

⁴⁹ European Commission, Flash Eurobarometer 456: SMEs, resource efficiency and green markets, 2018.

Figure 70 Measures that most contribute to reducing environmental impacts, by enterprise size class



Note: Question: “Out of the measures adopted over the last three years, which one has contributed the most to reducing this establishment’s environmental impacts, if any?”.

Source: EBRD BEEPS, 2018-2020

As a whole, 91% of SMEs had adopted at least one form of environmental or social sustainability action, with large shares of SMEs being active in recycling or reusing materials (61%) and resource consumption (52%).⁵⁰

What compels SMEs to adopt these measures? According to one study, strong motivators include individual beliefs, principles and values, especially the ones of SME owners and managers, but also a strong social identity embedded in local communities and the wider socio-cultural environment.⁵¹ Other factors include the legislative framework, for example, mandating or encouraging certain measures, as well as organisational benefits, such as savings from energy-efficiency measures. However, external drivers seem to play a major role as well. As indicated by the Flash Eurobarometer 456, about 50% of SMEs stated that consumer demand and commercial benefit were their main motivation for offering more sustainable products.

7.2 Digitalisation - a Swiss army knife for sustainability?

On the one hand, the digitalisation of SME activities affords opportunities to SMEs, but on the other, it creates an urgent challenge, as SMEs face not only a sustainability but also a digital transition challenge. The two transitions are closely related (the “twin transition”), as digital solutions are powerful enablers for the sustainability transition.

7.2.1 Digital solutions and sustainability

While there is no doubt that the ICT sector has a considerable environmental footprint, this footprint is comparable to, or smaller than, that of other industrial ecosystems. Furthermore, digital solutions are critical

⁵⁰ European Commission (2020) Flash Eurobarometer on SMEs, start-ups, scale-ups and entrepreneurship, September, available at: <https://europa.eu/eurobarometer/surveys/detail/2244>.

⁵¹ Bocconi School of Management (2021) *Fostering Sustainability in Small and Medium-sized Enterprises*, Generali SME EnterPRIZE White Paper.

instruments for the reduction of environmental footprints, and CO₂ emissions in particular.⁵² The following digital solutions have the potential to reduce the environmental footprint of SMEs:

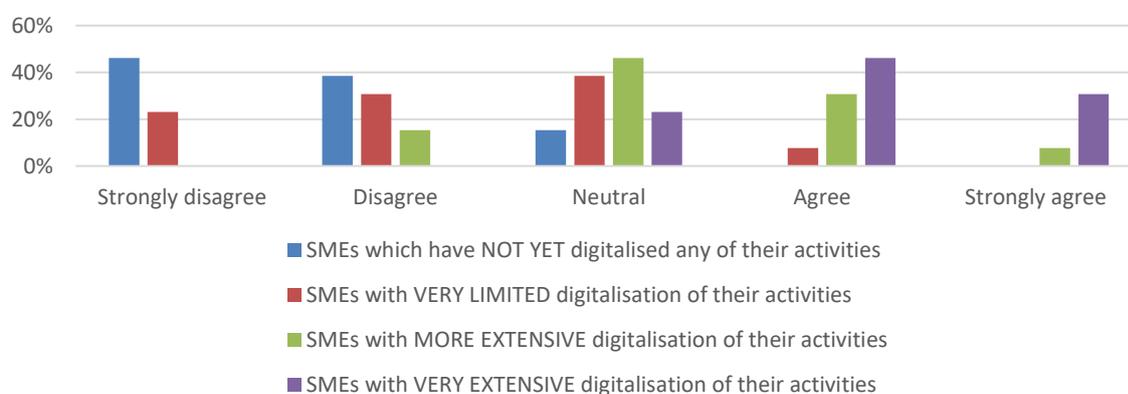
- **ICT tools** such as video conferencing can serve **as an alternative to travel**, thereby reducing transport-related CO₂ emissions. The COVID-19 pandemic has been transformational in this regard, as video conferencing tools cause only about 0.2% - 0.9% of the emissions of the average face-to-face conference meeting.⁵³
- **Smart appliances** and more general **smart technologies** offer the potential for significant energy savings and reductions in CO₂ emissions. Research from the UK estimates that smart technologies could lead to energy savings of 17% of the overall energy expenditure of SMEs.⁵⁴
- **Self-generated renewable energy solutions and energy storage solutions** (“micro-generation”) can potentially reduce CO₂ emissions.
- **ICT solutions to reduce paper consumption** also offer the potential to reduce the environmental footprint of SMEs.
- Lastly, **cloud computing solutions** offer the potential for energy savings and thus for reducing CO₂ emissions. While cloud computing services consume considerable energy, in comparison to the decentralised provision of computing solutions, they can save energy through economies of scale and by achieving higher utilisation rates.

7.2.2 Adoption of digital solutions by SMEs

While the described measures promise potentially significant reductions in the environmental footprint, there is no guarantee that they will be adopted by SMEs.

Evidence on the adoption of digital solutions by SMEs, and the barriers they face, is provided by the 2020 - 2021 survey of SME associations, which was part of the previous SME Performance Review. There is a significant gap in the digitalisation readiness of SMEs. Although SMEs that have already extensively digitalised their activities tend to have strategies or action plans to digitalise in place, SMEs that have not yet, or have only to a limited extent, digitalised their activities, tend to have no strategy or action plan in place. (Figure 71)

Figure 71 Presence of strategies or action plans, 2020 - 2021



Note: Agreement with the statement "Most SMEs have a strategy or action plan to digitalise"; excludes digitalisation support organisations.
Source: European Commission (2021) Annual Report on European SMEs 2020/2021: Digitalisation of SMEs

⁵² Colin Cunliff (2020) *Beyond the Energy Techlash: The Real Climate Impacts of Information Technology* available at <https://itif.org/publications/2020/07/06/beyond-energy-techlash-real-climate-impacts-information-technology>.

⁵³ Seidel, Andres; May, Nadine; Guenther, Edeltraud; Ellinger, Frank (2021) *Scenario-based analysis of the carbon mitigation potential of 6G-enabled 3D videoconferencing in 2030*, Telematics and Informatics 64(101686).

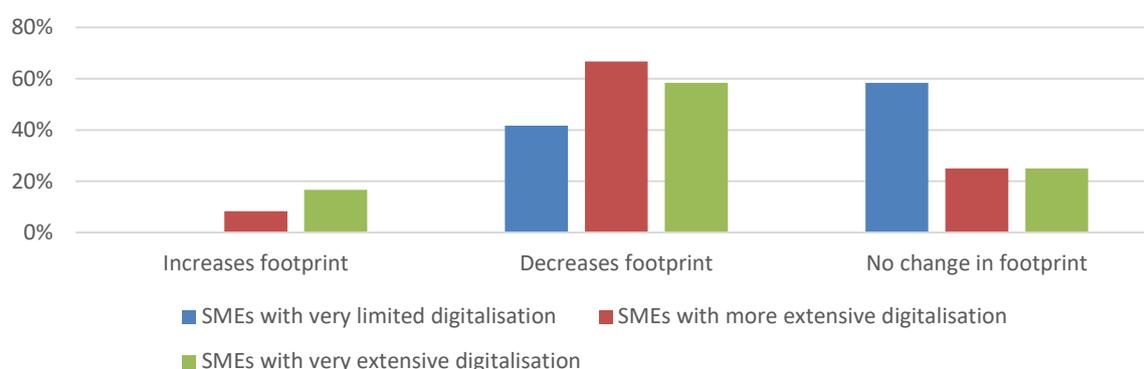
⁵⁴ Warren, Peter (2017) The potential of smart technologies and micro-generation in UK SMEs, *Energies* 10(17).

Key factors that explain why SMEs are not digitalising their activities range from a lack of required skills to financing challenges. In contrast, SMEs which have digitalised their activities tend to perceive infrastructure or cybersecurity challenges as key barriers.

How do SMEs pursue digitalisation? In principle, they follow two strategies or a mix thereof, either relying on in-house capacity and skills or availing of external solutions. SMEs with very limited digitalisation of their activities typically initiate the transition via external solutions. As the extent of their digitalisation and thus their experience grows, they increasingly rely on in-house capacity and skills, or a mix of external solutions and internal capacity.⁵⁵

The general perception of stakeholders is that digitalisation will reduce or leave unchanged the environmental footprint of SMEs (Figure 72). This would indicate that digitalisation and sustainability go hand-in-hand, and that digitalisation is one way for SMEs to manage the sustainability transition. However, there is still significant uncertainty regarding the holistic impact of digitalisation on the environment.⁵⁶

Figure 72 Impact of digitalisation on the environmental footprint, 2020 - 2021



Note: Q36: "In terms of the impact on the environmental footprint of digitalisation, how would you expect the footprint to change (if at all)?"

Source: European Commission (2021) Annual Report on European SMEs 2020/2021, Digitalisation of SMEs

7.2.3 Supporting SMEs in the digital transition

While the potential for digitalisation is clear, SMEs face real challenges in the adoption of digital solutions, which can be addressed through policy support, e.g. technical advisory services and knowledge platforms, public financial support, and creating the requisite ICT infrastructure.

However, beyond public support, there are two further important considerations for the adoption of digital solutions:

- Firstly, the availability of off-the-shelf digital solutions that meet the needs of SMEs is critical. Given the relatively small size of SMEs, they are not always in a position to develop their own bespoke digital solutions.
- Secondly, digital solutions need to fit the business processes and models of SMEs, as the true cost of adopting digital solutions (e.g. reorganisation) is often hidden.

Hence, policy support also needs to consider the availability of relevant digital solutions and the integrability of digital solutions into SME business processes. The former issue could be addressed by promoting the creation and functioning of markets for digital solutions, while the latter could be dealt with via the provision of extra financial resources or necessary expertise.

⁵⁵ European Commission (2021) Annual Report on European SMEs 2020/2021: Digitalisation of SMEs. See results of the survey of SME Associations.

⁵⁶ Öko-Institut e.V. (2019) *Impacts of the digital transformation on the environment and sustainability*.

Lastly, the right regulatory and legal framework could support the digital transformation.⁵⁷

7.3 Liquidity and finance - money drives the sustainability transition

Accessing financial resources is a key prerequisite for SMEs to green their business models and drive transition through eco-innovations. However, many small businesses are challenged by insufficient financial and human resources to undertake green actions.⁵⁸

Traditionally, targeted policy initiatives have been necessary to boost SMEs' financing in order to foster their innovation and growth. From the financing perspective, the sustainability transition represents a similar challenge. In fact, at all stages of development, small businesses struggle more than large enterprises to access finance.⁵⁹ The nature of sustainability investments, which are usually capital intensive and have long payback periods, is an additional obstacle for SMEs in terms of obtaining the financing they need. To this end, targeted policy interventions addressing this market failure might be necessary.

This section will explore the link between SMEs' access to finance and their transition towards sustainability. It will outline how well-designed public financing support schemes can fully unleash the potential of SMEs' sustainability transition, providing some policy examples.

7.3.1 Overview of access to finance by SMEs in the EU

After the shocks of the 2009 global financial crisis and the subsequent sovereign debt crisis in the euro area, SMEs' access to finance had been recovering, thanks to non-standard monetary policy interventions, among other factors. The situation worsened again following the economic crisis triggered by the COVID-19 pandemic, which severely reduced the access to finance of SMEs. As reported by the semi-annual Survey on the Access to Finance of Enterprises (SAFE) in its 2021 edition,⁶⁰ the general financial vulnerability of SMEs – as well as of large companies – worsened in 2020, as the share of companies defined as vulnerable⁶¹ increased from 4.3% of SAFE respondents in the second half of 2019 to 9.9% in the first half of 2020. In parallel, in 2020, the need for bank loans by SMEs rose sharply (a rise of 20% compared to the previous year), while their availability decreased.

Nonetheless, the swift and prompt policy response at Member State and EU level seems to have contained the impact of the crisis on the liquidity of SMEs. The importance of policy interventions to tackle SMEs' liquidity constraints is reflected in the SAFE 2020 results, which showed that grants and subsidised loans were considered significantly more relevant than in previous years and that their use had increased drastically in 2020 compared to 2019. At Member State level, the highest net percentages of SMEs reporting improvements in access to public financial support were observed in Austria (26%), Greece (17%) and France (16%).⁶²

7.3.2 Access to finance as an obstacle to the sustainability of SMEs

Financing the sustainability transition of SMEs requires not only the availability of financial resources but the ability and willingness of firms to use these resources to invest. The sustainability transition of SMEs translates into various types of investments that can be broken down into two main categories, with their related implications for obtaining the necessary financial resources.⁶³

⁵⁷ For example, a shift to micro-generation would require an enabling regulatory framework, regulating feed-in tariffs, among others.

⁵⁸ OECD (2021) *Financing SMEs for sustainability*, intervention at COP26, available at: <https://oecd-events.org/cop26/online-session/f1b0800c-2b2c-ec11-ae72-a04a5e7d345e>.

⁵⁹ European Commission, *Access to finance for SMEs*, available at: https://ec.europa.eu/growth/access-finance-smes_en.

⁶⁰ https://www.ecb.europa.eu/stats/ecb_surveys/safe/html/ecb_safe202106-3746205830.en.html.

⁶¹ Vulnerable firms are defined as firms that simultaneously report lower turnover, decreasing profits, higher interest expenses and a higher or unchanged debt-to-assets ratio, while profitable firms are those that simultaneously report higher turnover and profits, lower or no interest expenses and a lower or no debt-to-assets ratio. The third (and typically largest) group consists of firms that satisfy some, but not all, conditions of the vulnerable and profitable categories.

⁶² European Commission (2020), *SAFE Report 2020*, available at: <https://ec.europa.eu/docsroom/documents/43872>.

⁶³ Interview with the European Investment Fund, 2021.

- **Energy and resource efficiency:** investments in climate mitigation, such as upgrading obsolete machinery and facilities (e.g. energy retrofitting of buildings). These types of investments do not embed an innovative aspect, but they are capital intensive.
- **Innovation and development of new products:** investments in research and development to create new products, processes or services that could have a positive climate impact. In addition to being potentially capital intensive, these investments embed the typical risks related to innovation. In fact, innovation is normally considered a risky venture due to the uncertainties inherent in both the innovations themselves and their commercialisation. The introduction of new products by a firm - an important type of innovation - involves high and often sunk development and production costs that may fail to bring a sufficiently high payoff to recover those costs.⁶⁴ For these reasons, in order to finance these investments, firms may also rely on equity financing or venture capital instead of bank loans, which are the source of financing most used by SMEs.

From the characteristics of the two types of investments described above, it can be concluded that financing the green economy is generally capital intensive and/or risky and thus may involve long payback periods,⁶⁵ adding an additional layer of complexity for SMEs to obtain the financing they need.

This is confirmed by findings from the European Investment Bank Investment Survey (EIBIS),⁶⁶ which revealed that 28.3% of SMEs in the EU considered access to finance as a major obstacle to their sustainability investments, and the share further increased to 28.8% and 31.7% for small and micro firms, respectively. For comparative purposes, this percentage dropped to 25.3% for large companies. In terms of geographical trends, more than 37% of SMEs in ES, IT, FR, LV, and RO considered finance a major obstacle to sustainability, (which is 10% more than the EU average), with this share peaking at 50.1% in LV. On the contrary, SMEs in DK, FI, NL, and SE did not generally struggle to access finance for their investments in activities aimed at reducing emissions and mitigating weather events.

These findings from the EIBIS are confirmed by other studies. According to the Flash Eurobarometer on SMEs, startups, scaleups and entrepreneurship (September 2020),⁶⁷ 27% of the SMEs involved in the study mentioned lack of financial resources as one of the main barriers preventing them from becoming sustainable (i.e. combining long-term success and profitability with a positive impact on society and the environment, as defined in the Eurobarometer). Additionally, more than one in ten SMEs stated that becoming sustainable would hinder their profitability, given the massive investments required to upskill. In parallel, they signalled a lack of consumer demand for sustainable products (reported by 30% of SMEs as the main obstacle).

7.3.3 Available financing solutions for the sustainability transition of SMEs

The findings from the EIBIS revealed that access to finance generally represents one of the main issues that companies, and SMEs in particular, face in financing their sustainability transition. In order to further disentangle the relationship between the sustainability transition of SMEs and their access to finance, it is crucial to assess what their available financing options are.

1. Market solutions

SMEs generally rely on bank loans and bank overdraft facilities to finance their operational expenses and capital investments. As reported by the SAFE in 2021, around 50% of SMEs in the euro area used and/or deemed relevant the two aforementioned banking sources of funding, in the six months preceding the survey.

In terms of banking products specifically targeted at sustainability investments, the main type of instrument is green loans. Green loans, as defined by the Loan Market Association,⁶⁸ are any type of loan instrument made

⁶⁴ The World Bank Development Research Group (2012) *The Risks of Innovation: Are Innovating Firms Less Likely to Die?* available at: <https://openknowledge.worldbank.org/handle/10986/9310>.

⁶⁵ Green Policy Platform (2015), *Green SMEs and Access to Finance: The Role of Banking Diversity* available at: <https://www.greengrowthknowledge.org/research/green-smes-and-access-finance-role-banking-diversity>.

⁶⁶ European Investment Bank (2020), Investment Survey (EIBIS) <https://www.eib.org/en/publications/econ-eibis-2020-eu>.

⁶⁷ European Commission (2020) Flash Eurobarometer on SMEs, startups, scale-ups and entrepreneurship, September, available at: <https://europa.eu/eurobarometer/surveys/detail/2244>.

⁶⁸ Loan Market Association (2018) *Green Loan Principles* available at: https://www.lma.eu.com/application/files/9115/4452/5458/741_LM_Green_Loan_Principles_Booklet_V8.pdf.

available exclusively to finance or refinance, in whole or in part, new and/or existing eligible green projects. Although from a financial perspective, these instruments do not differ from conventional loans, they require that the borrower is able to identify a sufficient volume of green projects to be financed by the loan and subsequently must report on their environmental progress. These requirements imply the existence of skills, as well as IT and human resources, that SMEs might lack, thus preventing them from accessing the green loan market.

2. Public sector solutions

Public financial institutions such as national governments, international organisations and state-owned development banks have often been the first to fill the access to finance gaps of SMEs. These institutions can support SMEs' broader green banking opportunities via direct financing through low-cost credit lines linked to targeted green lending programmes. They can also establish public-private partnership facilities and help unlock capital for startups and SMEs through liquidity support instruments, such as green loan guarantees.⁶⁹

At **EU level**, there are many public support schemes, in the form of grants or loans, to improve SMEs' access to finance, including support for the sustainability transition.

One example is the 'Innovate to transform' support for SMEs' sustainability transition (part of the Horizon Europe Framework Programme).⁷⁰ The programme aims to help mobilise SMEs to achieve the European Green Deal objectives, notably a climate neutral and resource efficient economy. It also aims to address the disruption that the COVID-19 pandemic has caused to companies' supply chains. Indeed, the pandemic has led to companies redesigning their supply chains and facing a new industrial revolution, brought on by a new generation of advanced technologies, which are underpinning the potential for the competitive sustainability of SMEs. 'Innovate to transform' will be implemented in coordination with other initiatives and will embed both financial support and technical assistance.

Another initiative at EU level is the agreement reached between the EIB Group and Nordea⁷¹ in September 2021 to offer new support for green SMEs in the Nordic countries. The EIB Group will guarantee a portfolio of EUR 1.8 billion of Nordea lending, freeing up capital for new lending opportunities in green investments in Sweden and Finland. The project is supported by the European Commission under the European Fund for Strategic Investments (EFSI),⁷² part of the Investment Plan for Europe. EFSI has been updated and it is now included in InvestEU, the flagship initiative financed by the European Commission and implemented by a number of partner organisations, including the EIB Group. InvestEU aims at mobilizing significant investments across the EU in a number of strategic sectors and policy areas, which include the green transition and with a particular focus (i.e. 'window') on SMEs.

At **Member State level**, some notable examples of public financing schemes supporting SMEs' sustainability transition include the **KfW** (German National Promotional Bank) **Renewable Energies Programme**,⁷³ a loan programme for SMEs and large enterprises, which aims to support investments in large plants in which heat is generated from renewable energies. The loan can cover up to 100% of the financeable costs of investment, up to a limit of EUR 25 million, and it presents particularly favourable interest rates for SMEs, along with attractive repayment terms.

Another relevant initiative is being pursued in Spain, with the creation of **Enisa**,⁷⁴ a state-owned company under the management of the General Directorate of Industry and SMEs, which is integrated into the Spanish Government's Ministry of Industry, Commerce and Tourism. Enisa provides Spanish SMEs with financial support to help promote their sustainable, innovative and competitive development in the market. It promotes different programmes, including financial support to individual entrepreneurs and SMEs to boost their businesses'

⁶⁹ Ibid.

⁷⁰ Available at: <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2021-resilience-01-29>.

⁷¹ See: https://www.eif.org/what_we_do/guarantees/news/2021/nordea-eib-group-new-support-green-sme-nordics.htm.

⁷² See: https://www.eif.org/what_we_do/efsi/index.htm.

⁷³ See: <https://www.kfw.de/inlandsfoerderung/Companies/Energy-and-the-environment/>.

⁷⁴ See: <https://www.enisa.es/>.

sustainability and innovation. The different financial instruments offered can have a maximum duration of 9 years, with a budget of up to EUR 1,500,000.

Finally, one interesting measure promoted by the **Slovak Government** is the introduction of Act 67/2020 for **financial aid to support SMEs**.⁷⁵ The initiative, which is managed by the Slovak Ministry of Finance (MoF), assumes the form of (i) guarantees for loans provided by the Export-Import Bank of the Slovak Republic (Eximbanka SR) and the Slovak Guarantee and Development Bank (SGDB); and (ii) the payment of a portion of interest on a loan provided by Eximbanka SR or the SGDB.

7.4 Sustainability transition by industrial ecosystem

Sustainability is a sector-specific issue, as the ecological footprint and challenges associated with the sustainability transition vary substantially across sectors. Traditional economic analysis focuses on industries, precisely defined by statistical classification systems and with the different industries bound together by input-output linkages. In contrast, this section focuses on the industrial ecosystems reviewed in the previous chapter.

Ecosystems differ significantly in their emissions. Among other factors, these differences reflect the different sizes of the ecosystems. For example, 'aerospace and defence' is a much smaller ecosystem than the 'mobility, transport and automotive' ecosystem. At the same time, these differences also represent structural differences. For example, 'energy-intensive industries' and 'tourism' are more emission-intensive than 'cultural and creative industries' and 'health'. The largest emissions are generated by the ecosystems of the 'energy-intensive industries', 'energy renewables',⁷⁶ 'tourism' and 'mobility, transport and automotive'. Although the share of SMEs in all enterprises is very high across all the ecosystems (more than 99%), the actual share of SMEs in each ecosystem's total emissions varies. The share is particularly low in 'aerospace and defence', 'energy-intensive industries' and 'energy-renewables', reflecting the relatively low number of SMEs in these ecosystems. Conversely, the share is relatively high in 'construction', 'cultural and creative industries' and 'textiles', reflecting the relatively high number of SMEs in these ecosystems (see also section 6.2.1)

Ecosystems also differ in the extent to which emissions are caused by direct emissions (scope 1), indirect emissions created in the production of electricity consumed by the enterprise (scope 2), and all other indirect emissions in the supply chain (scope 3).⁷⁷ Although data is only available for the broadest NACE industry classification⁷⁸ (and thus no indicators can be calculated for the ecosystems themselves), this level of detail already offers insights into how ecosystems would differ in their scope 1, 2 and 3 emissions. For some sectors, notably 'electricity and gas', and 'mining', the share of scope 1 and 2 emissions in total emissions is relatively high, reflecting the relatively smaller supply chain of these sectors, as well as their high direct emissions. (Figure 73).

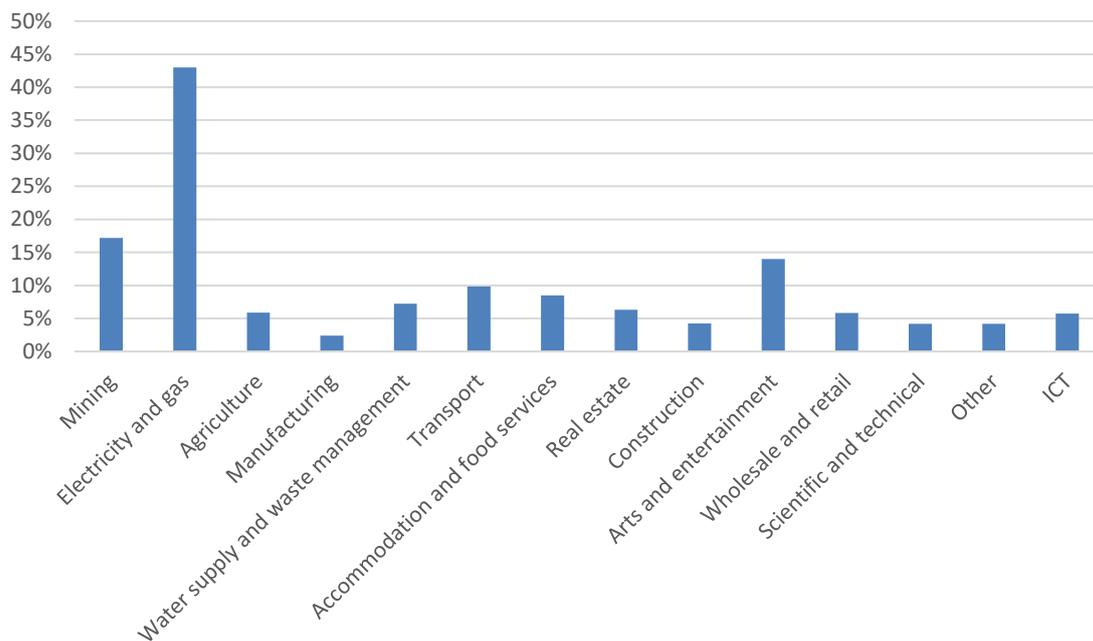
⁷⁵ More information available at: <https://www.jdsupra.com/legalnews/covid-19-slovak-government-financial-73129/>.

⁷⁶ Emissions by the 'Energy-renewable'srenewables' ecosystem are very likely significantly overestimated. The reason is that this ecosystem is constructed from the NACE sector 'electricity, gas, steam and air conditioning supply', without differentiating between electricity generated by renewables and non-renewables. While this is a fair assumption with regard to the size of the ecosystem in terms of employment or value-added, it is a problematic assumption with regard to the ecosystem's greenhouse gas emissions.

⁷⁷ The definition of the three levels of scope follows the Greenhouse Gas Protocol. See World Business Council for Sustainable Development and World Resources Institute (2004): *The greenhouse gas protocol: A corporate accounting and reporting standard* available at <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>.

⁷⁸ Information is only available at the 1-digit NACE level.

Figure 73 Share of scope 1 and 2 emissions in total emissions, 2018

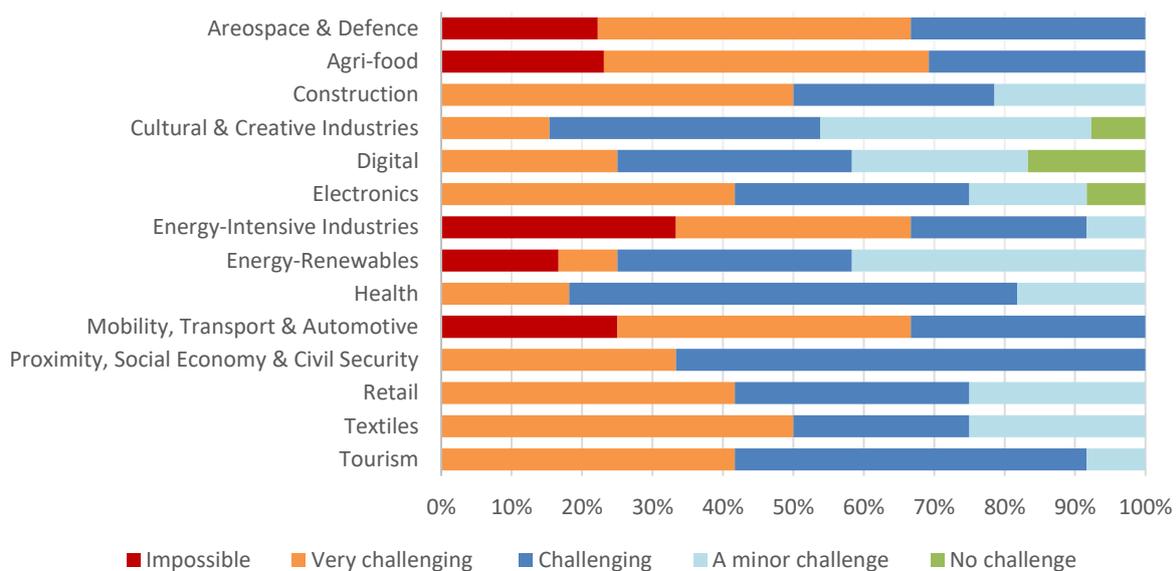


Note: Emissions are reported at the 1-digit NACE level.

Source: Alogoskoufis et al. (2021), based on data from the European Central Bank and Urgentem

Because of their different emission footprints, the prospects of ecosystems contributing to the EU-wide target of an emissions reduction of 55% by 2030 also differ. The 2021–2022 survey of SME associations found that some of the highest emitting ecosystems (i.e. ‘aerospace and defence’, ‘agri-food’ and ‘mobility, transport and automotive’) are expected to be particularly challenged by meeting the emissions target. Conversely, less emitting ecosystems such as ‘cultural and creative industries’, ‘digital’, ‘health’ and ‘retail’ are expected to be more likely to achieve the target. (Figure 74)

Figure 74 Challenge of reaching the 2030 emission target



Note: Question: ‘How challenging will it be for SMEs to reduce greenhouse gas emissions by 55% by 2030?’ Number of total responses per ecosystem varies between 9 and 14.

Source: Results of 2021–2022 SME association survey undertaken for this report

These differences between ecosystems stem from inherent structural differences between the ecosystems. Ecosystems differ not only in their size, their share of SMEs and the extent and nature of their supply chains, but also in terms of market structure, technologies, skills and expertise, among many other factors.

The extent to which SMEs are embarking on the sustainability transition depends heavily on their industrial ecosystem. More than 50 % of SMEs in the tourism and energy-renewables ecosystems have already strategies in place to become climate neutral, are developing them, or are already climate neutral. In contrast, this share is less than 30% for SMEs in the energy intensive industries and the health ecosystems. Moreover, while about 45% or more of SMEs in the electronics and health ecosystems invested at least 1% of their annual turnover in the last two years, less than 25% of SMEs do so in the tourism and cultural and creative industries ecosystem.⁷⁹

SMEs in different ecosystems also differ in terms of internal capacities to deal with the sustainability transition. The ecosystems energy-renewables, cultural and creative industries, agri-food, tourism, textiles, and construction are worth highlighting here, as they have above average specialised human resources, with more than 40% of SMEs in these ecosystems reporting employing at least one person in a green job.⁸⁰

As SMEs differ across ecosystems, the EU Commission, as part of its Industrial Strategy Upgrade, called for the co-creation of transition pathways for the different industrial ecosystems.⁸¹ These transition pathways serve as common visions for the twin transition in the industrial ecosystems and provide a better understanding of the characteristics and challenges of each individual ecosystem. So far, together with stakeholders from the individual ecosystems, transition pathways have been developed or are being developed for the tourism, construction, mobility, textiles, proximity and social services as well as energy-intensive industries, among others.⁸²

These transition pathways for more resilient, green and digital industrial ecosystems are expected to support SMEs by identifying specific constraints faced by SMEs in the industrial ecosystems and by providing the relevant digital and green tools and solutions. To do so, the Blueprint for the development of Transition Pathways⁸³, co-created by the Industrial Forum⁸⁴, has a strong SME focus. The Blueprint is a template, setting out guiding principles, common questions or issues to be considered in the creation of the transition pathways, and helping to identify related targets to be achieved. The SME checklist for the twin transition, annexed to the Blueprint, provides an overview of the issues particularly relevant for SMEs for a successful green and digital transition.

7.5 Designing policies for the sustainability transition of SMEs across industrial ecosystems

As the need for companies to transition to more environmentally sustainable business models is becoming increasingly urgent, especially in light of the pressing challenge to contain global warming within a target level of 1.5°C or 2°C, legislators at both national and European levels have to leverage their role in speeding up this transition. A major bottleneck for such policy-based solutions is the fact that the main targets of such policies over recent decades have mostly been large enterprises, while SMEs have received relatively less attention, especially when it comes to the reduction of their emissions.⁸⁵ Targeting SMEs more consistently is vital in order to achieve global green transition targets in a timely manner, as data from Eurostat shows that SMEs produce the majority of enterprise-created emissions, reaching over 60% in some EU Member States, as outlined in section 7.1.

⁷⁹ European Commission, Flash Eurobarometer 498: SMEs, green markets and resource efficiency, 2021

⁸⁰ European Commission, Flash Eurobarometer 498: SMEs, green markets and resource efficiency, 2021

⁸¹ See European Commission: https://ec.europa.eu/info/files/communication-updating-2020-new-industrial-strategy-building-stronger-single-market-europes-recovery_en

⁸² See European Commission: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_850

⁸³ <https://ec.europa.eu/docsroom/documents/49407>

⁸⁴ https://ec.europa.eu/growth/industry/strategy/industrial-policy-dialogue-and-expert-advice_en

⁸⁵ Johansson, I.; Mardan, N.; Cornelis, E.; Kimura, O.; Thollander, P. (2019) *Designing Policies and Programmes for Improved Energy Efficiency in Industrial SMEs*. Energies, 12, 1338.

Given the complexity embedded in the sustainability transition, the variety of stakeholders directly involved and the need to involve SMEs, in the revision of the European Industrial Strategy,⁸⁶ the European Commission has introduced the **transition pathways framework** (see also section 7.4). The transition pathways will be developed in partnership with industry, public authorities, social partners, and other stakeholders, including SMEs. Such pathways aim at offering a better bottom-up approach to assess the scale, costs, and conditions of the required action to accompany the green and digital transitions for the most relevant ecosystems leading to an actionable plan in favour of sustainable competitiveness. The first transition pathway, focused on the tourism ecosystem, was published in 2022.⁸⁷

7.5.1 Policies promoting the sustainability transition

This section presents some examples of policies and support schemes aimed at promoting sustainable practices by SMEs. These policies have been divided into the following categories: (i) regulatory measures provided by public actors, which can support SMEs in their path towards sustainability, (ii) green certifications and green prizes, aimed at incentivising best practice among companies, (iii) financial support in the form of grant incentives to help SMEs with sustainability-related investments, (iv) technical assistance, with the objective of supporting SMEs in their capacity-building processes for sustainable activities.

Regulatory Measures

Regulatory measures include reporting obligations⁸⁸, measures supporting the reduction of administrative burdens for sustainability-related activities, tax incentives (e.g. deferral, exemption, reduction), special/simplified intellectual property rules for sustainability-related innovations, and incentives for environmental management certifications. One example can be found in Ireland, with the **Accelerated Capital Allowance (ACA)** scheme promoted by the Sustainable Energy Authority of Ireland (SEAI).⁸⁹ The ACA is a tax incentive scheme that promotes investment in energy efficient products and equipment, including electric and alternative fuel vehicles and refuelling equipment. It allows for capital depreciation to be compensated through a reduction in an organisation's tax liability.

Green certifications and green prizes

Another useful measure widely adopted in EU Member States is the provision of green certifications. Companies can receive environmental certifications or sector-specific green certifications, proving the sustainability of their workflows. These certifications aim to ensure a common approach to sustainability among SMEs and seek to support resource efficiency and sustainable development. Moreover, green certifications are a way of demonstrating to consumers and investors the company's commitment to sustainable growth, thus also enhancing the reputation of the business. These certifications, therefore, help companies to differentiate themselves from others and to build a competitive advantage in the future. The majority of such certifications are usually granted by third party organisations, such as non-profits or industry associations. At Member State level, one example is the **Sustainable Enterprise Award**,⁹⁰ promoted by the Ministry for the Economy and Industry in Malta. The Award aims to reward Maltese enterprises (or foreign enterprises operating in Malta), in particular micro, small and medium-sized enterprises (MSMEs), for their efforts to change their practices, with the goal of increasing economic, social and environmental sustainability.

Grant incentives

In the context of policies promoting the reduction of emissions, financial incentives play a key role in helping SMEs obtain the necessary resources in the transition process to sustainability. As extensively presented in Chapter 7.3, SMEs face financial challenges when dealing with sustainability-related investments, and EU Member States use financial support measures to incentivise companies to promote sustainability in their business models. Access to and availability of finance still represents a significant obstacle to making an efficient sustainability transition, and public actors can facilitate the process through grants and guarantees.

⁸⁶ See: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-industrial-strategy_en#documents

⁸⁷ See: https://ec.europa.eu/growth/news/transition-pathway-tourism-published-today-2022-02-04_en

⁸⁸ See section 7.5.3 on Sustainability reporting for SMEs

⁸⁹ See: <https://www.seai.ie/business-and-public-sector/business-grants-and-supports/accelerated-capital-allowance/>

⁹⁰ See: <https://economy.gov.mt/en/Awards/Pages/Sustainable-Enterprise-Awards.aspx>

Therefore, the goal of this type of measure is to encourage SMEs to engage in sustainable and climate-related investment in their business and thus advance their sustainability agenda. In terms of public resources, local authorities may provide some grant opportunities, but the majority of funding measures are usually promoted by governments.

Among these measures, at Member State level, in Greece, the Hellenic Development Bank is managing a programme called **Greek Green Funds**,⁹¹ with funding of EUR 400 million from the Ministry of Development and Investments. The objective of the programme is to support venture capital and private equity funds in financing SMEs in the sectors of renewable energy production and technology, energy conservation infrastructure, sustainable development, and the circular economy (e.g. recycling/use of biomass/biogas for energy production). The aim of the programme is therefore to increase and incentivise investment in SMEs that operate sustainably and contribute to the EU climate objectives, and which otherwise would have few financial resources.

Significant financial incentives will also be disbursed through the **Recovery and Resilience Facility (RRF)**, established by the European Commission and the Council of the EU as an exceptional response to the COVID-19 pandemic crisis. The RRF will disburse to EU Member States over EUR 700 billion in loans and grants to finance their green and digital transitions laid out in the **National Recovery and Resilience Plans (NRRPs)** of the Member States. As the green transition is at the core of the RRF objectives, the investments planned within the NRRPs represent a unique way of providing public financial support to SMEs' green transition. Such measures are generally included in the investments and reforms under the policy pillar of 'Smart, sustainable and inclusive growth'. The European Commission estimates that, within this pillar, the 22 currently approved NRRPs contain investments and reforms worth EUR 44 billion identified as supporting SMEs, representing approximately 10% of the total estimated RRF expenditure. However, SMEs will also benefit from a larger pool of measures that have a wider policy focus. Accounting for these additional measures, it is estimated that measures with a total expenditure of about €109 billion or close to 24% of the total estimated RRF expenditure are relevant for SMEs.⁹² NRRPs include measures supporting SMEs' sustainability transition, such as calls for projects supporting R&I in the green and digital areas and financial instruments open to all companies. Nonetheless, not all these investments and interventions will have a direct impact on supporting the sustainability transition of SMEs. Rather, they might target broad interventions, such as investments in buildings' energy efficiency or in the circular economy, that will also involve SMEs but not necessarily make their operations more sustainable. As per estimates of the European Economic and Social Committee (EESC), currently only 5% of the investments planned by Member States in their NRRPs directly target the SMEs' green transition. In addition to the allocated funding, the EESC underlines that the delivery model for different NRRP interventions is important for achieving the expected impact. Namely, funds allocated via intermediated financial instruments always have to carefully consider whether the partner financial intermediaries are extending financing to micro and small enterprises. The latter bear a higher risk and are less investment-ready or advanced in sustainability matters, compared to larger firms, and thus risk to be left out even by public financial support measures.

Technical Assistance

The final set of policies analysed includes the provision of technical assistance and capacity-building programmes for SMEs, to support companies in adopting sustainability-oriented practices and business models and training to address skills shortages. Financial incentives play an important role in the sustainability transition of SMEs, but most small business owners also need technical assistance programmes to sustain and strengthen their businesses.⁹³ This is particularly evident in the field of sustainability, in which SMEs often lack sector-specific knowledge and the resources to acquire it.

Technical assistance in the form of capacity building, the provisions of tools, and guidelines can remove a significant barrier for the sustainability transition of SMEs. It also plays an important role in allowing SMEs to access finance. As mentioned above, banks are reluctant to lend to smaller firms due to their riskiness and lack of readiness. This issue is exacerbated in the context of sustainability investments, which bear an extra layer of complexity. A well-designed technical assistance programme has the potential to upgrade and upskill the SMEs itself and to ease its access to finance as a secondary effect. Finally, providing free or grant-based

⁹¹ See <https://hdbi.gr/en/call-for-proposals-green-greek-funds-en/>.

⁹² See https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/assets/thematic_analysis/3_SME.pdf

⁹³ See <https://sgp.fas.org/crs/misc/R43083.pdf?i=Nocache=665>.

technical assistance cannot always be a long-term or large-scale solution, due to public budget constraints. This would require a transition to fee-based technical assistance, involving private sector actors in the delivery of the services, thus raising the question of whether SMEs would be able to afford such services. A well-designed technical assistance programme should identify i) sub-sets of SMEs and specific investments that could only be financed by grant-based assistance, due to particular financial or technical constraints and ii) the conditions, on a case-by-case basis, for a gradual phase-out of the free technical assistance for those SMEs whose business model becomes sustainable and financially self-sufficient.

There are several examples of EU and Member State's initiatives that support SMEs on their path to sustainability. The **SME pillar of the Single Market Programme** (2021-2027) and the former COSME programme (2014-2020) include actions to provide support for the transition to sustainability. As of 2022, **Sustainability Advisors** are fully operational within the Enterprise Europe Network (EEN). These advisors will help all types of SMEs in their transition to more sustainable business models by identifying sustainability challenges and opportunities and advising on new sustainable business models, circular economy and resource efficiency. In addition, the **European Resource Efficiency Knowledge Centre (EREK)**, which is an integral part of the **European Cluster Collaboration Platform**, helps companies by providing tools and services that show new ways to boost resource efficiency and to benefit from circular economy business models.

Another example of technical assistance for SMEs can be found in the **Joint R&D Project (The Industry of Tomorrow: Green, Human & Smart)**. The project is promoted by the Brussels Institute for Research and Innovation (INNOVIRIS) and encourages collaboration between the academic and industrial worlds through the provision of capacity building. It allows SMEs and large companies to integrate the latest innovations in technology and sustainability, and enables researchers to work on practical applications of their innovative solutions. It therefore promotes good practices for innovation and sustainable activities in Belgian SMEs, while also supporting academic research in the country.

Moreover, an interesting initiative called "Climate Heroes to Create More Danish Sustainable Entrepreneurs" (Klimahelte skal skabe flere danske bæredygtige iværksættere) has been developed in Denmark. The principle of this initiative is to foster the green transition by putting success stories in the centre of the project. Specifically, it consists of creating an ambassador corps of so-called "climate heroes", i.e. Danish entrepreneurs who have successfully developed a green and social SME and are therefore able to share their knowledge and experience with other aspiring green and social entrepreneurs. The benefit of such an approach is that the climate heroes are both able to provide relevant practical knowledge and also give their fellow entrepreneurs confidence, resulting in a two-pronged solution to the SME barrier of lacking expertise and confidence for participating in the green transition. An additional strength of this program lies in the diversity of the climate heroes, consisting of men and women leading companies throughout various sectors and geographic regions.

Finally, the 2021-2027 Multiannual Financial Framework (MMF) included the **Technical Support Instrument (TSI)**. Endowed with an overall funding of over EUR 800 million for the 2021-2027 period, the TSI aims at supporting Member States in designing and implementing reforms within the framework of the European Semester and the National Recovery and Resilience Plans. TSI will provide technical assistance on a broad range of policies and reforms, with a particular focus on the green and digital transitions. They represent a powerful instrument to support Member States in delivering policies that are well-designed to support SMEs' sustainability transition.

7.5.2 Measuring data on the emissions footprint

Following the action of policymakers on climate and environmental objectives in the years to come, industry giants have pledged to cut emissions along their entire supply chains, which mainly include small and medium-sized enterprises accounting for over 99% of companies across Europe.⁹⁴ Therefore, attention has gradually shifted from large companies to SMEs, which have usually been subject to less environmental scrutiny and regulation,⁹⁵ but are now increasingly required to efficiently measure their impact on the environment.⁹⁶

⁹⁴ See <https://www.businesslive.co.za/bd/world/europe/2020-10-21-initiatives-by-europes-smes-show-they-take-carbon-emission-reduction-seriously>.

⁹⁵ Aguilar-FernandezFernande, M. and Otegi-Olaso, J.(2018), Firm Size and the Business Model for Sustainable Innovation. Sustainability 10, 4785, available at: <https://www.mdpi.com/2071-1050/8/9/898/pdf>

⁹⁶ See section 7.5.3 on sustainability reporting for SMEs.

The measurement of this type of environmental information is extremely relevant from a variety of perspectives. Firstly, policymakers need access to information about the emissions footprint of SMEs in order to evaluate the effectiveness of legislation, enabling them to measure the impact of the adopted policies against climate targets. Secondly, measuring the emissions footprint provides a quantification of progress towards environmental objectives in Europe and of SMEs' alignment with existing standards. Thirdly, the emissions footprint information is relevant for investors and the wider financial industry, in order to tailor investment strategies and risk management and to efficiently respond to reporting requirements.

Among the existing standards for measuring the emissions footprint, the following are the most globally used. The **Greenhouse Gas Protocol** (GHG Protocol)⁹⁷ is convened by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI). The GHG Protocol is the most widely used greenhouse gas accounting standard for companies, used both directly by organisations and indirectly by third parties. In addition, there is the **CDP global environmental disclosure system**,⁹⁸ which is extensively used by companies, cities, states and regions to measure and manage the risks and opportunities of their environmental impact.

7.5.3 Sustainability reporting for SMEs

Sustainability reporting is the disclosure and communication of sustainability information (until recently called non-financial information) related to environmental, social and governance factors.⁹⁹ For a business, being transparent about the environmental, economic, and social impacts of its activities demonstrates credibility and enables it to build consumer confidence and corporate reputation. Reporting requirements indirectly encourage businesses to identify areas for improving their sustainability performance, which can also lead them to identify business opportunities and efficiency improvement options, boosting their innovation and even improving their risk management. There is also a growing awareness among investors that sustainability issues can put the financial performance of companies at risk.¹⁰⁰

In the past decade, sustainability reporting regulatory instruments have been on the rise and large enterprises have been under increasing public scrutiny regarding their sustainability impacts. Currently, policies on sustainability reporting often address SMEs indirectly (notably, for example, by requiring supply chain due diligence from large and listed companies), but there are no specific EU requirements for SMEs to produce sustainability reports.

Pursuant to the Non-Financial Reporting Directive (NFRD), only large public interest listed companies with more than 500 employees are presently required to publish non-financial information. On April 21st 2021, the Commission presented its proposal for a **Corporate Sustainability Reporting Directive (CSRD)**, which will extend the EU's sustainability reporting requirements to all large companies and listed companies. This will include SMEs with securities listed on regulated markets, but exclude listed micro-enterprises and SMEs with transferable securities listed on SME growth markets or multilateral trading facilities. With this directive, *"50,000 [enterprises] will be required to cover sustainability reporting in their annual management reports, including listed SMEs (compared to the 11,700 that are now subject to the NFRD)"*.¹⁰¹

Through the CSRD proposal, the Commission has set out a simplified reporting regime for SMEs, with different measures aimed at placing a more proportionate burden on them, in reflection of the more limited capacities

⁹⁷ See: <https://ghgprotocol.org/about-us>.

⁹⁸ See: <https://www.cdp.net/en/info/about-us/what-we-do>.

⁹⁹ **Environmental factors** include climate change mitigation, climate change adaptation, water and marine resources, resource use and circular economy, pollution, biodiversity and ecosystems. **Social factors** include equal opportunities for all, working conditions, respect for the human rights, fundamental freedoms, democratic principles and standards. **Governance factors** include the role of the undertaking's administrative, management and supervisory bodies, business ethics and corporate culture, political engagements of the undertaking, the management and quality of relationships with business partners, the undertaking's internal control and risk management systems.

¹⁰⁰ European Commission, Proposal for a directive of the European parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting, Explanatory Memorandum, 2021, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>

¹⁰¹ See: <https://www.clearyqottlieb.com/-/media/files/alert-memos-2021/the-corporate-sustainability-reporting-directive.pdf>.

and resources of such companies.¹⁰² The European Financial Reporting Advisory Group (EFRAG) is responsible for developing these draft standards which should be adopted by October 31, 2023. As mentioned in the CSRD proposal, the sustainability reporting standards that will be developed by EFRAG shall specify the information that undertakings are to disclose, which will cover the following aspects:

- *Environmental factors* including climate change mitigation, climate change adaptation, water and marine resources, resource use and circular economy, pollution, biodiversity and ecosystems.
- *Social factors* including equal opportunities for all, working conditions, respect for human rights, fundamental freedoms, democratic principles and standards
- *Governance factors* including the role of the undertaking's administrative, management and supervisory bodies, business ethics and corporate culture, political engagements of the undertaking, the management and quality of relationships with business partners, the undertaking's internal control and risk management systems.¹⁰³

Under each of those matters, non-financial statements must include a range of information outlined in the following table:

Table 12: Sustainability information to be contained in non-financial statements (CSRD proposal)¹⁰⁴

<p>(a) a brief description of the undertaking's business model and strategy, including</p> <ul style="list-style-type: none"> - the resilience of the undertaking's business model and strategy to risks related to sustainability matters; - the opportunities for the undertaking related to sustainability matters; - the plans of the undertaking to ensure that its business model and strategy are compatible with the transition to a sustainable economy and with the limiting of global warming to 1.5 °C in line with the Paris Agreement; - how the undertaking's business model and strategy take account of the interests of the undertaking's stakeholders and the impacts of the undertaking on sustainability matters; - how the undertaking's strategy has been implemented with regard to sustainability matters; <p>(b) a description of the targets related to sustainability matters set by the undertaking and of the progress the undertaking has made towards achieving those targets;</p> <p>(c) a description of the role of the administrative, management and supervisory bodies with regard to sustainability matters;</p> <p>(d) a description of the undertaking's policies in relation to sustainability matters;</p> <p>(e) a description of:</p> <ul style="list-style-type: none"> - the due diligence process implemented with regard to sustainability matters; - the principal actual or potential adverse impacts connected with the undertaking's value chain, including its own operations, its products and services, its business relationships and its supply chain; - any actions taken, and the result of such actions, to prevent, mitigate or remediate actual or potential adverse impacts; <p>(f) a description of the principal risks to the undertaking related to sustainability matters, including the undertaking's principal dependencies on such matters, and how the undertaking manages those risks;</p>

¹⁰² European Commission, Proposal for a directive of the European parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting, 2021, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>

¹⁰³ European Commission, Proposal for a directive of the European parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting, 2021 – Article 1, Paragraph 4 amending Article 19b of the Accounting Directive, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>

¹⁰⁴ European Commission, Proposal for a directive of the European parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting, 2021 – Article 1, Paragraph 4 amending Article 19b of the Accounting Directive – Article 1, Paragraph 2, amending Article 19a of the Accounting Directive, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>

(g) indicators relevant to the disclosures referred to in points (a) to (f).

The state of play in terms of sustainability reporting is quite heterogeneous among European countries and worldwide, the very definition of SMEs varying from one country to another. The CSRD addresses the lack of harmonisation and common practices among Member States and will have to be transposed into national law. When implementing the directive into domestic law, the proposed CSRD provides less room for manoeuvre to Member States than the NFRD as it notably introduces far more detailed reporting requirements and mandatory EU sustainability reporting standards. To alleviate the reporting burden generated by the CSRD, SMEs will also be given additional time to comply, as they will be required to start reporting in accordance with the CSRD three years after its entry into force.¹⁰⁵ Non-listed SMEs may still choose to use them voluntarily.

Even though the CSRD does not cover all SMEs, companies which are not obliged to report under the directive might still face some trickle-down effects from those new requirements through their participation in global supply chains. Moreover, increasing pressure from intermediaries to prepare standardised sustainability information might emerge as well as reporting requests from banks or investors.¹⁰⁶

Complementing the CSRD proposal, in February 2022 the EC has adopted a Proposal for a Directive on corporate sustainability due diligence (CSDD) which aims to foster sustainable and responsible corporate behaviour and to anchor human rights and environmental considerations in companies' operations and corporate governance. Establishing a corporate due diligence duty, this proposal sets out new rules ensuring that businesses address adverse impacts of their actions, including in their value chains inside and outside of Europe. The core elements of this duty are identifying, bringing to an end, preventing, mitigating and accounting for negative human rights and environmental impacts in the company's own operations, their subsidiaries and their value chains. In addition, certain large companies need to have a plan to ensure that their business strategy is compatible with limiting global warming to 1.5 °C in line with the Paris Agreement. The Directive also introduces duties for the directors of the EU companies covered. These duties include setting up and overseeing the implementation of the due diligence processes and integrating due diligence into the corporate strategy. In addition, when fulfilling their duty to act in the best interest of the company, directors must take into account the human rights, climate change and environmental consequences of their decisions.

While SMEs are not included in the scope of the CSDD proposal, the new rules will affect them indirectly. They will be exposed to some of the costs and burden through business relationships with companies in scope (estimated to be around EUR 13,000 EU and EUR 4,000 non-EU companies) as large companies are expected to pass on demands to and through their direct business relationships. As far as business relationships between SMEs and financial institutions are concerned, SMEs receiving loans, credits, financing, insurance or reinsurance will not be considered part of the value chain of large financial sector companies in order to protect SMEs' ability to access finance.

In light of the potential impact on SMEs through supply chains, support will be necessary to help SMEs build operational and financial capacity. This support will come from both the private and public sectors.

- As laid out in the proposal, companies whose established business partner is an SME are required to support them in fulfilling the due diligence requirements, in case such requirements would jeopardize the viability of the SME.¹⁰⁷
- Further support will be provided by the Commission and Member States, through non-binding model contractual clauses, guidelines, accompanying measures (including the facilitation of joint stakeholder

¹⁰⁵ European Commission, Proposal for a directive of the European parliament and of the Council amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting, 2021, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189>

¹⁰⁶ Euractiv, *The EU taxonomy can strengthen SMEs in the green transition*, 2021, available at <https://www.euractiv.com/section/energy-environment/opinion/the-eu-taxonomy-can-strengthen-smes-in-the-green-transition/>

¹⁰⁷ European Commission, Article 7.2 (d) of the Proposal for a directive of the European parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937, 2022, available at https://ec.europa.eu/info/sites/default/files/1_1_183885_prop_dir_susta_en.pdf

initiatives). This may be further complemented by EU development cooperation instruments to support third country governments and upstream economic operators in third countries.¹⁰⁸

The transformation to a sustainable economy is a key political priority of the EU. Hence, various proposals of the EC address this issue and will continue to do so in the future, sometimes directly addressing some categories of SMEs and impacting most SMEs indirectly through their participation in global supply chains. Additionally, sustainability is becoming a key determinant for the success of all businesses and their ability to demonstrate sustainability commitments is considered a competitive advantage in the market. Since a large proportion of SMEs are innovative by nature and seek to contribute to sustainability goals, many will have an intrinsic interest in developing a convincing presentation of their sustainability competence.

In order to mobilise SMEs to take part in the sustainability transition, it is therefore essential that policies are designed to facilitate and encourage compliance by SMEs and to reduce, as far as possible, any bureaucratic burdens. This means in particular that policymakers must ensure an appropriate definition of SMEs in these policies and ensure the proportionality of the measures taken for the business structure of SMEs. Any adoption of reporting requirements for SMEs should be preceded by an assessment of their potential impact on SMEs (including the trickle-down effects of new requirements through the value chain obligations). Such an assessment should be carried out in line with the SME test. Additionally, consideration should be given to setting up mitigating measures (if appropriate), such as simplified and proportionate standards for SMEs, non-binding model contractual clauses, and tailor-made guidance. Special attention should also be given to coordinating the reporting requests from different entities to ensure that the requirements are similar and reported data is available to other stakeholders, therefore embedding the “Once-Only Principle”.¹⁰⁹

7.6 Final remarks on the sustainability transition of SMEs

SMEs are critical to the success of the sustainability transition in the EU. The analysis shows that SMEs are responsible for more than 60% of all greenhouse gas emissions by enterprises. Therefore, it is important that SMEs are increasingly investing in sustainable technologies and are acquiring the skills and knowledge to transform their businesses to become more sustainable and remain competitive.

A significant share of SMEs have already started the sustainability transition. More and more SMEs are building human resources for the sustainability transition, have invested in transformation processes and see sustainability as an opportunity to seize. This momentum faces a number of challenges, ranging from access to finance to limited expertise and skills, as well as regulatory and administrative barriers. These challenges are more prevalent for SMEs than for large enterprises.

SMEs lag behind large enterprises in terms of the digitalisation of their operations and business models. While the aggregate environmental benefit of digitalisation remains difficult to assess, some solutions, for example, ICT tools to reduce the need to travel, provide significant co-benefits for the sustainability transition. Significant challenges to the adoption of digital solutions include the availability of relevant digital solutions on the market, as well as adoption costs related to restructuring business processes.

Financing the sustainability transition is generally capital-intensive and involves long payback periods. As a result, SMEs are cautious to access the necessary financial resources to adopt sustainability measures. However, a host of market solutions, as well as public sector initiatives at EU and Member State levels, provide examples of how access to finance might be improved.

SMEs in different industrial ecosystems differ significantly in their environmental impact, as well as their potential contributions towards the sustainability transition. Therefore, sustainability policies in the EU should take the specific challenges of SMEs in different ecosystems into account and target ecosystems with a high potential for emission reduction. While SMEs across all ecosystems must be involved in the sustainability

108 European Commission, the Proposal for a directive of the European parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937, 2022, p. 17, available at https://ec.europa.eu/info/sites/default/files/1_1_183885_prop_dir_susta_en.pdf

¹⁰⁹ For more details on the “Once-Only Principle”, please see here: <https://ec.europa.eu/digital-building-blocks/wikis/display/CEFDIGITAL/Once+Only+Principle>.

transition to reach the goal of climate neutrality, public policy should pay special attention to those ecosystems with the greatest potential for emission reduction. In particular, the energy-intensive industries, the agri-food ecosystem, and mobility, transport and automotive were the ecosystems with the highest shares of GHG emissions in the EU in 2019 and thus offer substantial emission reduction potential. Moreover, some of the most emission-intensive ecosystems, such as agri-food or mobility, transport and automotive, are also expected to be particularly challenged to engage successfully in the sustainability transition, providing another rationale for specifically targeting these ecosystems.

Given the urgency to reduce emissions and reach carbon neutrality as soon as possible, SMEs should be supported by public policies – both at EU and national level – to accelerate their transition to sustainability. In general, there is a need for policies to specifically focus on SMEs. For example, a review of 113 energy efficiency schemes in eight EU Member States found that only two were focused on SMEs.¹¹⁰ At a minimum, sustainability policies should take note of the unique and specific challenges faced by SMEs.

Based on the previous analysis of the challenges faced by SMEs and the existing support policies for SMEs at the EU and Member State levels, two sets of policy recommendations are derived.

The first set of recommendations concerns the need to **conduct further research** and to **fill gaps in the availability of data and information**. These recommendations are addressed to the research community at large – including academic researchers, think tanks and EU research institutions – as well as to statistical offices.

- While data on the GHG emissions of large enterprises is already routinely collected, the majority of SMEs do not audit or monitor their GHG emissions. No data are readily available on GHG emissions or energy use by SMEs. The calculations in this chapter should be interpreted with caution, as they rely on extrapolations. Reliable data could be used to approximate the environmental footprint of SMEs and to monitor progress towards sustainability targets.
- Only limited systematic research is available on the challenges faced by SMEs in the sustainability transition. While some elements are presented in this chapter, better insight at a more granular level is needed on how these challenges hinder the sustainability transition and what support and incentives should be provided to overcome them, taking into account the different types of greening activities and the heterogeneity of SMEs.

The second set of recommendations concerns the **policy support to seize the momentum of SMEs taking on the sustainability transition**:

- It is essential that policies are designed to facilitate the sustainability transition of SMEs and to reduce, as far as possible, any bureaucratic burdens. Minimising reporting requirements and other administrative burdens for SMEs is of key importance to encourage compliance with sustainability obligations by SMEs. New proposals need a solid SME test to ensure that the obligations are proportionate and manageable for SMEs. The cumulative effect of the various reporting and transparency requirements as well as the trickle-down effects (through the value chain obligations) should also be taken into account.
- SMEs are often part of supply chains and, thus, policies addressing large enterprises within these supply chains also impact SMEs. Specifically, commercial ties with larger enterprises, which have to comply with more extensive obligations, result in the need to manage the indirect impact of those obligations on SMEs. For example, reporting requirements of large enterprises linked to the sustainability impacts of their supply chains might lead to large enterprises setting sustainability performance or reporting requirements for their SME supply chain partners. Firstly, the indirect impact of reporting obligations for large enterprises should be properly managed in order to avoid that these requirements are unfairly passed on in the supply chain to SMEs (this can range from requests of sustainability information to a shifting of liability). Secondly, exemptions of SMEs from specific obligations may be justified in some cases. However, taking into account the trickle-down effects from new requirements through the supply chains as well as the fact that the ability to demonstrate sustainability commitments is becoming a competitive advantage, it is important to consider simplified

¹¹⁰ Fawcett, Tina, and Hampton, Sam (2020) *Why & how energy efficiency policy should address SMEs*, Energy Policy 140 (111337).

voluntary tools and mitigating measures that allow SMEs to comply. Such policies could include simplified and proportionate standards for SMEs, non-binding model contractual clauses, lower frequency for certain obligations, tailor-made guidance, one-stop-shops, or helpdesks.

- While the introduction of sustainability reporting requirements will provide an opportunity for SMEs to demonstrate their sustainability achievements, policymakers should ensure that the requirements are consistent and that the reported data is available to all relevant stakeholders in line with the “Once-Only Principle”.
- SMEs also need technical assistance and capacity-building programmes to support them in adopting sustainable business models, a circular economy approach and new ways to boost resource efficiency. In particular, policymakers should consider leveraging and expanding the capabilities and resources of the *Sustainability Advisors* of the *European Enterprise Network*. This initiative is a very relevant example of policy response addressing SME’s sustainability skills gap via technical assistance. While the existing network is already quite extensive, further resources and geographical coverage may be needed to effectively address the needs for technical assistance of SMEs across the EU. In addition, it would be useful to conduct further targeted surveys to pinpoint i) the geographical areas where skills shortages are greatest, and ii) the most lacking skills, to ensure that the services provided meet the need.
- Financial support should preferably be combined with technical assistance, awareness-raising and advisory services. Although SMEs might lack financial resources as a primary obstacle, they are also often unaware of the benefits of the sustainability transition (compared to the potential costs involved) and often do not possess the necessary skills and knowledge to undertake green transformation processes.

Good Practice Example:

Some MS-level policies can provide relevant lessons learnt for designing EU-level policies. An interesting initiative called “Climate Heroes to Create More Danish Sustainable Entrepreneurs” (Klimahelte skal skabe flere danske bæredygtige iværksættere) has been developed in Denmark. The principle of this initiative is to foster the green transition by putting success stories in the centre of the project. Specifically, it consists of creating an ambassador corps of so-called “climate heroes”, i.e. Danish entrepreneurs who have successfully developed a green and social SME and are therefore able to share their knowledge and experience with other aspiring green and social entrepreneurs. The benefit of such an approach is that the climate heroes are both able to provide relevant practical knowledge and also give their fellow entrepreneurs confidence, resulting in a two-pronged solution to the SME barrier of lacking expertise and confidence for participating in the green transition. An additional strength of this program lies in the diversity of the climate heroes, consisting of men and women leading companies throughout various sectors and geographic regions. The Danish example could pave the way for the creation of European Climate Heroes, potentially at EU-level, leveraging existing networks such as the European Enterprise Network or national associations to organize coaching sessions and workshops.

- A number of other tools can help SMEs in their sustainability transition, such as self-assessment and diagnostic tools to help SMEs understand their environmental footprint and the means available to

Good Practice Example:

There are several private-sector tools to measure the carbon footprint of SMEs, such as the Carbon Trust: Footprint Manager and Carbon Footprint: Free calculator. An interesting national example, with a focus on agriculture and farming, is the Origin Green – Carbon Navigator developed in Ireland. The tool embeds a process of measurement, feedback, and continuous improvement, through which farms are assessed against key efficiency areas (resource efficiency and sustainability of production processes, emissions, waste management, energy efficiency of facilities, etc.). The ability to generate a carbon footprint for farms on an individual basis has also been aided by collaboration with the Irish Cattle Breeding Federation (ICBF) and the Department of Agriculture, Food and the Marine (DAFM), who with a farmer’s consent, share data with the Irish Food Board (Bord Bia) to aid in the footprinting process. Raising awareness of existing tools and supporting the development of new ones can be powerful means of supporting the sustainability transition of SMEs.

reduce it; the availability of energy management systems and audits to help SMEs reduce their energy use; eco-certification and labelling initiatives adapted to SMEs; and the use of public procurement to create demand for green products and services.

- To fully leverage the potential of digital solutions for SMEs, public policies should encourage SMEs to use technical advisory services and knowledge platforms that can help SMEs to better understand the opportunities of digital solutions and how to implement them in their specific business. This will enable SMEs to exploit the interlinkages of the green and digital “twin transition”.

Good Practice Example:

Examples of these interlinkages can be found in the *National Recovery and Resilience Plans (NRRPs)* of the *Recovery and Resilience Facility (RRF)*, which often connect efforts aimed at digitalisation with sustainability co-benefits. For example, digital measures which improve the energy-efficiency of buildings, such as smart thermostats, or R&D on efficient cloud infrastructure not only facilitate the digital performance of SMEs but also improve their resource efficiency. Hence, vast potential for the sustainability transition can be realized if the sustainability transition of SMEs is also considered in initiatives primarily targeting other policy objectives.

- An important lesson from the implementation of the *Recovery and Resilience Facility (RRF)* is that special attention should be paid to whether funds allocated via financial intermediaries (private or public) reach small and micro enterprises. Since lending to smaller firms is riskier from the perspective of the lender, even public financing schemes often tend to avoid lending to smaller firms. To counter this tendency, the proportion of funds allocated to SMEs should be monitored closely.
- Finally, SMEs have significant innovative capabilities. Hence, by providing incentives for SMEs to tap into green markets through innovative products and services, SMEs can become an important driver of the sustainability transition. Examples of such incentives include green prizes and certifications, e.g. the Maltese Sustainable Enterprise Award.

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ANNEX 1: DEFINITION OF SMEs

The official EC definition of SMEs takes account of three different factors (i.e. level of employment, level of turnover, and size of the balance sheet).

Table 13: Definition of SMEs

Enterprise Category	Employees	Turnover	Balance sheet total
Micro SME	0 to < 10	< €2 million	< €2 million
Small SME	10 to < 50	< €10 million	< €10 million
Medium-sized SME	50 to <250	< €50 million	< €43 million

Source: Commission Recommendation of 6 May 2003 concerning the definition of micro, small, and medium-sized enterprises (2003/361/EC), Official Journal of the European Union, L 124/36, 20 May 2003

ANNEX 2: SME PERFORMANCE INDICATORS BY SME SIZE CLASS AND EU MEMBER STATE

Table 14: Share of the total number of SMEs in the EU-27 NFBS that are micro, small and medium-sized SMEs by Member State – 2021

	Micro SMEs	Small SMEs	Medium-sized SMEs
AT	87.5%	10.9%	1.6%
BE	95.4%	3.9%	0.7%
BG	92.0%	6.8%	1.2%
CY	92.5%	6.6%	1.0%
CZ	96.3%	3.1%	0.7%
DE	83.6%	14.2%	2.2%
DK	89.2%	9.1%	1.7%
EE	91.6%	7.1%	1.3%
EL	93.1%	6.3%	0.7%
ES	94.3%	5.1%	0.6%
FI	91.0%	7.6%	1.4%
FR	94.8%	4.5%	0.7%
HR	92.3%	6.7%	1.0%
HU	95.2%	4.2%	0.7%
IE	91.9%	6.9%	1.3%
IT	94.5%	4.9%	0.6%
LT	93.9%	5.1%	1.0%
LU	87.7%	10.2%	2.1%
LV	91.5%	7.2%	1.3%
MT	92.1%	6.7%	1.3%
NL	95.9%	3.3%	0.7%
PL	95.0%	4.3%	0.7%
PT	95.1%	4.3%	0.7%
RO	89.9%	8.6%	1.5%
SE	94.1%	5.0%	0.9%
SI	94.6%	4.6%	0.9%
SK	97.4%	2.2%	0.5%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Table 15: Share in total SME employment in the EU-27 NFBS of micro, small and medium-sized SMEs by Member State - 2021

	Micro SMEs	Small SMEs	Medium-sized SMEs
AT	36.4%	35.5%	28.1%
BE	50.3%	26.9%	22.8%
BG	40.0%	31.0%	28.9%
CY	45.6%	30.5%	23.9%
CZ	45.9%	26.2%	27.9%
DE	32.2%	38.2%	29.5%
DK	30.6%	36.5%	32.9%
EE	40.1%	31.2%	28.7%
EL	47.8%	33.9%	18.3%
ES	52.0%	29.1%	18.8%
FI	34.3%	35.4%	30.4%
FR	43.7%	31.2%	25.0%
HR	45.2%	30.2%	24.7%
HU	51.6%	26.3%	22.1%
IE	37.3%	32.7%	30.0%
IT	54.7%	27.5%	17.8%
LT	40.5%	29.9%	29.6%
LU	25.8%	36.7%	37.5%
LV	39.4%	31.9%	28.7%
MT	38.0%	31.9%	30.1%
NL	43.3%	28.2%	28.5%
PL	51.5%	25.5%	22.9%
PT	50.6%	27.5%	21.9%
RO	36.9%	33.6%	29.4%
SE	35.4%	33.4%	31.2%
SI	46.5%	26.9%	26.7%
SK	60.3%	18.6%	21.1%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Table 16: Share of total SME value added in the EU-27 NFBS generated by micro, small and medium-sized SMEs by Member State - 2021

	Micro SMEs	Small SMEs	Medium-sized SMEs
AT	28.9%	34.8%	36.3%
BE	45.4%	25.5%	29.1%
BG	32.7%	29.8%	37.5%
CY	33.1%	36.2%	30.7%
CZ	35.9%	27.9%	36.1%
DE	28.0%	36.5%	35.5%
DK	33.2%	31.2%	35.6%
EE	36.1%	29.9%	34.1%
EL	34.4%	28.0%	37.7%
ES	36.9%	36.2%	26.9%
FI	32.3%	32.5%	35.2%
FR	42.2%	28.4%	29.4%
HR	33.0%	34.7%	32.2%
HU	40.3%	28.8%	30.9%
IE	48.1%	23.5%	28.4%
IT	38.4%	33.8%	27.8%
LT	28.4%	32.7%	38.8%
LU	31.3%	28.2%	40.6%
LV	31.7%	32.3%	36.0%
MT	30.1%	37.6%	32.3%
NL	34.8%	28.9%	36.3%
PL	34.4%	31.7%	33.9%
PT	37.3%	29.8%	32.8%
RO	35.3%	33.9%	30.8%
SE	32.0%	31.1%	37.0%
SI	36.2%	30.4%	33.4%
SK	40.6%	25.9%	33.5%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

ANNEX 3: COMPOSITION OF GROUPINGS OF INDUSTRIES OF DIFFERENT TECHNOLOGY AND KNOWLEDGE INTENSITIES

Knowledge-intensive services

The group of knowledge-intensive services (KIS) is classified according to Eurostat and regroups the following service industries (NACE 2 classification):

High-tech services:

- J59 Motion picture, video and television programme production, sound recording and music publishing activities
- J60 Programming and broadcasting services
- J61 Telecommunications
- J62 Computer programming, consultancy and related activities
- J63 Information service activities
- M72 Scientific research and development

Market services:

- H50 Water transport
- H51 Air transport
- M69 Legal and accounting activities
- M70 Activities of head offices, management consultancy activities
- M71 Architectural and engineering activities; technical testing and analysis
- M73 Advertising and market research
- M74 Other professional, scientific and professional services
- N78 Employment activities
- N80 Security and investigation activities

Other KIS

- J58 Publishing activities
- M75 Veterinary activities

Low knowledge-intensive services

Market services

- G45 Wholesale and retail trade and repair of motor vehicles and motorcycles
- G46 Wholesale trade, except of motor vehicles and motorcycles
- G47 Retail trade, except of motor vehicles and motorcycles
- H49 Land transport and transport via pipelines
- H52 Warehousing and support activities for transportation
- I55 Accommodation
- I56 Food and beverage service activities
- L68 Real estate activities
- N77 Rental and leasing activities
- N79 Travel agency, tour operator reservation service
- N81 Services to buildings and landscape activities
- N82 Office administrative, office support and other business support activities

Other

- H53 Postal and courier activities

High-tech industries

- C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations
- C26 Manufacture of computer, electronic and optical products

Medium-tech industries

Medium high-tech

- C20 Manufacture of chemicals and chemical products
- C27 Manufacture of electrical equipment
- C28 Manufacture of machinery and equipment n.e.c.
- C29 Manufacture of motor vehicles, trailers and semi-trailers
- C30 Manufacture of other transport equipment

Medium-low tech

- C19 Manufacture of coke and refined petroleum products
- C22 Manufacture of rubber and plastic products
- C23 Manufacture of other non-metallic mineral products
- C24 Manufacture of basic metals
- C25 Manufacture of fabricated metal products, except machinery and equipment
- C33 Repair and installation of machinery and equipment

Low-tech industries

- C10 Manufacture of food products
- C11 Manufacture of beverages
- C12 Manufacture of tobacco products
- C13 Manufacture of textiles
- C14 Manufacture of wearing apparel
- C15 Manufacture of leather and related products
- C16 Manufacture of wood and of products of wood and cork, except furniture; Manufacture of articles of straw and plaiting materials
- C17 Manufacture of paper and paper products
- C18 Printing and reproduction of recorded media

ANNEX 4: PROPORTION OF THE NUMBER OF SMEs, SME EMPLOYMENT AND SME VALUE ADDED ATTRIBUTED TO DIFFERENT KNOWLEDGE AND TECHNOLOGY INTENSITIES BY EU MEMBER STATE

Table 17: Proportion of EU-27 NFBS SMEs in industries of different knowledge and technology intensities by EU Member State - 2021

	Knowledge-intensive industries	Low knowledge-intensive industries	High-tech industries	Medium-tech industries	Low-tech industries
AT	32.7%	60.1%	0.2%	3.7%	3.3%
BE	38.8%	55.0%	0.1%	3.2%	2.9%
BG	21.4%	70.2%	0.1%	3.6%	4.6%
CY	27.0%	63.4%	0.0%	4.6%	5.1%
CZ	31.4%	49.2%	0.4%	11.2%	7.8%
DE	30.5%	61.0%	0.4%	5.1%	3.0%
DK	31.7%	61.2%	0.4%	4.9%	1.8%
EE	34.7%	55.4%	0.2%	4.9%	4.8%
EL	25.3%	66.7%	0.1%	3.4%	4.5%
ES	23.4%	69.9%	0.1%	3.2%	3.3%
FI	28.0%	62.2%	0.3%	6.1%	3.3%
FR	29.0%	63.7%	0.1%	2.8%	4.5%
HR	31.3%	55.9%	0.4%	6.6%	5.8%
HU	39.0%	52.7%	0.3%	4.7%	3.4%
IE	32.0%	60.7%	0.3%	4.2%	2.8%
IT	28.4%	60.8%	0.2%	5.6%	5.1%
LT	26.0%	65.1%	0.1%	3.2%	5.6%
LU	41.3%	56.1%	0.0%	1.5%	1.0%
LV	30.7%	59.5%	0.2%	3.8%	5.8%
MT	27.4%	66.5%	0.2%	3.4%	2.5%
NL	49.5%	45.0%	0.2%	3.4%	1.9%
PL	31.0%	56.9%	0.3%	7.3%	4.7%
PT	19.1%	73.4%	0.1%	3.1%	4.4%
RO	23.3%	66.9%	0.2%	3.9%	5.7%
SE	47.0%	45.5%	0.3%	4.3%	2.9%
SI	38.3%	47.2%	0.3%	8.3%	5.9%
SK	29.6%	51.4%	0.4%	12.1%	6.5%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Table 18: Proportion of EU-27 NFBS employment attributed to SMEs in industries of different knowledge and technology intensities by EU Member State - 2021

	Knowledge-intensive industries	Low knowledge-intensive industries	High-tech industries	Medium-tech industries	Low-tech industries
AT	22.4%	60.2%	0.7%	10.2%	6.5%
BE	27.0%	57.0%	0.5%	9.0%	6.3%
BG	17.1%	58.1%	0.6%	10.1%	14.1%
CY	21.6%	64.3%	0.3%	6.3%	7.6%
CZ	21.1%	47.3%	1.0%	20.9%	9.7%
DE	21.1%	59.8%	1.0%	12.4%	5.7%
DK	23.6%	60.7%	1.0%	10.4%	4.3%
EE	21.7%	51.4%	0.9%	13.0%	13.1%
EL	15.3%	71.4%	0.3%	5.1%	8.0%
ES	17.6%	66.3%	0.4%	8.8%	6.9%
FI	28.7%	50.9%	1.1%	13.8%	5.5%
FR	23.6%	59.4%	0.6%	8.7%	7.7%
HR	21.3%	53.5%	0.5%	13.2%	11.5%
HU	25.3%	53.7%	0.9%	12.6%	7.6%
IE	24.1%	63.5%	0.9%	6.7%	4.9%
IT	16.3%	57.6%	0.7%	15.6%	9.9%
LT	18.1%	62.4%	0.8%	8.4%	10.3%
LU	32.4%	58.3%	0.1%	6.4%	2.8%
LV	21.1%	58.4%	0.5%	7.9%	12.0%
MT	25.5%	59.6%	2.9%	7.3%	4.8%
NL	30.8%	56.0%	0.6%	8.4%	4.2%
PL	19.2%	55.2%	0.6%	14.6%	10.4%
PT	15.7%	61.1%	0.3%	9.6%	13.3%
RO	17.5%	58.6%	0.6%	10.0%	13.3%
SE	28.7%	55.8%	0.7%	10.5%	4.2%
SI	24.5%	45.9%	1.0%	20.2%	8.3%
SK	22.2%	51.2%	0.8%	17.2%	8.7%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Table 19: Proportion of EU-27 NFBS value added generated by SMEs in industries of different knowledge and technology intensities by EU Member State - 2021

	Knowledge-intensive industries	Low knowledge-intensive industries	High-tech industries	Medium-tech industries	Low-tech industries
AT	23.0%	56.8%	1.1%	13.0%	6.2%
BE	27.2%	55.8%	0.7%	10.7%	5.6%
BG	26.7%	51.1%	1.2%	11.1%	9.9%
CY	33.4%	50.9%	0.5%	7.9%	7.3%
CZ	22.8%	46.9%	1.1%	21.8%	7.4%
DE	25.9%	53.0%	1.5%	15.0%	4.6%
DK	23.4%	58.8%	1.8%	12.2%	3.7%
EE	23.9%	51.8%	1.0%	13.1%	10.2%
EL	21.9%	55.3%	0.9%	10.5%	11.4%
ES	20.4%	56.7%	0.8%	14.0%	8.2%
FI	30.1%	48.3%	0.9%	15.8%	5.0%
FR	30.1%	52.9%	0.8%	9.9%	6.4%
HR	25.3%	50.1%	0.7%	14.8%	9.1%
HU	25.5%	52.2%	1.1%	14.8%	6.3%
IE	31.9%	51.4%	3.6%	7.3%	5.8%
IT	18.3%	47.0%	1.5%	22.8%	10.5%
LT	19.0%	60.2%	1.7%	10.7%	8.4%
LU	34.6%	58.9%	0.0%	4.9%	1.6%
LV	22.1%	57.3%	1.6%	8.5%	10.5%
MT	44.4%	42.8%	2.1%	7.0%	3.6%
NL	28.5%	54.2%	1.0%	11.7%	4.5%
PL	19.9%	53.2%	0.8%	17.1%	9.1%
PT	19.3%	54.3%	0.6%	13.1%	12.7%
RO	21.4%	60.3%	0.7%	10.5%	7.0%
SE	30.5%	54.0%	0.8%	10.9%	3.7%
SI	25.1%	43.1%	1.4%	23.0%	7.5%
SK	23.4%	49.2%	1.0%	20.2%	6.3%

Source: Calculations by the JRC, based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

ANNEX 5: THE NUMBER OF SMES, SME EMPLOYMENT AND SME VALUE ADDED FOR THE EU-27 AND SELECTED INTERNATIONAL COUNTRIES, 2018 AND 2019

As in the EU-27, in 2019, SMEs accounted for 99.5% or more of the total number of enterprises in the NFBS in the COSME countries of Albania (AL), Armenia (AM), Bosnia and Herzegovina (BA), Iceland (IS), Moldova (MD), Montenegro (ME), North Macedonia (MK), Serbia (RS), Turkey (TR) and Ukraine (UA),¹¹¹ and the UK. (Table 20)

SMEs in most of these countries also accounted for a larger share of NFBS employment and value added than EU-27 SMEs in 2019.

- The only exception was SMEs in UA and the UK, which accounted for a smaller share of total NFBS employment than EU-27 SMEs (albeit only marginally in the case of UA).
- In contrast, SMEs accounted for a much larger proportion of total NFBS employment in AL, IS, MK and TR than in the EU-27.
- The share of value added generated by SMEs in total NFBS value added was higher in the COSME countries than in the EU-27, although the differences were marginal in the cases of TR and UA. In contrast, UK SMEs produced a slightly smaller proportion of total NFBS value added than EU-27 SMEs.

Table 20 Proportion (in %) of the number of NFBS enterprises, NFBS employment and NFBS value added accounted for by SMEs in the EU-27, the COSME countries, and the UK in 2019

Country	Number of Enterprises	Employment	Value Added
AL	99.8%	80.5%	70.1%
AM	99.8%	69.7%	65.4%
BA	99.6%	69.1%	63.9%
IS	99.8%	75.3%	72.9%
MD	99.5%	69.1%	68.4%
ME	99.8%	-	73.4%
MK	99.7%	73.6%	65.9%
RS	99.8%	65.5%	58.7%
TR	99.8%	73.5%	52.6%
UA	99.9%	63.7%	52.9%
UK	99.7%	53.3%	49.4%
EU-27	99.8%	64.4%	52.2%

Note: No data are available for XK and SME employment data for ME are not available for 2019.

Source: EU-27 data is from calculations by JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database. Data for the other countries was provided by DIW Econ, based on data from national statistical offices and estimations.

Compared with the EU-27, the prevalence of SMEs in the NFBS in 2019, on a per capita basis, was lower in all but two of the COSME countries and also in the UK. Whereas, in 2019, there were 51 SMEs per 1,000 inhabitants in the EU-27 NFBS, the corresponding figures ranged from 13 (MD) to 48 (RS) among the COSME countries (except IS and ME) and in the UK (Figure 75).

¹¹¹ 2019 is the most recent year for which data on the performance of SMEs are available for the COSME countries. No data are available for the COSME country Kosovo.

Figure 75 Number of SMEs in the NFBS on per capita basis in the EU-27, COSME countries, and the UK, and value added generated by SMEs in EUR billion in 2019



Note: No data are available for XK. The value added generated by SMEs in the NFBS is shown in italics in the bars.

Source: EU-27 data is from calculations by JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database. Data for the other countries was provided by DIW Econ, based on data from national statistical offices and estimations. Population data was taken from Eurostat for all countries except MD and BA. Population data for MD and BA was taken from the World Bank.

Over 90% of all SMEs in the NFBS of the EU-27, COSME countries (except BA and MD) and in the UK, were micro SMEs in 2019 (Table 21). Furthermore, in BA and MD, both small SMEs and medium-sized SMEs made up a larger proportion of the total number of NFBS SMEs in 2019 than in any of the other countries for which data are shown in Table 21.

Table 21 Share of the total number of SMEs accounted for by micro, small and medium-sized SMEs in the NFBS of the EU-27, the COSME countries and the UK in 2019

Country	Micro SMEs	Small SMEs	Medium-sized SMEs
AL	92.9%	5.8%	1.3%
AM	93.3%	5.7%	1.0%
BA	89.0%	9.1%	1.9%
IS	94.0%	5.1%	0.9%
MD	83.2%	14.1%	2.7%
ME	94.6%	4.6%	0.9%
MK	90.6%	8.0%	1.4%
RS	96.0%	3.3%	0.8%
TR	94.3%	4.8%	0.8%
UA	95.9%	3.5%	0.6%
UK	90.5%	8.2%	1.3%
EU-27	93.2%	5.9%	0.9%

Note: No data are available for XK.

Source: EU-27 data is from calculations by JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database. Data for the other countries was provided by DIW Econ, based on data from national statistical offices and estimations.

In the NFBS in 2019, micro SMEs employed more workers than either small or medium-sized SMEs in the EU-27, the COSME countries and the UK, except in MD, where micro SMEs accounted for only 29% of total SME employment (Table 22). In particular, micro SMEs accounted for the majority of SME employment in the NFBS in TR (51%) and UA (56%).

In the same year, medium-sized SMEs accounted for over 30% of SME employment in the NFBS in BA (34%) and MD (35%). More generally, the proportion of NFBS SME employment accounted for by medium-sized enterprises was lower in the EU-27 (25%) than in all the other countries covered, except for TR (23%) and UA (21%).

In contrast to the EU-27, in which micro SMEs generated the largest share of value added in the NFBS in 2019, this was not case for six of the COSME countries (AL, BA, IS, MD, MK, TR) listed in Table 22.

Table 22 Proportion (in %) of SME employment and SME value added in the NFBS accounted for by micro, small and medium-sized SMEs in the EU-27, COSME countries and the UK in 2019

Country	Employment			Value Added		
	Micro SMEs	Small SMEs	Medium-sized SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs
AL	44.3%	26.9%	28.8%	31.2%	34.3%	34.4%
AM	38.6%	32.2%	29.2%	36.2%	32.7%	31.1%
BA	35.0%	31.4%	33.6%	28.6%	33.9%	37.5%
IS	38.7%	31.8%	29.5%	34.6%	29.3%	36.1%
MD	29.1%	35.7%	35.2%	23.0%	37.2%	39.9%
ME	-	-	-	61.3%		38.7%
MK	42.3%	30.6%	27.1%	31.8%	34.3%	34.0%
RS	48.9%	23.5%	27.6%	37.8%	27.1%	35.1%
TR	51.1%	26.3%	22.6%	26.9%	32.8%	40.3%
UA	56.1%	22.6%	21.3%	35.5%	32.3%	32.1%
UK	41.8%	31.5%	26.7%	40.7%	28.8%	30.5%
EU-27	44.1%	31.0%	24.8%	35.2%	32.2%	32.6%

Note: No data are available for XK. ME employment data was unavailable for 2019, and ME value added data was only available for micro and small SMEs combined.

Source: EU-27 data is from calculations by the JRC, based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database. Data for the other countries was provided by DIW Econ, based on data from national statistical offices and estimations.

Lastly, the raw values for the number of SMEs in the NFBS, total SME employment in the NFBS and total SME value added in the NFBS are presented for selected international countries (Table 23).

Table 23 The number of NFBS SMEs, NFBS SME employment and NFBS SME value added in the EU-27 and selected international countries, 2018 and 2019

Country	Number of SMEs		Employment (persons)		Value Added (EUR million)	
	2018	2019	2018	2019	2018	2019
Australia	-	-	5,614,000	5,440,000	355,300	347,377
Brazil	3,979,968	4,177,299	22,674,197	23,048,429	523,909	553,809
Israel	412,154	-	-	-	53,981	-
Japan	-	-	21,400,000	20,730,000	1,284,552	1,238,745
New Zealand	111,615	-	1,008,905	-	-	-
Norway	275,744	298,365	1,054,015	1,137,351	89,561	99,664
Russia	2,452,762	-	10,761,900	-	211,711	-
Singapore	262,700	272,300	2,480,000	2,520,000	103,496	106,996
Switzerland	139,535	140,520	1,839,713	1,846,319	212,727	224,853
United Kingdom	2,125,225	2,173,710	10,524,499	10,693,449	639,389	670,687
United States	19,605,637	4,242,281	57,258,365	38,834,623	5,727,886	-
EU-27	22,479,764	22,939,085	83,690,525	84,438,422	3,452,137	3,575,128

Note: SMEs are defined as those companies with less than 250 employees for all countries except Australia (SMEs have 200 or less employees), Japan (<100 employees) and the United States (<300 employees). The 2018 US data includes the self-employed, whereas the 2019 US data excludes them.

Source: EU-27 data is from calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database. Data for the other countries were provided by DIW Econ, based on data from national statistical offices and estimations.

ANNEX 6: ECONOMY-WIDE ASSESSMENT BY MICRO, SMALL AND MEDIUM-SIZED SMEs OF IMPORTANCE OF VARIOUS ISSUES (ON A SCALE OF 1 TO 10) IN MEMBER STATES – SEPTEMBER – OCTOBER 2021

Table 24: Economy-wide assessment by micro enterprises of importance of various challenges faced by SMEs (on a scale of 1 to 10) in Member States – September – October 2021

Micro Enterprises	Finding customers	Competition	Access to finance	Costs of production or labour	Availability of skilled staff or experienced managers	Regulation
AT	5.94	4.39	3.55	5.23	7.27	4.94
BE	5.79	5.25	4.00	5.96	6.49	5.54
BG	7.55	6.56	5.30	6.94	7.63	6.59
CY	6.25	6.44	5.14	5.72	6.06	5.38
CZ	6.02	4.80	4.31	5.53	6.30	5.05
DE	5.64	4.46	3.34	4.77	5.80	4.80
DK	5.13	5.16	3.85	4.75	5.66	4.44
EE	3.40	4.60	4.56	4.38	5.41	4.27
EL	5.88	6.10	6.01	6.40	5.93	5.30
ES	6.67	5.98	5.00	6.65	5.96	5.62
EU-27	5.75	5.26	4.27	5.98	5.91	5.27
FI	3.62	4.75	3.19	4.72	5.03	4.24
FR	4.99	4.67	3.54	5.39	5.59	4.92
HR	3.48	3.74	3.59	3.87	4.15	3.94
HU	6.05	4.46	4.39	6.36	6.42	5.06
IE	6.43	5.38	4.35	6.47	6.05	5.51
IT	5.59	5.18	4.49	6.43	5.40	5.16
LT	5.72	6.07	5.03	5.59	5.34	4.35
LU	5.79	5.20	4.12	5.33	6.24	5.60
LV	6.11	5.60	3.54	6.77	7.02	5.65
MT	6.41	6.49	4.67	6.37	7.28	6.63
NL	4.78	4.40	2.88	4.85	5.85	5.13
PL	5.84	5.59	4.22	6.79	5.99	6.18
PT	7.12	6.56	5.01	7.09	6.67	6.41
RO	7.42	5.87	5.46	7.14	7.23	5.74
SE	4.91	4.39	2.89	4.66	4.72	3.75
SI	6.57	5.18	4.11	6.35	6.15	5.96
SK	4.33	4.61	3.60	4.82	5.25	4.55

Note: The assessment reported in the figure above reflects the views of SMEs in the period of 6 September to 13 October 2021 (when the SAFE survey fieldwork was undertaken). The colours in the table correspond to the following values: dark green: 0-3, green: 3-4, light green: 4-5, light yellow: 5-6, yellow: 6-7, orange: 7-8, red: 8-10.

Source: SAFE survey

Table 25: Economy-wide assessment by small enterprises of importance of various challenges faced by SMEs (on a scale of 1 to 10) in Member States – September – October 2021

Small Enterprises	Finding customers	Competition	Access to finance	Costs of production or labour	Availability of skilled staff or experienced managers	Regulation
AT	6.75	5.57	4.24	6.46	8.16	5.78
BE	6.01	5.94	4.57	6.76	7.58	5.82
BG	7.55	6.24	5.40	7.76	8.20	6.46
CY	5.31	5.90	4.80	6.38	6.63	5.31
CZ	5.94	5.31	3.86	6.75	7.48	5.01
DE	6.57	5.35	3.88	6.15	7.80	5.64
DK	5.47	5.26	3.32	5.46	6.86	4.78
EE	4.77	6.67	4.74	6.33	7.23	3.93
EL	5.82	6.17	5.52	6.78	6.31	5.73
ES	6.52	6.20	4.77	6.97	6.11	5.41
EU-27	5.88	5.58	4.40	6.51	7.03	5.45
FI	3.64	5.00	2.94	4.95	6.46	3.88
FR	5.15	5.14	4.17	6.22	6.77	5.04
HR	3.94	4.69	4.19	5.53	6.55	4.71
HU	7.17	5.65	5.31	7.42	7.72	5.06
IE	6.61	6.08	4.56	6.93	7.53	5.67
IT	5.64	5.47	4.59	6.99	6.75	5.63
LT	5.43	6.42	5.15	6.16	5.03	4.76
LU	4.87	4.63	3.63	5.73	7.00	5.00
LV	6.56	6.59	5.45	7.31	7.71	5.98
MT	6.60	7.37	4.80	7.33	7.03	5.67
NL	4.71	4.40	3.21	5.31	7.27	5.32
PL	5.85	5.68	4.70	7.30	7.24	6.54
PT	7.19	6.48	5.93	7.24	7.38	6.48
RO	7.64	6.73	6.10	7.86	7.97	6.77
SE	4.64	4.69	2.79	5.04	5.69	4.31
SI	5.94	5.56	4.62	6.79	6.88	5.79
SK	5.02	4.64	3.81	5.34	6.55	4.27

Note: The assessment reported in the figure above reflects the views of SMEs in the period of 6 September to 13 October 2021 (when the SAFE survey fieldwork was undertaken). The colours in the table correspond to the following values: dark green: 0-3, green: 3-4, light green: 4-5, light yellow: 5-6, yellow: 6-7, orange: 7-8, red: 8-10.

Source: SAFE survey

Table 26: Economy-wide assessment by medium-sized enterprises of importance of various challenges faced by SMEs (on a scale of 1 to 10) in Member States – September - October 2021

Medium-Sized Enterprises	Finding customers	Competition	Access to finance	Costs of production or labour	Availability of skilled staff or experienced managers	Regulation
AT	6.94	6.60	4.43	7.03	8.45	5.71
BE	5.53	6.00	3.77	6.77	7.70	5.90
BG	8.02	6.82	5.81	7.92	8.77	7.05
CY	5.10	6.20	3.57	5.72	5.77	4.70
CZ	6.21	5.55	4.37	7.08	7.80	4.93
DE	6.76	6.02	4.14	6.85	8.13	5.64
DK	5.17	5.76	3.10	5.89	7.13	4.79
EE	4.34	6.29	2.88	6.77	7.43	3.62
EL	5.54	6.67	5.06	7.19	6.47	5.46
ES	6.21	6.37	4.63	6.95	6.15	5.90
EU-27	5.86	5.94	4.32	6.82	7.32	5.59
FI	3.60	5.53	2.71	5.59	6.58	4.30
FR	5.22	5.49	3.68	6.05	6.69	4.85
HR	3.66	4.68	3.34	5.14	6.68	4.85
HU	6.21	5.47	5.31	7.37	7.70	5.52
IE	6.41	5.99	4.62	7.52	8.09	5.24
IT	5.75	5.76	4.47	6.69	6.47	5.59
LT	5.76	6.86	5.13	7.47	6.29	5.69
LU	5.40	5.09	3.83	5.89	6.83	5.11
LV	5.09	6.31	5.08	7.19	7.54	6.31
MT	6.47	6.43	5.60	6.77	7.40	5.43
NL	4.96	5.21	3.39	6.23	7.78	5.40
PL	6.14	6.19	5.02	7.76	7.60	7.01
PT	7.36	6.91	5.43	7.83	7.58	6.76
RO	7.19	6.79	6.52	8.30	8.24	7.37
SE	4.70	5.02	2.80	5.23	6.17	3.95
SI	5.91	6.48	4.26	7.37	7.85	5.88
SK	4.42	4.77	3.16	6.15	6.95	4.33

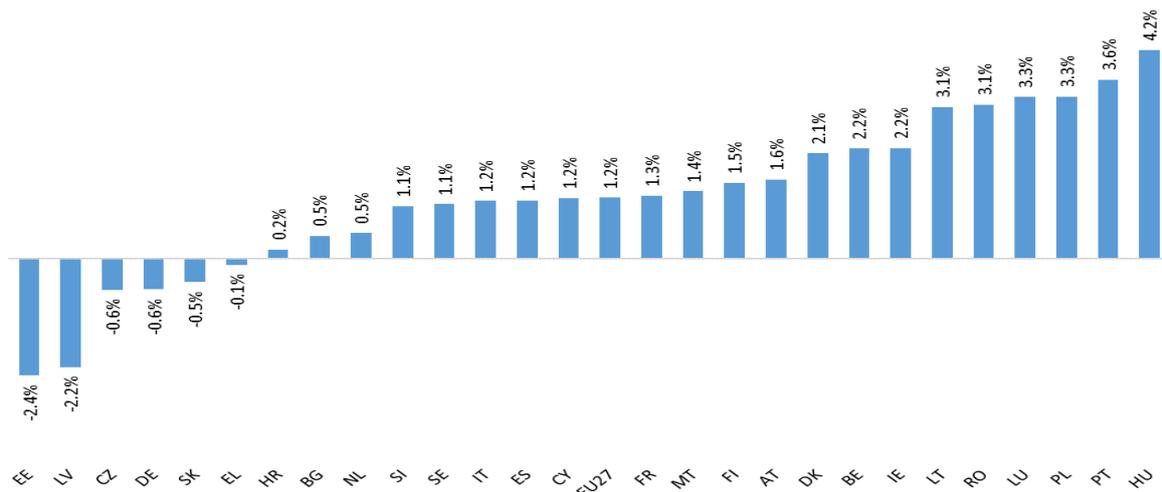
Note: The assessment reported in the figure above reflects the views of SMEs in the period of 6 September to 13 October 2021 (when the SAFE survey fieldwork was undertaken). The colours in the table correspond to the following values: dark green: 0-3, green: 3-4, light green: 4-5, light yellow: 5-6, yellow: 6-7, orange: 7-8, red: 8-10.

Source: SAFE survey

ANNEX 7: PERCENTAGE CHANGE IN THE NUMBER OF SMEs IN 2021 COMPARED TO 2019 IN THE EU-27 AND ACROSS EU MEMBER STATES

The number of SMEs grew in 2021 in most Member States, resulting in an increase of 1.2% in the number of SMEs across the EU-27 of 1.2% (Figure 76). Six Member States experienced decreases in the number of SMEs in 2021. This fall was particularly pronounced in EE (-2.4%) and LV (-2.2%). These two Member States also experienced the largest declines in SME employment in 2021 (Figure 77).

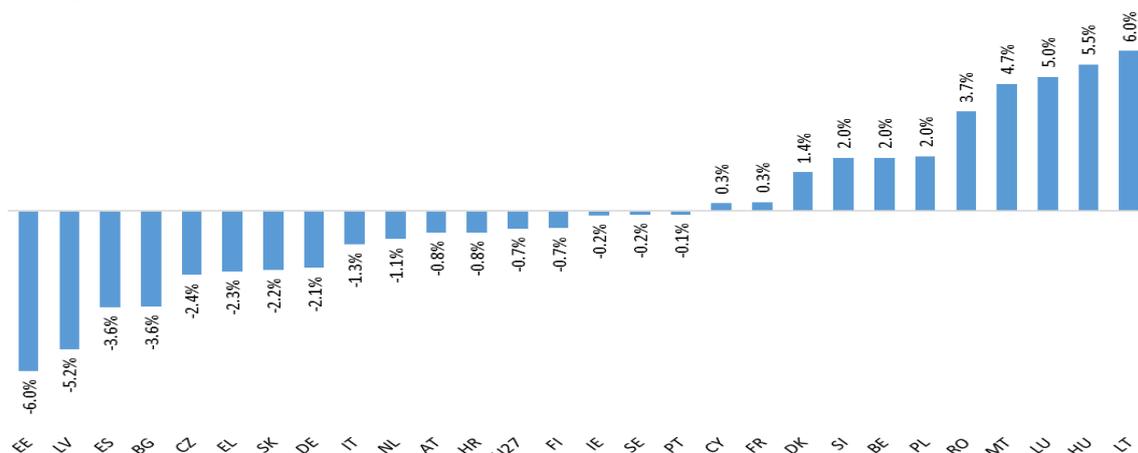
Figure 76: Annual growth rate in the number of SMEs in the EU-27 and across EU Member States - 2021



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Most Member States experienced a decrease in the number of SMEs between 2019 and 2021, resulting in a reduction of 0.7% in the number of SMEs in the EU-27 overall. However, this decline was greater than 5% in two Member States: EE (6.0%) and LV (5.2%). In contrast, there was growth of 5.0% or more in three Member States: HU (5.5%), LT (6.0%) and LU (5.0%).

Figure 77: Percentage change in the number of SMEs in 2021 compared to 2019 in the EU-27 and across EU Member States



Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

ANNEX 8: THE LEVEL OF SME ACTIVITY IN 2021 RELATIVE TO 2019 BY KNOWLEDGE INTENSITY AND 2-DIGIT NACE INDUSTRY CLASSIFICATION

Table 27: 2021 SME value added, SME employment and number of SMEs as a percentage of their 2019 values by knowledge and technology intensity – EU-27

	Value Added	Employment	Number of Enterprises
Knowledge-intensive industries	102.6%	101.3%	101.5%
Low knowledge-intensive industries	98.5%	96.4%	97.4%
High-tech industries	102.0%	97.8%	96.8%
Medium-tech industries	102.0%	97.4%	97.2%
Low-tech industries	104.2%	97.8%	97.4%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

Table 28: 2021 SME value added, SME employment and number of SMEs as a percentage of their 2019 values by 2-digit NACE industry classification and by comparison with large enterprises – EU-27

	Number of Enterprises		Employment		Value Added	
	SMEs	Large enterprises	SMEs	Large enterprises	SMEs	Large enterprises
B05: Mining of coal and lignite	129%	95%	107%	107%	122%	134%
B06: Extraction of crude petroleum and natural gas	104%	120%	105%	112%	146%	111%
B07: Mining of metal ores	96%	95%	75%	89%	44%	119%
B08: Other mining and quarrying	99%	89%	100%	95%	103%	103%
B09: Mining support service activities	102%	87%	97%	88%	116%	41%
C10: Manufacture of food products	98%	93%	98%	97%	103%	106%
C11: Manufacture of beverages	97%	94%	96%	96%	98%	107%
C12: Manufacture of tobacco products	100%	111%	96%	99%	272%	102%
C13: Manufacture of textiles	97%	90%	99%	94%	107%	98%
C14: Manufacture of wearing apparel	98%	90%	98%	95%	102%	104%
C15: Manufacture of leather and related products	98%	95%	97%	96%	103%	102%
C16: Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	97%	94%	98%	97%	103%	106%
C17: Manufacture of paper and paper products	97%	95%	97%	97%	104%	104%
C18: Printing and reproduction of recorded media	97%	92%	98%	95%	104%	104%
C19: Manufacture of coke and refined petroleum products	100%	96%	101%	95%	106%	102%
C20: Manufacture of chemicals and chemical products	97%	95%	97%	97%	103%	108%
C21: Manufacture of basic pharmaceutical products and pharmaceutical preparations	98%	95%	99%	97%	104%	120%
C22: Manufacture of rubber and plastic products	96%	93%	97%	95%	102%	103%

	Number of Enterprises		Employment		Value Added	
	SMEs	Large enterprises	SMEs	Large enterprises	SMEs	Large enterprises
C23: Manufacture of other non-metallic mineral products	97%	93%	98%	96%	103%	104%
C24: Manufacture of basic metals	97%	94%	95%	96%	97%	103%
C25: Manufacture of fabricated metal products, except machinery and equipment	97%	93%	98%	95%	102%	102%
C10: Manufacture of food products	97%	95%	98%	97%	101%	108%
C26: Manufacture of computer, electronic and optical products	97%	94%	97%	95%	102%	103%
C27: Manufacture of electrical equipment	97%	94%	97%	96%	102%	102%
C28: Manufacture of machinery and equipment n.e.c.	97%	93%	96%	95%	102%	101%
C29: Manufacture of motor vehicles, trailers and semi-trailers	97%	94%	97%	97%	103%	101%
C30: Manufacture of other transport equipment	97%	94%	98%	96%	102%	105%
C31: Manufacture of furniture	98%	97%	99%	98%	101%	121%
C32: Other manufacturing	98%	95%	98%	97%	102%	102%
C33: Repair and installation of machinery and equipment	100%	98%	103%	100%	114%	108%
D35: Electricity, gas, steam and air conditioning supply	99%	99%	98%	99%	103%	112%
E36: Water collection, treatment and supply	100%	100%	101%	110%	100%	113%
E37: Sewerage	100%	100%	101%	100%	104%	111%
E38: Waste collection, treatment and disposal activities; materials recovery	101%	92%	100%	101%	106%	111%
E39: Remediation activities and other waste management services	104%	101%	104%	103%	106%	111%
F41: Construction of buildings	103%	100%	102%	103%	110%	111%
F42: Civil engineering	104%	102%	104%	104%	110%	111%
F43: Specialised construction activities	98%	98%	98%	99%	99%	101%
G45: Wholesale and retail trade and repair of motor vehicles and motorcycles	97%	98%	98%	97%	99%	100%
G46: Wholesale trade, except of motor vehicles and motorcycles	97%	98%	97%	99%	98%	100%
G47: Retail trade, except of motor vehicles and motorcycles	98%	98%	98%	99%	98%	95%
H49: Land transport and transport via pipelines	96%	97%	95%	94%	96%	91%
H50: Water transport	97%	100%	98%	97%	94%	120%
H51: Air transport	97%	97%	97%	98%	98%	95%
H52: Warehousing and support activities for transportation	96%	94%	98%	98%	97%	103%
H53: Postal and courier activities	92%	93%	90%	89%	91%	88%
I55: Accommodation	92%	90%	90%	90%	91%	91%
I56: Food and beverage service activities	107%	109%	106%	106%	105%	112%
J58: Publishing activities	108%	105%	106%	107%	117%	105%
J59: Motion picture, video and television programme production, sound recording and music publishing activities	107%	106%	108%	106%	113%	109%
J60: Programming and broadcasting activities	109%	109%	107%	107%	116%	111%

	Number of Enterprises		Employment		Value Added	
	SMEs	Large enterprises	SMEs	Large enterprises	SMEs	Large enterprises
J61: Telecommunications	108%	110%	106%	108%	107%	113%
J62: Computer programming, consultancy and related activities	106%	107%	106%	111%	104%	110%
J63: Information service activities	102%	105%	101%	104%	105%	107%
L68: Real estate activities	101%	99%	100%	100%	100%	99%
M69: Legal and accounting activities	99%	100%	100%	100%	101%	97%
M70: Activities of head offices; management consultancy activities	100%	99%	100%	98%	101%	99%
M71: Architectural and engineering activities; technical testing and analysis	100%	100%	100%	100%	104%	95%
M72: Scientific research and development	100%	98%	100%	99%	101%	98%
M73: Advertising and market research	100%	103%	100%	102%	98%	870%
M74: Other professional, scientific and technical activities	100%	100%	99%	96%	101%	92%
M75: Veterinary activities	101%	100%	99%	102%	98%	99%
N77: Rental and leasing activities	99%	98%	99%	100%	101%	100%
N78: Employment activities	100%	101%	99%	101%	97%	100%
N79: Travel agency, tour operator and other reservation service and related activities	100%	100%	99%	101%	102%	100%
N80: Security and investigation activities	102%	100%	100%	100%	100%	99%
N81: Services to buildings and landscape activities	102%	100%	101%	100%	100%	101%
N82: Office administrative, office support and other business support activities	129%	95%	107%	107%	122%	134%

Source: Calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database

ANNEX 9: THE PERFORMANCE OF THE EU-27 AND SELECTED NON-EU COUNTRIES IN 2020 AND 2021

This annex provides information on the recent performance of SMEs in Albania (AL), Armenia (AM), Bosnia and Herzegovina (BA), Iceland (IS), Moldova (MD), Montenegro (ME), North Macedonia (MK), Serbia (RS), Turkey (TR) and Ukraine (UA),¹¹² and the UK.

Of those countries for which data was available, all experienced decreases in SME employment in 2020, with the exception of TR (2.3% growth) and the UK (0.9%) (Table 29). The largest falls in SME employment in 2020 were recorded by AM (6.0%) and IS (10.0%). All other countries experienced falls in SME employment of between 1% and 3%, whilst the EU-27 experienced a decline of 2.0%. Data for 2021 SME employment was only available for two of the selected countries (IS and the UK), which both experienced falls in SME employment compared to 2020 (of 0.4% and 0.3%, respectively). In contrast, the EU-27 saw a small increase in SME employment in 2021 of 0.5%.

The evolution in SME value added between 2019 and 2020 differed substantially across the countries studied. Most countries experienced falls in SME value added, with only BA (0.3%), RS (1.4%) and UA (0.7%) generating increases. SME value added fell by more than 20% in two countries studied, AM (-26.0%) and IS (-22.1%). The EU-27 experienced a fall in SME value added of 5.5%, which was a smaller decrease than all the countries listed, except MD (-1.4%) and MK (-3.4%). In 2021, all countries for which data was available experienced growth in SME value added except MK (in which SME value added fell by 4.7%). The countries with the largest growth in SME value added were RS (15.4%) and TR (17.5%). The EU-27 saw slower growth in SME value added than any country that experienced positive growth, with an increase of only 8.0%.

Table 29 Growth rates of SME employment and SME value added in the EU-27 and selected non-EU countries in 2020 and 2021

COSME countries	Employment		Value Added	
	2020	2021	2020	2021
AL	-	-	-7.6%	10.7%
AM	-6.0%	-	-26.0%	-
BA	-2.5%	-	0.3%	14.5%
IS	-10.0%	-0.4%	-22.1%	-
MD	-1.8%	-	-1.4%	-
ME	-	-	-13.4%	-
MK	-2.8%	-	-3.4%	-4.7%
RS	-	-	1.4%	15.4%
TR	2.3%	-	-8.1%	17.5%
UA	-2.6%	-	0.7%	-
UK	0.9%	-0.3%	-9.5%	13.9%
EU-27	-2.0%	0.5%	-5.5%	8.0%

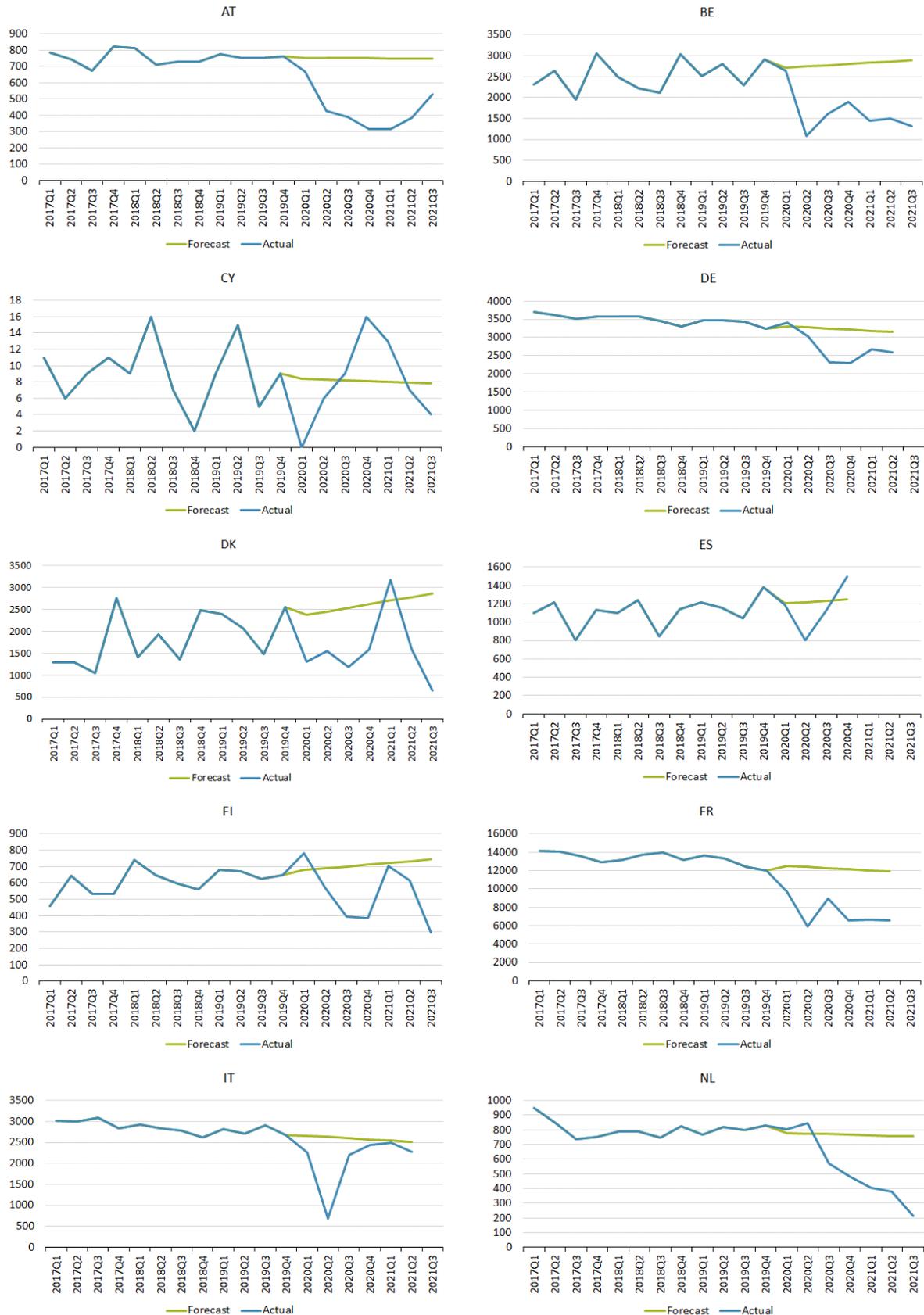
Note: Data for many of the COSME countries was not available, particularly with regards to 2021.

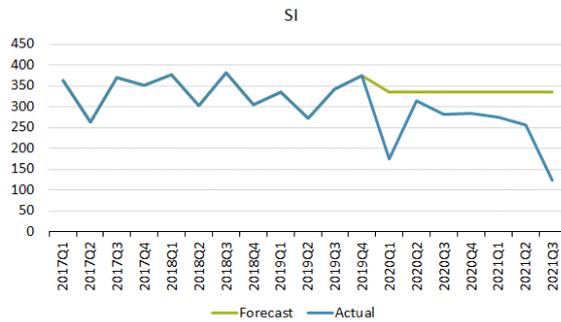
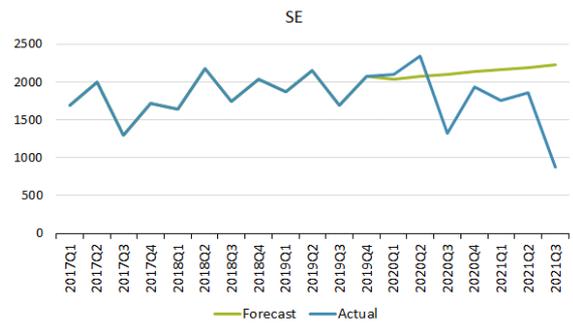
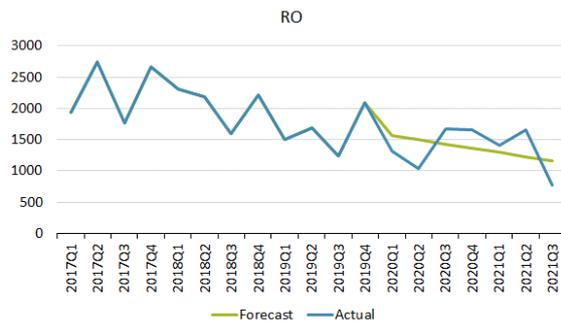
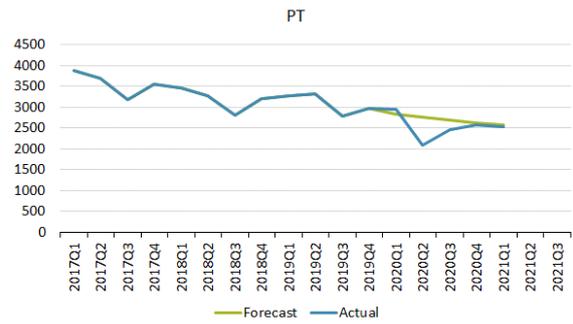
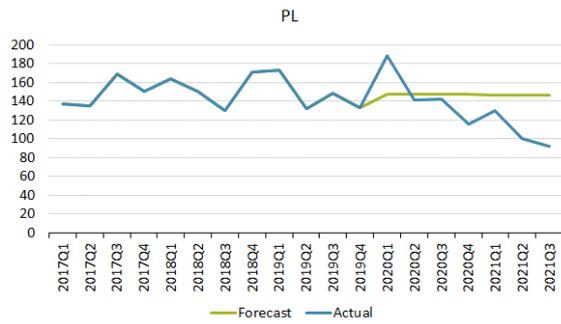
Source: EU-27 data is from calculations by the JRC based on Eurostat's Structural Business Statistics, Short-Term Business Statistics and National Accounts Database. Data for COSME countries and the UK is from DIW Econ, based on data from national statistical offices and estimations

¹¹² 2019 is the most recent year for which data on the performance of SMEs are available for the COSME countries. No data are available for the COSME country Kosovo.

ANNEX 10: ACTUAL AND FORECASTED BUSINESS BANKRUPTCIES

Figure 78: Forecasts of quarterly bankruptcies for selected Member States





Source: Data from the organisations listed below and calculations by LE Europe

AT: KSV1870

BE: Statbel

CY: Department of Insolvency, Republic of Cyprus

DE: Destatis

DK: Statistics Denmark

ES: National Statistics Institute

FI: Statistics Finland

FR: Insee

IT: Italstat

NL: CBS Netherlands

PL: Central Statistical Office

PT: Statistics Portugal

RO: National Trade Register Office

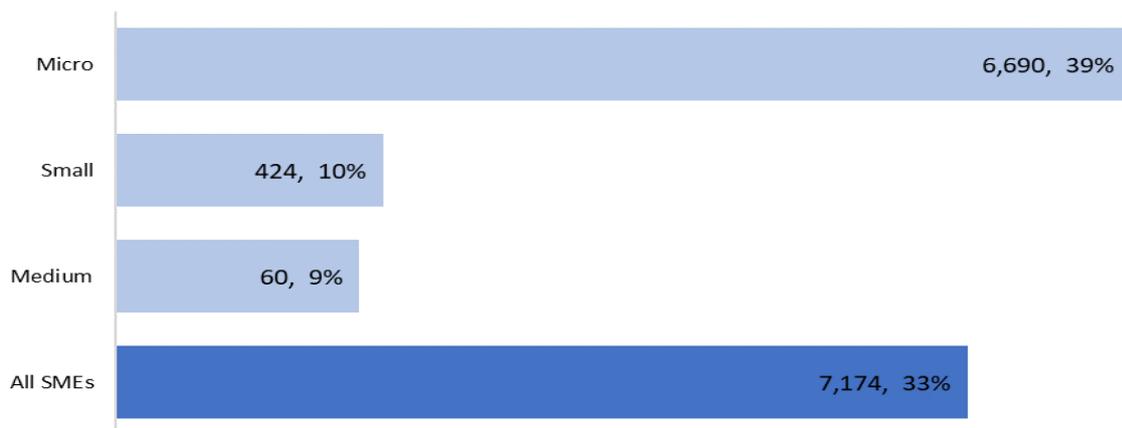
SE: SCB

SI: Business Register of Slovenia

ANNEX 11: DUTCH SME STARTUP POPULATION

The Crunchbase data on Dutch SME startups were excluded from Section 5.2.1 as Dutch companies accounted for a disproportionately large number of EU-27 startups in certain industries and SME size classes. In September 2021, NL accounted for a third of the EU-27's total number of SME startups (Figure 79). Breaking this figure down by size class, the disproportionately high NL SME startup total was fully accounted for by micro enterprises. Whilst NL only accounted for 10% and 9% of the EU-27's small and medium-sized startups respectively, it accounted for 39% of the EU-27's total number of micro startups.

Figure 79: Total number of NL Startups by SME size class and the percentage of the EU-27's startup population accounted for by NL startups by SME size class – micro SMEs, small SMEs, medium-sized SMEs and all SMEs – September 2021

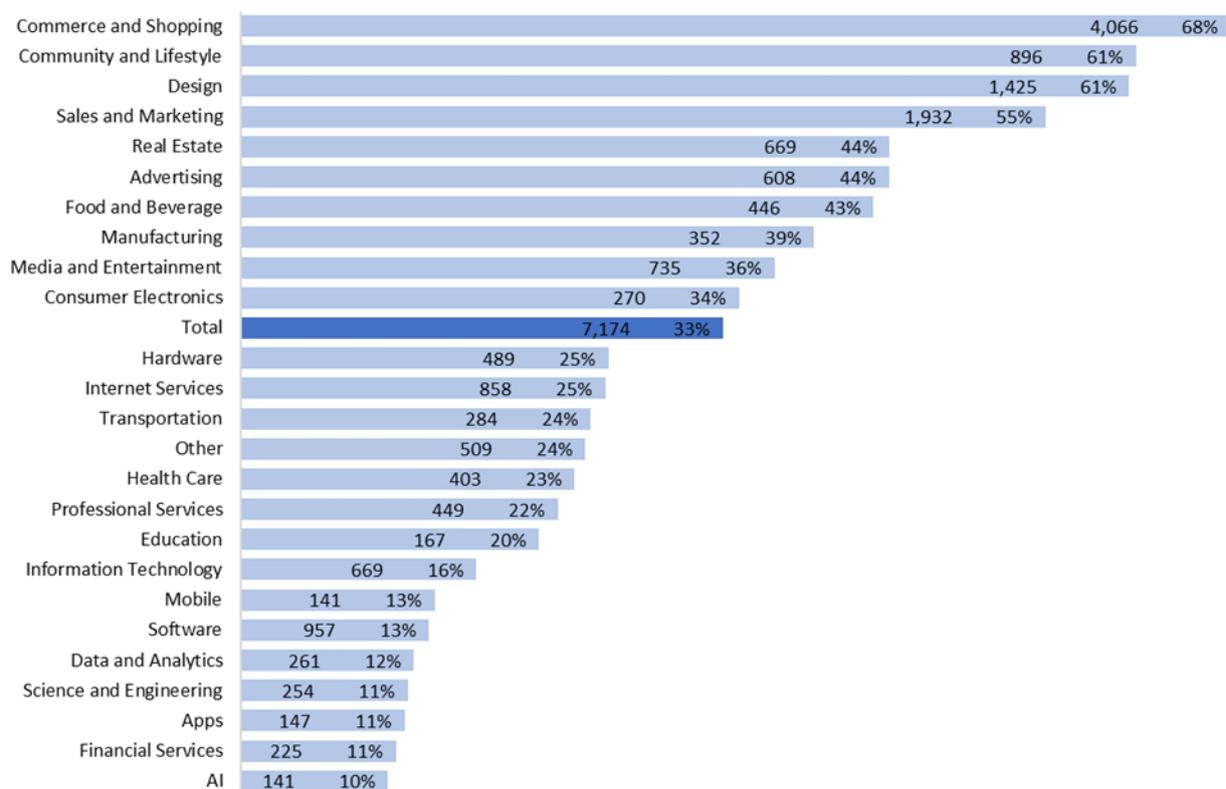


Note: Startups are defined as active, for-profit companies founded between 1st September 2017 and 20th September 2021.

Source: Crunchbase

The proportion of the EU-27's SME startup population headquartered in NL also varied substantially by industry group (Figure 80). NL accounted for the majority of the EU-27's SME startups in four industry groups: 'Commerce and Shopping' (68%), 'Community and Lifestyle' (61%), 'Design' (61%) and 'Sales and Marketing' (55%). The data for the 'Commerce and Shopping' industry group are particularly problematic, with NL accounting for over two thirds of the EU-27's total within the industry group. Furthermore, most NL SME startups were within this 'Commerce and Shopping' industry group.

Figure 80: Total number of NL SME startups by Industry Group and the percentage of the EU-27's SME startup population accounted for by NL startups by Industry Group – September 2021



Note: Industry groups are defined by Crunchbase. Companies can be included within numerous industry groups, so industry totals add up to more than the total number of SME startups in NL.

Source: Crunchbase

It is hypothesised that a policy easing in the requirements for setting up a new company in NL led to a large number of entrepreneurs setting up as companies, which explains the large number of micro enterprises in NL. Numerous policy changes are referenced in the World Bank's 'Doing Business' reports for 2013 and 2014,¹¹³ such as the abolition of minimum capital requirements for starting a business (the minimum capital requirements were previously EUR 18,000¹¹⁴). These policy changes coincided with a substantial increase in the number of new business registrations in NL.¹¹⁵

¹¹³ 2013: <https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB13-full-report.pdf> 2014: <https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB14-Full-Report.pdf>

¹¹⁴ Van Vilet 2012: <https://digitalcommons.law.lsu.edu/cgi/viewcontent.cgi?article=1129&context=jcls>

¹¹⁵ See World Bank data: <https://data.worldbank.org/indicator/IC.BUS.NREG?locations=NL>

ANNEX 12: NACE INDUSTRIES INCLUDED IN EACH OF THE 14 INDUSTRIAL ECOSYSTEMS

Table 30: Industrial composition of the 14 industrial ecosystems

	Industries included in the ecosystem
1 - Aerospace and Defence	C25 Manufacture of fabricated metal products, except machinery and equipment C26 Manufacture of computer, electronic and optical products C27 Manufacture of electrical equipment C30 Manufacture of other transport equipment C33 Repair and installation of machinery and equipment H51 Air transport H52 Warehousing and support activities for transportation J61 Telecommunications N80 Security and investigation activities Horizontal
2 - Agri-food	C10 Manufacture of food products C11 Manufacture of beverages C12 Manufacture of tobacco products Horizontal Note: Ecosystem "Agri-food" is missing NACE sector A
3 - Construction	C31 Manufacture of furniture F: Construction M71: Architectural and engineering activities; technical testing and analysis N81: Services to buildings and landscape activities Horizontal
4- Cultural and Creative Industries	C18 Printing and reproduction of recorded media C32 Other manufacturing G47 Retail trade, except of motor vehicles and motorcycles J58 Publishing activities J59 Motion picture, video and television programme production, sound recording and music publishing activities J60 Programming and broadcasting activities J62 Computer programming, consultancy and related activities J63 Information service activities M71 Architectural and engineering activities; technical testing and analysis M73 Advertising and market research M74 Other professional, scientific and technical activities M75 Veterinary activities N77: Rental and leasing activities S95 Repair of computers and personal and household goods Horizontal Note: Ecosystem "Cultural and Creative Industries" is missing NACE sectors R, P and S94. S95 is only available until 2018
5 – Digital	C26 Manufacture of computer, electronic and optical products J58 Publishing activities J61: Telecommunications J62: Computer programming, consultancy and related activities J63: Information service activities S95: Repair of computers and personal and household goods Horizontal
6 – Electronics	C26 Manufacture of computer, electronic and optical products C28: Manufacture of machinery and equipment n.e.c. Horizontal
7 - Energy-intensive Industries	C16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials C17 Manufacture of paper and paper products C19 Manufacture of coke and refined petroleum products C20 Manufacture of chemicals and chemical products C22 Manufacture of rubber and plastic products C23 Manufacture of other non-metallic mineral products C24 Manufacture of basic metals Horizontal
8 - Energy – Renewables	C27: Manufacture of electrical equipment D35 Electricity, gas, steam and air conditioning supply Horizontal

Industries included in the ecosystem	
9 - Health	C21 Manufacture of basic pharmaceutical products and pharmaceutical preparations C32 Other manufacturing Horizontal Note: Ecosystem "Health" is missing NACE sector Q.
10 - Mobility - Transport – Automotive	C27 Manufacture of electrical equipment C29 Manufacture of motor vehicles, trailers and semi-trailers C30 Manufacture of other transport equipment G45 Wholesale and retail trade and repair of motor vehicles and motorcycles H49 Land transport and transport via pipelines H50 Water transport H52 Warehousing and support activities for transportation Horizontal
11 - Proximity, Social Economy and Civil Security	G47 Retail trade, except of motor vehicles and motorcycles I Accommodation and food services L Real estate activities N81: Services to buildings and landscape activities N82: Office administrative, office support and other business support activities S95 Repair of computers and personal and household goods Horizontal Note: Ecosystem "Proximity, Social Economy and Civil Security" is missing NACE sectors Q, S96 and T. S95 is only available until 2018
12 - Retail	G46 Wholesale trade, except of motor vehicles and motorcycles G47 Retail trade, except of motor vehicles and motorcycles H53 Postal and courier activities Horizontal
13 - Textiles	C13 Manufacture of textiles C14 Manufacture of wearing apparel C15 Manufacture of leather and related products Horizontal
14 - Tourism	H49 Land transport and transport via pipelines H50 Water transport H51 Air transport I Accommodation and food services N79 Travel agency, tour operator reservation service and related activities N82 Office administrative, office support and other business support activities Horizontal

Note: 'Horizontal' refers to activities which contribute to all ecosystems, such as professional services and utilities. Some sectors are horizontal by nature and, as such, they contribute to the well-functioning of all the ecosystems. To take into account their contribution, these sectors have been distributed across ecosystems using Input-Output tables, which can be used to calculate how much each horizontal sector is used by the rest of the ecosystems. It should be noted that the list of "Horizontal" sectors does not include financial services.

Source: Information provided by the European Commission

ANNEX 13: ENTERPRISE POPULATION IN THE 14 INDUSTRIAL ECOSYSTEMS

Table 31: Number of enterprises by industrial ecosystem and size class - 2021

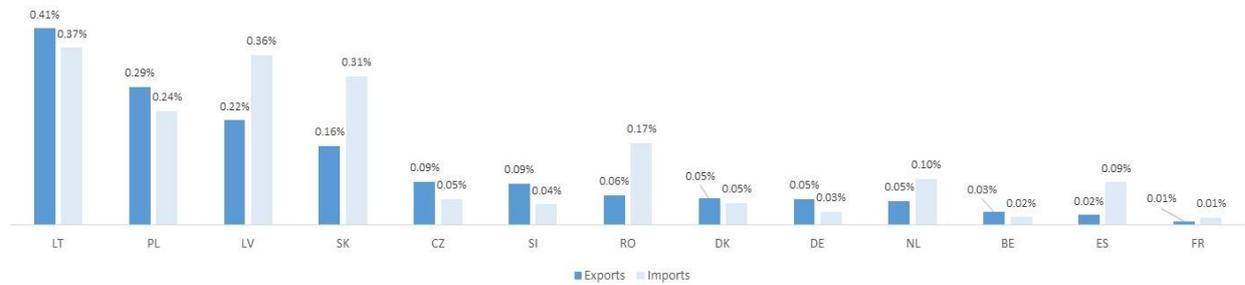
	Number				Percentage of the Ecosystem's Total			
	Micro	Small	Medium	Large	Micro	Small	Medium	Large
1 - Aerospace and Defence	245,019	33,239	9,430	2,520	84.43%	11.45%	3.25%	0.87%
2 - Agri-food	518,868	67,142	13,842	3,404	86.01%	11.13%	2.29%	0.56%
3 - Construction	5,221,086	352,610	44,222	7,868	92.81%	6.27%	0.79%	0.14%
4- Cultural and Creative Industries	1,469,665	57,132	9,141	1,840	95.57%	3.72%	0.59%	0.12%
5 – Digital	1,161,757	58,783	12,556	3,138	93.98%	4.76%	1.02%	0.25%
6 – Electronics	85,947	12,269	3,672	1,087	83.46%	11.91%	3.57%	1.06%
7 - Energy-intensive Industries	458,376	59,387	16,970	4,665	84.98%	11.01%	3.15%	0.86%
8 - Energy – Renewables	103,392	6,701	1,887	620	91.82%	5.95%	1.68%	0.55%
9 - Health	460,230	30,287	5,958	1,731	92.38%	6.08%	1.20%	0.35%
10 - Mobility - Transport – Automotive	1,670,019	152,368	25,775	5,810	90.08%	8.22%	1.39%	0.31%
11 - Proximity, Social Economy and Civil Security	1,164,353	96,877	12,317	2,411	91.25%	7.59%	0.97%	0.19%
12 - Retail	4,855,636	389,370	51,878	9,538	91.50%	7.34%	0.98%	0.18%
13 - Textiles	229,971	27,031	5,418	842	87.35%	10.27%	2.06%	0.32%
14 - Tourism	2,782,543	322,324	35,830	5,073	88.45%	10.25%	1.14%	0.16%

Note: Data are missing for some NACE codes that correspond to the following ecosystems: Agri-food (NACE sector A); Cultural and Creative Industries (R, P, S94 and S95); Health (Q); Proximity, Social Economy and Civil Security (Q, S95, S96 and T); and Tourism (R).

Source: DIW Econ

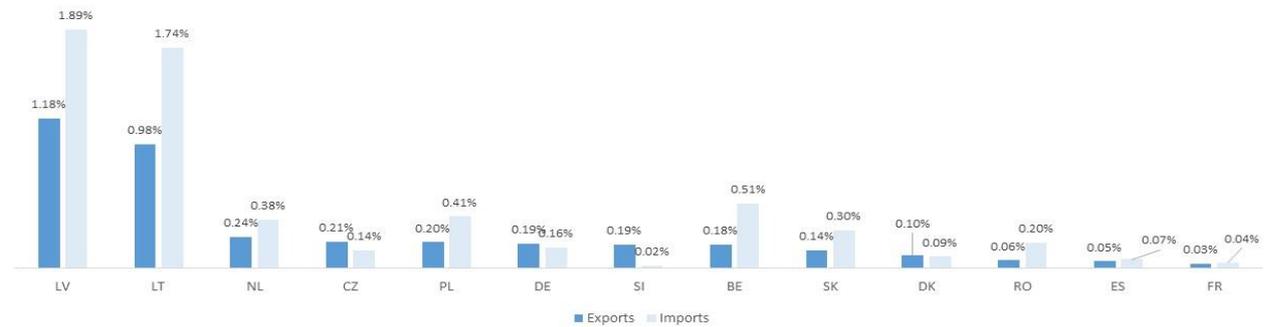
ANNEX 14: INTERNATIONAL TRADE IN GOODS BY EU-27 SMEs WITH UKRAINE AND RUSSIA

Figure 81 Ratio of SME exports and imports of goods from/to Ukraine to SME turnover by Member State - 2019



Source: LE Europe calculations based on Eurostat data

Figure 82 Ratio of SME exports and imports of goods from/to Russia to SME turnover by Member State - 2019



Source: LE Europe calculations based on Eurostat data

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