European Commission

ANNUAL REPORT ON EUROPEAN SMEs 2020/2021

July 2021

Annual Report on European SMEs 2020/2021

Digitalisation of SMEs

SME Performance Review 2020/2021

Contract number: EASME/COSME/2020/SC/001

July 2021

EUROPEAN COMMISSION
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This report was prepared in 2021 for the European Commission, DG Internal Market, Industry, Entrepreneurship and SMEs, Directorate A Strategy & economic analysis; Unit A.2 – SMEs by the consortium composed of:
PwC EU Services
CARSA
DIW Econ
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Cover image: Gerd Altmann (Pixabay)

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Manuscript completed in June 2021

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PDF ISBN: 978-92-9460-422-4 ISSN: 2467-0162 doi: 10.2826/56865 EA-AK-21-001-EN-N

Luxembourg: Publications Office of the European Union, 2021

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ACRONYMS

BEEHC	Business Economy (except activities of holding companies)
CE	Circular Economy
DX	Digital transformation
EC	European Commission
ESG	Environmental, Social and Governance
GDP	Gross Domestic Product
MMF	Multiannual Financial Framework
MS	Member State(s)
NACE	Statistical classification of economic activities in the European Community
NFBS	Non-financial business sector
PP	Percentage point(s)
SAFE	EC/ECB Survey on Access to Finance
SBA	Small Business Act for Europe
SME	Small and medium-sized enterprises
SPR	SME Performance Review
VAT	Value added tax

Executive Summary

2020 was a momentous year for EU SMEs, as well as for EU business and citizens more generally. The Covid-19 crisis brought to an abrupt halt or even reversed the gains made by the EU SME sector over the past decade. Many industries, especially in the SME-intensive services sector, experienced large declines in sales as a result of the various lockdowns and other measures introduced by Member States to fight the spread of Covid-19, although conversely, some industries actually saw their sales increase. However, the various business support measures implemented by Member States during the pandemic limited the employment impact of the decline in economic activity.

The first part of this report reviews the impact of the pandemic on EU SMEs in 2020, and the likely performance of EU SMEs in 2021, after providing a brief overview of their pre-pandemic performance.

The second part of the report focuses on the digitalisation of SMEs. The use by SMEs in 2020 of various digital tools (e.g. remote working, online/click and collect selling, etc.) helped to mitigate the impact of the pandemic. In this regard, the 2020 'EU SME Strategy for a sustainable and digital Europe' was launched at the most opportune time. It aims to "support European SMEs through strengthening their capacities to adapt to climate neutrality challenges, help them to reap the benefits of digitalisation, reduce the regulatory burden that SMEs face, and improve their opportunities to access finance". This report supports the SME Strategy, by reviewing and assessing the digitalisation activities undertaken by SMEs so far, especially during the pandemic, as well as the digitalisation issues and challenges faced by SMEs, and actual and potential policy responses to these challenges.

The analysis focuses on two distinct aspects of the digitalisation of SMEs. Firstly, the performance of SMEs which are active in the digital sector and, secondly, the digitalisation of activities carried out by all SMEs, irrespective of sector.

EU-27 SMEs in the EU economy in 2020

In 2020, slightly more than 21 million micro, small and medium-sized SMEs were active in the EU-27, accounting for 99.8% of all enterprises in the EU-27 non-financial business sector (NFBS). Of this total, 93% were micro SMEs. Furthermore, 53% of the total value added produced by the EU-27 NFBS and 65% of total EU-27 NFBS employment was generated by EU-27 SMEs in 2020.

The pre-pandemic performance of EU-27 SMEs in 2019

The solid growth pattern established by EU-27 SMEs in the second half of the previous decade carried over into 2019, with the number of EU-27 SMEs increasing by 1.5%, their value added rising by 3.8% and their employment by 1.5%.

This robust growth in 2019 was largely driven by micro SMEs. They vastly outperformed small and medium-sized SMEs, reflecting the fact that overall economic growth in 2019 was particularly strong in industries in which many micro SMEs are active, such as the construction, hospitality and tourism industries.

Moreover, in 2019, SMEs active in the digital sector ('manufacture of computer, electronic and optical products', 'telecommunications', 'computer programming, consultancy and related activities' and 'information service activities') posted stronger value added and employment performances than SMEs in the non-digital sector: 4.5% vs. 3.7% in the case of value added, and 2.4% vs 1.3% in the case of employment.

EU-27 SMEs and the Covid-19 pandemic

The pandemic had a major impact on EU-27 SMEs in 2020, with many SMEs, but not all, facing large declines in sales. Supply disruptions, an upsurge in late payments and operating at a loss were other key challenges faced by many SMEs in 2020.

SMEs implemented a wide range of mitigation measures. While some temporarily ceased to trade, many others made use of the different support programmes implemented by national governments, especially to pay their wages, overcome cash flow issues, and reduce working hours and/or staffing.

Many SMEs also made greater use of digital tools to continue to operate and either moved to or increased their online selling.

Overall, available data suggest that the value added generated by EU-27 SMEs in the NFBS in 2020 declined by 7.6% and EU-27 SME employment in the NFBS fell by 1.7%.

The impact of the pandemic on SMEs varied greatly across Member States and industries. In particular, at EU-27 level, the industries in which SMEs were worst affected by the pandemic were 'accommodation and food service activities' (37.8% decline in SME value added), 'transport and storage' (16.1% decline in SME value added), 'administrative and support service activities' (13.3% decline in SME value added) and 'manufacturing' (9.8% decline in SME value added).

As in 2019, EU-27 SMEs in the digital sector performed much better in 2020 than EU-27 SMEs in the non-digital sector. Value added generated by the former group of SMEs fell by only 0.5% in 2020, while the latter group of SMEs saw value added drop by 8.0%. Moreover, EU-27 SME employment increased by 1.5% in the digital sector and declined by 1.9% in the non-digital sector.

The number of new business registrations and startups in the EU-27 fell in 2020 and so did the funding for startups and scaleups. The number of bankruptcies also fell in 2020, reflecting the impact of the various economic support programmes implemented by Member States, forbearance by lenders and regulators, and reduced operations by legal and administrative authorities deciding on and recording bankruptcies.

The outlook for 2021

EU-27 SME value added in the NFBS is forecast to grow by 5.8% in 2021, while a rise of 0.6% is expected in EU-27 SME employment. In the light of considerable uncertainty about the evolution of Covid-19 throughout 2021 and the responses of households and businesses to an easing of government measures to fight against the spread of the virus, it is important to note that the forecasts presented in the report are subject to much greater than usual downside and upside risks.

The levels of EU-27 SME value added and employment in the NFBS in 2021 are expected to reach only 97.7% and 98.8% respectively of their pre-pandemic levels of 2019.

As in 2019 and 2020, EU-27 SMEs in the digital sector are projected to outperform SMEs in the non-digital sector in 2021. EU-27 SMEs in the digital sector are forecast to increase their value added and employment by 6.7% and 1.7%, respectively. In contrast, EU-27 SME value added and employment in the non-digital sector is projected to grow by only 5.7% and 0.5%.

The state of SME digitalisation in 2020

The information used in this report to assess the state of the digitalisation of SMEs in 2020 draws on the results of two 2020 surveys of SMEs and a 2020 survey of SME associations and SME digitalisation support organisations. The report provides pan-European information on the digitalisation of SMEs of all size classes in 2020, including micro SMEs. In this regard, it complements the Eurostat "ICT usage in enterprise" statistics which do not cover micro SMEs.

A much larger proportion of micro SMEs than of small and medium sized SMEs reported focusing on only basic digital technologies and not on advanced digital technologies (36.5% of micro SMEs versus 29.2% of small SMEs and 26.9% of medium-sized SMEs).

In contrast, a much smaller proportion of micro SMEs than of small and medium sized SMEs were of the opinion that advanced digital technologies should be introduced into their business, or had already done so (19.9% of micro SMEs versus 29.9% of small SMEs and 37.5% of medium-sized SMEs).

Moreover, in the pre-Covid-19 pandemic period, 20.3% of micro SMEs were of the opinion that there was no need to introduce any digital technologies at all. In contrast, only 15.8% of small SMEs and 9.8% of medium-sized SME shared this opinion at that time.

Similar differences with regard to participation in e-commerce were evident, with 41% of medium-sized SMEs reporting that they sold online in 2020, whereas only 30% of small SMEs and 22% of micro SMEs did so.

The most common reason given by SMEs for not using information and communication technologies (ICT) was that ICT was not suitable for the enterprise in question (59% of SMEs not using ICT). Other, relatively less important, factors reported by SMEs were that the costs of ICT systems outweighed the benefits (34%) and a lack of internal ICT skills (30%).

The most commonly cited reasons for SMEs not selling online were that it was not a priority for the enterprise (64% of SMEs not selling online), or that goods or services were not suitable for e-commerce (68%).

National SME associations and SME digitalisation support organisations also flagged that a lack of required skills (e.g. internal ICT and/or managerial knowledge) were, together with a lack of internal financial funds and a lack of access to finance, a major barrier for SMEs which have not yet digitalised their activities, or have done so, but only to a very limited extent.

Comparison of the state of digitalisation of EU-27 SMEs across countries and over time

In comparison to other countries such as Norway and the UK, small and medium-sized EU-27 SMEs performed less well in 2019 in terms of the digitalisation of their activities. A smaller proportion of EU-27 SMEs than Norwegian and UK SMEs:

- had staff using computers with access to the World Wide Web;
- had a website;
- provided online ordering or reservations or bookings when they had a website;
- used social media;
- sold online;
- used cloud computing.

However, the use of various digital tools by small and medium-sized EU-27 SMEs has increased, sometimes markedly so, from 2010 to 2019.

In 2019, the use of digital tools by EU-27 enterprises clearly increases with the size of the enterprise. The proportion of small EU-27 SMEs using various digital tools is lower than that of EU-27 medium-sized SMEs, and in turn, medium-sized SMEs perform less well than large EU-27 enterprises.

The extent of enterprise digitalisation varies, not only with the size of the enterprise, but also across Member States. Using 33 different digitalisation indicators, a cluster analysis of the state of digitalisation of small and medium-sized SMEs reveals three distinct groups of Member States.

The digitalisation of SMEs in a first cluster of Member States (BG, EL, HU, IT, LV, PL, RO, SK) lags markedly behind that of their peers in other EU-27 Member States. The digitalisation performance of SMEs is generally about average in a second group of Member States (AT, CY, CZ, DE, EE, ES, FR, HR, LT, LU, PT, SI) and SMEs in a third group of Member States (BE, DK, FI, IE, MT, NL, SE) outperform their peers in the other two groups. The digitalisation performance of SMEs can also vary greatly within Member States, particularly in large countries. For example, SMEs in the Lombardy region of IT show higher level of digitalisation compared to some other regions in IT.

How SMEs digitalise their activities

According to the SME survey, larger SMEs are more likely to have a strategy or an action plan to guide their digitalisation activities, with 59% of medium-sized SMEs and 49% of small SMEs reporting having such a plan, compared to only 32% of micro SMEs.

The key digitalisation activities reported as being under consideration by SMEs with strategies or action plans to digitalise were roughly of equal importance:

- improve their internal ICT skills (77% of SMEs);
- change their use of social media (74% of SMEs);
- improve their ICT security systems (72% of SMEs);
- adopt more advanced technologies (71% of SMEs);
- introduce online marketing and/or sales (60% of SMEs).

Case studies of the actual digitalisation journeys of a selection of EU SMEs show that the digital tools they adopted were highly varied. However, in every case, SMEs received support in their digitalisation journey.

- Some SMEs benefited from the DigitaliseSME initiative, an EU-funded scheme which matches SMEs with Digital Enablers based on the needs of their businesses.
- Other SMEs have benefited from collaborations with universities, other SMEs or large corporations.
- Many SMEs have also benefited from financial support through regional or national funding schemes.

The digitalisation of SMEs and their environmental footprint

Of the EU-27 SMEs that participated in the 2020 Flash Eurobarometer 486 survey, 37% (after excluding the “not applicable” and “don’t know” responses) have already implemented an environmental sustainability plan or are in the process of doing so.

National SME associations and SME digitalisation support organisations highlighted simple actions, such as the use of ICT tools (e.g. videoconferencing as alternatives to travel), and the use of smart appliances to control/reduce energy consumption as useful digital tools to improve the sustainability of SMEs.

However, SMEs face a number of barriers in making their businesses more sustainable, with 70% of EU-27 SMEs encountering at least one of the barriers to sustainability covered in the Eurobarometer survey. The most frequently reported barrier was “lack of consumer or customer demand” (30%), followed by “lack of financial resources” (27%).

Policy conclusions and recommendations

A number of EU programmes and policies have either already made important contributions to helping SMEs to digitalise and/or reduce the enviromental impact of their activities, or will do so in future. Examples include: DigitaliseSME and Digital Europe (including the creation of a network of 200 European Digital Innovation Hubs to support the SMEs in their digital transformation),

Industrial Clusters, the Digital Markets Act, the Digital Services Act, the Data Governance Act, the proposed Climate Law and the new Circular Economy Action Plan.

Member States have also implemented a wide range of programmes aiming to support SMEs in their digitalisation. These programmes include information provision, help to identify or develop relevant skills and training, mentoring, networking, promoting collaborations, financial support (for example, grants, subsidies, vouchers, etc.) and either are targeted at all SMEs or are specific to some industries or to SMEs with different digitalisation experiences.

However, the analysis in this report shows that much more remains to be done:

- The level of digitalisation varies markedly across SME size class, with micro SMEs performing less well than small SMEs, and the latter less well than medium-sized SMEs, and, in turn, medium-sized SMEs less well than large enterprises.
- The digitalisation of EU-27 small and medium-sized SMEs trails behind that of their peers in other countries such as NO and the UK.
- A not insignificant proportion of SMEs, especially micro SMEs, is of the opinion that digitalisation is not useful or necessary for them, or believe that the costs outweigh the benefits.
- The extent of state of digitalisation of small and medium-sized SMEs varies greatly across Member States, with SMEs in a number of Member States lagging well behind their EU-27 peers in the EU-27.

The SME survey shows that, overall, 72% of SMEs are of the view that better access to public support schemes would be useful to allow them to digitalise. Advice on the costs and benefits of advanced digital technologies, support to find the required skills or expertise and access to networks are second in importance (respectively 61% of SMEs, 61% of SMEs and 62% of SMEs) in terms of helping SMEs progress with their digital strategy or action plan. In addition, about half of all surveyed SMEs reported that assistance in fundraising would help them to digitalise their business.

A one-size-fits-all programme or policy approach is unlikely to work, as the needs of SMEs vary across Member States, SME size class and the level of digitalisation already achieved by SMEs.

Nevertheless, case studies of programmes aiming to support the digitalisation of SMEs and the qualitative responses to the survey of national SME associations and SME digitalisation support organisations highlight a few key lessons to take into account when developing any new SME digitalisation programmes:

1. Ensure that the programme is well designed and targeted. This can be achieved by consulting beforehand key stakeholders and experts;
2. Make programmes easy to understand, apply for and implement from a beneficiary's perspective;
3. Organise a key programme focal point for information and resources that SMEs can access to support their digitalisation activities;
4. Facilitate access to external finance and ensure fast disbursements;
5. Promote collaborations with other partners and stakeholders.

Moreover, the results of the various surveys and the literature review suggest that:

1. Irrespective of their state of digitalisation, all SMEs would benefit from grants and subsidised public funding;

2. SMEs which have not yet digitalised any of their activities or have very little experience with digitalisation would benefit from mentoring programs to help them identify the benefits that

digitalisation could bring to their business. Such programs may be resource intensive as they may involve one-to-one support provision and coaching. In addition, within this group:

a. SMEs which have not yet digitalised their activities further benefit from assistance with gaining access to the required skills and training of management and staff;

b. SMEs which have only limited digitalisation experience would also further benefit from training, especially of management;

3. SMEs which have more extensive or very extensive digitalisation experience would benefit from training of staff. Moreover, SMEs with extensive digitalisation experience would benefit from training of management and SMEs with very extensive digitalisation experience would benefit from support in accessing the required skills.

Image by moritz320 from Pixabay

1 Introduction

This report is part of the 2020/21 SME Performance Review.

2020 was a momentous year for EU SMEs, as well as for EU business and citizens more generally. Covid-19 brought to an abrupt halt, or even reversed, the gains made by the EU SME sector over the past decade. Many industries, especially in the SME-intensive services sector, experienced large declines in sales as a result of the various lockdowns and other measures introduced by Member States to fight the spread of the Covid-19, although, conversely, some other industries actually saw their sales increase. However, the various business support measures implemented by Member States during the pandemic limited the employment impact of the decline in economic activity. The first part of this report reviews the impact of the pandemic on EU SMEs in 2020 and the likely performance of EU SMEs in 2021 after providing a brief overview of their pre-pandemic performance.

The second part of the report focuses on the digitalisation of SMEs. The use by SMEs in 2020 of various digital tools (e.g. remote working, online/click and collect selling, etc.) helped to mitigate the impact of the pandemic. In this regard, the 2020 EU 'SME Strategy for a sustainable and digital

Europe'[1] was launched at the most opportune time. It aims to "*support European SMEs through strengthening their capacities to adapt to climate neutrality challenges, help them to reap the benefits of digitalisation, reduce the regulatory burden that SMEs face, and improve their opportunities to access finance*".[2] This report supports the SME Strategy by reviewing and assessing the digitalisation activities undertaken by SMEs so far, especially during the pandemic, as well as the digitalisation issues and challenges faced by SMEs, and actual and potential policy responses to these challenges.

The analysis focuses on two distinct aspects of the digitalisation of SMEs. Firstly, it analyses the performance of SMEs which are active in the digital sector and, secondly, it reviews the digitalisation of the activities carried out by of all SMEs, irrespective of sector, especially in 2020, and the challenges and issues faced by SMEs.

The analysis in this report focuses on SMEs in the non-financial business sector (NFBS) which includes almost all sectors of the economies of the EU-27 Member States.[3] In 2019, the NFBS accounted for 54.5% of EU-27 GDP[4] and 62.4% of EU-27 employment.

1.1 What is an SME?

The SME population comprises three different categories of enterprises, namely micro-enterprises, small enterprises and medium-sized enterprises (see Table 1). 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). However, the data in this report are based only on the employment definition, since this is the definition used by the Structural Business Statistics (SBS) database maintained by Eurostat, the main data source for the report.

Table 1 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

1.2 The EU-27 SME population in 2020

In 2020, SMEs in the NFBS in the EU-27 accounted for (Table 2):

- Almost all EU-27 NFBS sector enterprises (99.8%);
- Close to two-thirds of total EU-27 NFBS employment (65.0%);
- Slightly more than half (53.0%) of the value added generated by the NFBS.

[1] European Commission (2020), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, An SME Strategy for a sustainable and digital Europe, Brussels, 10.3.2020, COM(2020) 103 final.

[2] https://ec.europa.eu/digital-single-market/en/news/sme-strategy-launched-european-commission.

[3] 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.

[4] Measured as value added at factor costs.

While micro SMEs are the most prevalent type of SME size class in the EU-27 NFBS (93.3% of all enterprises), their value added contribution is less than a fifth (18.7%) of total value added and they account for less than a third (29.2%) of total employment in the EU-27 NFBS (Table 2).

Table 2 Number of enterprises, value added and employment in the EU-27 NFBS by enterprise size class in 2020

	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Large enterprises	All enterprises
Enterprises						
Number	21,044,884	1,282,211	199,362	22,526,457	40,843	22,567,300
%	93.3%	5.7%	0.9%	99.8%	0.2%	100.0%
Value added						
Value in € million	1,179,476	1,071,196	1,087,613	3,338,286	2,956,544	6,294,829
%	18.7%	17.0%	17.3%	53.0%	47.0%	100.0%
Employment						
Number	36,988,539	25,313,006	20,130,548	82,432,093	44,358,284	126,790,377
%	29.2%	20.0%	15.9%	65.0%	35.0%	100.0%

Note: Large enterprises have 250 or more employees.
Source: Eurostat, National Statistical Offices, DIW Econ

1.3 EU-27 SMEs in the digital sector

Two different definitions of the digital sectors are used in this report.

The **narrow digital sector** includes all enterprises active in the following industries: 'manufacture of computer, electronic and optical products', 'telecommunications', 'computer programming, consultancy and related activities' and 'information service activities'. This narrow digital sector accounted in 2020 for (Table 3):

- 4.1% of all enterprises and 4.0% of all SMEs in the NFBS;
- 8% of total NFBS value added and 5.5% of SME NFBS value added;
- 4.6% of total NFBS employment and 3.7% of SME NFBS employment.

Table 3 Distribution of the number of enterprises, valued added and employment in the EU-27 narrow digital and non-digital sectors - SMEs and large enterprises in 2020

	Number of enterprises		
	All SMEs	Large enterprises	All enterprises
Narrow digital sector	4.0%	6.1%	4.1%
Non-digital sector	96.0%	93.9%	95.9%
	Valued added		
	All SMEs	Large enterprises	All enterprises
Narrow digital sector	5.5%	10.9%	8.0%
Non-digital sector	94.5%	89.1%	92.0%
	Number of employees		
	All SMEs	Large enterprises	All enterprises
Narrow digital sector	3.7%	6.2%	4.6%
Non-digital sector	96.3%	93.8%	95.4%

Note: Large enterprises have 250 or more employees.
Source: Eurostat, National Statistical Offices, DIW Econ

The **broader digital sector** comprises all enterprises whose main business activities segments are the production, use or sale of digital inputs, including digital technologies, digital infrastructure, digital platforms and data. More specifically, the broad digital sector includes the following 13 industries: 'manufacture of electronic components and boards', 'manufacture of computers and peripheral equipment', 'manufacture of communication equipment', 'manufacture of consumer electronics', 'manufacture of magnetic and optical media', 'wholesale of information and communication equipment', 'retail sale of information and communication equipment in specialised stores', 'retail trade not in stores, stalls or markets', 'software publishing', 'telecommunications', 'computer programming, consultancy and related activities', 'data processing, hosting and related activities, web portals' and 'repair of computers and communication equipment'.

The use of either of the two definitions in the various chapters of the report depends on the availability of the data required by the different analyses.

In both cases, the **non-digital sector** includes all the enterprises from NFBS industries which are not part of the digital sector.[5]

Overall, in 2020, the distribution of EU-27 enterprises by size class in the narrow digital and non-digital sectors was broadly similar (Table 4).

However, the contribution of EU-27 SMEs to the value added generated in the narrow digital sector (36.5%) was markedly lower than the value-added contribution of SMEs in the non-digital sector (54.5%) in 2020 (Table 4). Moreover, the SME employment share of total employment in the EU-27 narrow digital sector was much lower than in the non-digital sector (52.9% versus 65.6%).

The lower SME value added and employment contributions in the narrow digital sector compared to the non-digital sector are entirely due to a lower contribution from micro and small SMEs.

5 When a narrow digital sector definition is used, the non-digital sector includes all the enterprises which are not active in the narrow digital sector. Similarly, when a broad digital sector definition is used, the non-digital includes all the enterprises which are not active in the broad digital sector.

- The lower value added contribution of SMEs in the narrow digital sector reflects mainly the much higher value added generated on average by a large enterprise in the narrow digital sector (€129.4 million in the narrow digital sector versus €68.7 million in the non-digital sector).

- In the case of employment, the lower contribution of micro SMEs in the digital sector reflects a lower average number of employees per micro SMEs (1.4 in the narrow digital sector versus 1.9 in the non-digital sector) and a higher average number of employees per large enterprise (1,108 in the narrow digital sector versus 1,085 in the non-digital sector).

Table 4 Number of enterprises, value added and employment in the EU-27 narrow digital and non-digital sectors by enterprise size class 2020

		Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Large enterprises	All enterprises
Sector	*Enterprises*						
Narrow digital	Number	856,873	45,279	9,913	912,065	2,481	914,546
	%	93.7%	5.0%	1.1%	99.7%	0.3%	100.0%
Non-digital	Number	20,188,011	1,236,932	189,449	21,614,392	38,362	21,652,754
	%	93.2%	5.7%	0.9%	99.8%	0.2%	100.0%
	Value added						
Narrow digital	Value in € million	50,965	57,652	75,704	184,320	320,975	505,296
	%	10.1%	11.4%	15.0%	36.5%	63.5%	100.0%
Non-digital	Value in € million	1,128,512	1,013,544	1,011,909	3,153,965	2,635,568	5,789,534
	%	19.5%	17.5%	17.5%	54.5%	45.5%	100.0%
	Employment						
Narrow digital	Number	1,187,283	904,886	996,219	3,088,388	2,748,205	5,836,593
	%	20.3%	15.5%	17.1%	52.9%	47.1%	100.0%
Non-digital	Number	35,801,256	24,408,120	19,134,329	79,343,705	41,610,079	120,953,784
	%	29.6%	20.2%	15.8%	65.6%	34.4%	100.0%

Note: The narrow digital sector comprises the following industries: 'manufacture of computer, electronic and optical products', 'telecommunications', 'computer programming, consultancy and related activities' and 'information service activities'.

Source: Eurostat, National Statistical Offices, DIW Econ

1.4 The 2020/21 Performance Review

As noted on the European Commission's website "The SME performance review (SPR) is one of the main tools the European Commission uses to monitor and assess countries' progress in implementing the Small Business Act (SBA) on a yearly basis. With an emphasis on the measures from the SBA action plan, the review brings comprehensive information on the performance of SMEs in EU countries and other partner countries. It consists of two parts: an annual report on European SMEs and SBA country fact sheets".[6]

This year's SPR focuses not only on the implementation of the SBA in the countries covered by the SPR but also on other EU policy actions such as the new SME strategy and national policies aiming

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

at strengthening SMEs. Moreover, the 2020/21 SPR pays particular attention to the digitalisation of SMEs and the environmental sustainability of their activities.

The SPR also aims to develop a better understanding of how SMEs, including startups, can grow into successful scaleups, i.e., high-growth enterprises. In 2016, the European Commission launched the *Startup and Scaleup Initiative*[7], which explicitly refers to the need to have robust and detailed data on startups and scaleups in order to improve policy-making in this area.

1.5 Structure of the report

The report is divided into two parts, with Part 1 focusing on the recent and future economic performance of EU SMEs and the evolution of the EU SME demography. Part 2 focuses on the digitalisation of SMEs and the interaction between the digitalisation of SMEs and their environmental impact.

Part 1 presents information on the economic environment faced by EU-27 SMEs in 2019 and 2020, and the performance of SMEs in 2019 and during the pandemic in 2020. It also provides information on the recent evolution of the SME population, including startups, scaleups and bankruptcies.

Part 2 reviews the state of SME digitalisation of SMEs and recent trends in their digitalisation. Next, it discusses the factors driving or impeding the digitalisation of SMEs and reviews the environmental impact of such digitalisation. The last chapter of Part 2 focuses on public policies aiming to encourage and support SMEs in the digitalisation of their activities.

7 European Commission (2016) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions - Europe's next leaders: the Startup and Scaleup Initiative {SWD(2016) 373 final}, COM(2016) 733 final.

Image by 12222786 from Pixabay

Part 1: The economic performance of EU SMEs and the evolution of the EU SME demography

Introduction to Part 1

This first part of the SME Annual Report provides an overview of the actual performance of the EU-27 SMEs in 2019, 2020 and the forecasted performance for 2021.

- Chapter 2 describes the economic environment in which SMEs operated in 2019 and 2020;
- Chapter 3 reviews the performance of EU-27 SMEs in 2019, before the pandemic hit the EU-27 economies;
- Chapter 4 discusses the performance of EU-27 SMEs during the pandemic, examines how SMEs were impacted by COVID-19 and how they adapted to the very challenging economic conditions of 2020, and reviews the impact of pandemic on the overall SME business demography (births and bankruptcies) and on startups and scaleups;
- Chapter 5 presents the expected performance of SMEs in 2021.

Recent developments in the EU-27 SME sector

2 The economic environment faced by EU SMEs in 2019 and 2020

Key points

- **Overall economic growth slowed in 2019 but the EU economies were still operating above their potential.**
- **In this economic environment, SMEs were mostly concerned about finding skilled staff and their production and labour costs.**
- **However, due to the COVID-19 pandemic, the economic environment faced by SMEs changed drastically in 2020.**
- **Economic activity declined sharply and SMEs' main concerns in 2020 were finding customers and issues related to COVID-19.**

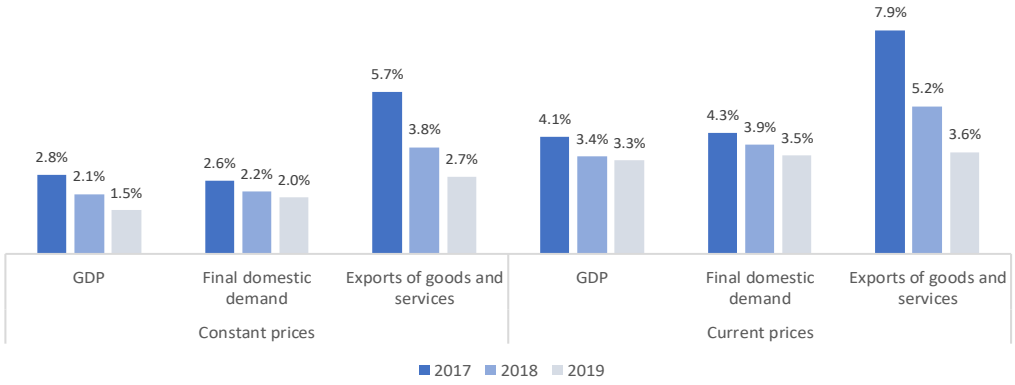
2.1 The economic environment in 2019: slowing of economic growth but economies still operating above their GDP potential

Even before COVID-19 struck the EU-27 economy in 2020, EU-27 SMEs faced increasingly challenging trading conditions as annual growth in the volume and value of EU-27 domestic demand[8] and, especially EU-27 exports of goods and services, slowed in 2019 (Figure 1).

Such a slowdown in economic growth was widespread in all EU-27 Member States. All EU-27 Member States (except BG, DK, EE, EL, HR and LT) posted lower GDP growth in 2019 than in 2018 (Figure 2).

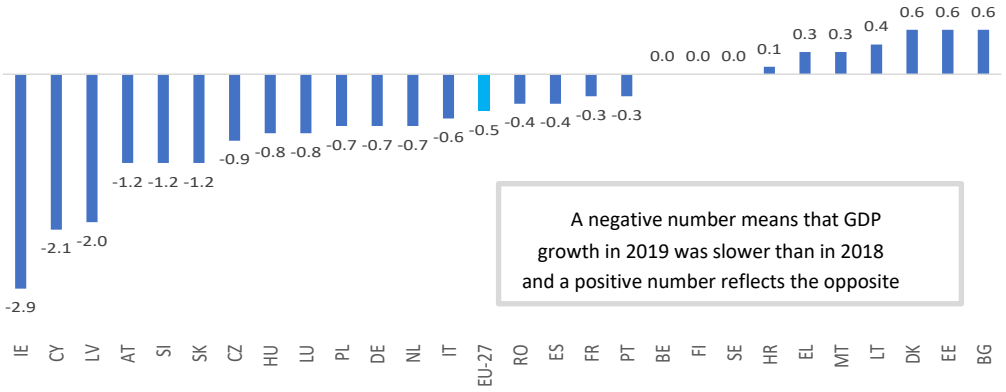
[8] Domestic demand is equal to the sum of all current expenditures and capital formation by households, enterprises and governments.

Figure 1 Annual growth in EU-27 domestic demand and exports of goods and services from 2017 to 2019



Source: Eurostat

Figure 2 Evolution (in percentage points) of the annual growth rate of GDP (at constant prices) from 2018 to 2019

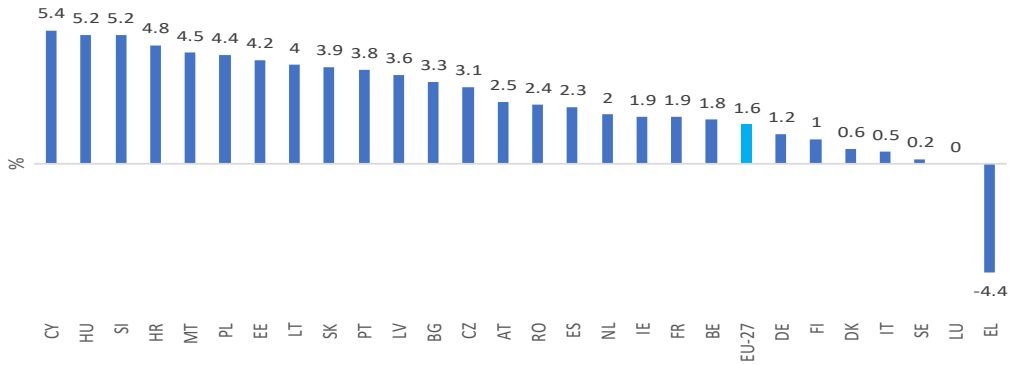


Source: Eurostat

Although economic growth slowed in 2019, the economies of all EU-27 Member States, with the exception of EL, continued to operate at levels which exceeded their normal, efficient levels (i.e. actual GDP output was above potential GDP output)[9] (Figure 3) and labour markets were generally tight.

[9] Potential output is the maximum amount of goods and services an economy can produce when it is most efficient—that is, at full capacity. The output gap is an economic measure of the difference between the actual output of an economy and its potential output (see Sarwat Jahan and Ahmed Saber Mahmud, 2013).

Figure 3 Difference between actual and potential GDP (at constant prices) in EU Member States in 2019



Note: The output gap is equal to the difference between actual and potential GDP (at 2015 prices) as a percentage of potential GDP

Source: AMECO database of EC DG Economic and Financial Affairs

Although trading conditions became more challenging in 2019, SMEs in many countries faced the types of problems which typically arise when economies operate at or above normal, efficient levels, and labour markets, especially for skilled workers, are very tight. In particular, EU SMEs were concerned about the 'availability of skilled staff or experienced managers' and 'costs of production or labour'.[10] This generally benign environment was about to change dramatically in 2020.

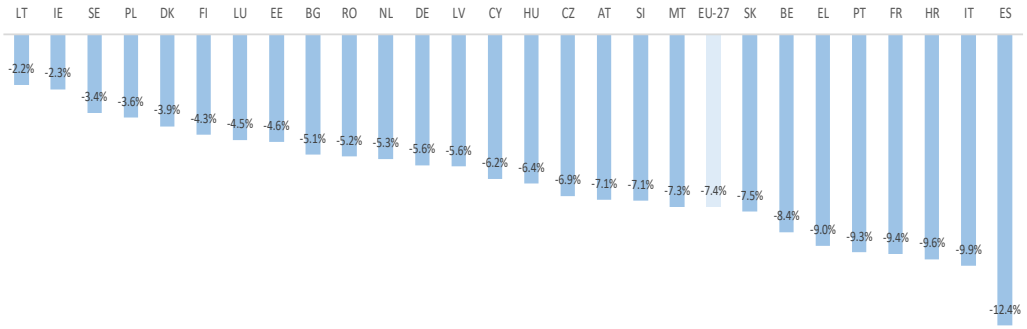
2.2 The economic environment in 2020: sharp decline in economic activity

The relatively benign economic environment of 2019 changed dramatically in 2020. Covid-19 hit European economies very hard. Supply chain disruptions, lockdowns, and other measures adopted by Member States and other countries throughout the world to restrain the spread of the virus were the hallmarks of most of 2020.

GDP (at constant prices) is estimated to have fallen in 2020 by 7.4% in the EU-27 with all Member States experiencing a drop in GDP (at constant prices) (Figure 4). This unparalleled precipitous decline in GDP (at constant prices) reflected sharp decreases in all components of aggregate demand (Figure 5). The consumption of households and governments were least impacted by the pandemic due to the various employment and support programmes implemented.

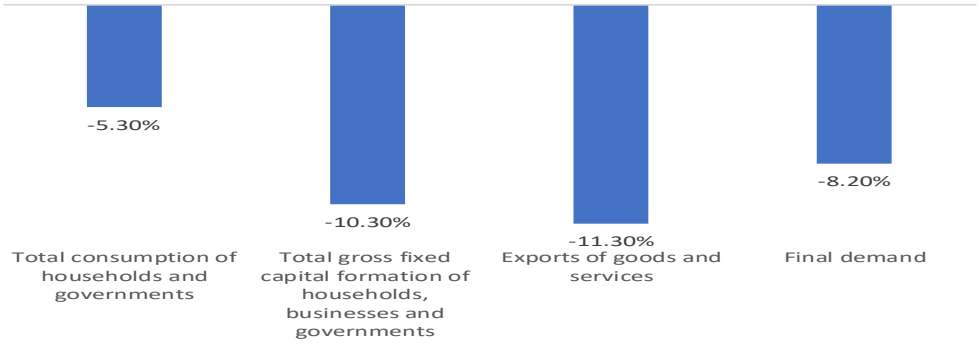
[10] European Commission (2019) Survey on the access to finance of enterprises (SAFE) - Analytical Report 2019. Report prepared by Panteia, November. The responses of SMEs to the April – September 2019 survey show that, among the various potential issues whose importance SMEs were asked to assess, 'availability of skilled staff or experienced managers' and 'costs of production or labour' were identified as being relatively important by EU-27 SMEs.

Figure 4 Estimated annual GDP growth (at constant prices) in 2020 – EU-27 and EU-27 Member States



Source: AMECO database of EC DG Economic and Financial Affairs – Autumn 2020 forecast

Figure 5 Projected annual growth in final demand (at constant prices) in 2020 – EU-27



Source: AMECO database of EC DG Economic and Financial Affairs – Autumn 2020 forecast

The results of the 2020 EC/ECB SAFE survey[11] of SMEs confirm that trading conditions faced by EU-27 SMEs deteriorated sharply in 2020, with sharp declines in turnover and profits being reported by survey participants. Moreover, in contrast to 2019 when SMEs were primarily concerned about 'finding skilled employees' and 'production and labour costs', the main concern for SMEs in 2020 was 'finding customers', with 'finding skilled labour' and 'other' (i.e. Covid-19 related issues) in second and third place. Interestingly, 'access to finance' remained generally one of the least important issues faced by eurozone SMEs, with only 10% of euro area SMEs reporting this to be a major concern.[12]

11 European Commission (2020), Survey on the access to finance of enterprises (SAFE) - Analytical Report. Report prepared by Panteia. November. The survey of enterprises was conducted between 7 September and 16 October 2020 and covered the period from April to September 2020. The 2020 wave covers 36 countries: the EU27 Member States and Albania, Bosnia and Herzegovina, Iceland, Kosovo, Montenegro, North Macedonia, Serbia, Turkey, and the United Kingdom.

12 However, 22% of Greek SMEs and 14% of Italian SMEs reported that access to finance was a major issue.

3 The pre-pandemic performance of SMEs in 2019

Key points

- **In 2019, the number of EU-27 SMEs increased by 1.5%, the value added they generated in the NFBS grew by 3.8% and their employment increased by 1.4%.**
- **All SME enterprise size classes saw increases in the number of SME enterprises, value added and employment.**
- **SME value added increased in all Member States and employment increased in the majority of Member States.**
- **The performance of the EU-27 SMEs was largely driven by micro SMEs. They vastly outperformed small and medium-sized SMEs**.
- **In 2019, SMEs in the digital sector posted a stronger value added and employment performance than SMEs in the non-digital sector.**
- **SMEs accounted for over 60% of the increase in EU-27 value added within the NFBS, and 70% of the increase in EU-27 employment in the NFBS.**
- **In both cases, the SME contribution was driven by micro SMEs, which accounted respectively for 31% and 56% of the total NFBS's growth in value added and employment.**
- **Within the digital sector, SMEs accounted for 36% of the increase in the sector's value added and 44% of the increase in digital sector employment.**

Unfortunately, due to data breaks in 2017 and 2018 in the SBS database arising from the way that National Statistical Offices (NSOs) record enterprise data[13], it is not possible to contrast and compare the recent performance of EU-27 SMEs with their performance trend since the global economic and financial crisis of 2008/09.[14]

3.1 The performance of the EU-27 SME population in the NFBS in 2019

In the EU-27, the SME sector continued to expand at a moderate pace in 2019:

- The number of SMEs in the NFBS increased by 1.5% in 2019;

[13] According to Council Regulation (EEC) No 696/93 of 15 March 1993, an enterprise is the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit. However, in previous years, NSOs could not implement this definition of an enterprise due to a lack of data. Each legal unit used to be recorded as a separate enterprise in the SBS database. However, over the past few years, NSOs in a number of Member States have started to report enterprise data to Eurostat reflecting the 1993 enterprise definition. Legal units (which are part of an organisational unit, according to the definition above) are now recorded as a single enterprise in the SBS database instead of several SMEs. As a result, in the year in which the data were reported according to the correct enterprise definition for the first time, the total number of SMEs decreased and the total number of large enterprises increased in the SBS database, which also implies a decrease in SME value added and employment (in contrast to an increase for large companies). Such a structural break was evident in 2017 in the case of FR and IT, and in 2018 for AT, BE, DE, ES, LV, PL and SE.

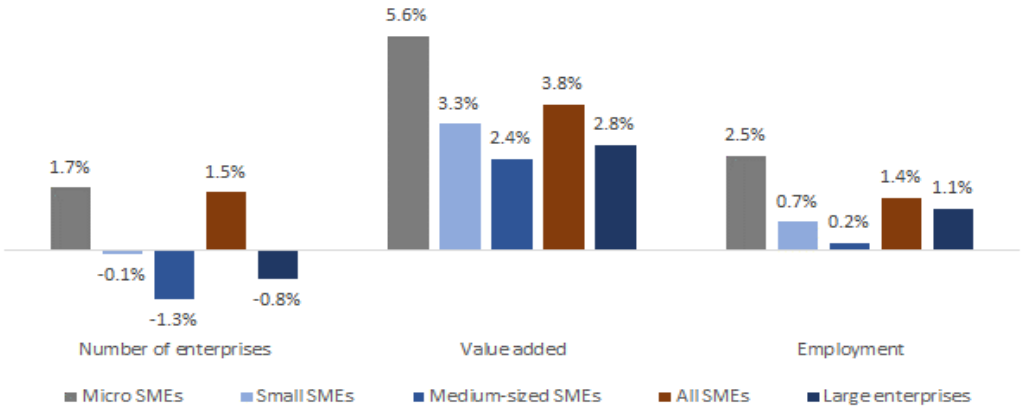
[14] As a result of the structural breaks in the SME data in 2017 and 2018, it is not possible to undertake a comprehensive comparative analysis of the performance of EU SMEs since the global financial and economic crisis of 2008/2009. However, the first chapter in the background document which accompanies this report shows that a) cumulative growth in SME value added from 2010 to 2016 varied greatly across Member States and b) key factors explaining the differences are the global competitiveness of the Member States' economies, their export performance and their fiscal policy stance.

- Value added (in current prices) generated by SMEs in the NFBS grew by 3.8%, slightly faster than the 3.3% expansion of EU-27 GDP (in current prices);
- SME employment grew by 1.4% in 2019.

All enterprise size classes recorded growth in value added and employment for 2019, and EU-27 SMEs posted stronger growth than that of large enterprises, especially in terms of growth in value added (Figure 6).

Moreover, within the EU-27 SME population, micro SMEs significantly outperformed small and medium-sized SMEs in 2019 (Figure 6).

Figure 6 Growth rate among various NFBS enterprise size classes in 2019



Source: Eurostat, National Statistical Offices and DIW Econ

SME value added in the NFBS grew in all Member States in 2019. However, the rate of growth varied greatly among Member States (see details in Annex 1):

- The NFBS SME sector generated SME value added growth of over 10% in BG, MT and RO in 2019;
- In contrast, SME value added in the NFBS grew by less than 5% in the majority of Member States and in the EU-27 economy;
- SME value added grew by less than 1% in IT.

SME employment in the NFBS grew in all Member States in 2019 except LV (see details in Annex 1).

3.2 The 2019 performance of EU-27 SMEs in the digital and non-digital industry groupings

As this year's special topic in the SME Annual Report is the digitalisation of SMEs, the present section presents detailed information on the performance of SMEs in the digital and non-digital sectors. The discussion below complements the information provided in the previous section by further examining the performance of EU-27 SMEs in the digital and the non-digital sectors.

Digital SMEs are all of those businesses which engage in the following activities:

- Manufacture of computer, electronic and optical products;
- Telecommunications;
- Computer programming, consultancy and related activities;
- Information service activities

All other businesses are categorised as non-digital SMEs.

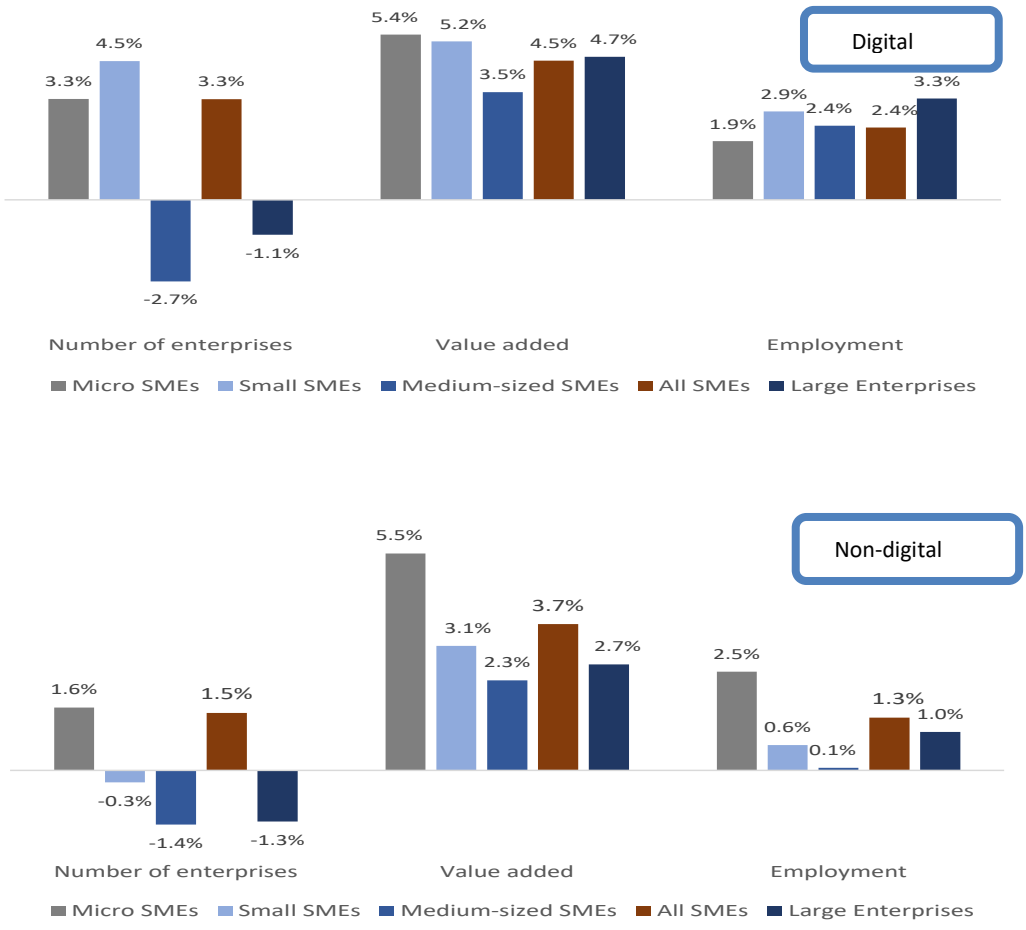
Overall, EU-27 SMEs in the digital sector and in the non-digital sector achieved positive growth in all of the key performance indicators in 2019. However, the performance of SMEs was stronger in the digital sector than in the non-digital sector:

- The number of SMEs in the digital sector increased by 3.3% while in the non-digital sector the number of SMEs only grew by 1.5%;
- Value added (in current prices) generated by SMEs in the digital sector grew by 4.5%, while SMEs in the non-digital sector posted an increase of 3.7%;[15]
- SME employment grew by 2.4% in the digital sector and only 1.3% in the non-digital SMEs.

All of the enterprise size classes showed positive growth in value added and employment in digital and non-digital SMEs (Figure 7). The pattern of growth in the number of digital and non-digital enterprises is mixed across enterprise size class but developments in the number of enterprises were the worst among medium-sized digital and non-digital SMEs.

EU-27 micro SMEs recorded the strongest value added growth of all enterprise size classes among both digital and non-digital SMEs. Medium-sized SMEs again showed the weakest value added growth for digital SMEs and non-digital SMEs.

Figure 7 Developments in key EU-27 SME performance indicators in the digital sector and non-digital sector among various NFBS enterprise size classes in 2019



Source: Eurostat, National Statistical Offices and DIW Econ

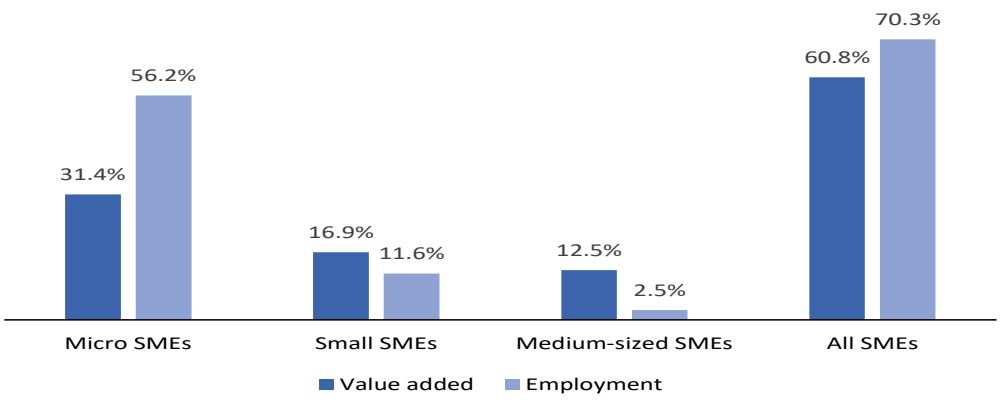
[15] In 2019, SME value added grew faster than EU-27 GDP which increased by 3.3%.

3.3 The contribution of SMEs to the increase in EU-27 NFBS value added and employment in 2019

In 2019, SMEs accounted for almost 61% of the increase in EU-27 value added within the NFBS, and 70% of the increase in EU-27 employment in the NFBS. In both cases, the SME contribution was driven by micro SMEs, which accounted for 31% and 56% of total NFBS growth in value added and employment, respectively (Figure 8).[16]

The relatively large contribution of micro SMEs to value added and employment growth in 2019 is due to the fact that the strongest growth occurred in sectors where micro SMEs play an important role. Above all, the construction sector grew by almost 8% in value added and a huge part of this growth occurred in micro SMEs: the latter accounted for 44% of overall value added growth in this sector. At the same time, the number of micro SMEs and employment in micro SMEs increased sharply in the construction sector. Micro SMEs created more than 330 000 new jobs in construction, while employment in the other size classes stagnated. Other sectors, where medium-sized SMEs and large enterprises play a more dominant role, such as the manufacturing sector, stagnated or grew relatively little. Thus, the overall growth in SME value added and employment was driven by the growth in the sectors with a relatively high share of micro SMEs.

Figure 8 EU-27 SME contribution to the annual change from 2018 to 2019 in EU-27 NFBS value added and employment by SME size class

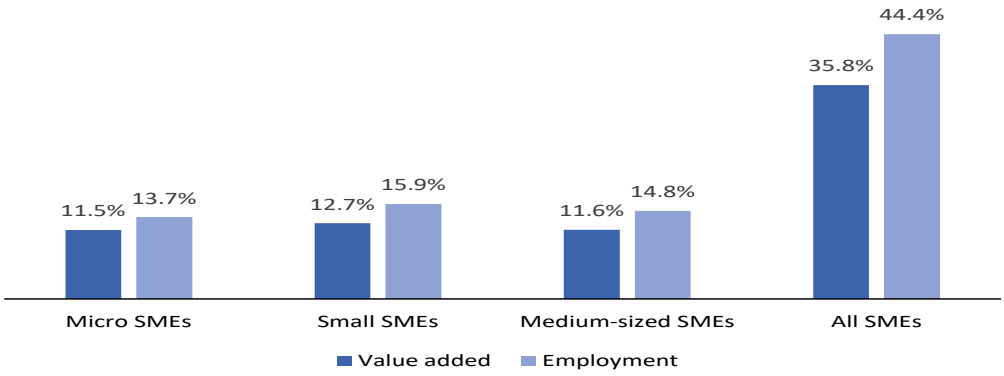


Source: Eurostat, National Statistical Offices, DIW Econ

Within the digital sector, SMEs accounted for over almost 36% of the increase from 2018 to 2019 in the sector's value added and 44% of the employment increase. The contributions of micro, small and medium-sized SMEs to the increase in value added and employment within the digital sector were very similar (Figure 9).

[16] Information on the contribution of SMEs to growth in NFBS value added and employment in each EU-27 Member State is provided in Annex 3.

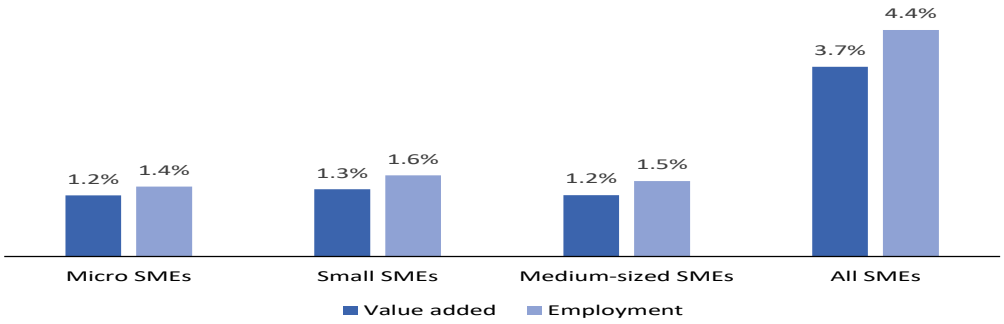
Figure 9 EU-27 SME contribution to annual change from 2018 to 2019 in EU-27 value added and employment within the digital sector by SME size class



Source: Eurostat, National Statistical Offices, DIW Econ

More broadly, SMEs in the digital sector accounted for approximately 4% of the overall increase in NFBS employment and value added between 2018 and 2019 (Figure 10). The breakdown of this SME contribution by SME size class mirrors the relative contributions of the various SME size classes in the non-digital sector.

Figure 10 EU-27 digital sector SME contribution to annual change from 2018 to 2019 in total EU-27 NFBS value added and employment by SME size class



Note: The percentages shown in the figure are the contributions of SMEs (by SME size class) to the change from 2018 to 2019 in total NFBS value added and employment. For example, the 1.2% shown for micro SME value added means that micro SMEs in the digital sector accounted for 1.2% of the increase in total (i.e. digital and non-digital) NFBS value added from 2018 to 2019.

Source: Eurostat, National Statistical Offices, DIW Econ

4 The performance of SMEs in 2020

Key points

- **The Covid-19 pandemic had a major impact on EU-27 SMEs in 2020.**
- **Many SMEs, but not all, experienced a decline in sales.**
- **Supply disruptions, an upsurge in late payments and operating at a loss were other key challenges faced by many SMEs in 2020.**
- **SMEs implemented a wide range of mitigation measures. While some temporarily ceased to trade, many others made use of the different support programmes implemented by national governments, especially to pay their wages and overcome cash-flow issues, and reduced working hours and/or staffing.**
- **Many SMEs also made greater use of digital tools to continue to operate and either moved to or increased their web-based selling.**
- **Overall, available data suggest that the value added generated by EU SMEs in the NFBS in 2020 declined by 7.6% and EU-27 SME employment in the NFBS fell by 1.7%.**
- **The impact of the pandemic on SMEs varied greatly across Member States and industries.**
- **The EU-27 industries in which SMEs were worst affected by the pandemic in terms of value added were 'accommodation and food service activities' (-37.8%), 'transport and storage' (-16.1%), 'administrative and support service activities' (-13.3%) 'manufacturing' (-9.8%).**
- **In contrast, SME value added increased in the 'real estate activities' and 'information and communications' industries and fell only moderately in the 'digital' sector and in the 'electricity, gas, steam and air conditioning supply', 'construction' and 'professional, scientific and technical activities' industries.**
- **As in 2019, EU-27 SMEs in the digital sector performed much better in 2020 than EU-27 SMEs in the non-digital sector. Value added generated by the former group of SMEs fell by only 0.5% in 2020 while the latter group of SMEs saw their value added drop by 8.0%. Moreover, EU-27 SME employment increased by 1.5% in the digital sector and declined by 1.9% in the non-digital sector.**
- **The number of new business registrations and startups in the EU-27 fell in 2020 and so did the funding for startups and scaleups. The number of bankruptcies also fell in 2020, reflecting the impact of the various economic support programs implemented by Member States, forbearance by lenders and regulators, and reduced operations by legal and administrative authorities deciding on and recording bankruptcies.**

The Covid-19 pandemic impacted SMEs in a major way in 2020. Some SMEs experienced a drastic fall in sales and profitability while others saw their sales increase and, even in some cases, saw their profitability improve. The first section of this chapter describes the performance of SMEs in 2020 and the second section provides information (based on the responses of SMEs and SME associations to various surveys) on the range of impacts on SMEs resulting from the pandemic and

health protection measures such as lockdowns implemented by Member States and other countries throughout the world. The third section assesses the impact of the pandemic on the business demography, startups and scaleups in 2020.

4.1 The performance of EU-27 SMEs in 2020

The present section presents nowcast estimates of the evolution of SME value added and employment in 2020. These nowcasts are based on economic data available in late November 2020.

4.1.1 The overall performance of EU-27 SMEs in the NFBS

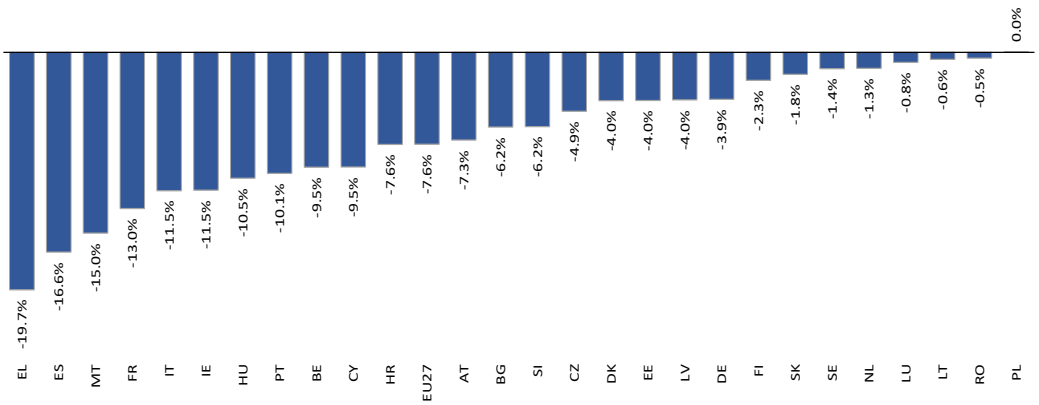
As previously noted, the Covid-19 pandemic hit the global economy with an unprecedented impact and resulted in widespread economic contraction. The EU-27 SME sector experienced a sharp decline in economic activity in 2020:

- value added (in current prices) generated by SMEs declined by 7.6%, a sharp reduction in comparison to its growth of 3.8% in 2019;
- SME employment declined by 1.7% in 2020 following growth of 1.4% in 2019.

All EU Member States, except PL, saw a decline in the value added generated by SMEs in 2020, (Figure 11). However, the size of the decline varied substantially between countries. In particular:

- EL experienced the largest decline in value added amongst SMEs (-19.7%), followed by ES (-16.6%) and MT (-15.0%);
- eight EU countries out of the 27 saw a decline of over 10% in the value added of SMEs (EL, ES, FR, HU, IT, IE, MT, PT);
- value added in PL stagnated;
- RO saw the smallest decline in value added generated by SMEs (0.5%).

Figure 11 Annual change (in %) in SME value added of EU Member States in 2020



Source: Eurostat, National Statistical Offices and DIW Econ

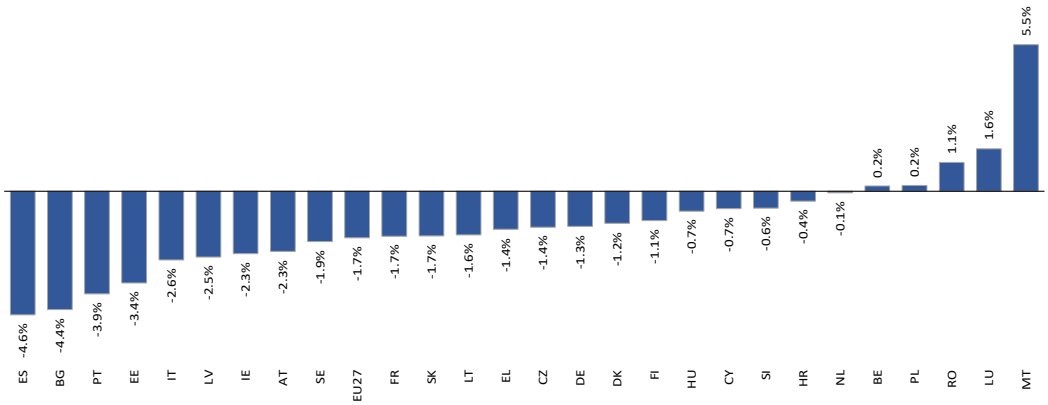
Most Member States saw a decline in SME employment in 2020, except for BE, LU, MT, PL and RO, who experienced employment growth (Figure 12). The picture again varied by country, although the variation in SME employment growth was not as wide as that of SME value added, ranging from a decrease of 4.6% (ES) to a rise of 5.5% (MT).

- ES saw the largest decline in employment in SMEs (4.6%), followed by BG (4.4%) and PT (3.9%).
- The highest SME employment growth occurred in MT (5.5%), followed by LU (1.6%) and RO (1.1%).

One of the main reasons explaining differences in SME employment growth among Member States is that the sectoral distribution of SMEs differs across countries. Member States, where sectors little impacted by Covid-19 account for a large share of the economy, experienced increases or only limited declines in employment. For example, in Luxembourg, the 'Professional, scientific & technical activities' industry accounts for 28.1% of SME employment, and employment in this sector grew by 4.4% in 2020.

The strong 2020 employment growth in Malta was mainly driven by the 'construction', 'real estate' and the 'administrative and support services' industries.

Figure 12 Annual change (in %) in SME employment of EU Member States in 2020



Source: Eurostat, National Statistical Offices and DIW Econ

4.1.2 The performance of SMEs in various industries in the EU-27

In 2020, many SMEs in the EU-27 were faced with logistical challenges and disruptions to their operations due to the Covid-19 pandemic. However, some industries were affected more than others.

The EU-27 industries in which SMEs were worst affected by the pandemic in terms of value added were 'accommodation and food service activities' (-37.8%), 'transportation and storage' (-16.1%), 'administrative and support service activities' (-13.3%), 'manufacturing' (-9.8%) and 'wholesale and retail trade' (-4.4%)[17];

The EU-27 industries in which SMEs were least affected by the pandemic in terms of value added were 'real estate activities', 'information and communication', 'electricity, gas, steam and air conditioning supply', 'construction' and 'professional, scientific and technical activities'. In fact, in the first two industries, SME value added grew by 1.8% and 0.8% respectively. In the other three industries, SME value declined respectively by 2.3%, 3.0% and 3.7%.

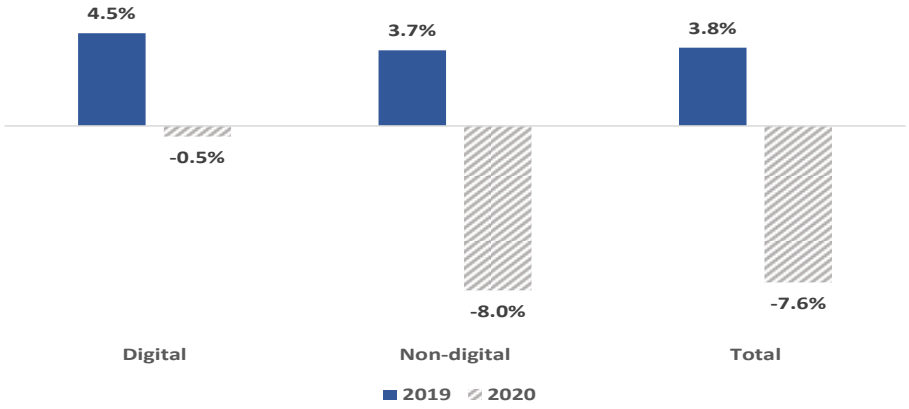
4.1.3 The performance of EU-27 SMEs in the narrow digital and non-digital sectors in 2020

The magnitude of the contraction in SME value added in 2020 differed substantially between the digital and non-digital sectors (Figure 13).

Value added in the non-digital sector declined by 8.0%, whereas value added in the narrow digital sector declined by only 0.5%. Overall, SME value added in the EU-27 declined by 7.6%.

[17] The value added generated by EU-27 SMEs also declined by 16.1% in 'mining and quarrying' and 5.4% in 'water supply; sewerage; waste management and remediation activities' in 2020. However, these developments reflect factors other than COVID-19. For example, the decline in mining and quarrying is largely driven by a decline in coal production.

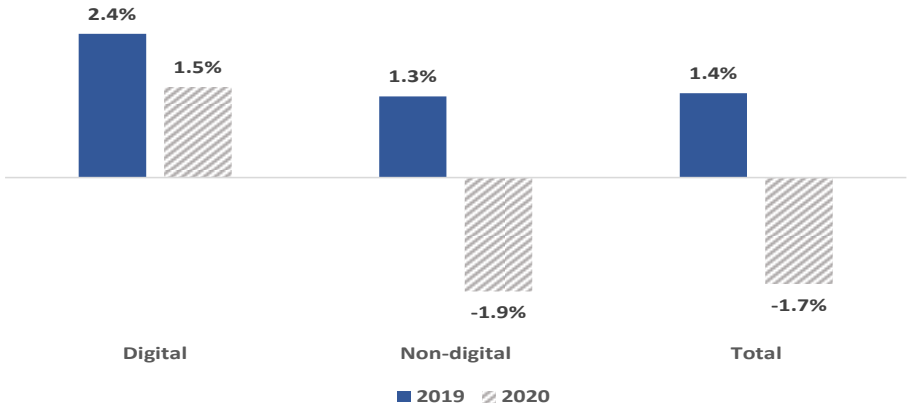
Figure 13 Change in value added (in %) of EU-27 SMEs in the narrow digital and non-digital sectors of the NFBS



Source: Eurostat, National Statistical Offices and DIW Econ

Moreover, while employment in EU-27 SMEs in 2020 fell by 1.7% (Figure 14) and SME employment in the non-digital sector declined by 1.9%, SME employment in the digital sector grew by 1.5%.

Figure 14 Change in employment (in %) in EU-27 SMEs in the narrow digital and non-digital sectors of the NFBS



Source: Eurostat, National Statistical Offices and DIW Econ

4.2 Impacts of the pandemic on SMEs

A number of surveys and analyses were undertaken in 2020 to gauge the impact of the pandemic on SMEs. For example, a world-wide survey of small businesses (defined as businesses with 500 or fewer employees), run jointly by Facebook, the OECD and the World Bank in late May[18] found that 21% of survey respondents in Europe had closed temporarily during the period January - May 2020, mainly in response to government lockdown measures. However considerable variations across countries were observed - for example, only 8% of German businesses reported that they had closed. Moreover, survey respondents in Europe reported that, during the January – May 2020 period, their sales declined (61% of survey respondents) and their employment fell (22% of survey respondents).

An August 2020 survey by McKinsey[19] of more than 2,200 SMEs in FR, DE, ES, IT and UK found that 65% of survey participants from FR reported declines in sales, 58% in DE, 80% in ES, 80% in IT and 71% in the UK. Moreover, 13% of survey respondents in FR, 10% in DE, 11% in ES, 10% in IT and 9% in the UK expected at the time that the survey was run that their company would go bankrupt within six months.

A recent report by the OECD on financing conditions faced by SMEs in 2020[20] notes that the sudden and abrupt decline in sales revenues during the first half of 2020 created acute liquidity shortages and threatened the survival of many viable businesses. An increase in demand for bank lending and a steady supply of credit supported by government programs and interventions helped SMEs survive during these exceptionally challenging times. However, other sources of finance tended to dry up, in particular early-stage equity.

However, a 2020 study by IMF staff[21] estimated that as a result of Covid-19, the bankruptcy rate could eventually go up by between 5.4 percentage points (pp) in CZ, 5.6 pp in SK, 5.9 pp in HU, 5.9 pp in EL, 6.4 pp in BE, 6.5 pp in ES, 7.4 pp in PT, 7.4 pp in RO, 8.6 pp.in FI, 8.7 pp in SI, 8.8 pp in PL and 12.8 pp in IT.

Special surveys run for this report

While the previous section provides some headlines figures on the performance of SMEs during the pandemic and the studies summarised above focus mainly on the impact of the pandemic during the first half of 2020, the present section reviews how SMEs were impacted and how they reacted through the year 2020. In order to gain further insights for this Annual Report on the impact of Covid-19 on SMEs, special surveys were run a) in October/November 2020 of 100 SMEs in 9 EU-27 Member States (BG, DE, EE[22], EL, FI, FR, IT, NL and SI)[23] and b) in November/December of SME associations and SME digitalisation support organisations in all Member States.[24] As the survey sample size was limited (100 businesses in each of the 9 Member States), the survey results should be viewed as being of a suggestive nature. Nevertheless, they highlight a number of interesting developments.

[18] Facebook, the Organisation for Economic Co-operation and Development and the World Bank (2020). Global State of Small Business Report.
[19] Mckinsey and Company (2020). COVID-19 and European small and medium-size enterprises: How they are weathering the storm, October.
[20] Organisation for Economic Co-operation and Development (2020). Financing SMEs and Entrepreneurs: An OECD Scoreboard Special edition: The impact of COVID-19, November.
[21] Kalemli-Ozcan, Gourinchas, S.P., Penciakova, V. and Sander, N. (2020). COVID-19 and SME Failures, IMF Working Paper, WP/20/207.
[22] In the case of Estonia, 101 SMEs responded to the survey.
[23] The sample frame in each Member States was designed to reflect broadly the distribution of SMEs across industries. Moreover, the objective was to achieve between 3 and 10 responses of medium-sized SMEs, between 30 and 40 responses from small SMEs and at least 50 responses of micro SMEs.
[24] SME associations from 12 Member States (AT, BG, CY, DE, EL, ES, FI, HR, LU, LV, RO, SI) and 12 SME digitalisation support organisations from 8 Member States (AT, BE, BG, DK, ES, HU, IT, SI) responded to this special survey which also focused on the digitalisation of SMEs.

4.2.1 *To what extent did SMEs continue to trade during the pandemic?*

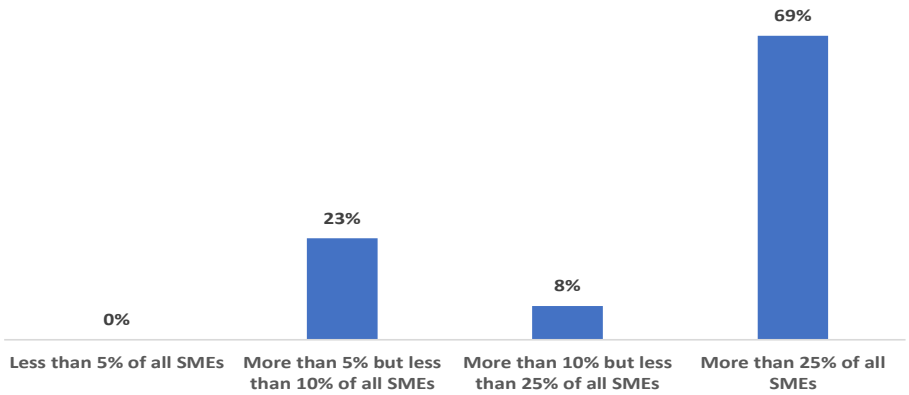
The vast majority of SMEs that participated in the survey reported that they were continuing to trade (92%). However, many SMEs (19%) reported that, in 2020, they were trading in new goods (for example, the production of hand sanitisers or personal protective equipment) or services (such as the preparation of takeaway food by restaurants previously offering only sitting down services).

The majority of these SMEs (17% of all SMEs) reported that they were trading in new goods or services alongside the same goods or services that they were offering before 2020, while a smaller percentage (2% of all SMEs) reported that they were solely trading in new goods or services. Further to this, 7% of SMEs reported that they had temporarily closed or paused trading at the time of being surveyed and 1% of SMEs reported that they were in the process of closing down permanently.

Obviously, the SME survey could not reach SMEs which had fully ceased to trade. Data and anecdotal evidence on bankruptcies[25] do not suggest that such bankruptcies have increased massively so far. This may reflect a combination of a) the effect of various government support programmes, b) temporary delays in recording actual bankruptcies due to the impact of Covid-19 on the functioning of the administrative and legal services of Member States and c) some exceptional forbearance whereby directors of companies do not have to cease operations and possibly file for bankruptcy as soon as their company can no longer meet its obligations.

A large proportion (69%) of respondents to the survey of SME associations believe that more than 25% of SMEs ceased operations while 23% think that between 5% and 10% of SMEs did so (Figure 15). But, 69% of respondents are of the opinion that less than 5% have done so permanently (Figure 16).

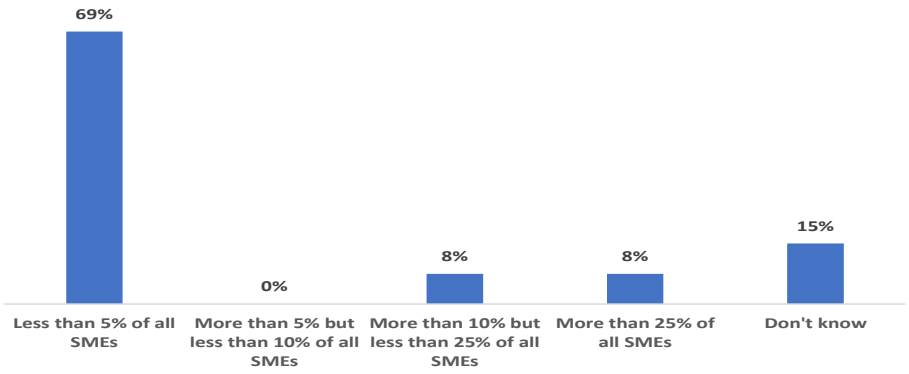
Figure 15 Estimated percentage of SMEs which ceased to trade in 2020 – survey of SME associations



Source: Survey of SME associations run by LE Europe in November/December 2020 (see page 28 for details)

[25] The evolution of bankruptcies in 2020 is presented in section 4.4.3.

Figure 16 Estimated percentage of SMEs which permanently ceased to trade in 2020 – survey of SME associations



Source: Survey of SME associations run by LE Europe in November/December 2020 (see page 28 for details)

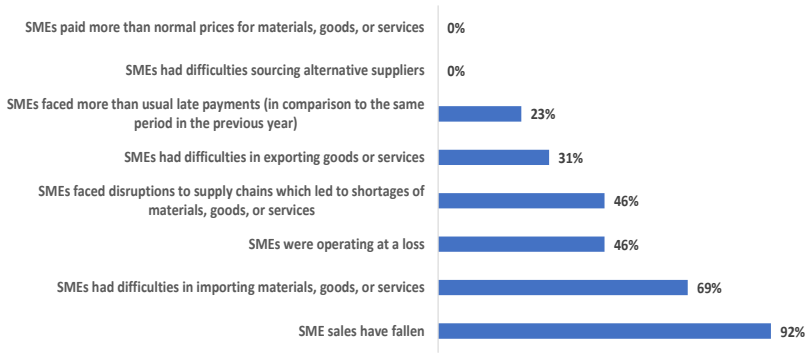
However, the trends seen for SMEs overall differ by SME size class.

- Larger SMEs were more likely to offer new goods and/or services than smaller SMEs. The percentage of SMEs reporting that they offered new goods and/or services was 15% for micro SMEs, 23% for small SMEs and 33% for medium-sized SMEs.[26]
- Micro SMEs were also the SME size class most likely to have temporarily closed or paused trading, with 10% of micro SMEs reporting that they had temporarily closed or paused trading, compared to 4% for small SMEs and 6% for medium-sized SMEs.[27]

4.2.2 Covid-19 related disruptions faced by SMEs which continued to trade

SMEs faced numerous challenges and disruptions in 2020. According to SME associations, by far the most common impact of the pandemic on SMEs in 2020 was a decline in sales. The other important impacts were difficulties in importing materials/goods/services, operating at a loss and supply chain disruptions (Figure 17). [28]

Figure 17 Views of SME associations on the most common impacts of Covid-19 on SMEs



Source: Survey of SME associations run by LE Europe in November/December 2020 (see page 28 for details)

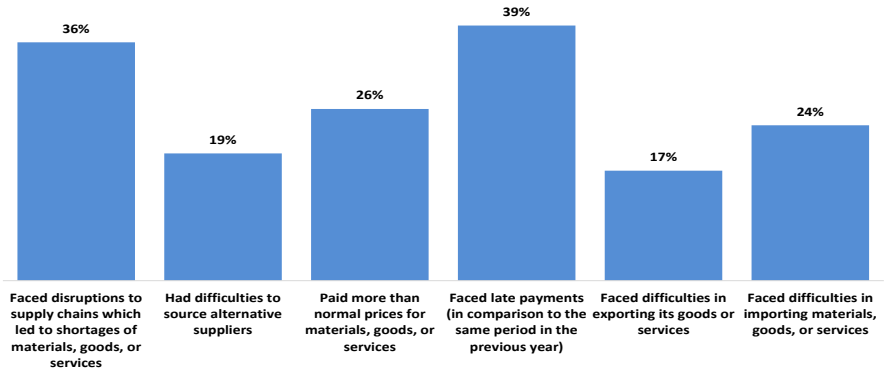
A broadly similar picture emerges from the survey of SMEs. Overall, 67% of SMEs surveyed reported facing at least one type of disruption as a result of Covid-19. Many SMEs faced disruption to their supply chains in 2020, with 36% of SMEs (of those for which the question was relevant)

[26] Results of the survey of SMEs.
[27] Results of the survey of SMEs.
[28] Information on the pre-Covid-19 profitability of SMEs is provided in Annex 2.

reporting that they faced disruptions to supply chains which led to shortages of materials, goods or services and 19% of SMEs surveyed reporting difficulties in sourcing alternative suppliers (Figure 18).

There were also financial costs of the Covid-19 crisis for SMEs, with 26% of SMEs reporting that they paid more than normal prices for materials, goods, or services and 39% of SMEs reporting that they faced late payments due to the pandemic (Figure 18). The pandemic also affected imports and exports for SMEs, with 17% of SMEs which exported reporting difficulties in exporting goods or services, and 24% of SMEs which imported reporting difficulties in importing materials, goods, or services as a result of Covid-19 (Figure 18).

Figure 18 Percentage of SMEs reporting various types of disruptions caused by Covid-19 in 9 EU-27 Member States

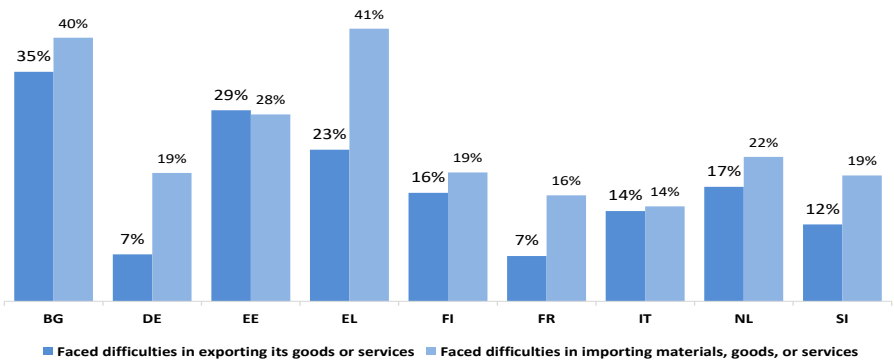


Note: Overall sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI). However, the sample size for each response varies because some SMEs responded that the question was not relevant to them, so percentages were only calculated based on those SMEs which answered 'yes' or 'no' to the question of whether the disruption affected them. The overall sample size for each question was: Faced disruptions to supply chains which led to shortages of materials, goods, or services: 886; Had difficulties to source alternative suppliers: 868; Paid more than normal prices for materials, goods, or services: 883; Faced late payments (in comparison to the same period in the previous year): 884; Faced difficulties in exporting its goods or services: 761; Faced difficulties in importing materials, goods, or services: 812.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

The experience of disruption caused to SMEs by the pandemic varied widely across Member States (Figure 19). The percentage of SMEs (of those which exported) that reported facing difficulties in exporting ranged from 7% in DE and FR to 35% in BG. The same figure for importers ranged from 14% in IT to 41% in EL. SMEs in 3 Member States (BG, EE and EL) reported being particularly disrupted by the pandemic in both importing and exporting. SMEs in these Member States reported higher incidences of difficulties in importing and exporting than SMEs in any other Member State surveyed.

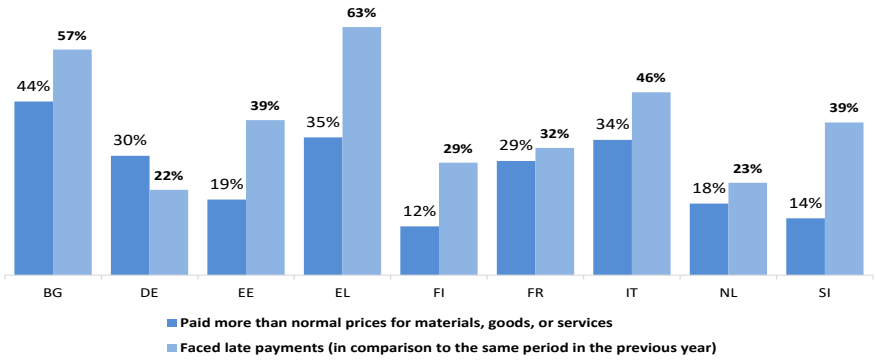
The financial impact of Covid-19 on SMEs also varied widely across Member States. (Figure 20). The percentage of SMEs (of those for which the question was relevant) that reported paying more than normal prices for materials, goods or services ranged from 12% in FI to 44% in BG. For enterprises facing late payments (of those for which the question was relevant), the figure ranged from 22% in DE to 63% in EL.

Figure 19 Percentage of SMEs reporting difficulties in exporting and importing caused by Covid-19 across 9 EU-27 Member States



Note: Overall sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI). However, the sample size for each response varies because some SMEs responded that the question was not relevant to them, so percentages were only calculated based on those SMEs which answered 'yes' or 'no' to the question of whether the disruption affected them. The overall sample size for each question was: Faced difficulties in exporting its goods or services: 761; Faced difficulties in importing materials, goods, or services: 812.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 20 Percentage of SMEs reporting paying more than normal prices and facing late payments caused by Covid-19 across 9 EU-27 Member States



Note: Overall sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI). However, the sample size for each response varies because some SMEs responded that the question was not relevant to them, so percentages were only calculated based on those SMEs which answered 'yes' or 'no' to the question of whether the disruption affected them. The overall sample size for each question was: Paid more than normal prices for materials, goods, or services: 883; Faced late payments (in comparison to the same period in the previous year): 884.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

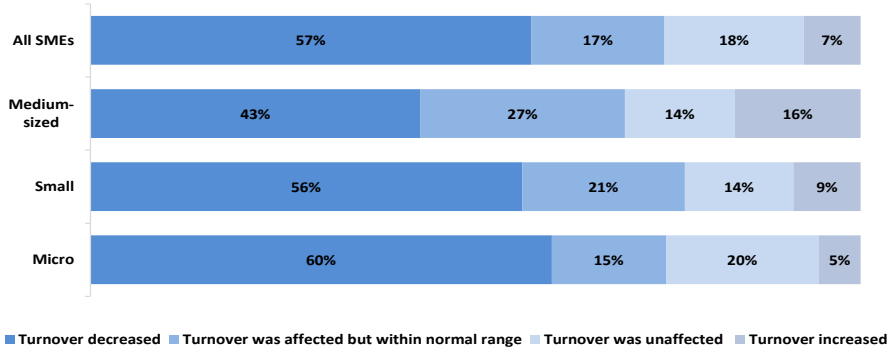
4.2.3 Effect of Covid-19 on the turnover of SMEs

The Covid-19 crisis had a major effect on the turnover of SMEs in EU-27 Member States, with 57% of surveyed SMEs reporting a reduced turnover because of the pandemic (Figure 21).

However, the effect of the pandemic on SME turnover varies across SME sizes, with medium-sized SMEs performing better than micro SMEs and small SMEs. 60% of micro SMEs and 56% of small SMEs reported decreased turnover, while the figure was 43% for medium-sized SMEs. Moreover, significantly more medium-sized SMEs than micro and small SMEs reported that their turnover actually increased in 2020: 16% of medium-sized SMEs versus 9% of small SMEs and 5% of micro SMEs (Figure 21). The effect on turnover also varied widely across Member States (Figure 22). The percentage of SMEs reporting decreased turnover as a result of Covid-19 ranged from 35% in FI to 79% in BG. There were also differences across Member States in the percentage of SMEs which reported that their turnover in 2020 was unaffected by the pandemic with only 9% of SMEs

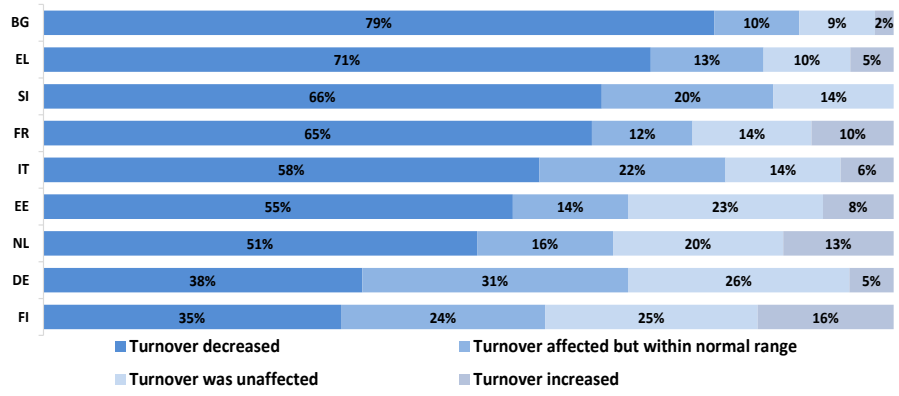
surveyed in BG reporting that their turnover was unaffected while 26% of SMEs surveyed in DE did so.

Figure 21 Percentage of SMEs experiencing changes in turnover caused by Covid-19 in 9 EU-27 Member States by SME size class and all SMEs



Note: The percentage of SMEs with decreased turnover was calculated by adding the percentages of SMEs that reported turnover decreasing by more than 50%; turnover decreasing between 20% and 50%; turnover decreasing by up to 20%. Turnover being affected within normal range is a positive or negative change around 5%. The percentage of SMEs with increased turnover was calculated by adding the percentages of SMEs that reported turnover increasing by more than 50%; turnover increasing between 20% and 50%; turnover increasing by up to 20%. Sample size is 863, as it excludes SMEs which did not provide their number of employees and those which were not sure of the effect of Covid-19 on turnover. Based on SMEs surveyed from 9 EU-27 Member States: (BG, DE, EE, EL, FI, FR, IT, NL and SI). SME size classes are defined here based on the average number of persons employed in the first half of 2020: Micro SMEs: 0-9 employees; Small SMEs: 10-49 employees; Medium-sized SMEs: 50-249 employees.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 22 Percentage of SMEs experiencing turnover changes during the pandemic in 9 EU-27 Member States



Note: The percentage of SMEs with decreased turnover was calculated by adding the percentages of SMEs that reported turnover decreasing by more than 50%; turnover decreasing between 20% and 50%; turnover decreasing by up to 20%. Turnover being affected within normal range is a positive or negative change around 5%. The percentage of SMEs with increased turnover was calculated by adding the percentages of SMEs that reported turnover increasing by more than 50%; turnover increasing between 20% and 50%; turnover increasing by up to 20%. Sample size is 868, as it excludes those which were not sure of the effects of Covid-19 on turnover. Based on SMEs surveyed from 9 EU-27 Member States: (BG, DE, EE, EL, FI, FR, IT, NL and SI).
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

4.2.4 Staffing measures taken by SMEs to deal with the impact of Covid-19

The majority (69%) of SMEs surveyed reported that they had taken measures relating to staffing to cope with the impact of Covid-19.

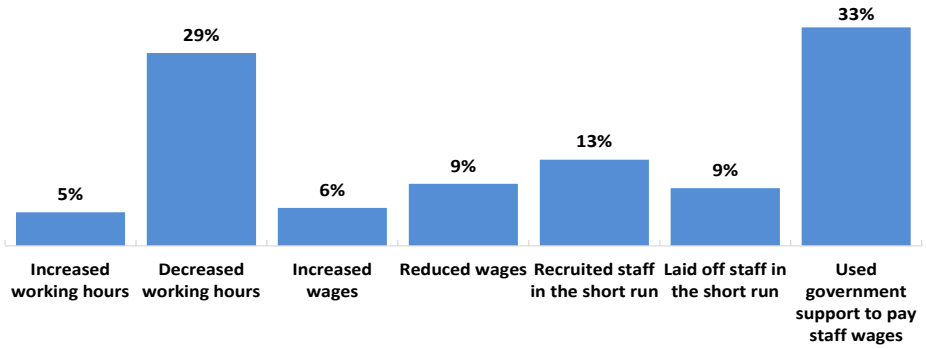
Many SMEs responded to the pandemic by decreasing staff working hours: 29% of SMEs reported decreased working hours as a result of the pandemic, compared to 5% which saw increased

working hours. At the same time, the pandemic affected wages in SMEs more negatively than positively, as 9% of SMEs reported reducing wages, while 6% reported increasing wages.

However, despite the trends of decreased working hours and wages, more SMEs reported recruiting staff in the short run (13%) than reported laying off staff in the short run (9%). Part of this difference between trends in working hours and wages compared to recruitment may be explained by the involvement of governments during the pandemic, as 33% of SMEs surveyed reported using government support to pay staff wages (Figure 23).

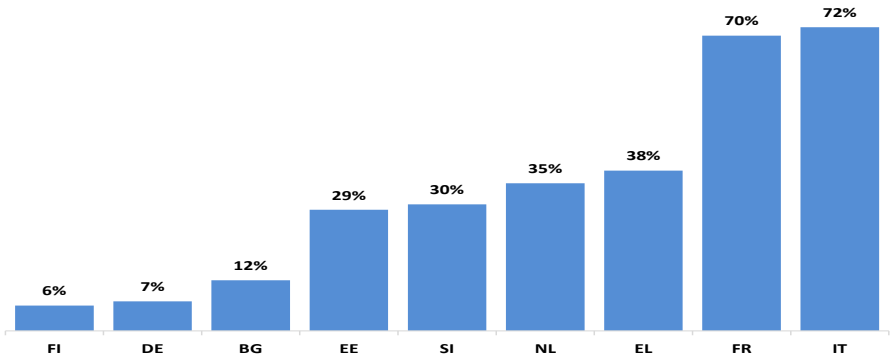
The degree to which SMEs used government support to pay staff wages varied widely across the Member States surveyed, ranging from 6% of SMEs in FI to 72% of SMEs in IT (Figure 24).

Figure 23 Percentage of SMEs reporting various measures taken in response to the pandemic in 9 EU-27 Member States



Note: Sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 24 Percentage of SMEs reporting use of government support to pay staff wages during the pandemic in 9 EU-27 Member States



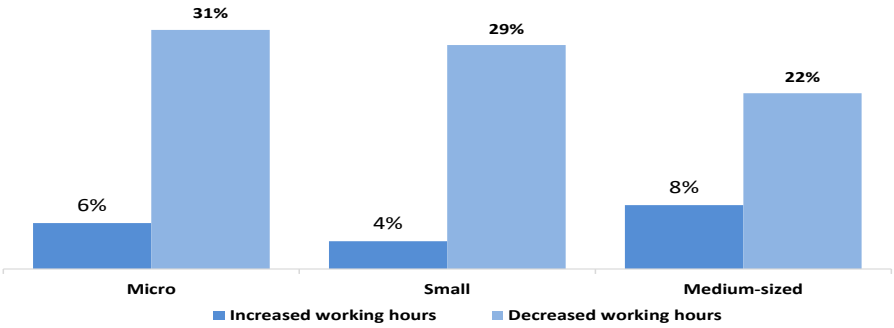
Note: Sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

The experience of SMEs differed across SME size classes when considering working hours and staff recruitment in response to the Covid-19 crisis. Micro SMEs (31%) and small SMEs (29%) were more likely to report decreased working hours than medium-sized SMEs (22%). Micro SMEs and small SMEs were also less likely to report increased working hours than medium-sized SMEs (Figure 25).

In terms of recruiting staff in the short run, micro SMEs appeared to be most affected by Covid-19. Micro SMEs reported the lowest incidence of recruiting staff in response to the pandemic (8%), with significantly larger percentages for small SMEs (18%) and medium-sized SMEs (24%) (Figure 26). Despite the differences between size classes in staff recruitment, all SME size classes were

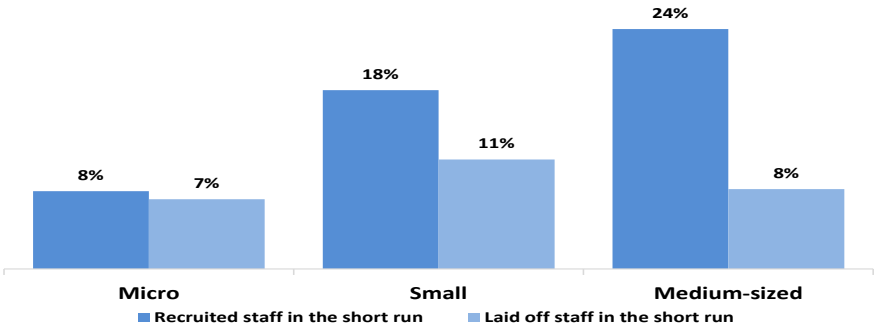
similarly affected in terms of laying off staff: 7% of micro SMEs, 11% of small SMEs and 8% of medium-sized SMEs (Figure 26).

Figure 25 Percentage of SMEs reporting increased and decreased working hours during the pandemic in 9 EU-27 Member States by SME size class



Note: Sample size is 894, as it excludes the 7 respondents which did not provide their number of employees. Based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI). SME size classes are defined here based on the average number of persons employed in the first half of 2020: Micro SMEs: 0-9 employees; Small SMEs: 10-49 employees; Medium-sized SMEs: 50-249 employees.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 26 Percentage of SMEs reporting recruiting and laying off staff during the Covid-19 pandemic in 9 EU-27 Member States by SME size class



Note: Sample size is 894, as it excludes the 7 respondents which did not provide their number of employees. Based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI). SME size classes are defined here based on the average number of persons employed in the first half of 2020: Micro SMEs: 0-9 employees; Small SMEs: 10-49 employees; Medium-sized SMEs: 50-249 employees.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

4.2.5 Other non-staffing measures taken by SMEs to deal with the impact of the pandemic

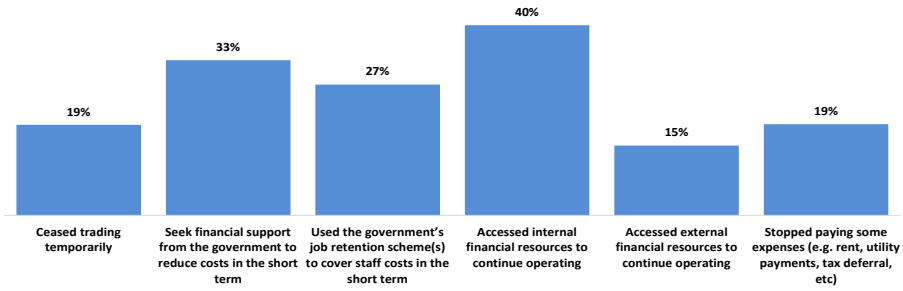
As previously noted, Covid-19 has significantly affected the turnover of SMEs. As a result, SMEs adopted a number of different measures to deal with the financial impact of the pandemic (Figure 27).

The use of internal financing was the most common approach taken by SMEs to deal with the financial impact of the pandemic, according to the 2020 SME survey. However, many SMEs sought government help, with 33% of SMEs surveyed using government support to reduce costs and 27% of SMEs surveyed using government job retention schemes. Many SMEs (19%) temporarily ceased trading, while others (19%) dealt with costs by stopping paying some business expenses.

The extent to which various measures were used by SMEs to deal with the financial impact of Covid-19 varied across the EU-27 Member States surveyed. The percentage of enterprises that ceased trading temporarily ranged from 10% in FI to 36% in FR, while the percentage of enterprises that stopped paying some business expenses ranged from 10% in SI to 30% in EL (Figure 28).

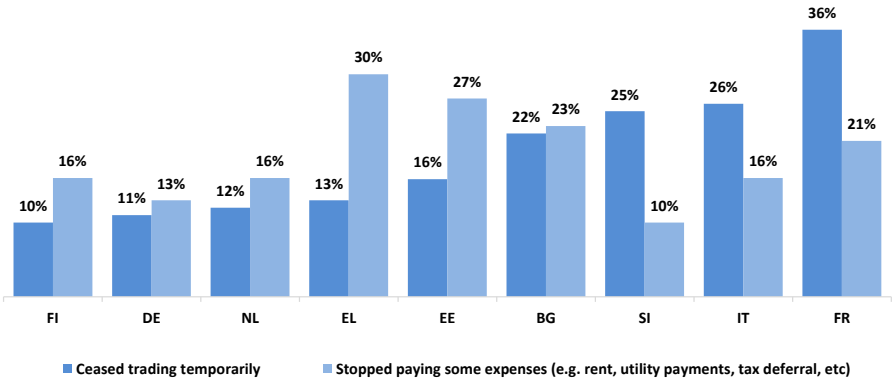
The measures used to limit the financial impact of Covid-19 also varied across SME size classes. Micro SMEs were more likely to have to stop trading temporarily than other size classes, with 21% of micro SMEs reporting that they stopped trading temporarily, compared to 17% of small SMEs and 14% of medium-sized SMEs.

Figure 27 Percentage of SMEs in 9 EU-27 Member States reporting various measures to limit the impact of Covid-19 on financial performance



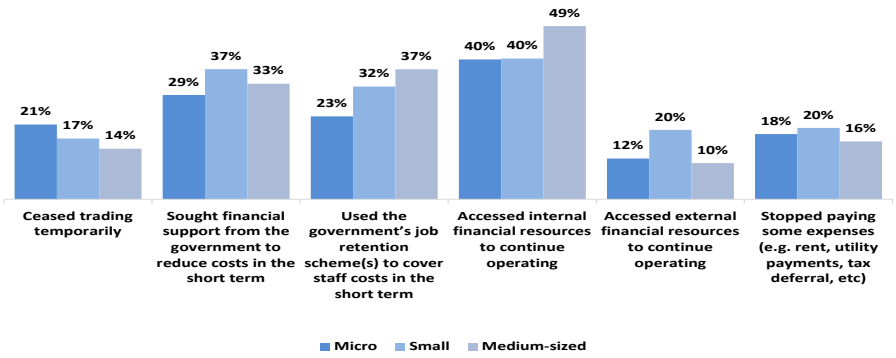
Note: Sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 28 Percentage of SMEs in 9 EU-27 Member States reporting that they ceased trading temporarily or stopped paying some expenses to limit the impact of Covid-19 on financial performance



Note: Sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 29 Percentage of SMEs reporting various measures to limit the impact of Covid-19 on financial performance in 9 EU-27 Member States by SME size class



Note: Sample size is 894, as it excludes the 7 respondents which did not provide their number of employees. Based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI). SME size classes are defined here based on the average number of persons employed in the first half of 2020: Micro SMEs: 0-9 employees; Small SMEs: 10-49 employees; Medium-sized SMEs: 50-249 employees.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Table 5 Percentage of SMEs reporting various measures to limit the impact of Covid-19 on financial performance in 9 EU-27 Member States

	Ceased trading temporarily	Sought financial support from the government to reduce costs in the short term	Used public job retention scheme(s) to cover staff costs in the short term	Accessed internal financial resources to continue operating	Accessed external financial resources to continue operating	Stopped paying some expenses (e.g. rent, utility payments, tax deferral, etc)
BG	22%	23%	14%	38%	10%	23%
DE	11%	21%	21%	33%	9%	13%
EE	16%	23%	30%	44%	9%	27%
EL	13%	49%	36%	33%	15%	30%
FI	10%	23%	6%	39%	15%	16%
FR	36%	48%	28%	30%	26%	21%
IT	26%	53%	54%	55%	29%	16%
NL	12%	37%	31%	31%	7%	16%
SI	25%	16%	27%	56%	12%	10%

Note: Sample size is 901, based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

4.2.6 Effect of Covid-19 on the use of digital technologies

This sub-section provides information on how SMEs have changed their use of digital technologies to help them mitigate or overcome the adverse effects of the pandemic. A broader review of the use of digital tools by SMEs is provided in the second part of the report.

A vast large majority of SME associations (85%) and digitalisation support organisations (92%)[29] are of the opinion that, typically, SMEs which had not yet made use of digital tools prior to the pandemic adopted basic digital technologies (e.g. emails, teleconferencing, internet, etc.) during the pandemic. About half of the SME associations (54%) and somewhat less than half of the

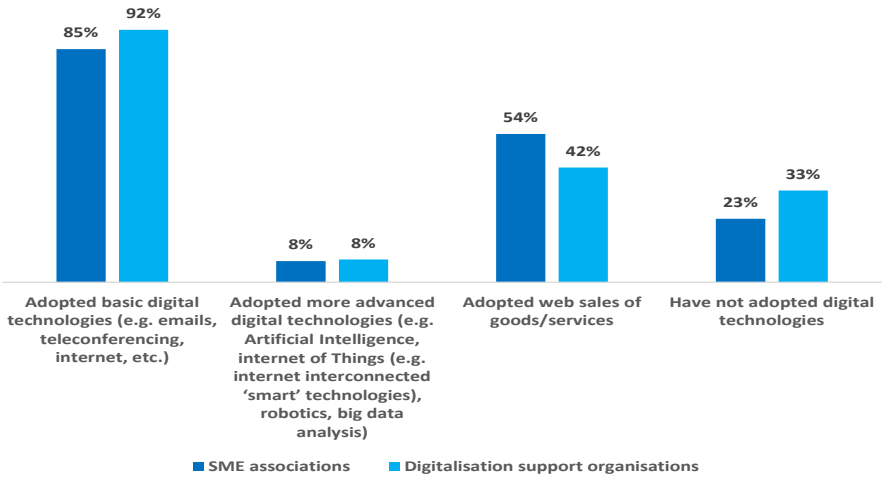
[29] As already noted, SME associations from 12 Member States (AT, BG, CY, DE, EL, ES, FI, HR, LU, LV, RO, SI) and 12 SME digitalisation support organisations from 8 Member States (AT, BE, BG, DK, ES, HU, IT, SI) responded to this special survey which also focused on the digitalisation of SMEs.

digitalisation support organisations (42%) are of the opinion that many of these SMEs also moved to web-based selling (Figure 30).

Slightly more than two thirds of SME associations, and more than four fifths of digitalisation support organisation believe that SMEs with very extensive digitalisation prior to Covid-19 had increased their usage of more advanced digital technologies (such as AI, Big Data Analysis, IoT, robotics, etc) during the pandemic. In contrast, slightly less than half of SME associations believe that this was the case for SMEs which had somewhat less extensive experience, and very few associations are of the opinion that this was the case for SMEs with very limited digitalisation experience (Figure 31). The views of digitalisation organisations are broadly similar to those of SME associations.

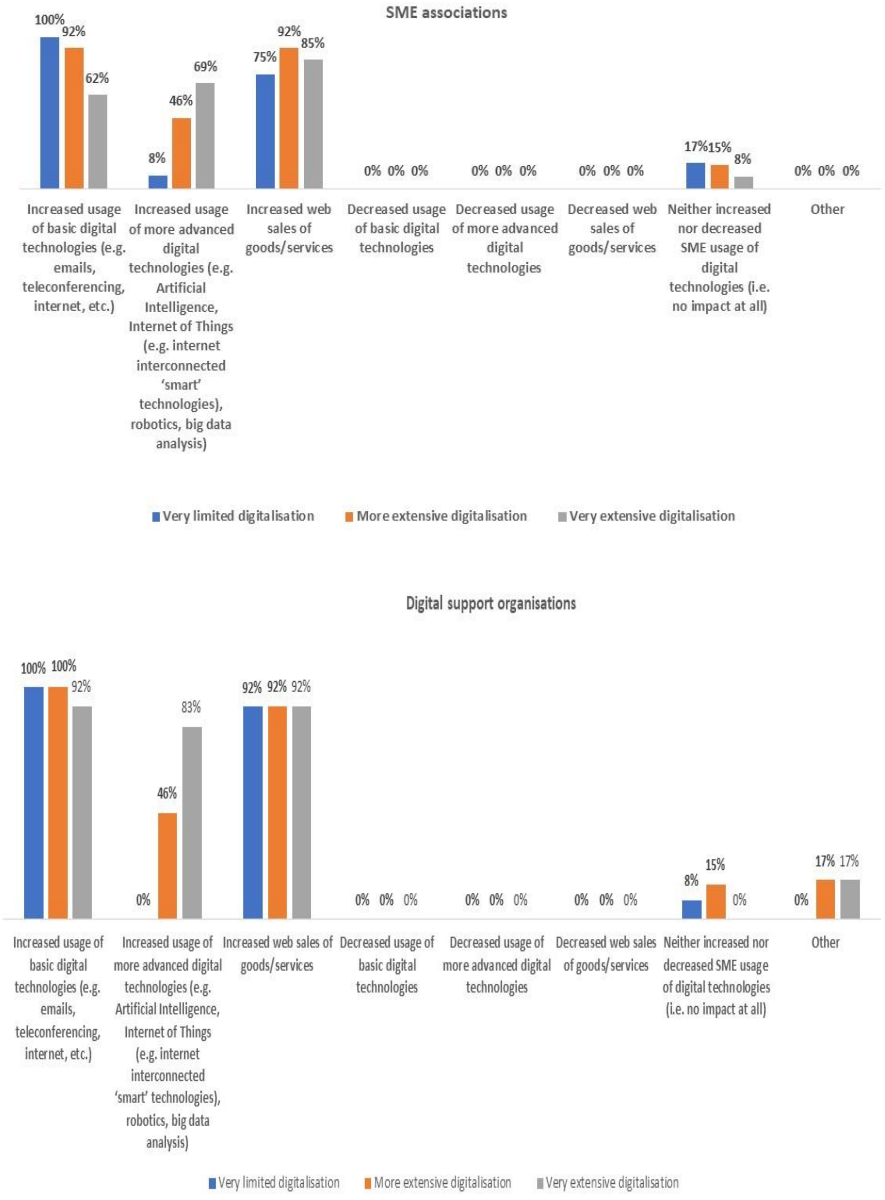
However, a very large majority of SME associations and digitalisation support organisations are of the opinion that SMEs with different levels of digitalisation experience pre-Covid-19 typically increased their web-based selling during the pandemic (Figure 31).

Figure 30 Views of SME associations and digitalisation support organisations on the use of digital tools during the pandemic by SMEs which had not yet digitalised their operations



Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

Figure 31 Views of SME associations and SME digitalisation support organisations on the use of digital tools during the pandemic by SMEs which had digitalised their operations to different degrees



Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

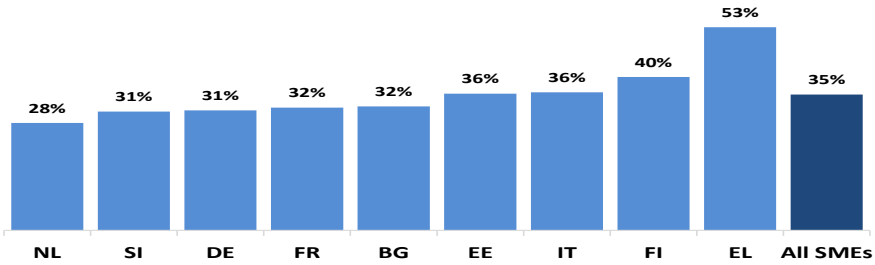
The SME survey results show a broadly similar picture with 35% of all respondents to the 2020 SME survey reporting that Covid-19 has changed the way that their enterprise uses digital technologies (Figure 32).

The way in which the Covid-19 pandemic changed how SMEs use digital technologies varied across Member States and SME size classes. Across the 9 Member States surveyed, the percentage of SMEs reporting that the Covid-19 crisis changed how they use digital technologies ranged from 28% in NL to 53% in EL (Figure 32).

There was also a wide difference in the effect of the Covid-19 pandemic on digital technology use across SME size classes. Smaller SMEs changed how they used digital technologies less than larger

SMEs, with 27% of micro SMEs reporting that the Covid-19 crisis changed how their enterprise uses digital technologies, while this figure was 44% for small SMEs and 53% for medium-sized SMEs.

Figure 32 Percentage of SMEs in 9 EU-27 Member States reporting that the Covid-19 crisis has changed how their enterprise uses digital technologies



Note: Sample size is 899, as it excludes those that responded 'don't know' to the question. Based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).

Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

4.3 Public support programmes to help SMEs deal with the impact of the pandemic and public health measures aiming to limit the spread of Covid-19

To mitigate the impact of the pandemic, the EU and Member States implemented many different support programmes, many of which were aimed directly at SMEs while others could be accessed by enterprises of all sizes. These support programmes can be grouped into five categories: 1) financial instruments, including state guarantees, subsidised interest rates and the offer of advanced repayments; 2) direct grants; 3) deferrals and exemptions of certain payments, including corporation tax, social security payments, debt repayments, value added tax (VAT) and rent and utility bills; 4) employment policies, such as short-term work schemes and wage subsidies; and 5) structural policies, such as support with digitalisation and the transition to teleworking (Table 6). The EU played a key role in complementing the activities of national governments. First of all, it adopted a very flexible and pragmatic approach to the use of State Aid rules. Furthermore, it was swift to set up support programmes on its own, unparalled in size and impact. The measures were organised under the umbrella of the NextGeneration EU and the Recovery Plan for Europe progammes. A detailed overview of the various programmes from which SMEs have been able to benefit is provided in Annex 4.

While no information is currently available on the take-up of the various measures by the EU-27 SME population, partial information provided in section 4.2.5 shows that many SMEs sought government help, with 33% of SMEs surveyed as part of the SME survey used government support to reduce costs and 27% of SMEs surveyed used government job retention schemes.

Table 6 Overview of Covid-19 enterprise support measures in 2020 and 2021

Member State	Employment Policies		Exemption or Deferral of Payments					Financial Instruments		
	Wage subsidy	Self-employed	Corporation tax	VAT	Social security and pension contributions	Rent or utilities	Debt moratorium	Loan guarantee	Direct loans and repayable advances	Grant or Subsidy
Austria	X	X	X	X	X		X	X	X	X
Belgium	X	X	X	X	X	X	X	X	X	X
Bulgaria	X	X	X	X	X		X	X	X	X
Croatia	X		X	X	X		X	X	X	X
Cyprus	X	X		X			X	X	X	X
Czechia	X	X	X	X	X	X		X	X	X
Denmark	X	X	X	X	X			X	X	X
Estonia			X	X	X			X	X	X
Finland		X	X	X	X			X	X	X
France	X	X	X	X	X	X		X	X	X
Germany	X	X	X	X	X	X		X	X	X
Greece	X	X	X	X	X	X		X	X	X
Hungary	X	X	X		X		X	X	X	X
Ireland	X	X	X	X		X		X	X	X
Italy	X	X	X	X	X	X	X	X	X	X
Latvia	X		X	X				X	X	X
Lithuania	X	X						X	X	X
Luxembourg	X	X	X		X		X	X	X	X
Malta	X	X		X	X	X	X	X		X
Netherlands	X	X	X	X	X		X	X	X	X
Poland	X	X	X	X	X			X	X	X
Portugal	X	X	X	X	X	X	X	X	X	X
Romania	X	X	X	X		X	X	X	X	X
Slovakia	X	X	X		X	X	X	X	X	X
Slovenia	X	X	X		X	X	X	X	X	X
Spain	X	X	X	X	X	X	X	X	X	X
Sweden	X		X	X	X	X		X	X	X

Source: based on European Commission, DG Economic and Financial Affairs, Policy measures taken against the spread and impact of the coronavirus – 12 February 2021, European Commission, DG Competition, List of Member State Measures approved under Articles 107(2)b, 107(3)b and 107(3)c TFEU and under the State Aid Temporary Framework, the 'Policy Tracker' created by the International Monetary Fund (IMF) with additions from KMPG Insights on 'Government and Institution Measures in Response to the Coronavirus' for clarification on specific tax measures.The rapid nature of developments during the pandemic means that the information in the table may not be comprehensive or fully up to date.

4.4 Evolution of enterprise population in the EU-27 during the pandemic

The pandemic did not only negatively affect the activities of many SMEs, it also reduced the rate of new business creation in many EU Member States in 2020. This was the case for the creation of new businesses in general and for the creation of startups. The rate of business bankruptcies also declined in 2020 in many Member States. Overall, the information available when this report was prepared suggests that, during the pandemic, the evolution of the EU enterprise population was less dynamic than in previous years with both lower birth and lower mortality rates. The section below discusses enterprise births (all enterprises and SME startups) and bankruptcies in more detail.

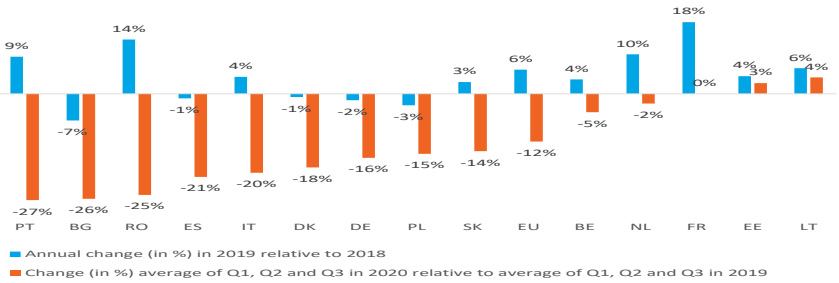
4.4.1 Enterprise births during the pandemic

While the SBS business demography data are published with a lag of several years after the end of the reference period[30], Eurostat has recently released experimental data on new business registrations on a quarterly basis for the period Q4 2017 to Q3 2020.[31] These data were provided on a voluntary basis by 14 NSOs and the EU aggregate covers only the Member States which provided such data, namely BE, BG, DE, DK, EE, ES, FR, IT, LT, NL, PL, PT, RO and SK.

This information shows that in nine of the Member States (BG, DE, DK, ES, IT, PL, PT, RO, SK) the number of new business registrations fell by between 14% and 27% in 2020 and a further two Members States recorded small declines, -5% in the case of BE and -2% in the case of the NL.

These experimental business registration data cover enterprises of all size classes. However, as the SBS enterprise demography data show that almost all new enterprises are SMEs, it is most likely that the experimental Eurostat paint a good picture of enterprise births among the SME enterprise population in 2020.

Figure 33 Change (in %) in the number of new business registrations – 2019 relative to 2018 and average of first three quarters of 2020 relative to first three quarters of 2019



Note: The EU aggregate covers the following Member States BE, BG, DE, DK, EE, ES, FR, IT, LT, NL, PL, PT, RO and SK.
Average of first two quarters of 2020 and of 2019 for DK.
Source: Eurostat

[30] The business demography available at the time when the Annual Report was prepared are shown in Annex 5.
[31] These data were published by Eurostat on 29 January 2021 and are available at https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quarterly_registrations_of_new_businesses_and_declarations_of_bankruptcies_-_statistics&stable=0&redirect=no#:~:text=In%20the%20third%20quarter%20of%202020%2C%20declarations%20of%20bankruptcies%20increased,the%20second%20quarter%20of%202020.

4.4.2 Covid-19 and EU startups and scaleups

4.4.2.1 Startups

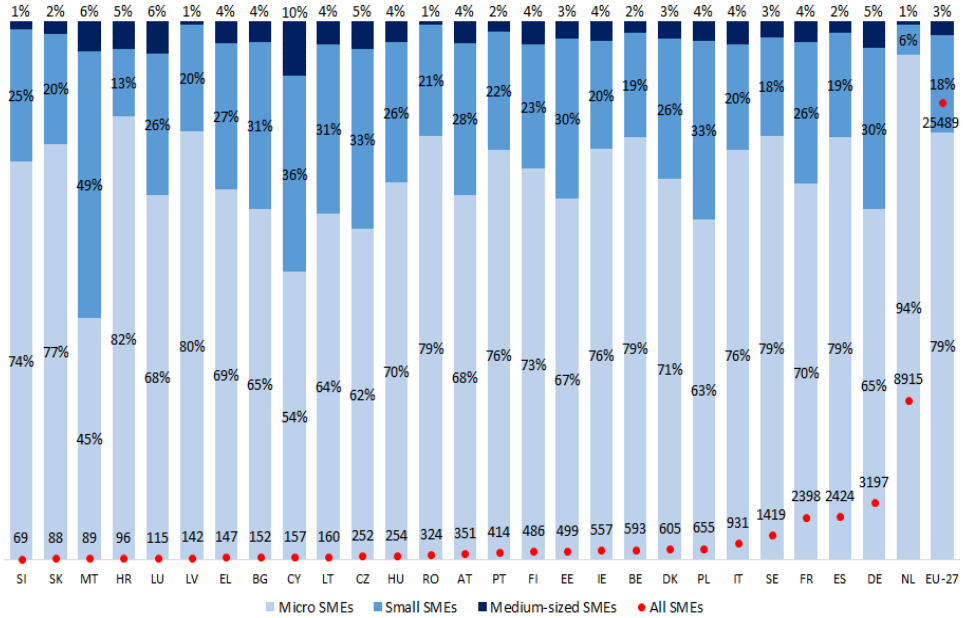
Comparable data on the EU SME startup population is not currently produced by national and international statistical organisations. Therefore, the information which follows in this section was extracted from the Crunchbase company database[32] which provides information on startups throughout the world and focuses on the digital sector.[33]

For the purposes of this report, companies present in the Crunchbase which were active, for-profit companies with fewer than 250 employees which were founded between 1st January 2016 and 31st December 2020 and headquartered within an EU-27 Member State were identified as an EU SME startup.

Based on these criteria, the number of SME startups in the EU-27 on 31 December 2020 stood at 25,489 (Figure 34). Five Member States had startup populations of over 1,000 (SE, FR, ES, DE and NL). NL particularly stands out with a population of 8,915 startups, 5,718 more than any other Member State. An additional five Member States had over 500 startups (IE, BE, DK, PL and IT).

Micro SMEs accounted for 79% of all SME startups in the EU-27 included in the Crunchbase database, and small SMEs and medium-sized SMEs accounted for 18% and 3% respectively of this EU-27 SME startup population. The SME size distribution of startups in this database varied markedly across Member States. Micro SMEs represented at least 80% of SME startups in Crunchbase in three Member States (HR, LV, NL), whereas in MT and CY their share was only 45% and 54% respectively. These latter two Member States also had the largest share of small SMEs in their startup populations in Crunchbase: 49% in MT and 36% in CY (Figure 34).

Figure 34 SME startup population in EU-27 Member States - December 2020



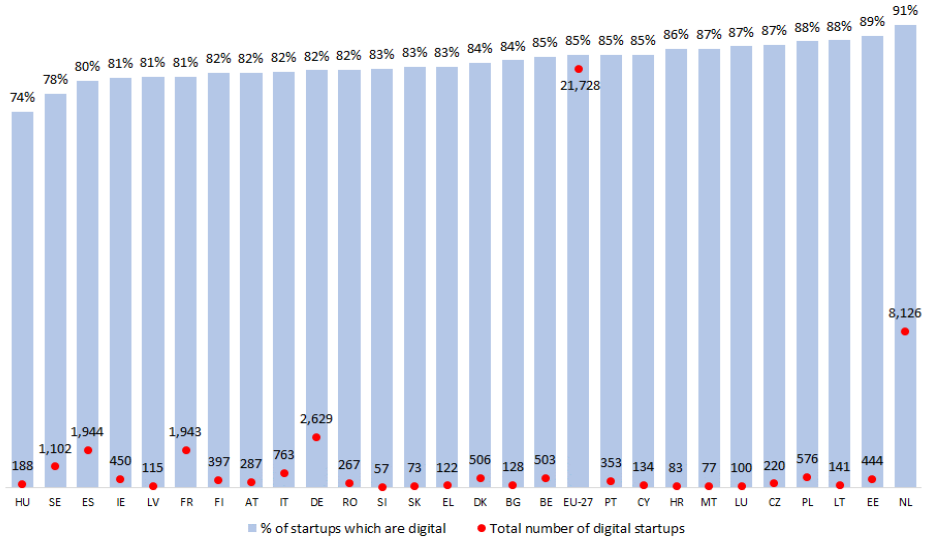
Note: Micro SMEs: 0-9 employees; Small SMEs: 10-49 employees; Medium-sized SMEs: 50-249 employees.
Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (https://www.crunchbase.com/)

The majority of SME startups (85%) in the EU-27 in the Crunchbase data were in the broader digital sector (Figure 35). In fact, digital SME startups accounted for at least 80% of all SME startups in this

[32] See https://www.crunchbase.com/
[33] The data reflect the information available in the Crunchbase on 4 February 2021.

database in all EU-27 Member States except HU and SE. The highest share of digital SME startups among all SME startups was in NL (91%).

Figure 35 Percentage of SME startups which are in the digital sector and total number of SME startups in the digital sector in EU-27 Member States and the EU-27 overall – December 2020



Note: The 'digital' sector includes the following industry groups in the Crunchbase database: 'Advertising', 'Apps', 'Artificial Intelligence', 'Commerce and Shopping', 'Consumer Electronics', 'Content and Publishing', 'Data and Analytics', 'Design', 'Financial Services', 'Gaming', 'Hardware', 'Information Technology', 'Internet Services', 'Messaging and Telecommunications', 'Mobile', 'Music and Audio', 'Navigation and Mapping', 'Payments', 'Platforms', 'Privacy and Security', 'Sales and Marketing', 'Science and Engineering', 'Software & Video'. The 'non-digital' sector consists of all other industry groups in the database.

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

The vast majority of SME startups in the Crunchbase database are micro SMEs, and these micro SMEs account for the same proportion of the total number of non-digital and digital startups (79%). Further details from the Crunchbase data of the percentage of SME startups by SME size class for each EU-27 Member State are provided in Table 7.

Table 7 Percentage of SME startups in the Crunchbase in each SME size class and total number of SME startups in the digital and non-digital sector, in EU-27 Member States and for the EU-27 overall – December 2020

	Digital				Non-digital			
Member State	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs (number)	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs (number)
EU-27	79.4%	18.2%	2.4%	21728	78.9%	17.3%	3.8%	3761
AT	65.9%	31.0%	3.1%	287	76.6%	15.6%	7.8%	64
BE	77.3%	20.3%	2.4%	503	85.6%	13.3%	1.1%	90
BG	61.7%	33.6%	4.7%	128	83.3%	16.7%	0.0%	24
CY	52.2%	37.3%	10.4%	134	60.9%	30.4%	8.7%	23
CZ	59.1%	35.9%	5.0%	220	78.1%	15.6%	6.3%	32
DE	64.7%	30.8%	4.5%	2629	67.3%	26.2%	6.5%	568
DK	70.0%	26.7%	3.4%	506	74.7%	22.2%	3.0%	99
EE	66.7%	30.4%	2.9%	444	70.9%	23.6%	5.5%	55
EL	65.6%	29.5%	4.9%	122	84.0%	16.0%	0.0%	25
ES	78.0%	20.0%	2.0%	1944	80.6%	16.5%	2.9%	480
FI	71.0%	24.7%	4.3%	397	79.8%	15.7%	4.5%	89
FR	69.1%	27.3%	3.7%	1943	73.2%	22.0%	4.8%	455
HU	66.0%	29.8%	4.3%	188	81.8%	15.2%	3.0%	66
IE	76.0%	20.4%	3.6%	450	77.6%	18.7%	3.7%	107
IT	75.5%	20.4%	4.1%	763	78.6%	16.7%	4.8%	168
LT	62.4%	33.3%	4.3%	141	78.9%	15.8%	5.3%	19
LU	64.0%	29.0%	7.0%	100	93.3%	6.7%	0.0%	15
LV	79.1%	20.0%	0.9%	115	81.5%	18.5%	0.0%	27
MT	44.2%	50.6%	5.2%	77	50.0%	41.7%	8.3%	12
NL	94.2%	5.2%	0.6%	8126	88.8%	9.8%	1.4%	789
PL	62.2%	34.7%	3.1%	576	70.9%	21.5%	7.6%	79
PT	75.1%	22.9%	2.0%	353	82.0%	16.4%	1.6%	61
RO	76.4%	23.2%	0.4%	267	89.5%	8.8%	1.8%	57
SE	78.0%	19.5%	2.5%	1102	81.1%	14.2%	4.7%	317
SI	71.9%	26.3%	1.8%	57	83.3%	16.7%	0.0%	12
SK	76.7%	21.9%	1.4%	73	80.0%	13.3%	6.7%	15

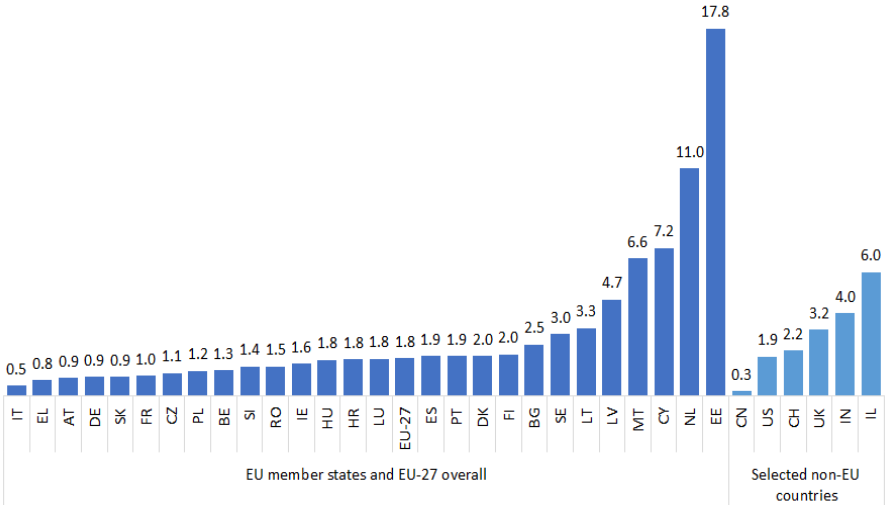
Note: The 'digital' sector includes the following industry groups in the Crunchbase database: 'Advertising', 'Apps', 'Artificial Intelligence', 'Commerce and Shopping', 'Consumer Electronics', 'Content and Publishing', 'Data and Analytics', 'Design', 'Financial Services', 'Gaming', 'Hardware', 'Information Technology', 'Internet Services', 'Messaging and Telecommunications', 'Mobile', 'Music and Audio', 'Navigation and Mapping', 'Payments', 'Platforms', 'Privacy and Security', 'Sales and Marketing', 'Science and Engineering', 'Software & Video'. The 'non-digital' sector consists of all other industry groups in the database. Micro SMEs: 0-9 employees; Small SMEs: 10-49 employees; Medium-sized SMEs: 50-249 employees.

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

Differences in startup populations reflect numerous factors, such as startup ecosystems, tax systems, the overall size of the national economy, etc. To adjust for the overall size of the national economy, the number of SME startups in the Crunchbase per EUR 1 billion of 2019 GDP (at current prices) as of December 2020 is reported in Figure 36. The scaling of the overall number of SME startups in a Member State by its GDP (at current prices) shows that some smaller Member States have a relatively large startup population. For example:

- CY, EE, NL, LV and MT have the highest SME startup intensities in the EU-27, with at least 4 startups per EUR billion of GDP in the Crunchbase database. EE, in particular, stands out with 17.8 SME startups per EUR 1 billion of GDP, by far the highest out of all EU Member States and other non-EU countries;
- In contrast, AT, DE, EL, IT and SK have less than one SME startup per EUR 1 billion of GDP in the Crunchbase database;
- The EU-27 overall has 1.8 SME startups per EUR 1 billion GDP in the Crunchbase database, less than CH, IL, IN, UK and US.

Figure 36 SME startups per EUR 1 billion 2019 GDP (at current prices) for EU-27 Member States, the EU-27 overall and selected non-EU countries – December 2020

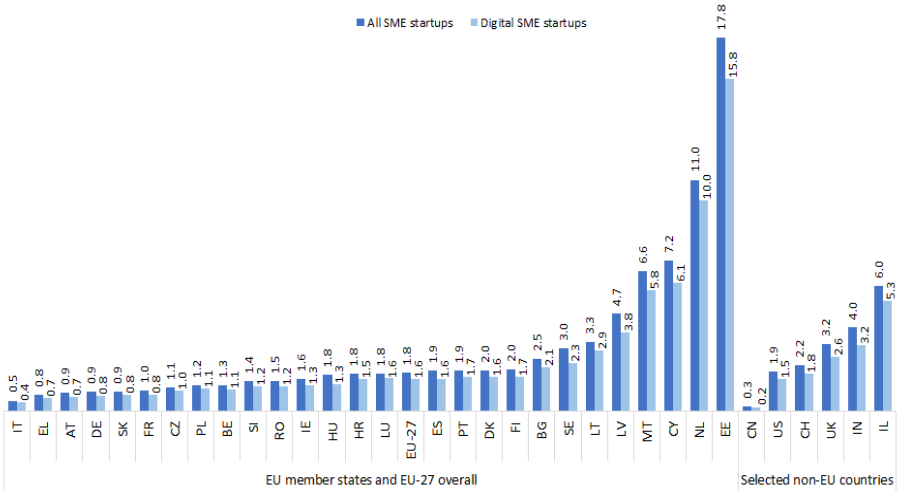


Note: Eurostat GDP figures were used for the EU-27 Member States, UK and CH. World Bank GDP data was used for US, CH, IN and IL. GDP figures are 2019 figures. World Bank GDP data expressed in US $ were converted to EUR using European Central Bank exchange rate data.

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

The variation in the number of digital SME startups per EUR 1 billion GDP included in the Crunchbase database is similar to the comparable figures for all SME startups included in Crunchbase (Figure 37). EE stands out again with the most digital startups (15.8) per EUR 1 billion GDP, with CY, LV, MT and NL the next highest (all exceeding 3 digital startups per EUR 1 billion). The EU-27 overall has fewer digital startups per EUR 1 billion GDP (1.6) in Crunchbase than CH, IL, IN and UK.

Figure 37 SME startups per EUR 1 billion nominal GDP in the economy as a whole and in the digital sector - EU-27 Member States, the EU-27 overall and selected non-EU countries – December 2020



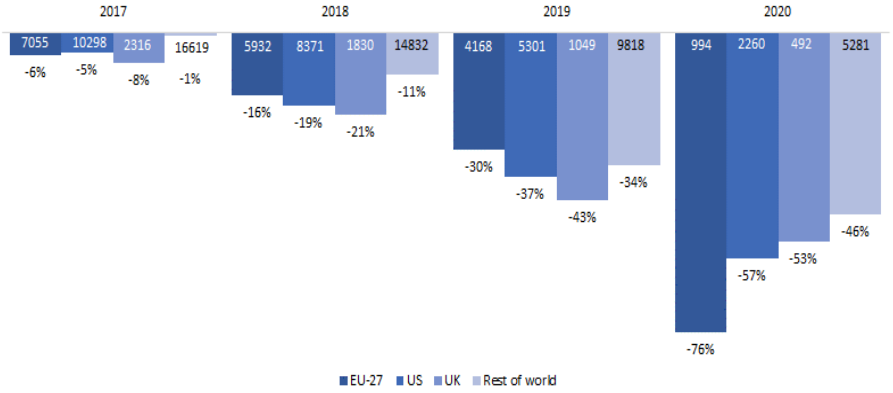
Note: Eurostat GDP figures were used for the EU-27 Member States, UK and CH. World Bank GDP data was used for US, CH, IN and IL. GDP figures are 2019 figures. World Bank GDP data expressed in US $ were converted to EUR using European Central Bank exchange rate data. The 'digital' sector includes the following industry groups in the Crunchbase database: 'Advertising', 'Apps', 'Artificial Intelligence', 'Commerce and Shopping', 'Consumer Electronics', 'Content and Publishing', 'Data and Analytics', 'Design', 'Financial Services', 'Gaming', 'Hardware', 'Information Technology', 'Internet Services', 'Messaging and Telecommunications', 'Mobile', 'Music and Audio', 'Navigation and Mapping', 'Payments', 'Platforms', 'Privacy and Security', 'Sales and Marketing', 'Science and Engineering', 'Software & Video'. The 'non-digital' sector consists of all other industry groups in the database.

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

The number of new SME startups identified by Crunchbase, which were formed in 2020 in the EU-27 dropped by 76% in 2020 relative to 2019 (994 versus 4,168, - a 76% decrease) (Figure 38). This decrease followed the trend which started in 2017 and shows that the number of newly established SME startups in the EU-27 has been falling year on year.

This trend is also observed in the US, the UK and the rest of the world. However, in 2020, the decline is much more pronounced in the EU-27 than in the other three areas whereas, in 2019, the opposite was true (Figure 38).

Figure 38 Number of new SME startups formed per year and percentage change in the number of SME startups formed with respect to the previous year - EU-27, US, UK and Rest of the world

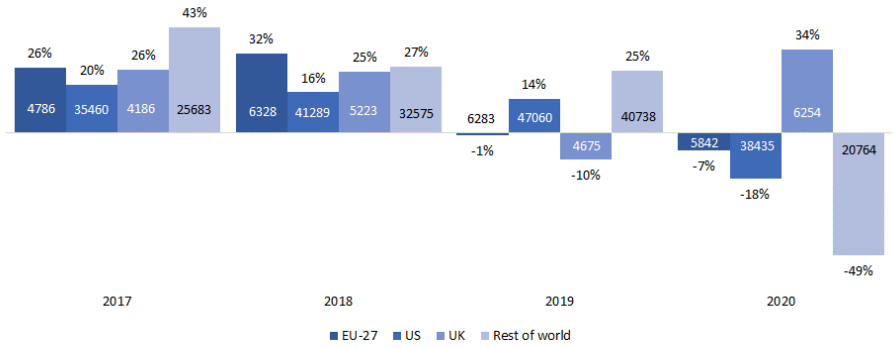


Source: Crunchbase, a database which provides information on startups throughout the world and focuses on the digital sector (https://www.crunchbase.com/)

Total funding for EU-27 SME startups recorded in Crunchbase also fell in 2020, but only by 7% in comparison to 2019, from EUR 6.3 billion to EUR 5.8 billion (Figure 39). This fall in funding for EU-27 SME startups followed rising funding, from 2017 to 2018 and a marginal decline in 2019.

Funding for SME startups recorded in Crunchbase also fell in 2020 in the US and the rest of the world, but much more sharply than in the EU-27 (-18% and -49% respectively versus -7% in the EU-27). In contrast funding for SME startups rose by 34% in the UK in 2020 after having declined by 10% in 2019.

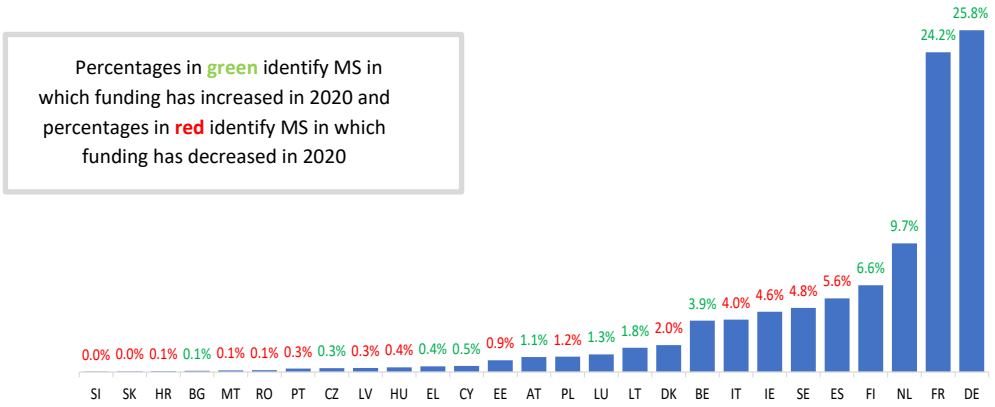
Figure 39 Amount of funding (in EUR millions) per year for SME startups and percentage change in funding for SME startups with respect to the previous year - EU-27, US, UK and Rest of the world



Note: Funding information is provided in 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

According to the Crunchbase data, in 2020, two Member States (DE and FR) accounted for half of the funding provided in the EU-27 to SME startups. Four member States (ES, FI, NL and SE) accounted for a further quarter of all such funding in 2020 (Figure 40). The 2020 evolution of funding of SME startups varied across Member States. While the total funding in the EU-27 declined by 7% in 2020 in the Crunchbase data, it is important to note that it actually increased in 12 Member States (AT, BE, BG, CY, CZ, DE, EL, FI, HR, LT, LU and PL). However, the decrease in funding in the remaining 15 Member States ultimately results in the overall fall in the total funding for EU-27 SME startups in 2020, based on the Crunchbase data.

Figure 40 Member States' share of EU-27 funding (in EUR millions) for SME startups in 2020 and change in level of funding from 2019 to 2020



Note: Funding information is provided in 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

4.4.2.2 The views of EU-27 startups and scaleups in early 2020

The 2020 Flash Eurobarometer 486 provides further insights into the EU-27 startup and scaleup populations.[34] It should be noted that the EU-27 SMEs, startups and scaleups were surveyed between 19 February and 27 April 2020, i.e. while the Covid-19 crisis was unfolding in many countries.

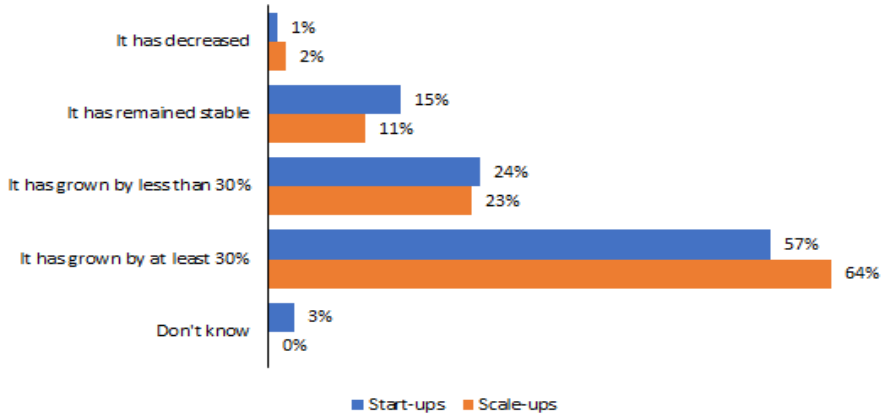
In the survey, 'startups' are considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and planned to grow in terms of turnover and/or employment. 'Scaleups' are defined as mature enterprises, founded prior to 2015, that have experienced significant growth in terms of turnover and/or employment since 2016. More specifically, to qualify as a 'scaleup' in terms of turnover, turnover must have increased by at least 30% since 2016; whereas, in terms of employment, micro enterprises must have increased employment by at least 3 employees and all other firms (with 10 or more employees) must have grown their employment by at least 30% over the three years from 2016 to 2019.

4.4.2.2.1 Growth in employees

81% of EU-27 startups with 10 or more employees and 87% scaleups with 10 or more employees reported growth in employment in the three years between end 2016 and early 2020 (Figure 41). Approximately 57% of EU-27 startups (with at least 10 employees) who responded to the survey reported growth of at least 30% in terms of number of employees in this period, whilst the comparable figure was 64% for scaleups. A small fraction (1% for startups and 2% for scaleups) of respondents reported a decrease in employment in this period.

[34] https://europa.eu/eurobarometer/surveys/detail/2244; Flash Eurobarometer 486 used the following definitions for 'start-ups' and 'scale-ups': start-ups were considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and planned to grow in terms of turnover and/or employment, while scale-ups were considered to be enterprises founded prior to 2015, that have achieved significant growth since 2016 (thus in the last three years) in employment and/or turnover. Growth in turnover must have been at least 30% to qualify as a scale-ups on a turnover basis. To qualify as a scale-up on the basis of employment, there must have been a growth of at least 30% in the case of firms with 10 or more employees, or, in the case of micro firms, an increase of at least 3 employees.

Figure 41 Responses of EU-27 startups and scaleups with at least 10 employees to Q5 of the Flash Eurobarometer 486 survey, "Since 2016, how much has your enterprise grown, if at all, in terms of number of employees?"

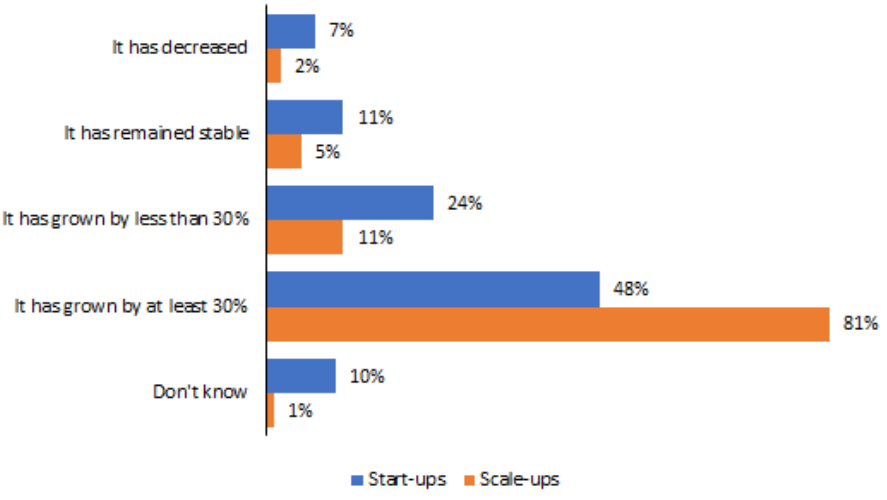


Note: Number of weighted responses = 1,073. 'Startups' were considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and planned to grow in terms of turnover and/or employment. 'Scaleups' were defined as mature enterprises, founded prior to 2015 and with at least 30% growth in turnover and/or employment since 2016. Note that micro enterprises are excluded.
Source: Flash Eurobarometer 486

4.4.2.2.2 Growth in turnover

Given the criteria used to define scaleups, a large majority (92%) of scaleups experienced growth in turnover in the three years between end 2016 and early 2020 (Figure 42). About three out of four (72%) of startups also increased turnover in this period. Just 2% of scaleups reported a fall in turnover in this period compared to 7% of startups.

Figure 42 Responses of all EU-27 startups and scaleups to Q5 of the Flash Eurobarometer 486 survey, "Since 2016, how much has your enterprise grown, if at all, in terms of turnover?"



Note: 'Startups' were considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and planned to grow in terms of turnover and/or employment. 'Scaleups' were defined as mature enterprises founded prior to 2015, that have achieved significant growth since 2016 (thus in the last three years) in employment and/or turnover. Growth in turnover must have been at least 30% to qualify on a turnover basis. To qualify as a scaleup on the basis of employment, there must have been a growth of at least 30% in the case of firms with 10 or more employees, or, in the case of micro firms, an increase of at least 3 employees.
Source: Flash Eurobarometer 486 survey

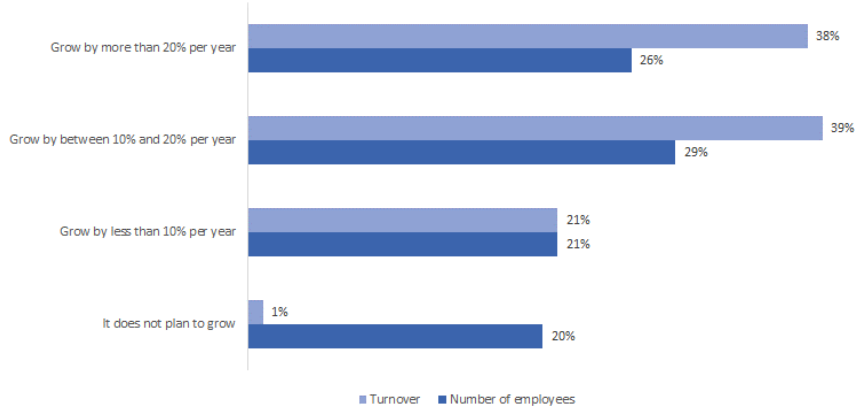
4.4.2.2.3 Plans to grow

Startups

In terms of turnover, approximately 38% of startups, which participated in the Flash Eurobarometer 486 survey, reported to have plans to grow by more than 20% per year, whilst 39% reported plans to grow by between 10% and 20% per year (Figure 43). It is important to note that given the timing of the survey, the results predominantly reflect plans that were in place prior to the Covid-19 pandemic.

In terms of employment, about four out of five startup respondents reported plans to grow by some amount in the next few years - 26% of startup interviewees planned to grow their employment by more than 20% per year, whilst 29% planned to increase employment by between 10% and 20% per year.

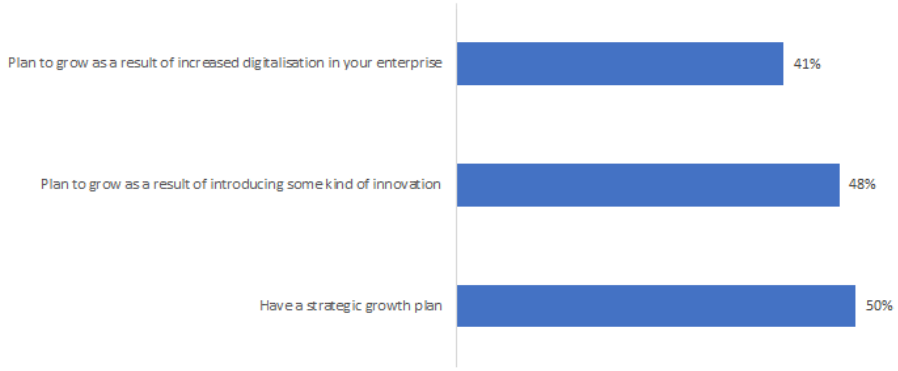
Figure 43 EU-27 Startup interviewees' responses to Q6 of the Flash Eurobarometer 486 survey, "Now thinking about the next few years, how much does your enterprise plan to grow on average per year, if at all, in terms of turnover/number of employees?"



Note: 'Startups' were considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and planned to grow in terms of turnover and/or employment. 'Don't know' replies are not presented above.
Source: Flash Eurobarometer 486 survey

Around half (50%) of startups reported that they had a strategic growth plan. A significant proportion of startups also reported plans to grow as a result of increased digitalisation (41%) or as a result of introducing some kind of innovation (48%) (Figure 44).

Figure 44 Startup interviewees' responses to Q7a of the Flash Eurobarometer 486 survey, "In terms of growth either in employment or in turnover, does your enterprise…"

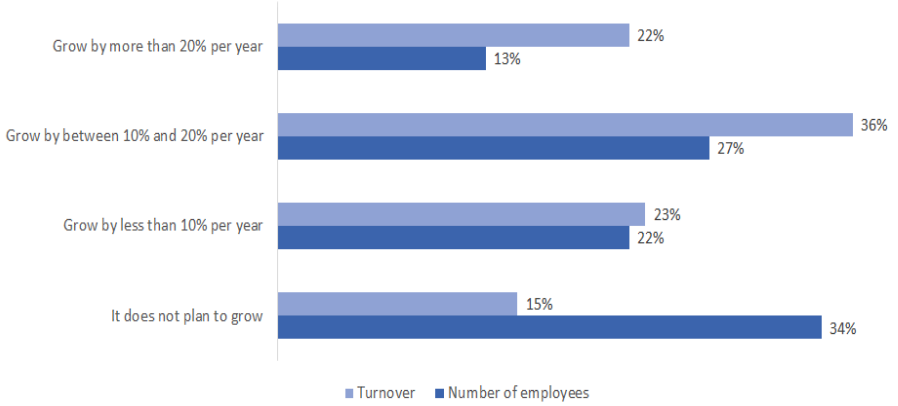


Note: 'Startups' were considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and planned to grow in terms of turnover and/or employment.
Source: Flash Eurobarometer 486 survey

Scaleups

The survey also asked EU-27 scaleups about their plans to grow in the next few years and the majority, i.e. about two out of three respondents, stated that they had plans to grow in terms of number of employees (Figure 45). About four out of five respondents had plans to grow in terms of turnover in the next few years. However, it is important to note that given the timing of the survey, the results predominantly reflect plans that were in place prior to the Covid-19 pandemic. In any case, the responses showed greater expectations for growth in turnover than employment. Approximately 22% of respondents planned for their turnover to grow by 20% or more per year, compared to 13% regarding employment. About 36% of respondents planned for their turnover to grow by between 10% and 20% per year, whilst 27% planned for their number of employees to grow by between 10% and 20% per year.

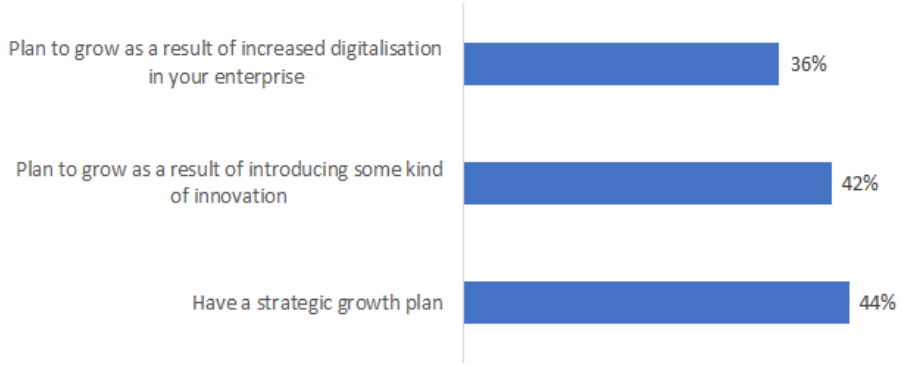
Figure 45 EU-27 Scaleup interviewees' responses to Q6 of the Flash Eurobarometer 486 survey, "Now thinking about the next few years, how much does your enterprise plan to grow on average per year, if at all, in terms of turnover/number of employees?"



Note: 'Scaleups' were considered to be enterprises founded prior to 2015, that have achieved significant growth since 2016 (thus in the last three years) in employment and/or turnover. Growth in turnover must have been at least 30% to qualify on a turnover basis. To qualify as a scaleup on the basis of employment, there must have been a growth of at least 30% in the case of firms with 10 or more employees, or, in the case of micro firms, an increase of at least 3 employees. Don't know' replies are not presented above.
Source: Flash Eurobarometer 486 survey

Less than half (44%) of EU-27 scaleup respondents reported that they had a strategic growth plan (Figure 46). A significant proportion of respondents also indicated that they had plans to grow as a result of increased digitalisation (36%) or by introducing some kind of innovation (42%).

Figure 46 Scaleup interviewees' responses to Q7a of the Flash Eurobarometer 486 survey, "In terms of growth either in employment or in turnover, does your enterprise…"



Note: 'Scaleups' were considered to be enterprises founded prior to 2015, that have achieved significant growth since 2016 (thus in the last three years) in employment and/or turnover. Growth in turnover must have been at least 30% to qualify on a turnover basis. To qualify as a scaleup on the basis of employment, there must have been a growth of at least 30% in the case of firms with 10 or more employees, or, in the case of micro firms, an increase of at least 3 employees.
Source: Flash Eurobarometer 486 survey

The full executive summary of the Flash Eurobarometer 486 report which provides further information on the views of startups and scaleups is provided at Annex 7.

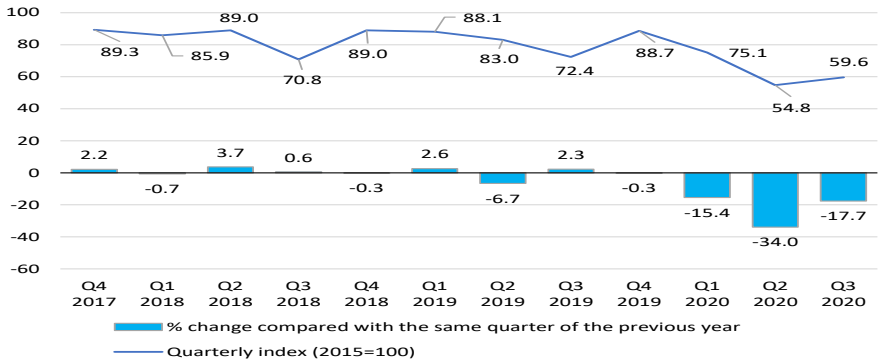
4.4.3 Covid-19 and business bankruptcies in 2020

Bankruptcy declarations are an early indication of non-voluntary cessation of economic activity. In some countries, the bankruptcy law permit businesses to continue to trade after having started the procedure for being declared bankrupt.

Until recently, data on bankruptcy declarations were not available on a pan-European level. However, together with the experimental data on business registrations presented in section 4.4.1, Eurostat has also published experimental data on bankruptcy declarations on a quarterly basis for the period Q4 2017 to Q3 2020. These data were provided on a voluntary basis by a number of NSOs and the EU aggregate covers only the Member States which provided such data, namely BE, BG, DE, DK, EE, ES, FR, IT, LT, PL, PT and RO.

Despite the pandemic, bankruptcy declarations fell sharply in the EU in 2020 relative to 2019. For example, compared to the same quarter in the previous year, bankruptcy declarations were lower in the EU by 15.4% in 2020 Q1, 34.0% in 2020 and 17% in 2020 Q3 (Figure 47).

Figure 47 Declarations of bankruptcies of businesses in 2020 in the EU*



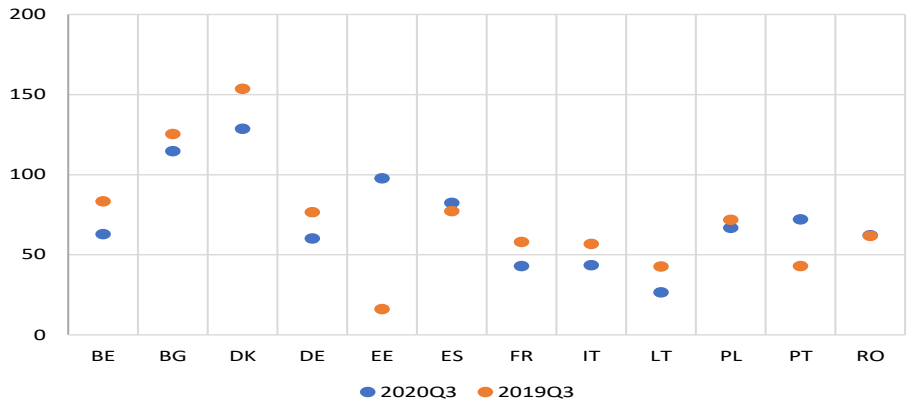
Note: *The EU aggregate covers the following Member States: BE, BG, DE, DK, EE, ES, FR, IT, LT, PL, PT and RO.
Source: Eurostat

Several possible factors can explain the observed decline in bankruptcies in 2020. Businesses have benefitted from the significant fiscal policy responses to Covid-19, such as additional spending and delayed tax collections, reductions in tax rates, equity injections, loans and guarantees. Further, businesses benefitted from debt forbearance as creditors offered flexibility on loan terms such as by extending maturities or offering payment holidays .

Regulatory changes have also modified the date when businesses are declared bankrupt in some countries. In France, temporary regulations were adopted that extended the period for reporting and assessing bankruptcy. In Germany, an insolvency moratorium has been in place for businesses adversely affected by Covid-19. The impact of lockdowns also has had an effect on commercial court activity and, as a result, bankruptcy declarations have been delayed. Although, at the EU level, the number of bankruptcy declarations in 2020 Q3 was 17% below the level in the same quarter in 2019, the situation varied greatly across Member States:

- In EE and PT, the level of bankruptcy declarations was much higher in 2020 Q3 than in 2019 Q3 - +83.5% and +40.3% respectively;
- In ES the level in 2020 Q3 was marginally higher than in 2019 Q3- +6.3%;
- In RO the level in 2020Q3 was practically the same as in 2019 Q3 - +0.5%;
- In the other eight Member States, bankruptcy declarations in 2020 Q3 were below their 2019 Q3 level, sometimes markedly so – BE: -32.3%, BG: -9.3%, DE: - 27.2%, DK: -19.4%, FR: -34.9%, IT: -30.8%, LT: --60.9%, and PL:-7.6%.

Figure 48 Declarations of bankruptcies of businesses in Member States – 2019Q3 and 2020Q4 (2015=100)



Source: Eurostat

5 The outlook for EU-27 SMEs in 2021

Key points

- **EU-27 SME value added in the NFBS is forecast to grow by 5.8% and EU-27 SME employment to rise by 0.6% in 2021.**
- **The levels of EU-27 SME value added and employment in the NFBS are expected to reach 97.7% and 98.8% respectively of their pre-pandemic levels of 2019.**
- **SME value added in the NFBS is projected to grow in all Member States, albeit to varying degrees. However, SME employment in the NFBS is projected to increase in only 18 Member States.**
- **As in 2019 and 2020, EU-27 SMEs in the digital sector are projected to outperform SMEs in the non-digital sector. EU-27 SMEs in the digital sector are projected to increase their value added and their employment by respectively 6.7% and 1.7%. In contrast, EU-27 SME value added and employment are projected to grow by 5.7% and 0.5%.**

The forecasts presented in this section are based on the European Commission's Autumn 2020 Economic Forecast released on 5 November 2020.[35] In light of the considerable uncertainty about the evolution of Covid-19 through 2021 and the responses of households and businesses to an easing of the measures taken by governments to fight against the spread of the virus, the forecasts presented in this chapter are subject to much greater than usual downside and upside risks. In this regard it should be noted that the EC Winter 2021 Interim Forecast has slightly scaled back EU-27 GDP growth projected for 2021.[36]

5.1 The outlook

5.1.1 EU-wide outlook

While SMEs in the EU-27 Member States experienced a large economic downturn in 2020 due to the Covid-19 pandemic, the outlook for 2021 is expected to be generally more positive.

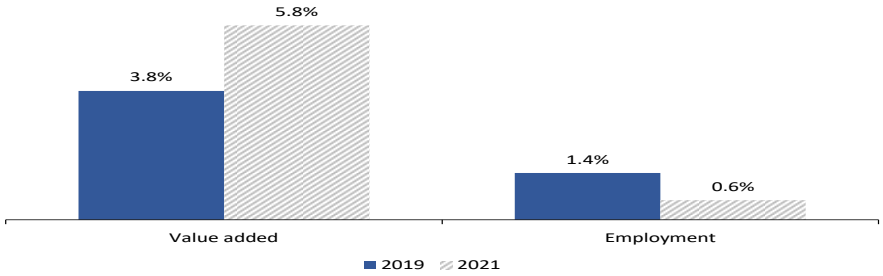
Value added in EU-27 Member States is expected to show strong growth, increasing by 5.8%, a faster rise than in 2019, before the pandemic (Figure 49).

In contrast, SME employment is expected to grow more slowly, by 0.6% or less than half of the growth in 2019.

[35] See press release at https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2021.

[36] The EC Winter 2021 Interim Forecast has slightly scaled back EU-27 GDP growth projected for 2021, from 4.1% in the Autumn 2020 Forecast to 3.9% in the Winter 2021 Interim Forecast.

Figure 49 EU-27 SME growth in value added and employment pre-Covid in 2019 and the outlook for 2021



Source: Eurostat, National Statistical Offices and DIW Econ

Although EU-27 SME valued added in the NFBS is predicted to grow by 5.8% in 2021, it is not expected to return to its level of 2019 (Table 8). EU-27 SMEs are instead expected to generate only 97.7% of their pre-pandemic level of value added. A similar outcome is projected for EU-27 SME employment in the NFBS. EU-27 SMEs are expected to reach only 98.8% of their pre-pandemic level of employment in 2021.

Table 8 Key EU-27 SME performance indicators -2019 to 2021

Indicator	2019	2020 (estimated)	2021 (forecasted)	Level in 2021 relative to level in 2019
Value Added (in € million)	3,614,135	3,338,286	3,531,010	97.7%
Employment	84,879,280	83,397,944	83,885,840	98.8%

Source: Eurostat, National Statistical Offices and DIW Econ

5.1.2 The Outlook for SMEs in Member States in 2021

SME value added is projected to grow in all EU-27 Member States to varying degrees (Table 9). More specifically:

- After experiencing the largest decline in SME value added, EL is expected to see the highest growth of 14.1% in 2021. PT is expected to see the next highest growth in value added, of 10.0% in 2012 after posting a decline of 10.1% in 2020.
- In addition to EL and PT, six Member States (ES, FR, HU, IE, IT and MT) recorded declines in SME value added of over 10% in 2020 but are expected to experience a recovery of only 3.5% to 6.7% in 2021.
- In contrast, seven EU Member States (LT, LU, NL, PL, RO, SE and SK) saw declines in SME value added of less than 2.0% in 2020 and SME value added in these countries is expected to grow by between 4.9% and 7.7% in 2021.
- SMEs in just over half of EU Member States (BG, DE, DK, EE, FI, LT, LU, LV, NL, PL, RO, SE, SI and SK) are expected to either reach or surpass their 2019 value added levels by the end of 2021. Among these Member States, SMEs in four (LT, RO, SE and PL) are expected to surpass their pre-pandemic value added level by over 5% in 2021.
- In contrast, among the Member States where the value added generated by SMEs is projected to remain in 2021 below pre-pandemic levels, in seven Member States (ES, MT, IT, EL, FR, IE and HU), SME value in 2021 is forecasted to remain lower by 5% or more than in 2019.

Table 9 The outlook for SME value added in EU-27 Member States in 2021

Member State	Value added in 2019 (in € million)	Estimated value added in 2020 (in € million)	Forecasted value added in 2021 (in € million)	Percentage change in value added from 2019 to 2020	Percentage change in value added from 2020 to 2021	Level in 2021 relative to level in 2019
CZ	66,631	63,366	64,877	-4.9%	2.4%	97.4%
IT	487,138	431,077	446,169	-11.5%	3.5%	91.6%
FI	64,211	62,716	65,177	-2.3%	3.9%	101.5%
HU	42,698	38,235	40,028	-10.5%	4.7%	93.7%
IE	87,909	77,840	81,509	-11.5%	4.7%	92.7%
NL	249,940	246,643	258,804	-1.3%	4.9%	103.5%
BE	162,746	147,206	154,544	-9.5%	5.0%	95.0%
LU	18,478	18,327	19,256	-0.8%	5.1%	104.2%
ES	313,385	261,350	275,583	-16.6%	5.4%	87.9%
EE	11,301	10,848	11,446	-4.0%	5.5%	101.3%
HR	15,834	14,624	15,453	-7.6%	5.7%	97.6%
EU27	3,614,135	3,338,286	3,531,010	-7.6%	5.8%	97.7%
SK	23,076	22,655	24,037	-1.8%	6.1%	104.2%
PL	137,388	137,427	145,923	0.0%	6.2%	106.2%
FR	465,899	405,406	430,830	-13.0%	6.3%	92.5%
RO	44,610	44,397	47,215	-0.5%	6.3%	105.8%
DE	909,335	873,847	931,130	-3.9%	6.6%	102.4%
SE	121,059	119,413	127,346	-1.4%	6.6%	105.2%
MT	5,799	4,927	5,256	-15.0%	6.7%	90.6%
CY	7,656	6,927	7,397	-9.5%	6.8%	96.6%
AT	116,803	108,294	115,681	-7.3%	6.8%	99.0%
SI	16,792	15,754	16,833	-6.2%	6.8%	100.2%
DK	105,738	101,497	108,494	-4.0%	6.9%	102.6%
LV	9,683	9,300	9,980	-4.0%	7.3%	103.1%
BG	21,173	19,858	21,386	-6.2%	7.7%	101.0%
LT	14,916	14,829	15,973	-0.6%	7.7%	107.1%
PT	63,349	56,973	62,667	-10.1%	10.0%	98.9%
EL	30,590	24,551	28,016	-19.7%	14.1%	91.6%

Note: Cells shaded in light blue identify those EU Member States that are expected to surpass their 2019 SME value added level in 2021.

Source: Eurostat, National Statistical Offices and DIW Econ

SME employment growth is predicted for the majority of EU-27 Member States in 2021. As with SME value added, the picture is expected to vary across Member States (Table 10):

- As in the case of SME value added, EL is expected to experience the highest growth among EU Member States in SME employment, with an increase of 10.6%. SMEs in MT and PT are also expected to record robust employment growth in 2021, 4.7% in MT and 4.6% in PT.
- In MT, SME employment in 2021 is expected to expand slightly less rapidly than in 2020 while, in PT, the forecasted SME employment increase in 2021 follows a decline of 3.9% in 2020.
- Seven of the EU-27 Member States (BE, CZ, ES, IE, FR, IT, SK) are expected to see a decline in SME employment in 2021. Moreover, among these Member States, the projected decline in SME employment in 2021 in BE follows a marginal increase in 2020 and IE is expected to experience a greater decline in SME employment in 2021 than in 2020.

Table 10 The outlook for SME employment in the EU-27 Member States in 2021

Member State	Employment 2019	Estimated employment in 2020	Forecasted employment in 2021	Percentage change in employment from 2019 to 2020	Percentage change in employment from 2020 to 2021	Level in 2021 relative to level in 2019
IE	1,064,711	1,039,789	1,009,580	-2.3%	-2.9%	94.8%
ES	8,813,235	8,404,413	8,273,661	-4.6%	-1.6%	93.9%
BE	1,955,222	1,959,043	1,928,653	0.2%	-1.6%	98.6%
IT	11,549,773	11,252,081	11,130,343	-2.6%	-1.1%	96.4%
CZ	2,521,652	2,487,606	2,477,998	-1.4%	-0.4%	98.3%
SK	1,195,684	1,175,639	1,171,580	-1.7%	-0.3%	98.0%
FR	8,480,246	8,337,129	8,318,155	-1.7%	-0.2%	98.1%
HR	712,964	710,295	710,089	-0.4%	0.0%	99.6%
NL	3,890,813	3,888,546	3,888,616	-0.1%	0.0%	99.9%
EE	348,814	336,808	337,448	-3.4%	0.2%	96.7%
FI	981,533	970,686	973,485	-1.1%	0.3%	99.2%
SI	489,572	486,458	489,043	-0.6%	0.5%	99.9%
SE	1,915,012	1,878,915	1,889,095	-1.9%	0.5%	98.6%
HU	1,942,434	1,927,893	1,938,530	-0.7%	0.6%	99.8%
EU27	84,879,280	83,397,944	83,885,840	-1.7%	0.6%	98.8%
PL	6,621,816	6,635,864	6,684,326	0.2%	0.7%	100.9%
RO	2,661,648	2,690,245	2,718,708	1.1%	1.1%	102.1%
LU	195,158	198,256	200,855	1.6%	1.3%	102.9%
DE	18,493,920	18,250,060	18,511,532	-1.3%	1.4%	100.1%
BG	1,509,219	1,442,227	1,465,554	-4.4%	1.6%	97.1%
DK	1,173,036	1,158,893	1,180,091	-1.2%	1.8%	100.6%
AT	1,911,668	1,868,448	1,903,755	-2.3%	1.9%	99.6%
LV	514,626	501,915	512,735	-2.5%	2.2%	99.6%
LT	730,056	718,112	735,949	-1.6%	2.5%	100.8%
CY	231,039	229,522	235,334	-0.7%	2.5%	101.9%
PT	2,658,470	2,556,100	2,673,470	-3.9%	4.6%	100.6%
MT	131,886	139,127	145,671	5.5%	4.7%	110.5%
EL	2,185,073	2,153,872	2,381,580	-1.4%	10.6%	109.0%

Note: Cells shaded in light blue identify those EU Member States that are expected to surpass their 2019 SME employment level in 2021.

Source: Eurostat, National Statistical Offices and DIW Econ

Various country-specific factors explain why overall employment, and hence SME employment, is expected to be weak or decline in 2021. For example, according to the EC's Autumn 2019 Forecast, in the case of ES, corporate insolvencies, mainly concentrated in those sectors most affected by activity restrictions, which are likely to materialise as policy support measures are wound down, could lead to an increase in unemployment. In the case of IE, the UK's departure from EU on 1st January 2021 is expected to slow down the economic recovery and in the case of IT, the recovery of the tourism sector, particularly hit by the pandemic, will be lagging behind as visitors, especially from overseas, are expected to only gradually return.

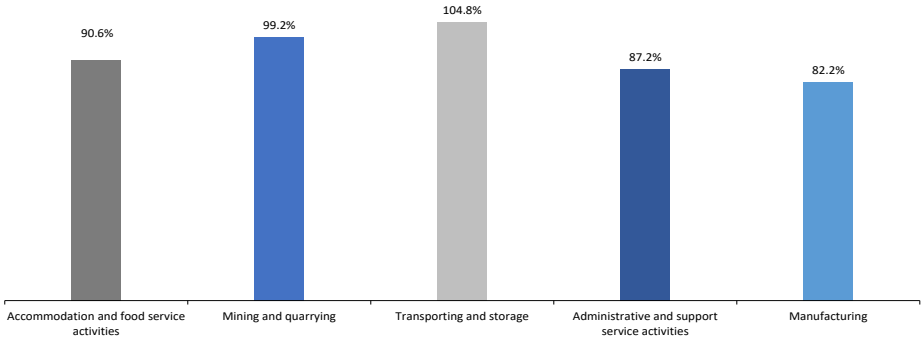
SME employment is expected to be higher in 2021 than in 2019 in only ten EU Member States (CY, DE, DK, EL, LT, LU, MT, PL, PT, RO). The remaining EU Member States are not expected to reach

their pre-pandemic SME employment levels in 2021. However, in general, they are expected to get closer to reaching their pre-pandemic SME employment levels than their pre-pandemic SME value added levels.

5.1.3 *The outlook for the level of SME Value Added by industry in 2021*

Among the worst affected industries, i.e. the industries which saw the largest declines in SME value added in 2020, only SMEs in 'transportation and storage' are expected to reach their pre-pandemic level in 2021, and indeed, to surpass it, by 4.8% (Figure 50). SMEs in 'accommodation and food service activities' which were the most severely impacted in 2020 are expected to recover to only 90.6% of their 2019 value added level by the end of 2021.

Figure 50 The outlook for EU-27 SME value added in 2021 in the worst affected industries in 2020 - level of EU-27 SME value added in 2021 relative to 2019 level



Source: Eurostat, National Statistical Offices and DIW Econ

5.1.4 *The outlook for SMEs in EU-27 Member States in the digital and non-digital sectors in 2021*

SMEs in the digital and non-digital sectors are expected to achieve different levels of recovery by the end of 2021. Overall growth in SME value added is expected to be 5.8%, with faster growth in the digital sector (6.7%) compared to the non-digital sector (5.7%) (Table 11). While SMEs in the digital sector are projected to surpass their 2019 level of value added by 6.2% in 2021, those in the non-digital sector are expected to reach only 97.2% of their pre-pandemic level (Table 11).

Table 11 The outlook for EU-27 SME value added in the digital and non-digital sectors

Sector	2019	2020	2021	Growth in Value Added 2020-21 (%)	Level in 2021 relative to 2019 level
Digital	185,270	184,320	196,674	6.7%	106.2%
Non-Digital	3,428,887	3,153,966	3,334,336	5.7%	97.2%
Total	3,614,135	3,338,286	3,531,010	5.8%	97.7%

Source: Eurostat, National Statistical Offices and DIW Econ

The picture is similar for levels of EU-27 SME employment (Table 12). Overall growth in SME employment is expected to be 0.6%, with faster growth in the digital sector (1.7%) than in the non-digital sector (0.5%). Digital SMEs are expected to surpass their 2019 level of employment by 3.2% by the end of 2021, whereas non-digital SMEs are expected to reach only 98.7% of their 2019 level (Table 12).

Table 12 The outlook for EU-27 SME employment in the digital and non-digital sectors

Sector	2019	2020	2021	Growth in Employment 2020-21 (%)	Level in 2021 relative to 2019 level
Digital	3,133,367	3,180,006	3,232,725	1.7%	103.2%
Non-Digital	81,746,423	80,218,004	80,653,150	0.5%	98.7%
Total	84,879,280	83,397,944	83,885,840	0.6%	98.8%

Source: Eurostat, National Statistical Offices and DIW Econ

Image by Gerd Altmann from Pixabay

Part 2: SMEs and digitalisation

Introduction to Part 2

In contrast to the first part of the SME Annual Report which focuses on SMEs active in the digital and non-digital sectors, this second part reviews and assesses the digitalisation activities of SMEs in all sectors. In this context, digitalisation is defined as the use of digital technologies i.e. electronic tools, processes and systems, and devices and resources that generate, store or process data. Numerous EU and national programs support the digitalisation of EU-SMEs. As noted by the EC 2020 *SME Strategy for a sustainable and digital Europe*, "*…only a thriving community of SMEs using digital technologies and data can position Europe as a world leader in shaping the digital economy. Digitalisation can provide great opportunities for SMEs to improve the efficiency of production processes and ability to innovate products and business models. Using advanced disruptive technologies, such as blockchain and Artificial Intelligence (AI), Cloud and High Performance Computing (HPC) can dramatically boost their competitiveness. But SMEs do not yet fully benefit from data, the lifeblood of the digital economy. Many are not aware of the value of the data they create, and are not sufficiently protected or prepared for the upcoming data-agile economy*."[37]

The digitalisation of SMEs is not an end in itself but it is an essential business development to ensure that SMEs can contribute to the transformation of the EU economy into a sustainable economy driven by a new industrial revolution and reap the benefits of such a transformation. This new industrial revolution is built on new-generation information technologies such as the Internet of Things (IoT), cloud computing, big data and data analytics, robotics and 3D printing.

To inform the policy debate about the digitalisation of SMEs, this second part of the SME Annual Report:

- Highlights a number of key findings from the recent literature on the digital transformation of SMEs;
- Presents information on the extent to which SMEs, including micro SMEs, have so far digitalised their activities;
- Describes how SMEs do actually digitalise, mainly through a series of concrete examples (i.e. case studies);
- Discusses how the digitalisation of SMEs can contribute to reducing their environmental footprint;
- Reviews the issues and challenges that SMEs face in digitalising their activies and presents actual and potential policies which support the digitalisation of SMEs.

The key data sources used in this second part of the SME Annual report are:

1. The Flash Eurobarometer 486

This survey, which was run from late February to late April 2020, during the initial phase of the pandemic, provides, among other, information on the state of digitalisation of SMEs in the EU-27. To be clear, this survey was not specifically undertaken to gather information of the impact of the pandemic on SMEs. Rather, it provides mostly a pre-pandemic benchmark of the state of digitalisation of EU-27 SMEs. In total, the survey response sample used in the analysis includes information on 10,402 micro, small and medium-sized EU-27 SMEs. Details of the categorisation of SMEs by their level of digitalisation are given in Annex 8.[38]

[37] European Commission (2020), op. cit. p. 7.

[38] Overall, the Eurobarometer response sample comprises 16,365 responses. For the purpose of the analysis in this chapter, the following survey responses were excluded: a) responses from survey participants located in countries outside of the EU-27; b) survey responses from survey respondents with 250 or more employees and from survey participants who did

2. A special SME survey

A survey of 100 micro, small and medium sized-SMEs in 9 EU-27 Member States (namely, BG, EE, FI, FR, DE, EL, IT, NL, SI) was run in late October/November 2020, during the second phase of the pandemic. The survey focused on the impact of Covid-19 on SMEs and on their digitalisation activities.

3. A survey of SME associations and SME digitalisation support organisations

This survey was run in November/December 2020 and focused on the views and opinions of the associations and organisations on the impact of the pandemic and the digitalisation activities of SMEs.

4. The Eurostat and OECD databases – "ICT in enterprise"

These databases provide only information on the digitalisation of small and medium-sized SMEs. 2019 is the latest year for which information is available in the two databases.

not provide information on the number of their employees; c) survey respondents who had closed their business; and d) survey respondents who did not report the age of their business. See Annex 8 for details.

6 Key findings of the recent literature on Digital Transformation of SMEs[39]

Before setting up the policy and regulatory framework to unlock the full potential of digital transformation (DX), it is crucial to ensure that all stakeholders fully understand what DX means, including the potential benefits, and negative and positive impacts which it brings. Even though the terms 'digitisation', 'digitalisation' and 'DX' tend to be used interchangeably, it is important that stakeholders understand the different meanings. The journey starts with digitisation (the conversion of analog to digital), which enables digitalisation, which then leads to digital transformation (DX) over time.

DX is defined by the EC as a fusion of advanced technologies that integrate physical and digital systems, and when combined with innovative business models and processes, leads to the creation of smart products, services and significant improvement of productivity. DX is not just about technology but about transformative changes that affect the way value is created and captured inside a given company, such as transforming the customer experience by building on data analytics, in addition to transforming internal processes and the business model. Customer-centricity, innovation capability, operational excellence through use of data capabilities and a competitive mindset are all indicated as key success factors in transforming a firm digitally to ensure future competitiveness.

The current DX era is characterised as the Fourth Industrial Revolution (4IR) in which multi-modal adoption of different advanced digital technologies and Key Enabling Technologies (KETs) are constantly evolving and merging with other new technologies, such as bioengineering, geoengineering, the Internet of Everything (IoE), neurotechnology, and new computing technologies, to connect the digital, physical and biological domains. Even though the term Industry 4.0 evolved simultaneously and is used interchangeably with the term 4IR, it can be defined as the automation and data exchange of manufacturing technologies created by bridging the physical and digital world through cyber-physical systems enabled by cloud computing, cognitive computing and the Industrial Internet of Things (IIoT), to allow personalisation/customisation of smart products. In recent years, combining 4IR and Industry 4.0 technologies with the concept of Circular Economy (CE), has proved crucial for transitioning from a linear to a more circular model, with demonstrably positive impacts on both the environment and the economy.

Key internal challenges for SMEs during DX can be grouped into three main categories: lack of awareness and availability of the digital technology and tools required for DX due to lack of good connectivity, digital tools and services; lack of capacity to engage in DX in terms of time and funding; lack of capability to combine digital strategy with a concrete business model (including inability to integrate with existing technology and business processes or to migrate from previous systems/decommission old technologies).

As a result, SMEs are in need of technical support for: defining their requirements; selecting the most appropriate products, technologies or suppliers; planning and initiating their DX; understanding the regulations; finding financial support for implementation; and training to fill their digital skills gap.

Key external challenges for SMEs include: a lack of clearly defined and agreed international standards; regulatory barriers; lack of affordable and accessible digital infrastructure; lack of interoperability; cyber-attacks; lack of availability and access to public data and digital platforms.

Major benefits of DX for SMEs include: improved financial performance through optimising revenue channels and reducing costs; productivity gains leading to greater efficiency through increased use of digital technologies; access to new customers through expanded geographical reach; and better access to information and to more productive processes which foster innovation.

[39] An extensive review of the literature on the digitalisation of SMEs is provided in Background Document accompanying the SME Annual Report.

Among the most important reasons for SMEs adopting digital technologies are: connectivity; online presence; digitalisation and automation of business processes; and use of cloud-based services, collaborations and communication. In terms of connectivity and online presence, when fixed and/or mobile broadband is used as the key enabler, the most common use cases are: online communication and collaboration; e-commerce; internet-based solutions for reducing customer interactions; contactless payments; and adoption of QR codes for direct ordering.

Automation and digitalisation of business processes have a wide spectrum of applications. These range from e-signatures, to the use of more sophisticated connected sensors and hardware ecosystems which reduce contact processes, to automation using connected devices with Industry 4.0 machine-to-machine communication. Cloud-based services make it possible to gain remote access to data and services (e.g. CRM, ERM, ERP, collaborative apps, workflow and management apps) from any place, at any time, through any internet-enabled device. From the perspective of impact function, digital technologies are mainly adopted for the following purposes: to analyse, optimise and predict; augment and automate, connect and communicate; and monitor and track.

The global Covid-19 pandemic has created both challenges and opportunities for SMEs. In general, the majority of SMEs have struggled for survival due to the ensuing fall in customer demand and revenues, supply chain disruptions and challenges in balancing employee capacity and welfare, among other issues.

Priorities have shifted from growing and resourcing businesses to finding new customers, managing business costs, streamlining businesses and staff, and finding new revenue streams. Additionally, Covid-19 is expected to have profound implications for progress towards the United Nations Sustainability Development Goals (SDGs). Most of these goals are likely to be impacted negatively, although the extent of the impact on ‘life on land’, ‘life below water’, ‘climate action’, and ‘responsible production and consumption’ is unclear at the moment.

With regard to the impact of DX on SDG performance, when 4IR technologies are used responsibly, in combination with the concept of Circular Economy, it is likely that sustainable solutions will be found to tackle challenges linked to the SDGs, such as clean power, sustainable production and consumption, smart cities and homes, smart transport systems, and sustainable land use, as well as offering game-changing climate solutions related to energy, thereby underpinning a net zero emissions economy.

However, particular attention should also be paid to the potentially negative impacts of DX. These vary from automation-related job losses, to data privacy infringements, and cyber and biological attacks. In terms of the effect of DX at firm level of sustainability, adopting a customer-centric approach and building a culture that embraces the use of big data and innovation seems to exert a positive influence on the quest of companies to achieve sustainability. Research also indicates a positive relationship between digitalisation and the social responsibility strategies and ICT used by SMEs.

The negative side effects of the ICT sector itself also require consideration. Data centres, digital devices, digital infrastructures, IoT and supercomputing are all responsible for high levels of energy and resource consumption. In addition, a lot of e-waste is created by the sector (e.g. discarded digital devices and hazardous earth materials, among others). Further concerns relate to privacy; security; personal health; job prospects and growing inequalities; all of which hamper the sustainability of DX.

However, if circularity measures are put in place, the negative externalities of the sector can be turned into opportunities for DX to contribute to sustainability when combined with government interventions and policies in the form of cross-departmental collaborations; business incentives; impact assessments of the economic, social, and environmental impacts on local communities; education; data monitoring and reporting; and recruitment of talent to improve existing technologies. The evolving field of non-financial and ESG reporting, which is voluntary for SMEs, poses additional challenges for firms in terms of gathering the right data for reporting. Other specific challenges for SMEs aiming to implement sustainable solutions by leveraging digital technologies include: lack of access to finance for implementing sustainable solutions; lack of

knowledge, skills and capacity, particularly with regard to business development; insufficient marketing and strategic management skills; and lack of time.

The main drivers for SMEs to optimise sustainability solutions include the following: to become a valuable investment target of investors and/or large firms; the ability to create a network of sustainable SMEs across the value chain to gain a competitive advantage; and the opportunity to become a highly efficient supplier to global supply chains by implementing sustainable practices.

The reported benefits to SMEs of taking sustainability actions include: an increase in stakeholder loyalty and brand strength; improvements in staff motivation; and enhancement of financial indicators and sales. Innovative SMEs view the integration of Environmental, Social and Governance (ESG) objectives into their business model in order to conduct business sustainably as an opportunity for brand enhancement, attracting both business talent and customers.

7 The state of digitalisation of EU-27 SMEs

Key points

- The Flash Eurobarometer 486 shows that, in the EU-27 in 2020, a much larger proportion of micro SMEs than of small and medium-sized SMEs were focusing only on basic digital technologies and not on advanced digital technologies (36.5% of micro SMEs versus 29.2% of small SMEs and 26.9% of medium-sized SMEs).
- Moreover, 20.3% of micro SMEs were of the opinion that there was no need to introduce any digital technologies at all. In contrast, only 15.8% of small SMEs and 9.8% of medium-sized SMEs shared this opinion.
- A much smaller proportion of micro SMEs than of small and medium-sized SMEs were of the opinion that advanced digital technologies should be introduced or stated that they had already introduced them (19.9% of micro SMEs versus 29.9% of small SMEs and 37.5% of medium-sized SMEs).
- Similar differences between SME size classes were observed with regard to participation in e-commerce. In an SME survey undertaken specifically for this report, 41% of medium-sized SMEs reported that they had sold online in 2020, compared to only 30% of small SMEs and 22% of micro SMEs.
- The Eurostat data show that, in 2019, the use of digital tools by EU-27 enterprises increased in line with enterprise size class. The proportion of small EU-27 SMEs using digital tools was lower than that of EU-27 medium-sized SMEs, and in turn, the proportion of medium-sized SMEs using digital tools was lower than that of large EU-27 enterprises.
- In comparison to other countries, such as NO and the UK, EU-27 small and medium-sized SMEs performed less well in 2019 in terms of the digitalisation of their activities. In particular, a smaller proportion of EU-27 SMEs, especially small SMEs:
  - had staff using computers with access to the World Wide Web;
  - had a website;
  - provided online ordering or reservation or booking when they had a website;
  - used social media;
  - sold online;
  - used cloud computing.
- However, over the period 2010 to 2019, the usage of various digital tools by small and medium-sized EU-27 SMEs increased, sometimes markedly so.
- The extent of enterprise digitalisation in 2019 varied not only with the size of the enterprise but also across Member States. A cluster analysis of the state of digitalisation of small and medium-sized SMEs reveals three distinct groups of Member States:
  - A first cluster of Member States (BG, EL, HU, IT, LV, PL, RO, SK) in which small and medium-sized SMEs clearly lagged behind their peers in other EU-27 Member States.
  - A second cluster of Member States (AT, CY, CZ, DE, EE, ES, FR, HR, LT, LU, PT, SI) in which the digitalisation of small and medium-sized SMEs was broadly similar to the EU-27 average.
  - A third group of Member States (BE, DK, FI, IE, MT, NL, SE) in which small and medium-sized SMEs markedly outperformed their peers in the other two groups.

The information discussed in this chapter draws on the results of two 2020 surveys of SMEs (namely, the Flash Eurobarometer 486 was run from late February to late April 2020, during the first phase of the pandemic and a survey run specifically for this report in the last quarter of 2020),

as well as a 2020 survey of SME associations and SME digitalisation support organisations, and the Eurostat data on "ICT usage in enterprises". To be clear, the Eurobarometer survey was not specifically undertaken to gather information of the impact of Covid-19 on SMEs and its results provide mainly a pre-pandemic benchmark for the state of digitalisation of EU-27 SMEs.

The two SME surveys provide information on the state of digitalisation in 2020 of EU SMEs of all sizes, i.e. micro, small and medium-sized SMEs. The pan-European and international data available from Eurostat provide similar information for the period 2010-2019, but do not include data for micro SMEs.

Although the survey results may not be fully representative of the actual state of digitalisation of all SMEs, due to the relatively small sample sizes, they provide useful indications of the extent to which SMEs are engaged in the digital world and the challenges and issues which they face.

The first section of this chapter focuses on the use of basic digital tools by SMEs. The second section discusses SME usage of more advanced tools (excluding e-commerce). The final section presents information specifically on SME participation in e-commerce.

Before proceeding with a detailed review of the differences in digitalisation across size classes of EU-27 SMEs, it is important to note that marked digitalisation differences can also be seen across EU Member States in the SME population as a whole. For example, a cluster analysis of the use of digital tools by SMEs in each Member State[40] identified three distinct groups of Member States. The first cluster of Member States (BG, EL, HU, IT, LV, PL, RO, SK) showed low levels of SME digitalisation. SMEs in the second cluster (AT, CY, CZ, DE, EE, ES, FR, HR, LT, LU, PT, SI) showed roughly average levels of digitalisation, whereas SMEs in the third cluster (BE, DK, FI, IE, MT, NL, SE) showed the highest digitalisation levels of all Member States.

[40] The detailed cluster analysis is provided in Annex 10.

Box 1

The digitalisation of SMEs and their enviromental footprint

As already noted in the introduction to the second part of the SME Annual Report, the "SME Strategy for a sustainable and digital Europe" put forward by the EC in March 2020 aims to *"….to unleash the power of Europe's SMEs of all kinds to lead the twin transitions. It aims to considerably increase the number of SMEs engaging in sustainable business practices as well as the number of SMEs employing digital technologies. Ultimately, the goal is that Europe becomes the most attractive place to start a small business, make it grow and scale up in the single market*."[1]

Technological upgrading can be an important driver of the adoption of sustainable practices within SMEs and can simultaneously lead to improvements in productivity and product quality, as well as contributing towards innovation and cost reduction (Hofmann et al., 2012). However, Hofman et al. (2012) also point out that it is possible that some form of digitalisation, say one which is very energy intensive, could have a negative environmental impact. The adoption of advanced technologies and environmental sustainability are interlinked. The use of technology usually leads to cleaner production processes. At the same time, improving an SME's environmental performance often requires the adoption of new technologies (Hofmann et al., 2012). Longer-term investments in digitalisation can enhance sustainability more widely, improving the type and quality of economic growth (Business at OECD, 2017). Within manufacturing SMEs in particular, technology upgrading is seen by many as one of the most important drivers of the implementation of green manufacturing (Mittal and Sangwan, 2014; Gandhi et al., 2018).

SMEs can reduce their environmental impact through digitalisation by taking several actions, from gathering available data and defining key performance indicators (KPIs) and KPI calculations, to analysing data and driving actions such as building reporting mechanisms or calculating their carbon footprint (Defra, 2019).

SMEs which are leaders in advanced technology practices and collaboration methods have been found to be the leaders in the adoption of environmental practices (Hofmann et al, 2012). One study of US manufacturers found a positive link between the adoption of environmental practices by SMEs in the manufacturing sector and the degree to which such SMEs adopt advanced technologies. The most widely adopted advanced technologies in this study were computer aided design (CAD) and computer aided engineering (CAE) (Hofmann et al., 2012).

The adoption of advanced technologies requires dynamic capabilities within an SME, but such adoption also expands the capabilities needed by an organisation to handle new challenges (Hofmann et al., 2012). The capabilities developed in the course of working with these advanced technologies help firms to become leaders in the adoption of environmental practices. In manufacturing companies, new technologies often improve both operational effectiveness and environmental practices because the implementation of advanced manufacturing acts as a basis for superior environmental performance (Hofmann et al., 2012).

Similarly, life-cycle analysis is an efficient tool for improving product design and enhancing sustainable practices, but such analysis is resource-intensive in the collection of the necessary data, and requires investments in training to build up the competencies required within the SME to use the tool effectively (Klewitz and Hansen, 2014). Relations with supply chain partners can also aid the adoption of innovative environmental technologies through digitalisation and the re-design of products. The decision to participate in sustainable product innovation can be driven by the relationships between business partners (Hofmann et al., 2012; Lee and Kim, 2011).

Box 1 (Continued)

The digitalisation of SMEs and their enviromental footprint

To drill down into the set of digital tools that SMEs could use to reduce their environmental footprint, national SME associations and SME digitalisation support organisations were asked to select among the set of potential actions listed in Table 15 those which would be helpful to SMEs in achieving their environmental objective(s).

While all the potential actions were viewed as useful, albeit to a different degree, simple actions such as the use of ICT tools (such as videoconferencing) as alternatives to travel and the use of smart appliances to control/reduce energy consumption were identified most often as useful measures.

Table 13 Potential digital activities to reduce the SMEs' environmental footprint – selection rate by national SME associations and SME digitalisation support organisations

Digital tool	Selection rate
Use of ICT tools (such as videoconferencing) as alternatives to travel	71%
Use of smart appliances to control/reduce energy consumption	63%
Use of ICT solutions (e.g. e-invoicing, e-signatures, and note-taking applications such as Microsoft OneNote, etc.) to reduce paper consumption	58%
Adoption of self-generated renewable energy (e.g. solar panels, heat pumps, wind turbines, etc) and/or renewable energy storage solutions (e.g. advanced chemistry batteries, flow batteries, thermal energy, mechanical and pumped hydro-power storage)	54%
Use of cloud computing solutions	42%
Other	4%

Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

7.1 Use of basic digital technologies by SMEs

The responses of the EU-27 SMEs which participated in the Flash Eurobarometer 486 show that in 2020 (Table 14):

- One third of EU-27 SMEs had adopted or were planning to adopt basic digital technologies but not advanced digital technologies, and a quarter of EU-27 SMEs had already introduced advanced digital technologies or were planning to do so.
- However, the figures for the SME population as a whole mask large differences within the different size classes of the SME population.
  - A much larger proportion of micro SMEs than of small and medium-sized SMEs focused only on basic digital technologies and not on advanced digital technologies (36.5% of micro SMEs versus 29.2% of small SMEs and 26.9% of medium-sized SMEs).
  - In contrast, a much smaller proportion of micro SMEs than of small and medium-sized SMEs were of the opinion that advanced digital technologies should be introduced or they had already been introduced (19.9% of micro SMEs versus 29.9% of small SMEs and 37.5% of medium-sized SMEs).
- Moreover, 20.3% of micro SMEs were of the opinion that there was no need to introduce any kind of digital technologies. In contrast, only 15.8% of small SMEs and 9.8% of medium-sized SMEs shared this opinion.

In short, the responses of EU-27 SMEs to the Flash Eurobarometer 486 survey in 2020 clearly show that the need to digitalise and to use advanced digital tools increased markedly with the size class of SMEs.

Table 14 : EU-27 SME responses to the question in the Flash Eurobarometer 486 survey about the state of digitalisation of their SME in February – April 2020

Digital tool	All SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs
The SME has adopted or is planning to adopt basic digital technologies such as email or a website but not advanced digital technologies	34.5%	36.5%	29.2%	26.9%
There is a need to introduce advanced digital technologies but the SME does not have the knowledge or skills or financing to adopt them	8.0%	8.1%	7.9%	7.3%
There is a need to introduce advanced digital technologies and the SME is currently considering which of them to adopt	9.4%	8.5%	11.7%	13.7%
There is a need to introduce advanced digital technologies and the SME has already started to adopt them	22.9%	19.9%	29.9%	37.5%
The SME does not need to adopt any digital technologies	18.9%	20.3%	15.8%	9.8%
Other, none of the above, don't know, no answer	6.3%	6.7%	5.5%	4.8%
Total	100%	100%	100%	100%

Note: Responses to Q22 in the survey. Respondents could select only one of the possible responses. Overall, the Eurobarometer response sample comprised 16,365 responses. For the purpose of the analysis in this report, the following survey responses were excluded: a) 3,750 responses from survey participants located in countries outside of the EU-27; b) 633 responses from survey respondents locacted in the EU-27 with 250 or more employees; c) 116 responses from survey participants located in the EU-27 who did not provide information on the number of their employees; d) 1,225 responses from survey respondents who indicated that they had closed their business; and, e) 239 responses from survey respondents who did not report the age of their business. As result, the response sample used in the analysis of the digitalisation of SMEs comprised 10,402 responses.
Source: Flash Eurobarometer 486 survey

Analysis of the Eurostat "ICT usage in enterprises" data for 2019 (which excludes micro SMEs) allows a comparison between the digitalisation activities of EU-27 SMEs and their peers in NO and the UK. The data show that in 2019 there was little difference in the types of basic technologies they all used (Table 15). However, the percentage of EU-27 enterprises whose workforce used computers to access the World Wide Web was significantly lower than that of NO and the UK. This was particularly the case for small and medium-sized EU-27 SMEs, whose World Wide Web usage was about 10 to 20 percentage points lower than in NO and the UK. This was despite EU-27 SME performance in this metric increasing by almost one quarter from 2010 to 2019,[41] resulting in roughly half of the EU-27 SME workforce being able to access the World Wide Web (Figure 51).

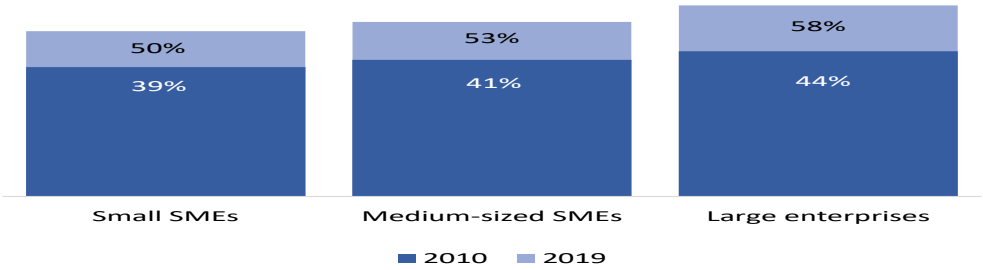
41 A few additional key developments in the use of various digital tools by small and medium-sized EU-27 SMEs are presented later in this chapter, and additional details are provided in Annex 9.

Table 15 Proportion of SMEs and large enterprises using selected basic ICT tools in the EU-27, UK and NO in 2019, by enterprise size class

	Small SMEs			Medium-sized SMEs			Large enterprises		
	EU-27	UK	NO	EU-27	UK	NO	EU-27	UK	NO
Basic technologies									
Enterprises using computers	97.7%	95.1%	98.4%	99.3%	99.0%	99.9%	99.9%	99.1%	100.0%
Enterprises with internet access	97.1%	94.9%	97.8%	99.0%	99.0%	99.9%	99.8%	99.0%	100.0%
Persons employed using computers with access to the World Wide Web	49.8%	57.9%	66.4%	52.6%	63.7%	72.5%	57.6%	61.1%	76.0%

Note: No data on micro SMEs are available. The data exclude the financial sector. All data refer to the year 2019.
Source: Eurostat ICT usage in enterprises

Figure 51 Percentage of enterprises with employees using computers with access to the World Wide Web in the EU-27 in 2010 and 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

7.2 Use of advanced digital tools other than e-commerce

The most common advanced digital tools used by SMEs in late February to mid-April 2020 were 'Cloud computing, i.e. storing and processing files or data on remote servers hosted on the internet' and 'High speed internet infrastructure' (Table 16).

While usage of these two digital tools was lower among micro SMEs than among small and medium-sized SMEs, it is noteworthy that a large proportion of micro SMEs (49.9%) used cloud computing. This largely reflects the fact that many digital services often involve cloud computing for at least some, if not all, applications used by micro SMEs.

The third most frequently used digital technology selected by SMEs participating in the Flash Eurobarometer 486 survey was 'Smart devices, e.g. smart sensors, smart thermostats, etc.' In particular, a very high proportion of medium-sized SMEs (51.6%) reported using this tool.

The reported usage of other more advanced digital tools by SMEs was much lower, ranging from 14.0% of SMEs for 'Big data analytics, e.g. data mining and predictive analysis' to 3.4% for 'Blockchain'. Moreover, the likelihood of using these other more advanced digital tools increased markedly with the size class of SMEs. For example, the difference in usage between medium-sized SMEs and micro SMEs ranged from 60% in the case of 'Artificial intelligence' to 16.7% in the case of 'Robotics'.

It is important to note that these survey results reflect the usage by SMEs of various digital tools in late February – mid April 2020, in other words, at the onset of the pandemic. However, in response

to the challenges and issues faced by SMEs during the pandemic, many SMEs increased their use of digital tools in the months which followed (see section 4.2.6). Therefore, the survey results may actually underestimate the current state of SME digitalisation. For example, the special survey of SMEs run in November 2020 suggests that the use of ICT by SMEs was much higher in late 2020. However, the sample size of this second survey is much smaller than the sample of the Flash Eurobarometer 486 survey and, more importantly, the questions to which SMEs responded are phrased differently. Consequently, the two surveys are not strictly comparable and the results of the second survey should therefore be viewed as suggesting that the digitalisation of the SMEs has increased, rather than considered as conclusive evidence.

Table 16: Use of advanced digital tools by EU-27 SMEs in February – April 2020

Digital tool	All SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs
Cloud computing, i.e. storing and processing files or data on remote servers hosted on the internet	52.8%	49.9%	60.3%	64.6%
High speed internet infrastructure	36.2%	32.9%	44.4%	50.7%
Smart devices, e.g. smart sensors, smart thermostats, etc.	28.9%	25.7%	35.2%	51.6%
Big data analytics, e.g. data mining and predictive analysis	14.0%	11.5%	19.6%	29.2%
Robotics, i.e. robots used to automate processes for example in construction or design, etc.	8.7%	6.4%	13.4%	23.2%
Artificial intelligence, e.g. machine learning or technologies identifying objects or persons, etc.	7.3%	6.1%	10.4%	11.7%
Blockchain	3.4%	2.5%	5.3%	7.6%
None of these	38.2%	42.1%	29.5%	16.6%
DK/NA	1.6%	1.8%	1.2%	1.5%

Note: Responses to Q23 in the survey. Respondents could select several possible responses. Overall, the Eurobarometer response sample comprises 12,343 responses. For the purpose of the analysis in this report, the following survey responses were excluded: a) responses from survey participants located in countries outside of the EU-27; b) survey responses from survey respondents with 250 or more employees and from survey participants who did not provide information on the number of their employees; c) survey respondents who had closed their business; and d) survey respondents who did not report the age of their business.
Source: Flash Eurobarometer 486 survey

Looking at the pre-pandemic data of 2019 from Eurostat, it is clear that, although the use of cloud computing services had become widespread, small SMEs, medium-sized SMEs and large enterprises in the EU-27 were using these services far less than their peers in NO and the UK (Table 17). Moreover, although the use of social media[42] by small and medium-sized EU-27 SMEs

[42] Social media usage includes the use of social networks (e.g. Facebook, LinkedIn, Xing, Viadeo, Yammer, etc.), enterprises' blog or microblogs (e.g. Twitter, Present.ly, etc.), multimedia content sharing websites (e.g. YouTube, Flickr, Picasa, SlideShare, etc.) and wiki based knowledge sharing tools.

increased from 2013 to 2019, their usage still remained lower than that of SMEs in NO and the UK, and was influenced by enterprise size class. For example, small EU-27 SMEs were much less likely than medium-sized EU-27 SMEs to use social media for different purposes, and in turn, medium-sized EU-27 SMEs were less likely than large EU-27 enterprises to do so. Of the EU-27 enterprises which did use social media in 2019, the number who did so in order to develop the enterprise's image or to market products, was significantly lower than in NO or the UK (Table 17).

In terms of employing IT specialists, a comparison of EU-27 SMEs with SMEs in NO and the UK reveals similar trends across enterprise size classes. In 2019, many fewer small SMEs in the EU-27, the NO and the UK employed IT specialists compared to medium-sized SMEs and large enterprises. Small SMEs in the EU-27, NO and the UK were also less frequent users of digital solutions such as 'Customer relationship management' (CRM) software compared to medium-sized SMEs and large enterprises (Table 18).

Table 17 Proportion of SMEs and large enterprises reporting various website and social media usages in the EU-27, UK and NO in 2019, by enterprise size class

	Small SMEs			Medium-sized SMEs			Large enterprises		
	EU-27	UK	NO	EU-27	UK	NO	EU-27	UK	NO
Website usage									
Enterprises with a website	74.2%	81.8%	75.7%	87.9%	94.0%	92.5%	94.0%	94.8%	95.6%
Enterprises with websites with:									
Description of goods or services, price lists	49.7%	66.8%	67.8%	62.9%	76.7%	84.7%	69.1%	70.2%	85.2%
Possibility for visitors to customise/ design online goods or services	7.3%	3.8%	8.9%	10.9%	5.1%	13.1%	16.0%	12.1%	14.9%
Order tracking available online	8.0%	4.8%	8.9%	12.7%	9.8%	14.8%	20.8%	19.4%	24.1%
Personalised content on the website for regular/ recurrent users	7.6%	6.7%	10.0%	11.8%	10.6%	19.1%	20.2%	20.8%	29.6%
Online ordering or reservation or booking e.g. shopping cart	17.7%	22.4%	28.5%	23.4%	29.0%	35.2%	30.0%	35.5%	45.7%
Information about visitors' behaviour on their websites, e.g. for advertising or improving customer satisfaction	16.2%	.	16.3%	26.3%	.	28.2%	38.6%	.	37.6%

Table 17 (continued)

	Small SMEs			Medium-sized SMEs			Large enterprises		
	EU-27	UK	NO	EU-27	UK	NO	EU-27	UK	NO
Social media									
Use any social media	47.6%	69.6%	74.9%	61.2%	81.7%	82.7%	76.9%	84.0%	87.9%
Use 1 type of social media	26.9%	34.8%	57.8%	27.3%	28.1%	49.3%	23.2%	22.5%	31.8%
Use at least 2 types of social media	20.4%	34.9%	17.1%	33.9%	53.7%	33.3%	53.7%	61.6%	56.1%
Type of social media usage:									
Develop the enterprise's image or market products	40.2%	63.0%	52.6%	52.2%	74.6%	61.5%	66.5%	75.7%	69.2%
Obtain or respond to customer opinions, reviews and/or questions	26.0%	38.9%	31.4%	33.8%	43.0%	36.9%	46.3%	50.9%	47.3%
Involve customers in development or innovation of goods or services	12.3%	18.9%	16.4%	18.1%	24.6%	18.5%	26.1%	28.9%	24.2%
Collaborate with business partners or other organisations	12.0%	14.6%	18.5%	17.6%	23.7%	19.7%	26.3%	30.9%	26.9%
Recruit employees	23.9%	32.9%	46.0%	41.1%	48.7%	66.2%	60.8%	61.9%	73.7%
Exchange views, opinions or knowledge within the enterprise	12.0%	18.3%	27.2%	19.4%	25.7%	39.4%	32.6%	39.3%	53.0%
Develop the enterprise's image or market products	40.2%	63.0%	52.6%	52.2%	74.6%	61.5%	66.5%	75.7%	69.2%

Note: No data on micro SMEs are available. The data exclude the financial sector. All data refer to the year 2019.
Source: Eurostat ICT usage in enterprises

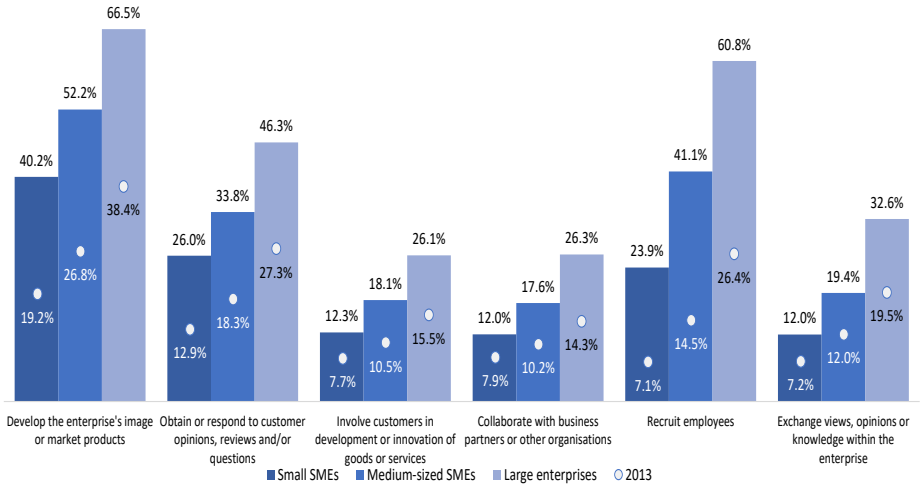
Table 18 Proportion of SMEs and large enterprises with ICT knowledge and/or using selected ICT solutions in the EU-27, UK and NO in 2019 (unless otherwise stated), by enterprise size class

	Small SMEs			Medium-sized SMEs			Large enterprises		
	EU-27	UK	NO	EU-27	UK	NO	EU-27	UK	NO
Supply chains									
Enterprises whose business processes were automatically linked to those of their suppliers and/or customers (2017)	15.7%	9.2%	14.5%	29.2%	23.5%	24.3%	47.9%	39.3%	37.5%
Enterprises using software solutions like CRM	29.7%	26.2%	29.9%	48.3%	49.4%	53.2%	62.4%	62.7%	65.0%
ICT knowledge in enterprises									
Enterprise recruited/tried to recruit personnel for jobs requiring ICT specialist skills	6.2%	6.8%	5.5%	17.7%	20.5%	14.0%	45.8%	52.3%	34.5%
Enterprise had hard-to-fill vacancies for jobs requiring ICT specialist skills	3.5%	3.4%	2.7%	10.1%	9.8%	5.1%	30.4%	26.8%	13.9%
Enterprise provided training to their personnel to develop their ICT skills	18.6%	24.0%	41.1%	40.6%	51.7%	60.5%	69.8%	73.3%	80.2%
Advanced technologies									
Bought cloud computing services used over the internet (2018)	21.2%	38.6%	47.8%	33.7%	55.2%	65.6%	53.1%	71.9%	80.0%
Used 3D printing (2018)	3.1%	4.8%	3.3%	6.9%	10.0%	5.3%	13.6%	12.1%	9.5%
Used industrial or service robots (2018)	5.2%	.	2.7%	12.1%	.	8.9%	24.8%	.	22.8%
Used industrial robots (2018)	3.7%	.	2.2%	10.0%	.	7.1%	20.5%	.	16.2%
Used service robots (2018)	2.0%	.	0.7%	3.6%	.	2.9%	9.3%	.	10.4%
Enterprise analysed big data from any data source (2018)	10.4%	.	13.5%	19.4%	.	24.0%	32.7%	.	39.3%

Note: No data on micro SMEs are available. The data exclude the financial sector. All data refer to the year 2019, unless otherwise stated in brackets.

Source: Eurostat ICT usage in enterprises.

Figure 52 Percentage of enterprises with different uses of social media in the EU-27 in 2013 and 2019, by enterprise size class



Note: Bars denote 2019 values and dots denote 2013 values. No data on micro SMEs are available. The data excludes the financial sector.

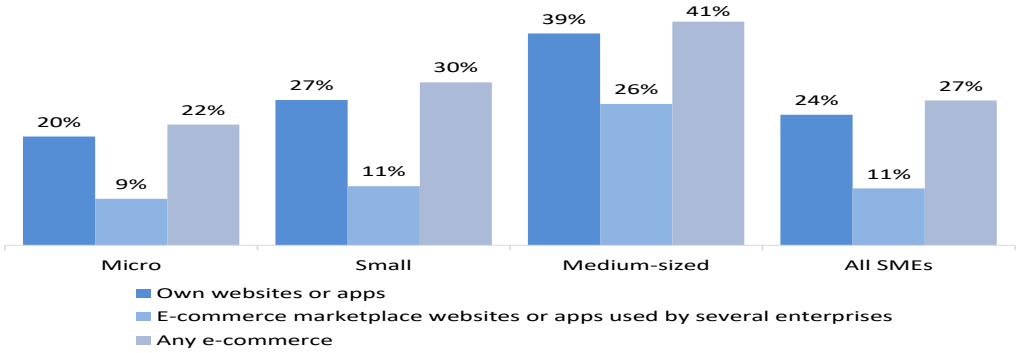
Source: Eurostat ICT usage in enterprises

7.3 Extent to which SMEs of different sizes engage in e-commerce

In the SME survey which was run in 2020, only 27% of SMEs which indicated that they used ICT also reported selling online either via their own websites or apps and/or via e-commerce marketplace websites or apps (Figure 53). Selling online via the SME's own website and apps was more common than selling via e-commerce marketplaces, with 24% of the surveyed SMEs reporting online sales via their own websites or apps, compared to only 11% selling on e-commerce marketplace websites or apps (Figure 53).

However, a much larger proportion of medium-sized SMEs than of smaller or micro SMEs reported that they engaged in e-commerce, with 41% of medium-sized SMEs (of those which reported that they used ICT in 2020) reporting e-commerce activities, while only 30% of small SMEs and 22% of micro SMEs sold over the web. Similar SME size class differences were also observed in terms of sales via the SMEs' own websites or apps or via e-commerce marketplace websites or apps. The percentage of SMEs selling online in 2020 also varied to a considerable extent across Member States, from 18% in IT to 35% in EE (Figure 54).

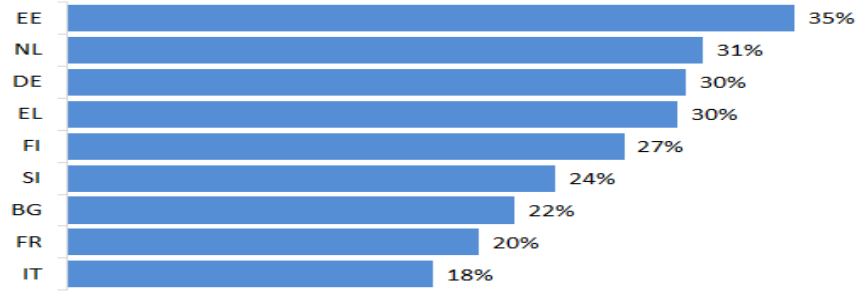
Figure 53 Percentage of SMEs reporting sales of goods or services online in 2020 either via their own website or apps, or via e-commerce marketplace websites or apps, or via a combination of both in 9 EU-27 Member States by SME size class



Note: For 'All SMEs', the sample size is 800, as it excludes those respondents which reported that they did not use ICT in 2020. The sample size is 793 for the SME size classes, as it also excludes the 7 respondents which did not provide their number of employees.

Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

Figure 54 Percentage of SMEs reporting sales of goods or services online via their own website or apps and/or via e-commerce marketplace websites or apps in 2020



Note: The sample size is 800, as it excludes those respondents which reported that they did not use ICT in 2020.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

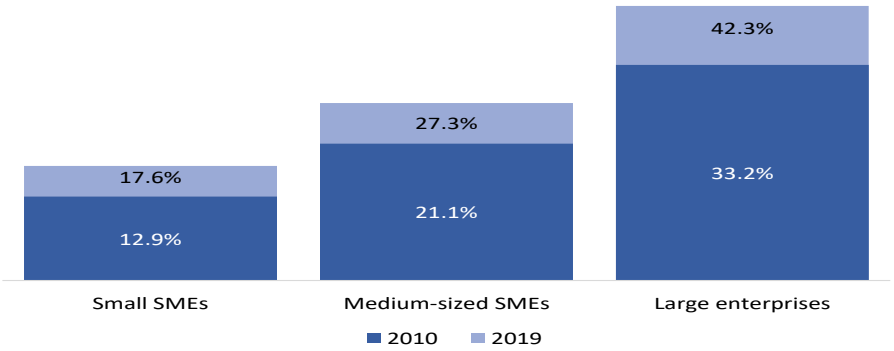
Comparing the e-commerce performance of EU-27 SMEs in 2019 with those in NO and the UK, the data show that small and medium-sized EU-27 SMEs were less engaged in e-commerce than their equivalents in NO and the UK (Table 19). Small EU-27 SMEs were much less likely than medium-sized EU-27 SMEs to sell online, although the proportion of small EU-27 SMEs doing so increased by about 4.7 percentage points from 2010 to 2019. The proportion of medium-sized EU-27 SMEs selling online grew even faster, by 6.2 percentage points over the same period. However, both small and medium-sized EU-27 SMEs continued to lag well behind the e-commerce performance of large EU-27 enterprises (Figure 55).

Table 19 Proportion of SMEs and large enterprises engaging in e-commerce in the EU-27, UK and NO in 2019 (unless otherwise stated), by enterprise size class

	Small SMEs			Medium-sized SMEs			Large enterprises		
	EU-27	UK	NO	EU-27	UK	NO	EU-27	UK	NO
e-commerce									
Enterprises with e-commerce sales	17.6%	23.5%	25.7%	27.3%	35.9%	36.4%	42.3%	48.2%	47.7%
Enterprises with e-commerce sales to other EU countries	7.6%	6.9%	5.6%	13.5%	14.5%	9.2%	24.0%	19.9%	12.5%
Enterprises with e-commerce sales to own country	17.0%	23.1%	24.6%	26.3%	35.4%	34.9%	40.3%	47.7%	47.0%
Enterprises with e-commerce sales to rest of the world	4.2%	5.2%	3.6%	6.9%	10.1%	6.1%	12.1%	14.6%	7.8%
Enterprises' total turnover from e-commerce sales (as % of overall sales)	7.4%	9.8%	11.8%	14.1%	15.0%	32.4%	24.9%	26.1%	32.9%
Enterprises purchasing online (2017)	41.8%	49.5%	57.5%	50.9%	54.7%	62.3%	62.2%	67.8%	76.3%
Enterprises purchasing at least 1% of total purchases online (2017)	25.2%	.	38.2%	29.9%	.	39.0%	40.9%	.	55.8%

Note: No data on micro SMEs are available. The data exclude the financial sector. All data refer to the year 2019, unless otherwise stated in brackets.
Source: Eurostat ICT usage in enterprises.

Figure 55 Percentage of enterprises in the EU-27 with e-commerce sales in 2010 and 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

8 How do SMEs digitalise: drivers and challenges

Key points

- According to the SME survey, larger SMEs are more likely to have a strategy or an action plan to guide their digitalisation activities with only 32% of micro SMEs reporting that they had such a strategy or plan while 49% of small SMEs and 59% of medium-sized SMEs do.
- The key digitalisation activities reported as being under consideration by SMEs with strategies or action plans to digitalise were roughly of equal importance:
  - improve their internal ICT skills (77% of SMEs)
  - change their use of social media (74% of SMEs)
  - improve their ICT security systems (72% of SMEs)
  - adopt more advanced technologies (71% of SMEs)
  - introduce online marketing and/or sales (60% of SMEs)
- Case studies of the actual digitalisation by some EU SMEs of their business activities show that the digital tools they adopted were highly varied.
- However, all these SMEs received support in their digitalisation journey.
  - Some SMEs benefitted from the DigitaliseSME initiative, an EU funded scheme which matches SMEs with Digital Enablers based on the needs of their businesses.
  - Other SMEs have benefited from collaborations with universities, other SMEs or large corporations.
  - Many SMEs have also profited from financial support through regional or national funding schemes.

The present chapter:

- discusses whether SMEs have a strategy or action plan to start digitalising or further digitalise their activities;
- provides concrete examples of how some EU-27 SMEs did actually digitalise their business;
- presents the main results of an empirical analysis of the impact of a number of SME characteristics on the likelihood that an SME had already digitalised its activities when the Flash Eurobarometer survey was run in late February to late April 2020.

8.1 SME strategies to digitalise

Looking at the plans for SMEs to digitalise in the future, 41% of SMEs having participated in SME survey surveyed reported that they had a strategy or action plan to digitalise in the future. However, this figure varied widely across SME size classes and Member States. Larger SMEs were more likely to have a strategy or action plan to digitalise, with 32% of micro SMEs reporting that they had an strategy or action plan, while the figure was 49% for small SMEs and 59% for medium-sized SMEs. Across Member States, the figure ranged from 31% of SMEs in FR to 65% of SMEs in EL.

The types of activities identified by SMEs in their strategies or action plans to digitalise were viewed as being broadly of equal importance with:

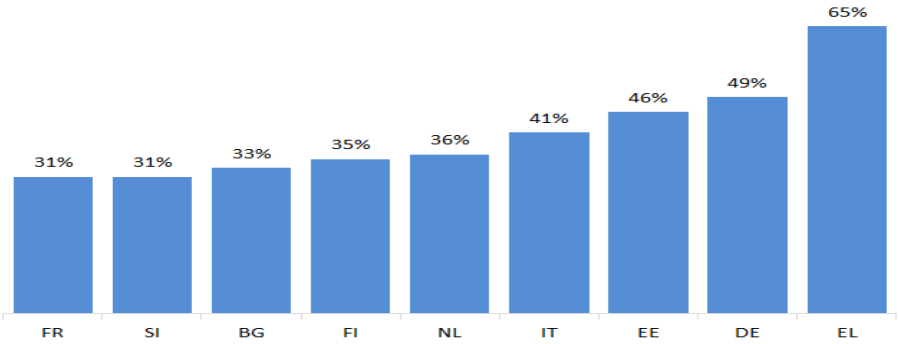
- 60% of SMEs focusing on online marketing and/or sales;
- 71% of SMEs considering the adoption or more advanced technologies;
- 72% of SMEs looking to improve their ICT security systems;
- 74% of SMEs planning to change their use of social media;
- 77% of SMEs looking to improve their internal ICT skills.

However, within the SME population there are clear differences in priorities.

- 90 % of medium-sized SMEs and 81% of small SMEs reported that adoption of more advanced technologies was part of their strategy or action plan while only 56% of micro SMEs did so.
- 93% of medium-sized SMEs and 82% of small SMEs were planning to improve their internal ICT skills while only 66% of micro SMEs were planning to do so.
- 79% of medium-sized SMEs and 76% of small SMEs planned to improve their ICT security while only 66% of micro SMEs were aiming to do so.

In contrast to the digitalisation priorities listed above, SMEs of all sizes had similar views about the need to improve their use of social media with 74% of micro SMEs, 75% of small SMEs and 76% of medium-sized SMEs planning to do.

Figure 56 Percentage of SMEs reporting that they had a strategy or action plan to digitalise in the future across 9 EU-27 Member States



Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

8.2 Examples of the digitalisation strategies pursued by SMEs

As part of the analysis of the digitalisation of SMEs, the digitalisation paths pursued by 10 different SMEs located in different EU-27 Member States and active in different industries were reviewed in detail to gain a deeper understanding of specific approaches and challenges faced by SMEs in their digitalisation journey.

The 10 case studies cover a wide cross-section of European SMEs, from a Belgian micro SME run by a sole entrepreneur to a Dutch steel company which has recently grown from an SME to a large enterprise with more than 500 employees.

All 10 SMEs introduced software for more efficient management of employees, clients, facilities and resources. SMEs in the manufacturing industry, such as 247TailorSteel or the bakery De Trog, introduced robots and factory automation to speed up production. Other businesses use Computer-Aided Design (CAD) software, automated ordering tools, sensor technology for real-time data on facilities. Digitalising the businesses has reduced time spent on administrative tasks and paperwork, made processes more efficient, lowered the use of resources such as water or fertiliser for agricultural businesses like Van Den Borne, and increased profits.

Several of the SMEs in in the case studies have taken part in the DigitaliseSME initiative, an EU funded scheme which matches SMEs with Digital Enablers based on the needs of their businesses. Through the guidance of an Enabler, the businesses could advance their digital transformation. Other SMEs have benefited from collaborations with universities, other SMEs or large corporations. The success of these initiatives emphasises the need for programmes to foster knowledge sharing and exchange among SMEs, businesses and universities.

Many SMEs have also profited from financial support through regional or national funding schemes. Especially for smaller businesses, the investment in software, machines and other technology required for digital transformation can be a huge barrier. However, some businesses

pointed out that the application process for funding schemes can pose a huge administrative burden on SMEs, potentially discouraging many SMEs from applying for funding in the first place.

Another constraining factor for businesses is the shortage of digitally skilled labour. Especially in rural areas, the limited supply of qualified personnel capable of using the various technologies can be a major issue. Targeted training programmes supported by regional public authorities or SME clusters could mitigate this.

The 10 case study of SMEs are briefly presented below and more detailed information on each is provided in the background document.

8.2.1 247TailorSteel B.V (Netherlands)

247TailorSteel B.V. is a sheet metal company from the Netherlands. Founded in 2007, it provides on-demand production and supply of laser-cut metal sheets. The company grew from 100 employees in 2014 to more than 500 today. With its software portal SOPHIA®, the company operates an online platform and online processing system, which enables customers to design and upload their own 3D models, receive a price quote within one minute and place their orders at any time. Alongside robots and automated guided vehicles in the factory and software for planning efficient delivery routes, SOPHIA® enables 247TailorSteel to deliver products within 48 hours of ordering. 247TailorSteel also founded the Smart Bending Factory (SBF) Field Lab, which allows 247TailorSTeel and eight key partner organisations to collaborate in sharing their know-how and resources through joint purchase and operation of machinery and to attract and retain young qualified people in the region. The SBF Field Lab has received support from the Smart Industry programme, the national Industry 4.0 initiative of the Netherlands, and partial funding from the OP East Netherlands programme, aimed at boosting the production of new products made by local SMEs. In 2019, 247TailorSteel sold a 60% stake to the private equity fund Parcom. This case study shows how adequate public support through project funding and public-private partnerships can multiply the positive impacts of innovative SMEs.

8.2.2 Bächer Bergmann GmbH (Germany)

Bächer Bergmann GmbH is a German carpentry business. Since 2010 they have provided precision manufactured products to a broad range of clients such as Samsung, Porsche and DHL. Moving from traditional craftsmanship to digitally enhanced production, the company now uses Computer Numerical Control (CNC) milling machines, Computer Aided Design (CAD) software, 3D printing, laser technology and robotics. Due to their flexible digital manufacturing capabilities, they were able to adapt quickly to the Covid-19 pandemic and temporarily produce and sell facemasks using 3D printing. A partnership with the University of Cologne enabled Bächer Bergmann to experiment and test the university's CNC milling machines before purchasing their own. This example illustrates the importance of connecting SMEs with research & technology institutions to enable knowledge sharing and access to technology testing facilities.

8.2.3 De Trog (Belgium)

The Belgian bio-label bakery De Trog, founded in 1970 combines traditional breadmaking with advanced manufacturing and digital technologies for both B2B and B2C customers. Since 2013, De Trog has utilised automation and technologies such as custom robotic applications, big data, apps and augmented reality. Staff training has been gamified via an app, which provides training in all areas of the business, provides updates on quality and safety protocols and allows staff to compare their knowledge with their co-workers. De Trog has mainly relied on private finance, but has benefited from collaborations with public and public-private knowledge and support institutions and training centres, such as the Flanders Agency for Innovation and Entrepreneurship and the Innovation Centre for the West-Vlaanderen region. To foster knowledge exchange, the company has also cooperated with public higher education institutions like the University of Ghent and KU Leuven's Embedded and Artificially Intelligent Vision Engineering (EAVISE) Research Group. The case study of De Trog suggests that policy makers should facilitate access to digital skills training, for example, by providing and funding national and regional public institutions.

8.2.4 FYZOklinika (Czechia)

FYZOklinika is a private health clinic in Czechia, established in 2011 and currently employing 23 people. The clinic offers physiotherapy and rehabilitation for the prevention and treatment of painful conditions and for wound healing. To provide customised treatments, FYZOklinika has implemented various IT solutions aimed at moving from a paper-based system to a digital database. They use Asterisk, an open-source framework, as a database and digital communication platform fostering digital connections with clients/patients for the provision of customer care so that staff can communicate effectively and efficiently with clients before and after treatments. FYZOklinika also plans to integrate Artificial Intelligence (AI) and the Internet of Things (IoT) into their systems and client services. Based on this case study, policymakers could encourage the development of more affordable, cost-effective non-proprietary software options, so that SMEs have alternatives to large proprietary technology platforms.

8.2.5 Katty Fashion (Romania)

Katty Fashion is a Romanian manufacturing company in the textile and fashion industry. Founded in 2003, Katty Fashion currently has 40 employees and focuses on women's outerwear, short production runs and customised clothing. The business uses computer-aided design (CAD) for patterns and grading to create environmentally friendly clothing from organic materials. Katty Fashion has received non-financial support from the 'Romanian Textile Concept Cluster Bucharest' as well as the 'European Textile Platform for the Future of Textiles and Clothing' in the form of news, ideas, funding opportunities, ecosystem and community. Katty Fashion participated in the DigitaliseSME initiative. This initiative matches SMEs with a Digital Enabler, who provides specific expertise to facilitate digital transformation. The advice of the Digital Enabler helped Katty Fashion to develop their own proprietary analytics platform powered by AI, find a suitable cloud storage solution, design a better website, incorporate Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) software upgrades and obtain 3D licenses. The C-VoUCHER programme, an EU scheme funded through the H2020 Research and Innovation Programme made it possible for the firm to finance the implementation of suggested solutions by the Enabler. The case study of Katty Fashion emphasises the importance of initiatives like C-VoUCHER and DigitaliseSME to provide support, expertise and funding to SMEs for their digital transformations.

8.2.6 Norteña de Aplicaciones y Obras (Spain)

The Spanish construction company Norteña de Aplicaciones y Obras provides specialised services in roof waterproofing. The business was founded in 2006 and currently employs 7 permanent staff plus multiple freelancers depending on project requirements. To reduce paperwork and manage clients, stock and employees, Norteña employs Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) digital tools. Other digital technology platforms are used for faster worksite incident management, real-time cost control of different projects and departments, digital management of invoices and payments and automated client updates on ongoing projects. Norteña has received financial support for the development of its ERP system from the regional government but has described this as unsatisfactory due to the complicated and time-consuming nature of accessing public support for digital transformation. This suggests that streamlining application processes to target SMEs, simplifying application procedures and limiting the administrative burden of applying for funding could reduce barriers for SMEs to apply for public funding.

8.2.7 Royal snc (Italy)

The Italian service company Royal snc is a family-owned SME managing several hotels in the North East of Italy. Established in 1985, it currently has 50 employees and delivers hotel and catering industry services. The business uses data collection and analytics such as Google's Keyword Planner and Facebook IQ to increase market outreach, gain insights into consumer profiles and behaviours and obtain information on their competitors. Royal snc has received expertise and guidance from a Digital Enabler provided by the DigitaliseSME initiative to further digitalise their business. As a result of this support, Royal snc has implemented software to handle orders and identify usage

trends, monitor energy consumption, digitally manage systems for the building and guest rooms, provide digital menu ordering and offer real-time chat for guests and hotel staff. Recently, an automatic umbrella opening and closing mechanism at hotel's beach area with a digital device powered by the photovoltaic panels was under implementation to benefit from the solar energy while enabling the automation of operations to minimize maintenance activities and the optimization of staff presence through the application of the Internet of Things together with information technology and operational technology. Initiatives such as DigitaliseSME offer important instruments of support for the digital transformation of SMEs, but according to Royal snc, it is also crucial that staff receive specific skills training to utilise new software and technology.

8.2.8 Skill Software GmbH (Germany)

Skill Software GmbH is a German micro SME developing digital solutions for businesses. Founded in 1991, the business now has 8 employees and provides software development and distribution for B2B customers using a cloud server database. Focusing on clients in the construction industry, Skill Software offers various Industry 4.0 solutions, such as Customer Relations Management (CRM) technology, to provide digital support for customer acquisition and management. Other solutions they provide include BauDoc for construction management control and documentation tasks, EnergyDoc for energy savings using mobile energy management software with integrated sensors and alarm functions, TechDoc for delivery of important technical information to mobile devices, and PropertyDoc which combines all these tools. Skill Software took part in the DigitaliseSME initiative, both as a beneficiary and as a Digital Enabler for other SMEs. With help from a Digital Enabler, Skill Software has expanded into the Eastern European B2B market and plans to expand into the Netherlands and the UK. The company benefits from membership of B2B networks and clusters in Germany such as BVMW, as well as its collaboration with two universities. Funding for some of Skill Software's digital innovations came from an innovation fund run by the German State of Hesse, from EU regional funds and from 'KMU Innovativ', a funding initiative of the German Federal Ministry of Education and Research. This highlights the importance of both financial and technical support to enable SMEs to digitally transform their businesses.

8.2.9 Van Den Borne Aardappelen (Netherlands)

Since its foundation in 1952, Van Den Borne Aardappelen has transformed from a traditional family farm to one of the most digitally advanced farms in the Netherlands, growing potatoes, maize, wheat and sugar beet. The Van Den Borne brothers use crop monitoring tools and software to provide real-time data and insights and optimise decision-making about irrigation and fertiliser usage. With the help of precision farming technologies such as GPS drones and sensors, they have been able to increase crop yields, reduce inputs like water, fertilisers and fuel, and increase revenue. To find the most successful techniques, the brothers ran initial trials and use cases before scaling up the most successful solutions. Collaboration with knowledge institutions and other companies, as well as participation in numerous publicly supported R&D and innovation projects, has further advanced their digital transformation. The Van Den Borne farm has benefited from public financial support from local, regional and national SME innovation and rural economic development programmes, such as the Noord-Brabant subsidy scheme for SME innovation stimulation. Additionally, the farm has received financial support for investment in precision farming equipment from the 'Programma Precisie Landbouw' (Precision Farming Programme), co-funded by the Dutch government and the agricultural industry. The successful digital transformation of the Van Den Borne farm underlines the importance of guidance and training programmes, testing technologies and ideas, and Digital Innovation Hubs.

8.2.10 Z-Application (Belgium)

The Belgian micro SME Z-Application was established in 2013 and specialises in producing web-based client and server solutions for warehouses as well as customised warehouse logistics solutions. Their customer base spans across Europe, the USA, Mexico and South Africa. The sole entrepreneur of Z-Application, Francis Appels, offers custom development of open source Dolibarr Enterprise Resource Planning (ERP) software solutions. He developed a ready-to-use modular base product eliminating the need to develop independent business solutions for each customer, it only needs to be customized according to specific business needs of each customer. Z-Application has

received support from the Flemish SME e-wallet training support scheme and the DigitaliseSME initiative. With guidance from a Digital Enabler, Appels was able to improve the automation of his online sales and to develop a new website with an integrated Search Engine Optimisation (SEO) tool. The success of Z-Application highlights the importance of targeted guidance and mentoring programmes such as DigitaliseSME.

8.3 Factors explaining the extent to which SMEs digitalise their activities

The responses from EU-27 SMEs to the Flash Eurobarometer 486 survey were used to assess econometrically a range of factors which could explain differences in the extent to which SMEs digitalise their activities. The detailed econometric analysis is described in the Background Document accompanying this report and key findings from the analysis are presented below. This analysis distinguishes between SMEs using basic digital technologies and SMEs using more advanced digital tools and examines whether some factors increase or decrease the likelihood that an SME uses basic or advanced digital technologies.[43]

The results of the econometric analysis show that:

- SMEs which are either categorised as either gazelles or scaleups, and/or have access to external funding and/or export are more likely to adopt advanced digital technologies and less likely to adopt basic digital technologies, regardless of firm size. These results seem logical. For example, high-growth firms and scaleups may need to adopt advanced digital technologies in order to continue growing. Firms which have access to external funding may want to invest that funding in advanced digital technologies which can yield efficiency gains. Exporting firms are competing on a global stage, as such, the adoption of advanced digital technologies may be in an effort to stay competitive or to become more competitive. Similarly, innovative firms may adopt advanced technologies to create new products or enhance existing products or work processes.
- SMEs that are part of a global value chain are more likely to adopt advanced digital technology than SMEs which do not belong to such value chains.
- Independent firms (i.e. firms which are not owned by another firm) may find it harder to obtain financing, making the investment in digital technology more difficult. The results of the empirical analysis show that firms which are independent are more likely to adopt basic digital technology and less likely to adopt advanced digital technologies.
- For micro and small enterprises, a lack of financial resources and a lack of skills including managerial skills reduce the likelihood of adopting both basic and advanced digital technology. Firms which reported uncertainty about future digital standards, internal resistance to change, regulatory obstacles or IT security issues as barriers to digitalisation are more likely to have adopted advanced digital technology. This result may be due to reverse causality whereby those firms that have adopted advanced digital technologies will encounter these barriers, but basic digital technology adopters may not necessarily be focused on (some of) these barriers.

[43] see Annex 8 for detailed explanation of how the two groups of SMEs were constructed.

9 Public policies in support of SME digitalisation

Key points

- EU programmes such as DigitaliseSME and Digital Europe along with programmes and policies such as the European Digital Innovation Hubs, the Digital Markets Act, the Digital Services Act, the Data Governance Act, the proposed Climate Law and the new Circular Economy Action Plan have already, or will in future, be making important contributions to helping SMEs on their digitalisation journey and also on their quest to become more sustainable. However, the analysis in this report shows that much more remains to be done:
  - The level of digitalisation varies across SMEs markedly across SME size class, with micro SMEs performing less well than small SMEs, and the latter less well than medium-sized SMEs, and, in turn, medium-sized SMEs less well than large enterprises.
  - The digitalisation of EU-27 small and medium-sized SMEs trails behind that of their peers in other countries such as NO and the UK.
  - A not insignificant proportion of SMEs, especially micro SMEs, is of the opinion that digitalisation is not useful or necessary for them, or believe that the costs outweigh the benefits.
  - The extent of state of digitalisation of small and medium-sized SMEs varies greatly across Member States, with SMEs in a number of Member States lagging well behind their EU-27 peers in the EU-27.
- The SME survey shows that, overall, 72% of SMEs are of the view that better access to public support schemes would be useful to allow them to digitalise. Advice on the costs and benefits of advanced digital technologies, support to find the required skills or expertise and access to networks are second in importance (respectively 61% of SMEs, 61% of SMEs and 62% of SMEs) in terms of helping SMEs progress with their digital strategy or action plan. In addition, about half of all surveyed SMEs reported that assistance in fundraising would help them to digitalise their business.
- However, a one-size-fits-all programme or policy approach is unlikely to work, as the needs of SMEs vary across Member States, SME size class and the level of digitalisation already achieved by SMEs.
- Nevertheless, case studies of programmes aiming to support the digitalisation of SMEs and the qualitative responses to the survey of national SME associations and SME digitalisation support organisations highlight a few key lessons to take account when developing any new SME digitalisation programmes:
  - Ensure that the programme is well designed and targeted by consulting beforehand key stakeholders and experts.
  - Make programmes easy to understand, apply for and implement from a beneficiary's perspective.
  - Organise a key programme focal point for information and resources that SMEs can access to support their digitalisation activities.
  - Facilitate access to external finance and ensure fast disbursements.
  - Promote collaborations with other partners and stakeholders.

This chapter focuses on policies to support the digitalisation of SMEs.

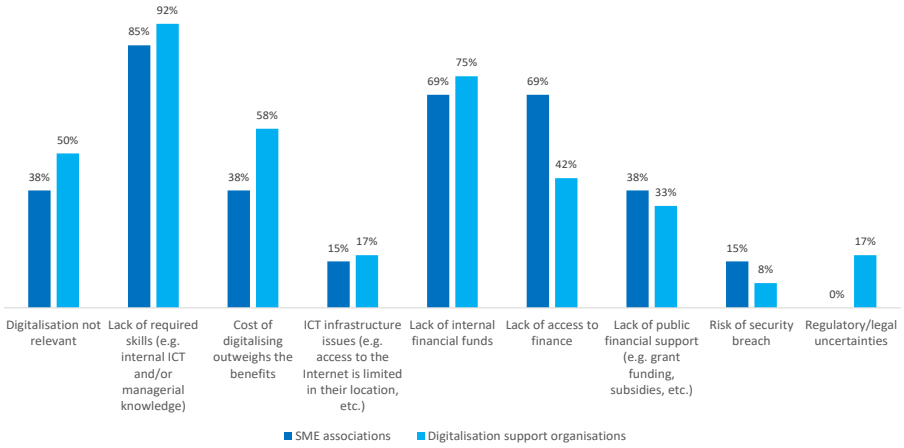
First, the chapter discusses the barriers to the digitalisation of SMEs. Next, in a second section, it provides an overview of the literature on digitalisation issues and challenges faced by SMEs. A third section provides a brief overview of EU programmes and policies which support the digitalisation of SMEs and the objective to reduce their environmental footprint. A fourth section presents a number of concrete actions which, according to SMEs, national SME associations and SME digitalisation support organisations, would assist SMEs in the digitalisation of their activities. Finally, a fifth section highlights a number of conclusions which may be useful for informing the refinement or design of further SME digitalisation programmes by the EC and/or Member States.

9.1 Barriers to the digitalisation of SMEs – views of SMEs and SME associations and organisations supporting the digitalisation of SMEs

9.1.1 Why some SMEs do not digitalise

The survey results presented in chapter 7 highlight the fact that a significant number of SMEs, especially micro SMEs have not yet digitalised their business activities. Policies aiming to encourage the digitalisation of SMEs clearly will need to address the factors impeding SMEs starting to digitalise their business. The results of the survey of SME associations and SME digitalisation support organisations suggest that a lack of information about the benefits, a lack of required skills and a lack of financial resources are key factors (Figure 57). These factors would need to be addressed if the overall policy objective is to ensure that all SMEs can reap the benefits of the evolving digital environment.

Figure 57 Reasons why EU SMEs do not digitalise their activities



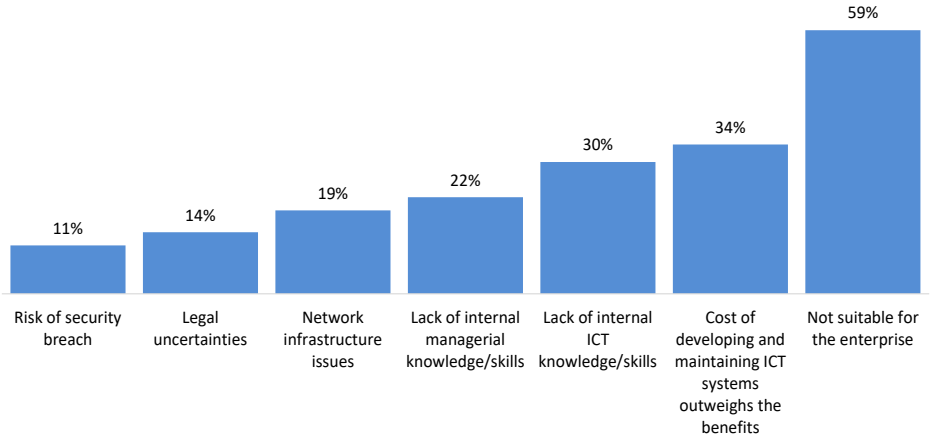
Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

9.1.2 Barriers to the use of digital tools other than e-commerce

According to the SME survey, the most common reason for not using ICT is that ICT is not suitable for the enterprise in question (with 59% of SMEs not using ICT (Figure 58)).

Other, but relatively less important factors reported by SMEs are that the costs of ICT systems outweigh the benefits (34%) and a lack of internal ICT skills (30%).

Figure 58 Reasons given by SMEs for not using ICT in their activities



Note: Sample size is 101, as it only includes respondents that did not use ICTs in 2020.
Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

To complement the information provided by SMEs, national SME associations and SME digitalisation support organisations were also asked to share their views and opinions on the barriers faced by SMEs in their digitalisation process. Together with a lack of internal financial funds, these stakeholders also identified a lack of required skills (e.g. internal ICT and/or managerial knowledge) as an important barrier to the digitalisation of SMEs which had not yet digitalised any of their business activities or had done so only to a very limited extent (Table 20).

These two barriers were also viewed as relatively important for SMEs with more extensive digitalisation experience, as were a lack of access to finance and a lack of public financial support (e.g. grant funding, subsidies, etc.) in the case of SMEs with no digitalisation experience, SMEs with a very limited experience and SMEs which had somewhat more extensive digitalisation experience. However, the financial and skill factors do not appear to affect SMEs which are very experienced in digitalising their business.

Table 20: Barriers faced by SMEs in their digitalisation – views of national SME associations and SME digitalisation support organisations (% of survey respondents having selected a particular barrier)

	State of the digitalisation of SMEs			
Barrier	No digitalisation	Very limited digitalisation	More extensive digitalisation	Very extensive digitalisation
Lack of required skills (e.g. internal ICT and/or managerial knowledge)	92%	88%	42%	26%
Lack of internal financial funds	88%	79%	50%	33%
Lack of access to finance	58%	67%	58%	35%
Lack of public financial support (e.g. grant funding, subsidies, etc.)	46%	46%	42%	22%
ICT infrastructure issues in rural areas	33%	38%	33%	26%
ICT infrastructure issues in urban and semi-urban areas	13%	22%	21%	17%

Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

9.1.3 Barriers to engaging in e-commerce

The most commonly cited reasons given by SMEs for not selling online is that it is not a priority for the SME (64% of SMEs not selling online), or that goods or services are not suitable for e-commerce (68%). To a lesser extent, SMEs also noted issues with competing with online retailers (14%), logistics (17%) and the costs of introducing web sales (18%). Overall, few SMEs cited consumer protection issues (4%), the legal framework (5%), ICT security or data protection (6%) and payments (8%) as significant issues.

The barriers to e-commerce reported by SMEs in the survey vary across Member States (Table 21):

- In FR, difficulties dealing with consumer protection issues and issues with the legal framework were significantly more prevalent than in other Member States;
- SMEs in FR were also more likely than SMEs in other Member States to have problems related to logistics or to find that the costs of web sales were too high compared to the benefits;
- Many SMEs in IT (26%) also saw logistics as a barrier to making web sales;
- SMEs in SI were the most likely to have issues relating to payments, with 24% of SMEs reporting these issues;
- In EL and SI, SMEs were particularly likely to have difficulties competing with online retailers, while this was much less of an issue in BG, DE, EE, FI and IT.

One factor which could explain why some SMEs may struggle to sell online is the competition from large e-commerce platforms. In the 2020 SME survey, 26% of SMEs reported that large e-commerce platforms impacted their ability to sell online. The existence of large e-commerce platforms seem to particularly affect smaller SMEs, with 33% of micro SMEs reporting that large e-commerce platforms pose a problem to their ability to sell online. The same figure was 11% for medium-sized SMEs and 24% for small SMEs.

While market-place platforms can help SMEs "increase their customer base, reach scale without mass, find innovation opportunities and assets, and access digital solutions and business

intelligence services"[44], the use of such online platforms also raise a number of issues for SMEs, especially micro SMEs. They give rise to "risks related to competition distortions, reputational damage, and digital security or lock-ins".[45] To address these potential negative impacts on businesses (and consumers) using such online market places, the European Commission put forward in December 2020 a proposal for a Digital Markets Act[46] which would regulate the activities of large online platforms, the so-called "gatekeepers".

Among other, such 'gatekeepers' would have to allow their business users to access the data that they generate in their use of the gatekeeper's platform; provide companies advertising on their platform with the tools and information necessary for advertisers and publishers to carry out their own independent verification of their advertisements hosted by the gatekeeper; and allow their business users to promote their offer and conclude contracts with their customers outside the gatekeeper's platform. Moreover, among other, the 'gatekeepers' would not be allowed to treat services and products offered by the gatekeeper itself more favourably in ranking than similar services or products offered by third parties on the gatekeeper's platform and to prevent consumers from linking up to businesses outside their platforms.

Table 21 Percentage of SMEs reporting various factors as reasons for not selling online in nine EU-27 Member States

	BG	DE	EE	EL	FI	FR	IT	NL	SI
Difficulties in dealing with consumer protection issues	1%	8%	3%	3%	3%	14%	4%	7%	1%
Problems related to the legal framework	4%	6%	3%	6%	0%	19%	8%	7%	1%
Problems related to ICT security or data protection	4%	5%	5%	9%	3%	14%	5%	9%	3%
Problems related to payments	8%	0%	2%	11%	1%	11%	8%	3%	24%
Difficult to compete with established online retailers	8%	6%	6%	28%	4%	17%	8%	13%	38%
Problems related to logistics	4%	17%	11%	14%	19%	42%	26%	10%	19%
The costs of introducing web sales too high compared to the benefits	10%	20%	9%	20%	21%	36%	19%	18%	14%
Not a priority for the enterprise	47%	62%	75%	78%	63%	67%	68%	51%	70%
Goods or services are not suitable	44%	85%	63%	61%	80%	69%	73%	67%	74%

Note: The cells are highlighted in orange if a Member State's percentage of SMEs in that cell is 1 standard deviation above the average for the indicator. The sample size is 586, as it excludes those respondents which reported that they did not use ICTs in 2020 and those respondents which reported selling online in 2020.

Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

9.2 *Policies to support digitalisation - key observations emerging from the literature review*

As previously elaborated by various stakeholders (e.g. Industry Associations, SME Support Organisations, Social Partners, etc.), meeting targets for 'Climate Neutrality' and the 'Global 2030 Agenda For Sustainable Development', as operationalised through the UN SDGs, is possible if ongoing DX can be turned into sustainable DX and used with purpose, acting as a catalyst to ensure alignment with the digital and green transitions targeted by the EU Green Deal and its spinoff policy initiatives. This requires a holistic approach and continuous dialogue and collaboration between various stakeholder groups at global level, especially in terms of defining international standards and regulations; sharing best practices; and investing in skills, sectors, digital infrastructure, products, services and digital technologies that can address climate, biodiversity and wider environmental challenges.

Considering the key role played by accessible and affordable connectivity, and the large gap that nonetheless exists in provision, investing in digital infrastructure should be prioritised by

[44] OECD (2021). The Digital Transformation of SMEs.
[45] OECD (2021), op. cit.
[46] European Commission (2020), Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector (Digital Markets Act), Brussels, 15.12.2020, COM(2020) 842 final.

governments, in order to boost DX while reducing the digital divide. This includes ensuring access to big data by establishing specific data spaces (e.g. the EU Health Data Space), as well as ensuring data accessibility across the whole value chain of relevant stakeholders through regulated digital platforms for boosting circularity. A digital infrastructure based around a strengthened public cloud is likely to offer the best way of accelerating the adoption of blockchain and Distributed Ledger Technologies (DLTs), Fintech and other cloud based solutions for SMEs, particularly in terms of Software as a Service (SaaS) applications (e.g. CRM, ERM, collaborative apps, workflow and management apps), and Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) applications, including cloud-based teleworking solutions. Ensuring cybersecurity and data privacy is key to establishing trust and transparency, particularly in terms of increasing the security of digital technologies against cyberattacks. At firm level, when designing and investing in digital infrastructures, as well as in DX itself, deployment of green(er) technologies should be considered in order to minimise the carbon footprint created by digital infrastructures. Key actions to achieve this include: switching to renewables and increasing energy efficiency, particularly at data centres; and implementing CE concepts to reduce e-waste through recycling, re-using and repairing. The social dimension is another key point to be considered in policymaking, in order to eliminate the negative impacts of digital technologies on the health and wellbeing of workers, the impact on job transitions, and on the growing digital divide.

Recommended cross-cutting policy actions include the following: raising the awareness of SMEs regarding the benefits brought by specific technologies and sustainable DX (including 'test before invest' services offered by European Digital Innovation Hubs); continuously assessing the particular needs and challenges of SMEs to provide tailored technical advisory support services in combination with financial support; supporting skills development through mentoring, training, education and knowledge brokers such as Digital Innovation Hubs; setting up fair competition and market rules; removing regulatory and administrative burdens; developing international standards in collaboration with SMEs; boosting innovation; rolling out e-Government initiatives to accelerate SME DX; incorporation of green public procurement; adopting evidence-based policymaking by taking into account SME size class, sector, age, and location, as well as differences between traditional vs innovative SMEs and manufacturing vs services SMEs. Among many other recommendations, another key suggestion is to boost collaboration between ICT and other important sectors, such as agriculture, energy, healthcare, and manufacturing, by putting circularity and bioeconomy at the centre.

9.3 Programs and policies already implemented at EU level

The European Green Deal and its spinoff policy initiatives, as well as the EU Multiannual Financial Framework for 2021-27 coupled with the Next Generation EU - Covid-19 recovery package all aim to define high level strategies and to finance corresponding action plans to achieve the twin transitions required for a sustainable and inclusive future, not only in the EU, but globally, by taking a global leadership role and establishing global partnerships to realise the Global 2030 Agenda. The most recent policy and regulatory efforts undertaken by the European Commission, both under the technology & sustainability domains such as: the creation of a pan-European network of 200 European Digital Innovation Hubs to support the SMEs in their digital transformation (funded by the Digital Programme), the Digital Markets Act, the Digital Services Act, the Data Governance Act, the proposed Climate Law, the new Circular Economy Action Plan, the new Cybersecurity Act, the FinTech Action Plan, the White Paper on AI, the Pan-European Blockchain Regulatory Sandbox are all expected to become operational in 2021-22 as well as under the skills development through the action plan on European Pillar of Social Rights, new EU Skills Agenda and the recent launch of the Pact for Skills as one of its action lines building on other EU initiatives for multi-stakeholder cooperation such as the Blueprint for Sectoral Cooperation on Skills, reinforced European Alliance for Apprenticeships, Digital Skills and Jobs Coalition to boost skills via multi-stakeholder partnerships across fourteen industrial ecosystems defined under EU Industrial Strategy, along with the launch of Digital Education Action Plan (2021-27) to make education and training systems fit for the digital age setting up of Centres of Vocational Excellence (CoVEs) platforms to develop skills ecosystems and the plans for developing EU Competence Framework for Green Skills can all be viewed as evidence of a real commitment from the EU to turn high level strategies into action for achieving sustainable digital transformation.

Member States have also implemented a wide range of programmes aiming to support SMEs in their digitalisation. These programmes include information provision, help to identify or develop relevant skills and training, mentoring, networking, promoting collaborations, financial support (e.g. grants, subsidies, vouchers, etc.) and either are targeted at all SMEs or are specific to some industries or to SMEs with different digitalisation experiences.

However, the analysis in this report shows that much more remains to be done:

- The level of digitalisation varies markedly across SME size class with micro SMEs performing less well than small SMEs, the latter less well than medium-sized SMEs and the latter less well than enterprises.
- The digitalisation of EU-27 small and medium-sized SMEs trails that of their peers in other countries such as NO and the UK.
- Many SMEs are of the opinion that digitalisation is not useful/necessary for them or believe that the costs outweigh the benefits.
- The state of digitalisation of small and medium-sized SMEs varies greatly across Member States.

9.4 The type of support that is sought by SMEs differs across Member States

9.4.1 The views of SMEs

Overall, most SMEs (72%) having participated in the SME survey reported that better access to public support schemes would be useful to allow them to digitalise (Table 22). Second most important are advice on the costs and benefits of advanced digital technologies (61% of SMEs), support to find the required skills or expertise (61%) and access to network opportunities (62%) would help them progress with their digital strategy or action plan. In addition, about half of SMEs reported that assistance in fundraising would help them digitalise. However, the extent to which certain measures would be useful to SMEs varied greatly across Member States and SME size classes.

The appropriate measures to adopt depend strongly on which Member State an SME is in. The share of SMEs reporting that assistance in fundraising would help their enterprise to progress with its digital strategy or action plan varied widely across Member States with the figure being 9% in FI and 25% in NL, but significantly higher at 71% in SI and 78% in EL. For each of the other measures, the views of SMEs varied greatly across Member States (as can be seen in the highlighted cells in Table 22).

Similarly, the type of measures that would help SMEs also depends on the size of the SMEs. Smaller SMEs reported that they would benefit more from assistance in fundraising and in support to find the required skills or expertise. 53% of micro SMEs report that they would benefit from assistance in fundraising, while the figure was 48% for small SMEs and 38% for medium-sized SMEs. There were similar differences for SMEs that would find it useful to obtain support to find the required skills or expertise, with the figure being 63% for micro SMEs, 61% for small SMEs and 48% for medium-sized SMEs.

Larger SMEs would benefit more than smaller SMEs in access to network opportunities and advice on the benefits and costs of advanced digital technologies. 76% of medium-sized SMEs reported that access to network opportunities would help their enterprise to progress with its digital strategy or action plan, while the figure was 62% for small SMEs and 57% for micro SMEs. For advice on the benefits and costs of advanced digital technologies, the figures were 69% for medium-sized SMEs, 62% for small SMEs and 57% for micro SMEs.

Table 22 Percentage of SMEs reporting various types of support that would help their enterprise progress with its digital strategy or action plan across 9 EU-27 Member States - all SMEs surveyed with a strategy or action plan

	BG	DE	EE	EL	FI	FR	IT	NL	SI	All SMEs
Assistance in fundraising	42%	43%	46%	78%	9%	55%	56%	25%	71%	49%
Advice on benefits and costs of advanced digital technologies	39%	43%	59%	85%	66%	58%	59%	50%	77%	61%
Support to find the required skills or expertise	55%	43%	61%	77%	77%	58%	56%	39%	77%	61%
Access to network opportunities (e.g. conferences, trade fairs, exhibitions)	67%	53%	59%	82%	60%	48%	63%	44%	68%	62%
Better access to public support schemes (e.g. grants and subsidies)	85%	55%	63%	94%	69%	65%	83%	47%	81%	72%

Note: The highest value for each indicator is highlighted in orange, while the lowest value for each indicator is highlighted in blue. It should be noted that the percentages are rounded. The sample is 367, as it only includes those respondents that reported having a strategy or action plan to digitalise. Based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).

Source: Special SME survey run in October/November 2020 for this report (see page 28 for details)

As shown in Table 22 and Table 23, the most common manner that SMEs felt that they could be supported to digitalise in the future was through better access to public support schemes.

Table 23 Percentage of SMEs reporting various types of support that would help their enterprise progress with its digital strategy or action plan - all SMEs surveyed with a strategy or action plan by SME size class

	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs
Assistance in fundraising	53%	48%	38%	49%
Advice on benefits and costs of advanced digital technologies	57%	62%	69%	61%
Support to find the required skills or expertise	63%	61%	48%	61%
Access to network opportunities (e.g. conferences, trade fairs, exhibitions)	59%	62%	76%	62%
Better access to public support schemes (e.g. grants and subsidies)	68%	76%	66%	72%

Note: The highest value for SME size-class is highlighted in orange, while the lowest value for each indicator is highlighted in blue. It should be noted that the percentages are rounded. The sample is 367, as it only includes those respondents that reported having a strategy or action plan to digitalise. Based on SMEs surveyed from 9 EU-27 Member States (BG, DE, EE, EL, FI, FR, IT, NL and SI).

Source Special SME survey run in October/November 2020 for this report (see page 28 for details)

SMEs that had a strategy or action plan to digitalise were asked which was the most important type of public support that was missing that would help their enterprise digitalise further. The most common response, given by 40% of SMEs surveyed, was that it would be useful to have grants that support growth through investment in new technologies. Further to this, 17% of SMEs surveyed thought that it would be useful to have a pan-European portal with best practice examples of take-up of new digital technologies. The figure was 14% for SMEs looking for assistance to develop ICT skills and capability of staff, while it was 19% for networking opportunities to gain or improve ICT knowledge and/or skills.

9.4.2 Views of national SME associations and SME digitalisation support organisations

According to the national SME associations and SME digitalisation support organisations, the most useful type of support that can be provided to SMEs varies with the extent to which SMEs have (or have not) already digitalised their activities:

- In the case of SMEs which have not yet digitalised any of their activities, the most useful support is the provision of relevant information on the benefits of digitalisation and how to digitalise, followed by assistance with access to finance;
- Training of management and mentoring are viewed as most useful for SMEs with limited digitalisation experience;
- Training of management and staff, and assistance with access to finance were identified as the most useful support activities for SMEs with more extensive digitalisation experience
- Finally, for SMEs with very extensive digitalisation experience, support to find the required skills or expertise was viewed as the most useful.

Table 24 Percentage of national SME associations and SME digitalisation support organisations identifying a particular support measure as being useful to SMEs with different levels of digitalisation

	Experience of SMEs with the digitalisation of their activities			
Type of support	No digitalisation	Limited digitalisation	More extensive digitalisation	Very extensive digitalisation
Provision of relevant information on benefits of digitalisation and how to digitalise	75%	38%	21%	4%
Assistance with access to finance	58%	46%	54%	42%
Training of staff	46%	33%	54%	42%
Training of management	42%	63%	58%	33%
Mentoring	38%	63%	42%	21%
Support to find the required skills or expertise	25%	33%	38%	58%
A pan-European portal that showcases best practice examples on the digitalisation of SMEs	17%	17%	21%	29%
Access to networking opportunities (e.g. conferences, trade fairs, exhibitions)	8%	8%	4%	29%

Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

9.5 Recommendations for the implementation of SME digitalisation programmes

9.5.1 Lessons from case studies

The case studies[47] of programmes aiming to support the digitalisation of SMEs and the qualitative responses to the survey of national SME associations and SME digitalisation support organisations highlight a few key lessons to take into account when developing new SME digitalisation programmes:

1. Ensure that the programme is well designed and targeted, and is based on consultations with key stakeholders and experts;
2. Make programmes easy to understand, apply for and implement from a beneficiary's perspective;
3. Organise a key programme focal point for information and resources that SMEs can access to support their digitalisation activities;

[47] The full case studies are provided in the Background Document accompanying this report.

4. Facilitate access to external finance and ensure fast disbursements;
5. Promote collaborations with other partners and stakeholders;

Recommendations based on review of the programme FranceNum (France)

It is essential to centralise resources for SMEs so they can save time finding the information they need, quickly implement the most appropriate digital solutions, and thereby achieve a fast return on their time/money investments. A centralised platform allows SMEs to obtain online recommendations, find advisors in their region, identify relevant events and training, assess their digital maturity and find funding opportunities. Further recommendations include the establishment of government guaranteed loans, which can be a crucial factor in facilitating the transition to new technologies, and taking a collaborative approach which involves government, regions and local partners, to ensure the effectiveness of the actions taken.

Recommendations based on review of the programme Fondo per Artificial Intelligence, Blockchain e IoT (Italy)

Similar policy initiatives, starting from a strategic approach to operational implementation, have already taken place in other EU countries, so this type of policy approach has already proved successful (for example, in Germany, with its national blockchain strategy). In the case of Italy, the broad consultation process undertaken by the Italian government, involving a group of 30 experts selected from different public and private organisations, has helped to identify the challenges, needs and requirements in the key technology domains which are specific to Italy. These identified factors will guide the development of a national strategy that will be turned into specific action lines which the Fund for AI, Blockchain and IoT will target. In this way, financial resources addressing the real needs of the beneficiaries can be most effectively channelled to projects and make a tangible impact on the target beneficiaries. In addition, establishing a legal definition of some of the major aspects of these technologies, such as Distributed Ledger Technology (DLT) and smart contracts, will contribute to the consolidation of knowledge and set up a framework for additional policy interventions and instruments in the field.

Recommendations based on review of the programme Fit 4 Digital Packages (Luxembourg)

As micro and small SMEs represent a large proportion of businesses in the EU-27 Member States, it is essential to continue to promote awareness of the benefits of digitalisation by guiding and advising micro and small SMEs on the steps to be taken and, above all, by reassuring them about best practices. Many CEOs of smaller companies do not always know where to start their digitalisation process. For this reason, the introduction of simplified procedures enables micro and small SMEs to quickly implement new technologies. Furthermore, a fast procedure allows quick payment of the grant, thus facilitating the cash flow management of micro and small SMEs. Allowing such SMEs to test their digital maturity is also key to ensuring that the advice they receive is as appropriate for their needs as possible.

In order to ensure the effectiveness of schemes such as Fit 4 Digital Packages, another key essential is that government agencies and any external partners involved maintain high standards of communication and collaboration with each other. Furthermore, well-chosen trusted external service providers can play an important role in improving the visibility of this type of initiative and enhancing its effectiveness.

A further recommendation is that the administrative roles in the initiative should be clearly defined. In the case of Fit 4 Digital Packages, for example, the initial needs assessments are carried out by the House of Entrepreneurship of the Chamber of Commerce, service provision is handled by Luxinnovation via external service providers, and financial support is the remit of the General Directorate for Small and Medium-Sized Enterprises of the Ministry of Economy.

9.5.2 *Lessons from the various surveys*

The results of the various surveys and the literature review suggest that (Table 25):

1. Irrespective of their state of digitalisation, all SMEs would benefit from grants and subsidised public funding;

2. SMEs which have not yet digitalised any of their activities or have very little experience with digitalisation would benefit from mentoring programs to help them identify the benefits that digitalisation could bring to their business. Such programs may be resource intensive as they may involve one-to-one support provision and coaching. In addition, within this group:

   a. SMEs which have not yet digitalised their activities further benefit from assistance with gaining access to the required skills and training of management and staff;

   b. SMEs which have only limited digitalisation experience would also further benefit from training, especially of management.

3. SMEs which have more extensive or very extensive digitalisation experience would benefit from training of staff and management (only SMEs with more extensive digitalisation experience), and support in accessing the required skills (only SMEs with very extensive digitalisation experience).

Table 25 Public digitalisation support required by SMEs

Type of SMEs		Mentoring programs	Assistance with gaining access to required skills	Grants / subsidised public funding	Network opportunities	Training of management	Training of staff
SMEs which have not yet digitalised their business activities		√	√	√		√	√
SMEs which have a digitalisation strategy or are planning to digitalise	Micro SMEs			√			
	Small SMEs			√			
	Medium-sized SMEs				√		
SMEs with limited digitalisation experience		√		√		√	
SMEs with more extensive digitalisation experience				√		√	√
SMEs with very extensive digitalisation experience			√	√			√

Source: Survey of SME associations and SME digitalisation support organisations run by LE Europe in November/December (see page 28 for details)

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ANNEX 1: THE PERFORMANCE OF SMES IN 2019 – DETAILED ANALYSIS

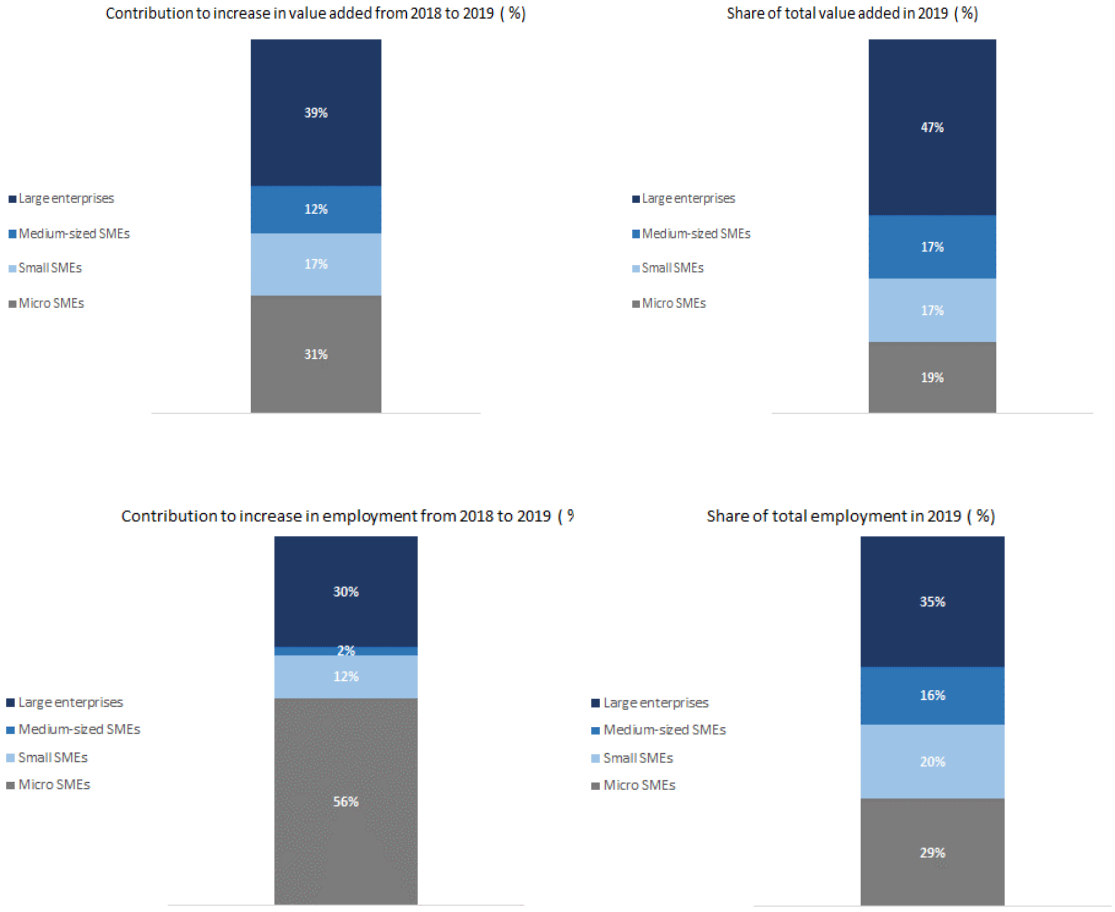
In 2019, EU-27 SMEs contributed slightly more than proportionately to value added growth in the NFBS (58%) compared to their actual share of NFBS value added (53%) (Figure 59).

- Micro SMEs accounted for a large part of this proportionately higher SME contribution to NFBS value added growth. Their contribution to value added growth in 2019 was 31%, while their share of value added in 2019 was only 19%.
- The contribution of small SMEs to growth in NFBS value added was proportional to their actual share of NFBS value added, whereas that of medium-sized SMEs was considerably lower than their share of NFBS value added (12% versus 17%) (Figure 59).

SMEs in the NFBS contributed more than proportionally to employment growth in the NFBS in 2019; they accounted for 70% of employment growth in the NFBS, while their share of total NFBS employment in 2019 was only 65%.

- The larger than proportional contribution to growth was driven by micro SMEs, which accounted for 56% of the growth of NFBS employment, compared to their NFBS employment share of only 29% in 2019.
- In contrast, both small and medium-sized SMEs contributed less to NFBS employment growth than their share of total NFBS employment in 2019.

Figure 59 Contribution of various enterprise size classes to growth in value added and employment in the EU-28 NFBS in 2019



Source: Eurostat, National Statistical Offices and DIW Econ

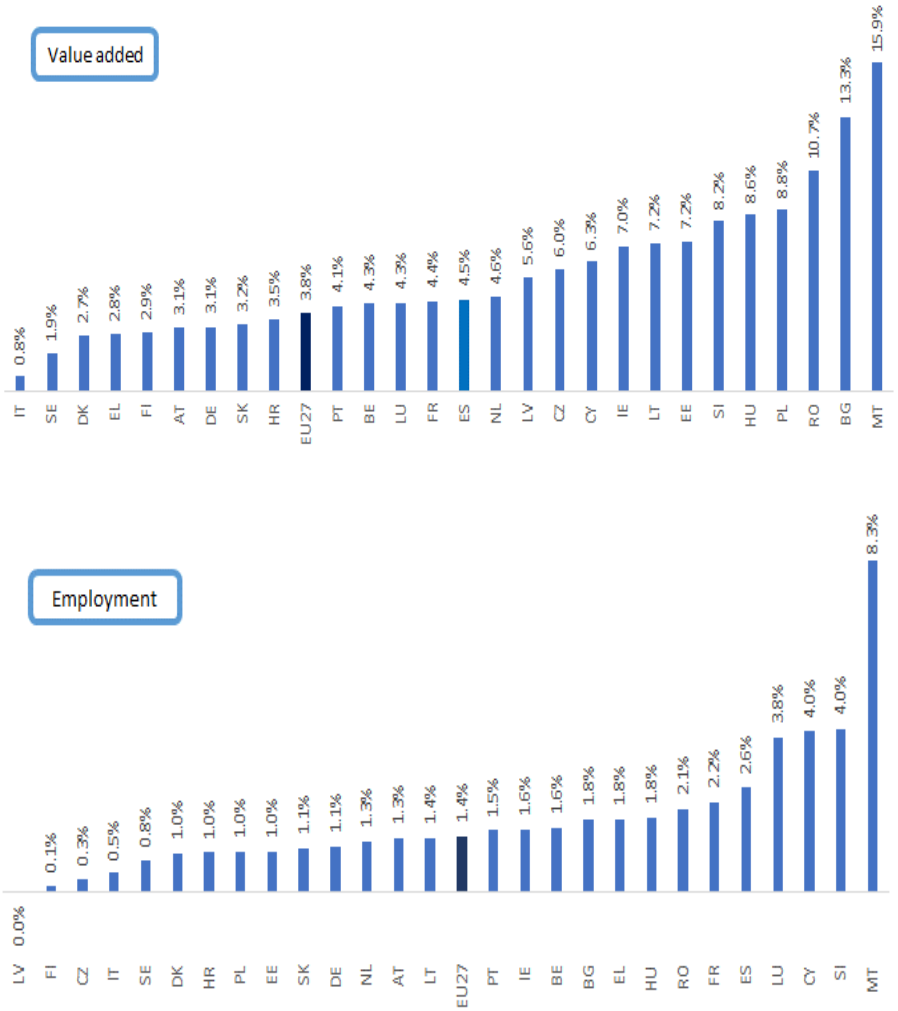
SME value added in the NFBS grew in all Member States in 2019. However, the rate of growth of SME value added varied greatly among Member States (Figure 60):

- SMEs in the NFBS generated value added growth of over 10% in RO, BG and MT in 2019.
- In contrast, SME value added in the NFBS grew by less than 5% in the majority of Member States and in the EU-27 economy overall.
- Value added grew by less than 1% in IT.

SME employment in the NFBS grew in all Member States in 2019 except LV.

The variation in SME employment growth across Member States was not as wide as that in SME value added growth, which ranged from -0.02% (LV) to 8.3% (MT). The difference between the annual growth in value added and in employment was large (above 4%) in a number of Member States (for example, RO, PL, HU, BG, LT, EE, IE, CZ, LV and MT). Typically, the substantial difference reflects a combination of higher inflation (and hence higher growth in value added at current prices) and higher productivity growth (and hence lower employment growth) in these Member States.

Figure 60 Annual change (in %) in SME value added and employment in the NFBS of EU Member States in 2019



Source: Eurostat and DIW Econ

Although, at EU-27 level, micro SMEs posted the strongest growth of all enterprise size classes in terms of the number of enterprises, value added and employment in the NFBS in 2019, this was not the case in all Member States in 2019 (Table 26):

- Micro SMEs in the NFBS posted the strongest enterprise growth in 11 out of 27 Member States (BE, BG, CZ, DE, EE, FR, LU, LV, PL, PT and RO);
- Value added growth was strongest amongst micro SMEs in 15 Member States (AT, BG, CY, CZ, DE, EE, FR, IT, LT, LU, LV, MT, PL, RO and SK);
- In terms of employment, micro SMEs showed the strongest growth in 10 Member States (BE, CZ, DE, EE, FR, LT, LU, PL, PT and SK);
- Micro SMEs showed the strongest growth in all three key performance indicators (number of enterprises, value added and employment) in 6 Member States (CZ, DE, EE, FR, LU and PL);
- Small SMEs posted the highest enterprise growth in 5 Member States (CY, DK, EL, MT and SI). Small SMEs also showed the highest growth in value added in 4 Member States (BE, HU, PT and SE) and in employment in 6 Member States (BG, CY, EL, MT, RO and SI);
- Medium-sized SMEs posted the strongest enterprise growth in 2 Member States (LT and SE). Medium-sized SMEs also showed the highest growth of value added in 5 Member States (DK, EL, ES, NL and SI) and of employment in 2 Member States (LV and SE);
- Large enterprises posted the strongest enterprise growth in 9 Member States (AT, ES, FI, HR, HU, IE, IT, NL and SK) and the highest growth in valued added in 3 Member States (FI, HR and IE). Large enterprises also posted the highest employment growth in 9 Member States (AT, DK, ES, FI, HR, HU, IE, IT and NL). Large enterprises posted the highest growth in all three performance indicators in FI, HR and IE.

Table 26 Change (in %) in number of enterprises, value added and employment in the EU-27 and Member States by enterprise size class in 2019

	Micro SMEs			Small SMEs			Medium-sized SMEs			All SMEs			Large Enterprises		
	Number of Enterprises	Value Added	Employment	Number of Enterprises	Value Added	Employment	Number of Enterprises	Value Added	Employment	Number of Enterprises	Value Added	Employment	Number of Enterprises	Value Added	Employment
AT	1.6%	4.1%	1.6%	1.1%	3.5%	1.1%	1.4%	1.9%	1.4%	1.6%	3.1%	1.3%	1.8%	3.0%	1.7%
BE	1.9%	3.3%	2.1%	1.0%	11.1%	1.3%	0.4%	0.9%	0.9%	1.9%	4.3%	1.6%	0.8%	2.5%	1.8%
BG	1.5%	19.4%	1.8%	1.3%	16.7%	2.2%	0.0%	4.8%	1.3%	1.5%	13.3%	1.8%	-2.0%	4.5%	-0.3%
CY	4.1%	7.6%	4.3%	4.3%	6.9%	4.4%	3.3%	4.1%	3.0%	4.1%	6.3%	4.0%	0.0%	2.6%	2.7%
CZ	0.8%	8.6%	1.5%	-1.4%	4.9%	-0.4%	-2.5%	4.1%	-0.9%	0.7%	6.0%	0.3%	-2.0%	5.5%	-0.1%
DE	1.4%	4.9%	5.0%	-2.5%	3.2%	-0.5%	-4.1%	1.6%	-1.0%	0.7%	3.1%	1.1%	-4.8%	0.8%	0.0%
DK	1.4%	0.8%	-0.4%	2.9%	1.4%	1.2%	3.8%	6.0%	1.9%	1.6%	2.7%	1.0%	4.6%	5.7%	2.6%
EE	2.9%	11.4%	3.1%	-0.4%	7.2%	0.4%	-2.2%	3.0%	-1.2%	2.6%	7.2%	1.0%	-0.6%	5.3%	-0.3%
EL	1.8%	1.3%	1.7%	2.0%	3.1%	3.1%	-14.6%	3.7%	-0.2%	1.7%	2.8%	1.8%	1.8%	2.1%	2.8%
ES	3.0%	5.0%	2.7%	2.9%	2.2%	2.5%	3.1%	6.3%	2.6%	3.0%	4.5%	2.6%	4.1%	4.1%	3.5%
EU27	1.7%	5.6%	2.5%	-0.1%	3.3%	0.7%	-1.3%	2.4%	0.2%	1.5%	3.8%	1.4%	-0.8%	2.8%	1.1%
FI	0.8%	1.4%	-0.4%	1.3%	2.8%	0.0%	2.9%	4.2%	0.9%	0.9%	2.9%	0.1%	4.7%	4.7%	2.5%
FR	1.9%	8.9%	4.3%	-1.8%	3.0%	1.0%	-3.3%	-0.8%	-0.4%	1.7%	4.4%	2.2%	-2.2%	2.5%	0.9%
HR	1.8%	3.7%	1.9%	1.6%	3.2%	1.4%	-0.6%	3.5%	-1.0%	1.8%	3.5%	1.0%	7.5%	5.8%	6.1%
HU	2.6%	9.2%	1.8%	2.7%	9.4%	1.9%	2.4%	7.1%	1.8%	2.6%	8.6%	1.8%	3.2%	7.5%	2.6%
IE	1.9%	9.5%	0.1%	5.4%	6.9%	3.4%	3.3%	2.5%	1.4%	2.2%	7.0%	1.6%	6.5%	10.0%	4.3%
IT	0.9%	1.4%	0.9%	-0.1%	0.0%	0.0%	-0.4%	0.8%	-0.3%	0.9%	0.8%	0.5%	1.4%	1.4%	1.6%
LT	0.8%	11.2%	1.7%	1.2%	6.5%	1.6%	1.4%	4.5%	0.6%	0.8%	7.2%	1.4%	1.1%	4.0%	0.4%
LU	4.5%	6.1%	5.6%	1.9%	5.0%	3.1%	2.3%	2.5%	3.3%	4.2%	4.3%	3.8%	1.8%	3.1%	3.1%
LV	-0.5%	8.7%	-0.1%	-0.6%	6.0%	-0.1%	-0.6%	2.5%	0.1%	-0.5%	5.6%	0.0%	-1.0%	2.3%	-1.1%
MT	9.7%	47.5%	9.1%	10.8%	-8.8%	11.3%	3.3%	-12.4%	4.0%	9.7%	15.9%	8.3%	2.6%	-10.4%	6.2%
NL	1.8%	3.7%	1.2%	1.6%	4.9%	1.0%	2.3%	5.1%	1.6%	1.8%	4.6%	1.3%	3.4%	4.7%	2.6%
PL	1.0%	20.5%	2.1%	-1.3%	3.3%	0.3%	-2.6%	3.2%	-0.6%	0.9%	8.8%	1.0%	-2.9%	5.0%	0.4%
PT	1.7%	4.5%	2.3%	0.1%	4.8%	0.5%	0.5%	3.2%	0.9%	1.6%	4.1%	1.5%	-0.1%	2.8%	0.6%
RO	2.7%	17.7%	2.6%	2.3%	9.8%	2.9%	-0.5%	4.7%	0.6%	2.6%	10.7%	2.1%	-2.5%	8.3%	-0.9%
SE	1.2%	1.5%	0.3%	1.3%	2.4%	0.7%	2.1%	1.7%	1.5%	1.3%	1.9%	0.8%	1.4%	0.5%	0.8%
SI	2.2%	7.0%	1.7%	7.2%	7.6%	8.0%	3.5%	10.1%	4.3%	2.4%	8.2%	4.0%	-0.4%	6.7%	1.0%
SK	1.5%	6.4%	1.5%	1.5%	-0.5%	0.9%	1.8%	2.3%	0.1%	1.5%	3.2%	1.1%	3.2%	4.4%	0.6%

Source: Eurostat and DIW Econ

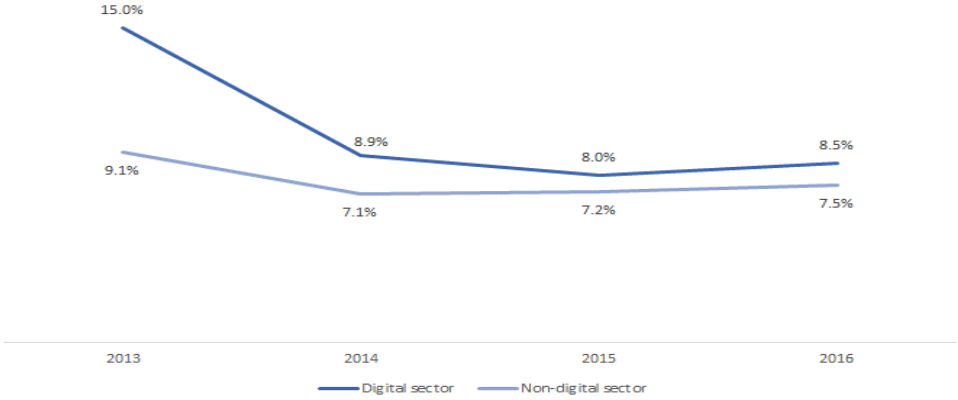
ANNEX 2: THE PROFITABILITY OF SMES - 2013 - 2016

Data on the profitability of SMEs are patchy and published with a considerable lag. At the time that this Annual Report was prepared, profitability data were only available for the years 2013 to 2016.

The profit rates[48] of SMEs in the digital and non-digital sectors declined sharply in 2014 and remained broadly stable from 2014 to 2016 (Figure 61).

The decline in SME profitability in 2014 was more pronounced in the digital sector than in the non-digital sector. Whilst the profit rate of SMEs in the digital sector was markedly greater (5.9 percentage points) than that of SMEs in the non-digital sector in 2013, the difference between the two sectors fell to just 1.8 percentage points in 2014. SMEs in the digital sector did, however, remain more profitable throughout this time period (Figure 61).

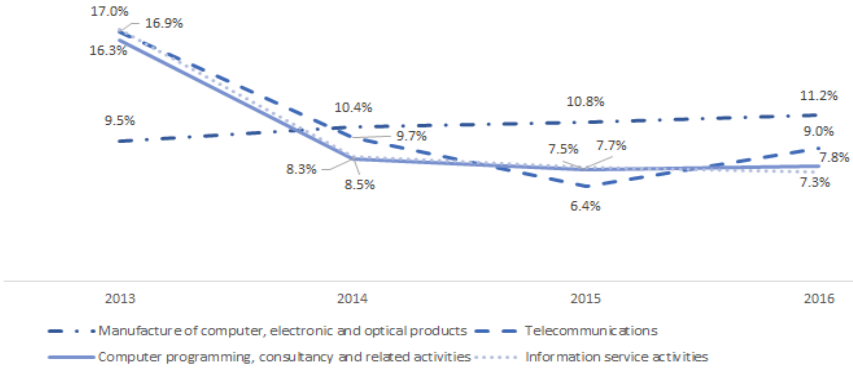
Figure 61 Profitability of EU-27 SMEs in the digital/non-digital sector, 2013 to 2016



Note: The 'digital' sector includes the following four industries: 'manufacture of computer, electronic and optical products', 'telecommunications', 'computer programming, consultancy and related activities' and 'information service activities'. The 'non-digital' sector is described as the total business economy less the four industries classified as 'digital'.
Source: Eurostat

The general evolution of the profitability of SMEs in the digital sector hides a number of different industry trends. While the profit rate of SMEs in the 'manufacture of computer, electronic and optical products' rose slowly from 2013 to 2016, SMEs in the other three digital industries posted a sharp decline in profitability from 2013 to 2014 and a broadly stable profit rate thereafter.

Figure 62 Profitability of EU-27 SMEs in digital industries, 2013 to 2016



Source: Eurostat

[48] The profit rate is defined as the ratio of gross operating surplus to turnover. The data are from Eurostat's Structural Business Statistics and are available at the level of two-digit NACE code by enterprise size class for the period 2013 to 2016 for the industries of most Member States.

SME profit rates also varied markedly by size class in 2016 (Table 27). In 2016, the digital sector was more profitable than the non-digital sector. This was the case for SMEs of all SME size classes, all SMEs combined and large enterprises;

- Among SMEs, micro SMEs were the most profitable in both the digital and non-digital sectors, whilst medium-sized SMEs were the least profitable in the non-digital sector;
- Large enterprises were more profitable than small and medium-sized SMEs, but were not more profitable than micro SMEs in both the digital and non-digital sectors.

All enterprise size classes posted a decline in profit rate from 2013 to 2016, with the decline being much larger in the digital sector than in the non-digital sector (Table 27).

Table 27 Profit rate (in %) in 2016 by enterprise size class and change in EU-27 enterprise profit rate (in percentage points) from 2013 to 2016 by size class in the total business economy and digital/non-digital sector

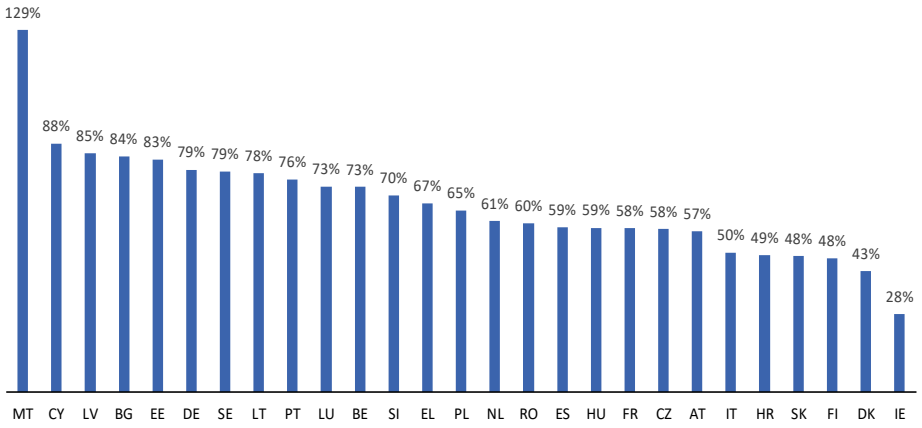
	Profit rate in 2016					Change in profit rate from 2013 to 2016 (in percentage points)				
Industry/size class	Micro	Small	Medium	SMEs total	Large	Micro	Small	Medium	SMEs total	Large
Total business economy	10.3%	6.3%	6.2%	7.5%	7.7%	-2.7	-1.4	-0.9	-1.7	-0.7
Digital sector	12.7%	6.6%	7.4%	8.5%	9.3%	-5.9	-7.3	-6.3	-6.5	-7.9
Non-digital sector	10.2%	6.3%	6.2%	7.5%	7.6%	-2.7	-1.3	-0.8	-1.6	-0.2

Note: The 'digital' sector consists of the following four industries: 'manufacture of computer, electronic and optical products', 'telecommunications', 'computer programming, consultancy and related activities' and 'information service activities'. The 'non-digital' sector comprises the total business economy less the four industries classified as 'digital'.
Source: Eurostat

ANNEX 3: THE CONTRIBUTION OF SMES TO GROWTH IN NFBS VALUE ADDED AND EMPLOYMENT

The contribution of SMEs to the increase in value added from 2018 to 2019 in the NFBS ranged from 28% in IE to 129% in MT, where SMEs more than offset a decrease in value added by large enterprises. Overall, SMEs in BG, CY, EE and LV also contributed to over 80% of the increase in value added in the NFBS. In contrast, SMEs accounted for less than half of value added growth in DK, FI, HR, IT and SK, in addition to IE (Figure 63).

Figure 63 SME contribution to the annual change from 2018 to 2019 in NFBS value added

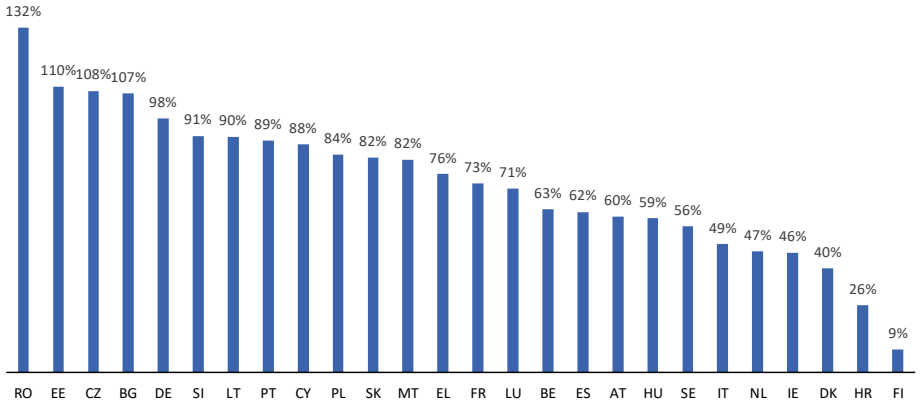


Source: Eurostat, National Statistical Offices, DIW Econ

SMEs' contribution to employment growth was highest in BG, CZ, EE, and RO, where SMEs more than offset a decrease of employment by large enterprises (Figure 64).

The contribution of SMEs to employment growth was lowest in FI (9%). SMEs also contributed to less than half of the 2018-2019 increase in employment in DK, HR, IE, IT and NL. This set of countries includes all the Member States (excluding SK) in which SMEs also accounted for less than 50% of the increase in value added.

Figure 64 SME contribution to the annual change from 2018 to 2019 in NFBS employment



Note: LV is not included as total employment growth in the NFBS was negative.
Source: Eurostat, National Statistical Offices, DIW Econ

ANNEX 4: PUBLIC SUPPORT PROGRAMMES TO MITIGATE THE IMPACT OF THE PANDEMIC

A4.1 Introduction

The Covid-19 pandemic has severely affected businesses, particularly SMEs, in the EU. In response, the EU has created wide ranging policies to attempt to create a minimum threshold of support for all SMEs in the region. However, the Temporary State Aid Framework, implemented by the EU at the onset of the pandemic, has led to heterogeneity between Member States in terms of the the assistance accessible to SMEs, due to the increased scope for each Member State to implement their own policy measures.

With the onset of the pandemic in March 2020, the EU attempted to mitigate the magnitude of the economic downturn by trying to increase individual, business, and state access to funds across the internal market by implementing a series of safety net policies.

1. The first safety net was the creation of the European Investment Bank Pan-European Guarantee Fund. Established in April 2020, this fund had a value of €25 billion to unlock up to €200 billion in loans to businesses, particularly SMEs, by the end of 2021 (KPMG, 2020a).

2. The second safety net, also implemented in April 2020, was the use of the European Stability Mechanism to help Member States with pandemic crisis support. This scheme provided loans to Member States of up to 2% of their 2019 GDP through its Enhanced Conditions Credit Line (KPMG, 2020a).

3. The final safety net was the SURE initiative which was established in May 2020. This initiative had the capacity to provide up to €100 billion in loans to Member States most in need of help, to enable them to implement measures to ensure that workers received an income and that businesses retained their employees (KPMG, 2020a). By June 2021, €89.6 billion of the €100 billion budget had been made available to 19 Member States, including Croatia, Italy, Spain and Portugal (European Commission, SURE[49]).

After the first wave of the pandemic, in Summer 2020, the EU shifted their focus towards economic recovery, culminating in the launch of the Next Generation EU programme (NGEU) in July 2020. This programme allows the Commission to borrow up to €750 billion to help fund recovery measures in 2021 and 2022 (European Commission, 2020a). The NGEU fund is designed to operate from 2021–2023. It is linked to the EU's regular 2021–2027 budget (Multiannual Financial Framework (MFF)). The comprehensive NGEU and MFF packages are projected to reach €1824.3 billion. These combined resources are expected to provide a substantial boost to the the EU economy with the explicit aim to use the recovery to steer the EU already towards a more sustainable, digitalised and resilient trajectory.

Beyond these region-wide policies, the EU also allowed greater autonomy in policymaking by Member States to aid their individual attempts to mitigate the economic downturn, whilst attempting to maintain a level playing field within the internal market. This was done by relaxing the previous regulations surrounding State Aid, whilst maintaining some restrictions, such as a cap on the amount an individual company could receive in direct grants or loan guarantees. The timeline in Figure 65 provides high level information on the initial introduction of the Temporary Framework and subsequent adjustments made to it as the pandemic unfolded.

Through this Temporary Framework, Member States had more scope to implement tailored measures to support their SMEs and their own economy, although this was at the cost of homogeneity in the response to the Covid-19 outbreak in the EU as a whole. These policies are compared in the following subsections.

[49] European Commission, SURE: https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/financial-assistance-eu/funding-mechanisms-and-facilities/sure_en; last consulted on 18 June 2021.

Figure 65 Timeline of the amendments to the Temporary State Aid Framework

Note: Some of these measures had restrictions. For instance, the amount a single company could receive in a direct grant was capped, with agricultural companies allowed up to €100,000, those in fishery or aquaculture allowed up to €120,000 and those in all other sectors able to receive a maximum of €800,000 (KPMG, 2020a). A Member State could only guarantee up to 90% of the risk on each loan (KPMG, 2020a).
Source: KPMG, 2020a and information provided by the EC

A4.2 Comparison of the responses across Member States

The measures enacted by Member States under the Temporary Framework can be grouped into five categories: 1) financial instruments, including state guarantees, subsidised interest rates and the offer of advanced repayments, 2) direct grants, 3) deferrals and exemptions of certain payments, including corporation tax, social security payments, debt repayments, VAT, tax, and rent and utility bills, 4) employment policies, such as short term work schemes and wage subsidies, and 5) structural policies, such as support for digitalisation and the transition to teleworking. Table 28 provides an overview of these policy responses and the following subsections look at these measures in more detail using examples.

Loan guarantees, subsidised interest rates and advanced repayments

One of the most significant problems faced by SMEs from the start of the pandemic was sustaining short-term liquidity and, as such, most Member States sought to implement measures to improve

access to finance for SMEs. These measures included offering state guarantees on loans to SMEs, subsidising the interest rate available to SMEs and offering repayable advances.

Loan guarantee schemes for all companies

As shown in Table 28, the most commonly used financial policy by Member States was to offer guarantees to financial intermediaries on loans to businesses. These loan guarantee schemes tended to be open to all companies, with components tailored to SMEs, and were often implemented at the outbreak of the pandemic in Europe in March and April 2020. The loan guarantee policies implemented by France and Malta illustrate the variety in the scope of these schemes.

- The French loan guarantee scheme, created in March 2020, mobilised €300 billion (European Commission, 2020b). The loan available under the scheme was a one-year treasury loan with a grace period throughout 2020 and the option to amortise the loan for up to a further five years (KPMG, 2020b). The level of state guarantee on this loan was dependent upon the nature of the company:

  - 90% for companies with less than 5,000 employees and a turnover below €1.5 billion;
  - 80% for companies with over 5,000 employees and a turnover of less than €5 billion;
  - 70% for companies with over 5,000 employees and a turnover of over €5 billion.

- Although Malta also implemented a large guarantee policy with a budget of €350 million in April 2020, the policy had more restrictive regulations. SMEs could only access a loan of up to €2 million (or €4 million if the Malta Development Bank had given prior ad hoc approval) and the loan term was restricted to between 18 and 48 months (KPMG, 2020c).

Loan guarantee schemes for SMEs

A significant number of Member States also offered loan guarantees specifically for SMEs. These policies were more likely to be established later in the pandemic, in Summer 2020.

- For instance, in August 2020, Ireland launched a loan guarantee scheme mobilising €2 billion for SMEs. The scheme offered financial intermediaries an 80% loan guarantee on loans between €10,000 and €1 million taken out by enterprises with up to 499 employees. (European Commission Press Release, 2020b).

- Similarly, Croatia implemented a loan guarantee and subsidised loan programme in May 2020 for micro enterprises and SMEs. This programme had a budget of €322 million (European Commission, 2020b).

Loan guarantees for SMEs in specific sectors

A few Member States implemented even more targeted loan programmes by making state guarantees only available to SMEs in the sectors worst hit by the pandemic. These more targeted schemes tended to be implemented as an additional measure to more general loan guarantee schemes to make certain that SMEs had access to loans.

- For instance, in March 2020, the Portuguese government established a loan guarantee scheme with a budget of €3 billion for SMEs and midcaps in tourism, restaurants and related activities, extractive and manufacturing industries and travel agency activities, touristic animation, and event organisation (European Commission Press Release, 2020c).

- Similarly, in May 2020, Finland implemented a loan guarantee programme with a budget of €600 million for maritime companies suffering due to the coronavirus outbreak (European Commission, 2020b).

Repayable advances or subsidised interest rates

Rather than offering guarantees on loans, a small number of Member States, such as Greece and Poland, sought to increase financing by offering businesses repayable advances or subsidised interest rates on loans.

- In April 2020, Poland launched one of the largest repayable advance schemes, with €16.6 billion available to SMEs that had experienced a decline in turnover of at least 25% in any month after February (European Commission Press Release, 2020d).

- In contrast, Greece had a significantly smaller scheme, despite it changing in size and scope over the course of 2020. The scheme was initially launched in April 2020 with a budget of €1 billion, before undergoing several alterations in August, November, and December 2020 so that the total budget grew to €5.7 billion (European Commission Daily News, 2020a).

Direct Grants

Some Member States also used direct grants to increase access to financing. Unlike the initial loan guarantee schemes, these direct grants tended to be more targeted, focusing on businesses in the sectors most affected by the pandemic or those experiencing significant revenue losses or which were unable to cover their fixed costs. There were also some direct grant schemes to support businesses developing solutions to Covid-19 issues, including Covid-19 related research and development (R&D), constructing Covid-19 testing facilities, and upscaling the production of products relevant to tackling the Covid-19 outbreak.

Direct grants for specific sectors

Most direct grant policies were targeted at companies in the sectors worst hit by the Covid-19 outbreak, including agriculture, transport (particularly air travel), hospitality, and tourism. These schemes tended to be implemented at a consistent rate from the outbreak of the Covid-19, as Member States toughened or eased restrictions, aiding or abetting economic activity within these various sectors.

- For instance, in April 2020, Estonia enacted a direct grant scheme with a total budget of €75.5 million, of which €20 million was solely for businesses in the cultural and sporting sectors (European Commission Press Release, 2020e).

- Romania implemented an even more targeted direct grant scheme in September 2020. This scheme had a budget of €47.4 million solely for companies in the pig and poultry sectors (European Commission, 2020b).

- On a smaller scale, in Slovenia, €1.5 million of direct grants were allocated to SMEs in the agri-food industry in October 2020 (European Commission, 2020b).

Direct grants as compensation for losses

A small number of other Member States offered direct grants to companies which had lost significant revenue due to the pandemic, as opposed to offering a sector-specific grant programme. These schemes tended to be implemented at the start of the Covid-19 outbreak, in Spring 2020, and were directed towards companies of all sizes rather than specifically SMEs.

- In June 2020, Sweden launched one of the largest schemes, with a budget of €3.7 billion. This scheme offered compensation to companies that experienced a decline in revenues of at least 30%, which covered up to 75% of their fixed costs to a maximum of €14 million per company (European Commission Press Release, 2020f).

- Similarly, in May 2020, Bulgaria implemented a direct grant scheme with a budget of €88 million for micro and small companies suffering due to Covid-19, excluding those companies in the agricultural, fishery and forestry sectors (European Commission Daily News, 2020b).

- Luxembourg merged the two approaches mentioned above. In June 2020, Luxembourg established a direct grant scheme, whereby SMEs operating in retail stores or in services, such as hairdressers, opticians, stylists, dry-cleaning and laundry services, were eligible for a grant if their business had experienced a decline in turnover of at least 50% between March and May 2020 (European Commission Daily News, 2020c).

In late 2020, rather than using loss of revenue as a requirement for direct grants, multiple Member States began to evaluate the need for direct grants using the level of uncovered fixed costs. These schemes tended to be open to companies of all sizes, although some were more generous to SMEs.

- In December 2020, Slovenia launched a scheme whereby micro and small companies registered before October 2019 were eligible to receive aid of 90% of their fixed costs not covered by their revenues up to €3 million per undertaking (European Commission Press Release, 2020g).

Direct grants for medical purposes

Finally, some direct grant programmes were aimed at aiding the medical fight against the Covid-19 outbreak, rather than addressing liquidity issues faced by SMEs. These schemes tended to have budgets between €50 million and €200 million and to be open to all businesses in Covid-19 related sectors, rather than specifically targeting SMEs, although some did.

- The programme enacted by Slovakia in July 2020 had a total budget of €80 million for Covid-19 related R&D, upscaling testing facilities and increasing the production of Covid-19 related products (European Commission, 2020b).

- The equivalent scheme launched by the Czech Republic in April 2020 was only available to SMEs producing products needed to fight the pandemic and had an initial budget of €11 million with the potential to increase to €37 million (European Commission Press Release, 2020h).

Deferrals and exemptions

To further attempt to help SMEs with liquidity problems, almost all Member States deferred various tax payments and social security contributions and a minority also deferred debt, utility, or VAT payments.

Social security contributions

As shown in Table 28, most Member States deferred or subsidised employer social security contributions. These measures varied in their nature and the type and sector of the companies targeted, as outlined by the different measures imposed by Spain and Lithuania.

- Spain enacted one of the most wide-ranging measures by implementing a 6-month moratorium on social security contributions and delaying social security debt payments for companies and the self-employed. These measures were valued at €557 million (Anderson et al., 2020).

- Other Member States imposed eligibility requirements, such as being based on the sector and the size of the business under consideration, when offering these needs-based grants. For instance, Lithuania offered companies in tourism and the events sector, who had experienced a loss in income of at least 30% over one month from April to June 2020, a grant to cover 30% of their social security contribution (Anderson et al., 2020).

Corporation tax

A number of Member States also made the repayment of corporation tax more lenient in some way. These policies tended to vary across Member States, with some Member States enacting more targeted corporation tax breaks, whilst others have implemented broader measures.

- For instance, in Germany, the normal measures to enforce tax repayments were suspended until the end of December 2020 (KPMG, 2020d).

- Conversely, Spain implemented more targeted policies. From March 2020, Spain allowed SMEs and self-employed workers with a turnover below €6 million to have a six-month deferral of tax payments for payments below €30,000 (KPMG, 2020e).

Debt moratorium

The introduction of a debt moratorium was less commonly used as a measure to alleviate liquidity problems than the two types of measures described above, although, when implemented, these measures tended to be SME specific rather than available to all enterprise size classes. This is shown by the policies enacted by Belgium and Italy.

- For instance, companies in Wallonia in Belgium were able to defer their loan repayments to the main public investment and management bodies, which were originally due in March, without having to pay additional interest if the loan was below €2.5 million (Anderson et al., 2020). This measure had a budget of €77.7 million, of which a third was allocated to supporting micro enterprises and SMEs (Anderson et al., 2020).

- Likewise, in March 2020, Italy implemented a moratorium for micro enterprises and SMEs whereby current account lines, loans for advances on securities, short-term loan maturities and instalments of loans due were frozen until the end of September 2020 (European Commission Press Release, 2020i).

Value Added Tax (VAT)

A few Member States also deferred or reduced VAT. These deferrals or reductions in VAT tended to be an additional measure to the deferral of corporation tax, rather than being a substitute. These schemes also varied massively in their scale and scope, as illustrated by the policies implemented by Germany and Cyprus.

- The largest scheme was implemented by Germany, which cut their VAT rate from 19% to 16%, with the lower tax band reducing from 7% to 5%, from July until December 2020, at an estimated cost of €20 billion (Anderson et al., 2020).

- Cyprus enacted a much smaller scheme, whereby companies facing difficulties due to the Covid-19 outbreak were able to delay their payment of VAT for April, May, and June to November without any interest or facing any penalties (European Commission Press Release, 2020j).

Rent or utility payments

Similarly, a small number of Member States implemented measures to defer the payment of rent or utility fees, such as gas, electricity, and water.

- For instance, in March 2020, in Hungary, evictions of small businesses unable to pay rent were suspended (OECD, 2020).

- Likewise, in Slovenia, small businesses and households were freed from the obligation of paying for electricity from renewable or high-efficiency resources (OECD, 2020).

Support for employment retention

Another significant problem faced by SMEs was paying their employees when they were unable to attend work due to sickness or to government restrictions. In response, most of Member States enacted or extended short term work schemes supported by wage subsidies and a few made their sickness pay more generous.

Short-time work schemes and wage subsidies

As shown in Table 28, almost every Member State implemented or extended short-time work schemes and wage support. These short-time work programmes tended to be available to all companies rather than being specifically targeted at SMEs and were implemented at the onset of the pandemic.

- France created one of the most generous short-time work programmes. Under the programme, the French government eased the ability of companies to reduce the working hours of their employees and increased the proportion of the wages of these individuals subsidised by the government from 70% to 100% for wages up to €6,927 per month (KPMG, 2020b).

- In contrast, Denmark did not extend their existing short-time work scheme to create an umbrella scheme and instead implemented another scheme targeted towards paying the wages of employees in the companies hardest hit by the pandemic. For Danish firms at risk of firing 30% of their workers (or 50 people), employees received 75% of their wages from the government, up to a sum of €4,000 per month, and received the remaining 25% from their employers, on condition that their employment would continue beyond the end of the scheme (Mißlbeck-Winberg, 2020).

- Similarly, Hungary increased their existing budget for employment retention and, in April 2020, launched a more targeted wage subsidy programme, with a budget of €88 million, to prevent R&D workers from being laid off due to the pandemic (European Commission, 2020b).

Sick pay subsidies

- A couple of Member States subsidised sick pay as a substitute or an additional measure to short-time work programmes.
- For instance, the Latvian government covered 75% of the cost of sick leave resulting from the Covid-19 outbreak, up to a total of €700 per month per worker (OECD, 2020).

Structural Policies

With often limited access to resources and information, due to their size, SMEs also experienced difficulties implementing the necessary work arrangements which would enable them to continue to operate during government restrictions. To attempt to overcome these issues and to try to jump start future change, some Member States implemented structural policies to help SMEs introduce teleworking and digitalisation into their workplaces and aid innovation.

- For example, in March 2020, Austria created a platform called 'Digital Team Austria', which offers digital services to SMEs for free for at least three months to help the transition to mobile working (OECD, 2020).
- Similarly, in March 2020, Italy launched a 'Digital Solidarity' initiative whereby companies can access digital services from private sector companies for free (OECD, 2020).
- To promote innovation, France has brought forward €250 million in support grants through the Innovation for the Future programme (OECD, 2020).

Table 28 lists the policy instruments used by EU Member States according to the categories outlined above. The most widely employed policy measures were loan guarantees, wage subsidies and direct grants.

Table 28 Overview of Covid-19 enterprise support measures in 2020 and 2021

Member State	Employment Policies		Exemption or Deferral of Payments					Financial Instruments		
	Wage subsidy	Self-employed	Corporation tax	VAT	Social security and pension contributions	Rent or utilities	Debt moratorium	Loan guarantee	Direct loans and repayable advances	Grant or Subsidy
Austria	X	X	X	X	X		X	X	X	X
Belgium	X	X	X	X	X	X	X	X	X	X
Bulgaria	X	X	X	X	X		X	X	X	X
Croatia	X		X	X	X		X	X	X	X
Cyprus	X	X		X			X	X	X	X
Czechia	X	X	X	X	X	X		X	X	X
Denmark	X	X	X	X	X			X	X	X
Estonia			X	X	X			X	X	X
Finland		X	X	X	X			X	X	X
France	X	X	X	X	X	X		X	X	X
Germany	X	X	X	X	X	X		X	X	X
Greece	X	X	X	X	X	X		X	X	X
Hungary	X	X	X		X		X	X	X	X
Ireland	X	X	X	X		X		X	X	X
Italy	X	X	X	X	X	X	X	X	X	X
Latvia	X		X	X				X	X	X
Lithuania	X	X						X	X	X
Luxembourg	X	X	X		X		X	X	X	X
Malta	X	X		X	X	X	X	X		X
Netherlands	X	X	X	X	X		X	X	X	X
Poland	X	X	X	X	X			X	X	X
Portugal	X	X	X	X	X	X	X	X	X	X
Romania	X	X	X	X		X	X	X	X	X
Slovakia	X	X	X		X	X	X	X	X	X
Slovenia	X	X	X		X	X	X	X	X	X
Spain	X	X	X	X	X	X	X	X	X	X
Sweden	X		X	X	X	X		X	X	X

Source: based on European Commission, DG Economic and Financial Affairs, Policy measures taken against the spread and impact of the coronavirus – 12 February 2021, European Commission, DG Competition, List of Member State Measures approved under Articles 107(2)b, 107(3)b and 107(3)c TFEU and under the State Aid Temporary Framework, the 'Policy Tracker' created by the International Monetary Fund (IMF) with additions from KMPG Insights on 'Government and Institution Measures in Response to the Coronavirus' for clarification on specific tax measures. The rapid nature of developments during the pandemic means that the information in the table may not be comprehensive or fully up to date.

ANNEX 5: EU BUSINESS DEMOGRAPHY

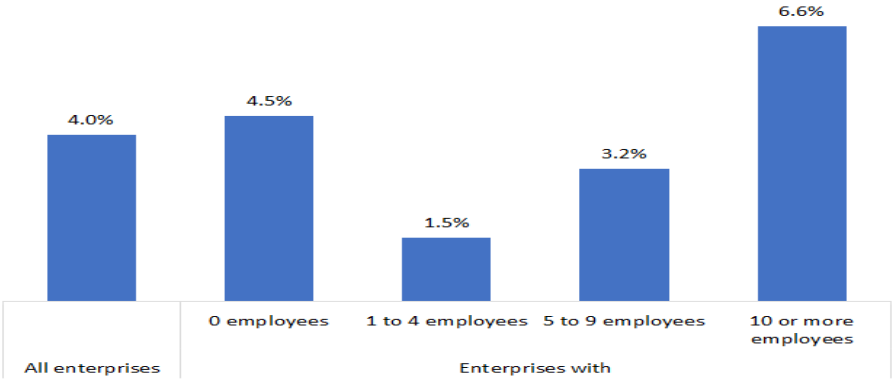
The data on the enterprise demography in the EU-27 NFBS, which are published by Eurostat, distinguish various enterprise size classes using employment thresholds which differ from those used to distinguish between micro, small and medium-sized SMEs and large enterprises. These business demography data provide information on enterprises with 0 employees, 1 to 4 employees, 5 to 9 employees and 10 or more employees.

As practically all enterprises in the EU-27 NFBS are SMEs, the business demography data are useful in terms of analysis of enterprise births and deaths within different sub-groups of micro SMEs and the combined group of small and medium-sized SMEs.

A5.1 Number of enterprises

Over the period 2014-17[50], the number of enterprises with 10 or more employees grew faster, at 6.6%, than the number of enterprises with between zero and 10 employees, in which the increase ranged between 1.5% and 4.5% (Figure 66).

Figure 66 Change in the number of enterprises in the EU-27 NFBS from 2014 to 2017

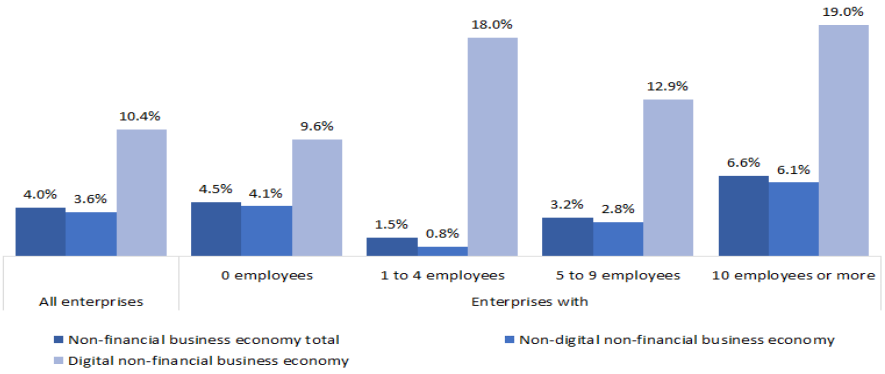


Source: Eurostat

Growth in the number of enterprises in the digital sector far outstripped growth in the non-digital sector over the same period (2014 to 2017) (Figure 67). However, the digital sector represents a relatively small share of the EU-27 NFBS, so the growth in the number of total enterprises was much closer to that in the non-digital sector.

[50] 2017 was the most recent year for which business demography data were available when this report was prepared.

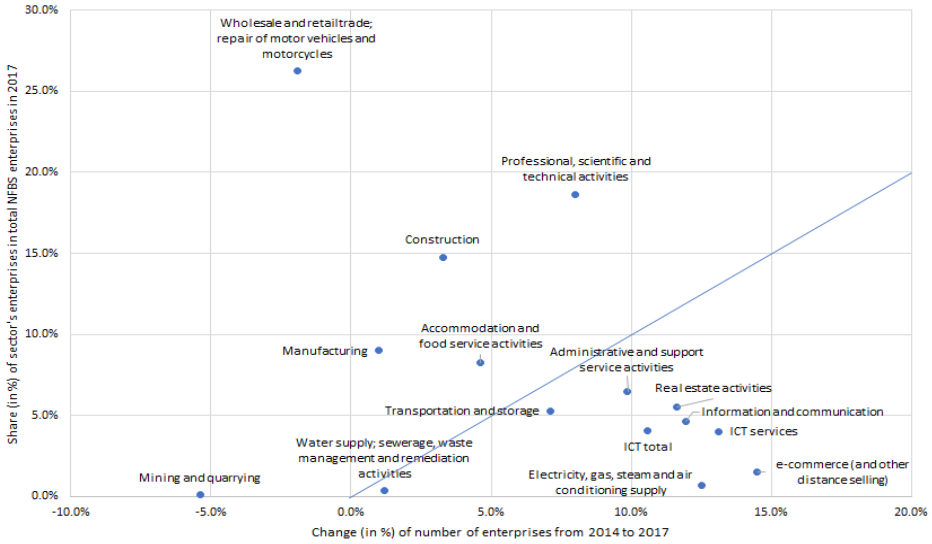
Figure 67 Change in the number of enterprises in the EU-27 NFBS from 2014 to 2017 - digital and non-digital sectors



Source: Eurostat

A more granular breakdown of sectors reveals that the industries which grew most in terms of enterprise population represented only a small share of the EU-27 NFBS (Figure 68). However, some industries, such as 'professional, scientific and technical activities', were both relatively large and also expanded their populations quickly.

Figure 68 Growth from 2014 to 2017 in the number of enterprises in different industries of the EU-27 NFBS and sectoral share of EU-27 NFBS in 2017

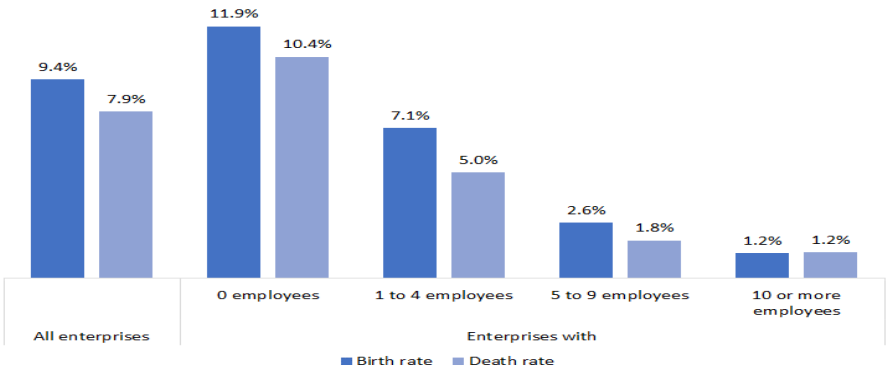


Source: Eurostat

A5.2 Enterprise births and deaths

Smaller enterprise size classes typically show higher enterprise birth and death rates than larger enterprise size classes. Indeed, this was the case for the smaller SME size classes in the EU-27 NFBS in 2014-2017 (Figure 69). At 2.1 percentage points, the difference between births and deaths (7.1% and-5.0%), was relatively large for SMEs with 1-4 employees.The difference was much smaller for enterprises with 5-9 employees and 10 or more employees.

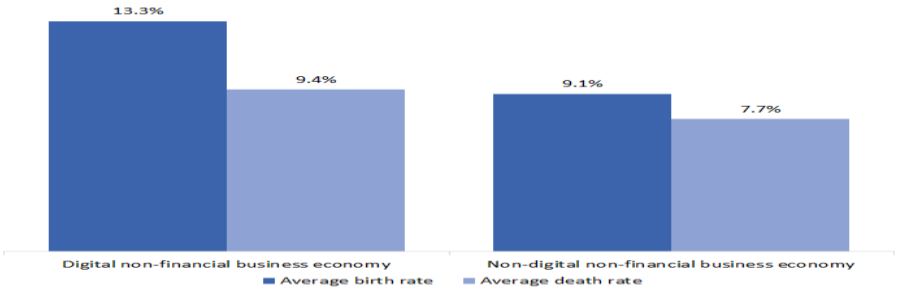
Figure 69 Average enterprise birth and death rates in the EU-27 NFBS from 2014 to 2017 - all enterprises and different enterprise size classes



Source: Eurostat

In a comparison of the digital and non-digital sectors in the EU-27 NFBS from 2014 to 2017, the average enterprise birth rate was 4.2 percentage points higher in the digital sector. The average death rate was also higher in the digital sector than in the non-digital sector, by 1.7 percentage points. Overall, the digital sector was characterised by higher growth in enterprise creation than the non-digital sector (Figure 70) but also by greater churn, that is, more enterprise births and deaths.

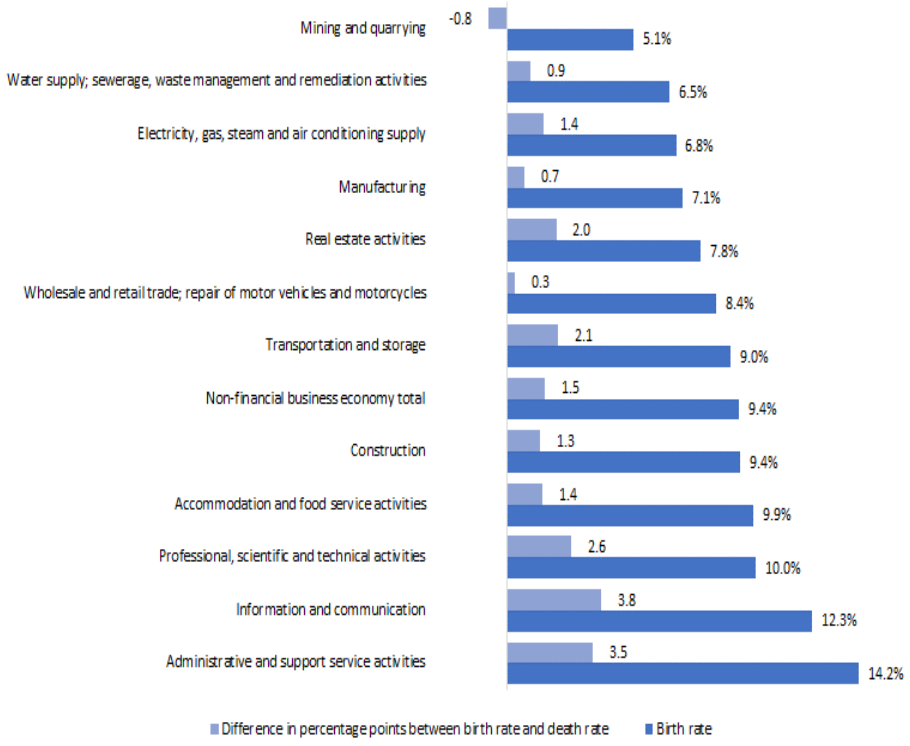
Figure 70 Average enterprise birth and death rates in the EU-27 NFBS from 2014 to 2017 - digital and non-digital sectors



Source: Eurostat

A granular breakdown of EU-27 NFBS industries shows that industries with a higher firm birth rate also tended to have a greater difference between birth and death rates in 2014-17, particularly in 'administrative and support service activities', 'information and communication' and 'professional, scientific and technical activities' (Figure 71). 'Mining and quarrying' was the single industry in which the firm birth rate was lower than the death rate.

Figure 71 Average enterprise birth rates from 2014 to 2017 in different industries of the EU-27 NFBS and the NFBS overall



Source: Eurostat

ANNEX 6: HIGH-GROWTH SMES IN THE EU-27

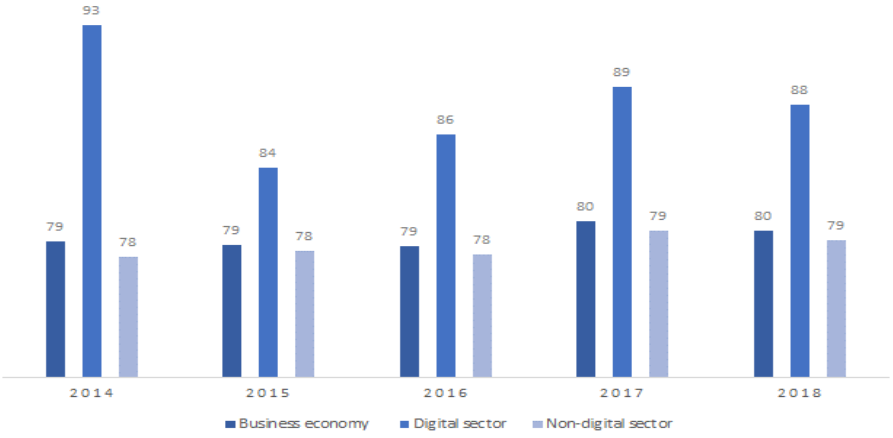
A6.1 High-growth enterprises

High growth enterprises are enterprises in which the number of employees grew annually by at least 10% over a three-year period and which had at least 10 employees in the beginning of their growth spurt.

In 2018, high-growth enterprises in the business economy employed, on average, 80 employees. Moreover, the payroll of high growth enterprises was on average 11% larger in the digital sector than in the non-digital sector (88 employees versus 79 employees) (Figure 72).

While high-growth enterprises in the digital sector in 2014 employed almost 20% more staff than similar enterprises in the non-digital sector, the difference in subsequent years was considerably smaller and ranged from 8% to 13% (Figure 72).

Figure 72 Average size (in terms of number of employees) of high-growth enterprises in the EU-27 business economy and digital/non-digital sector



Note: Data was not available for CY or LT in 2018. Data for the number of employees in the digital sectors was not available for EL and CY in 2015; and EL in 2016. High-growth enterprises are enterprises with at least 10 employees at the beginning of their growth period and which post average annualised growth in the number of employees greater than 10% per annum over a three year period. The business economy includes the NFBS and financial and insurance activities (excluding holding companies). The 'digital' sector includes the following industries: 'Manufacture of computer, electronic and optical products', 'Telecommunications', 'Computer programming, consultancy and related activities' and 'Information service activities'. The 'non-digital' sector encompasses the total business economy less the digital industries.
Source: Eurostat

There were 175,281 high-growth enterprises in the EU-27 business economy in 2018, 6.4% more than in the previous year (Table 29).

Almost all high-growth enterprises in 2018 operated in the non-digital sector (162,521 enterprises). However, high-growth enterprises accounted for a much smaller proportion of all enterprises in the non-digital sector than in the digital sector (11.0% versus 16.8%) (Table 29).

While the number of high-growth enterprises in both the digital and non-digital sectors in the EU-27 has grown each year from 2015 to 2018, the pace of the growth has clearly decelerated over this period (Table 29). Moreover, in general, the annual growth rate of the number of high-growth enterprises in the digital sector was only very marginally higher than in the non-digital sector.

Table 29 Number and annual growth in the number of high-growth enterprises in the EU-27 business economy and digital/non-digital sectors

	Measure /Year	2014	2015	2016	2017	2018
Business economy	Number	117,651	134,768	150,869	164,790	175,281
	Growth	-	14.5%	11.9%	9.2%	6.4%
Digital sector	Number	8,339	9,726	10,763	11,883	12,760
	Growth	-	16.6%	10.7%	10.4%	7.4%
Non-digital sector	Number	109,312	125,042	140,106	152,907	162,521
	Growth	-	14.4%	12.0%	9.1%	6.3%

Note: Data was not available for CY or LT in 2018. No annual growth rate is shown for 2014 as data on high-growth enterprises are not available prior to 2014. High-growth enterprises are enterprises with at least 10 employees in the beginning of their growth and which post average annualised growth in the number of employees greater than 10% per annum over a three year period. The business economy includes the NFBS and financial and insurance activities (excluding holding companies). The 'digital' sector includes the following industries: 'Manufacture of computer, electronic and optical products', 'Telecommunications', 'Computer programming, consultancy and related activities' and 'Information service activities'. The 'non-digital' sector encompasses the total business economy less the digital industries.
Source: Eurostat

In 2017, the most recent year for which data on the total enterprise population in the EU-27 business economy are presently available, high-growth enterprises in the EU-27 business economy accounted for 15.4% of employment in the business economy and 23.4% of employment in the digital sector (Table 30).

The contribution of high growth enterprises to employment has increased over time in both the digital and non-digital sectors (Table 30).

Table 30 High-growth enterprises' share of number of enterprises and employment in the EU-27 population of enterprises with 10 or more employees in the business economy and digital/non-digital sectors

	SME Indicator	2014	2015	2016	2017
Business economy	Enterprises	8.6%	9.7%	10.6%	11.3%
	Employment	11.5%	13.1%	14.2%	15.4%
Digital sector	Enterprises	14.0%	15.1%	16.0%	16.8%
	Employment	19.7%	19.4%	21.2%	23.4%
Non-digital sector	Enterprises	8.3%	9.4%	10.3%	11.0%
	Employment	11.1%	12.7%	13.8%	14.9%

Note: No data are shown for 2018 because data on the total population of enterprises with 10 or more employees are not yet available. Data for the number of employees in the digital sectors was not available for EL and CY in 2015; and EL in 2016. High-growth enterprises are enterprises with at least 10 employees in the beginning of their growth and which post average annualised growth in the number of employees greater than 10% per annum over a three year period. The business economy includes the NFBS and financial and insurance activities (excluding holding companies).). The 'digital' sector includes the following industries: 'Manufacture of computer, electronic and optical products', 'Telecommunications', 'Computer programming, consultancy and related activities' and 'Information service activities'. The 'non-digital' sector encompasses the total business economy less the digital industries. 'Digital' sector data is missing for some or all industries for the following countries in the following years: 2014 (CY, DK, EL, MT, NL & SI), 2015 (CY, EL, MT & NL), 2016 (CY, EL, LU, MT & NL) & 2017 (CY, LU, MT & NL).
Source: Eurostat

The share of high-growth enterprises in the overall number of enterprises with 10 or more employees varied markedly between the digital and the non-digital sectors.

In every Member State (except SK) and in the EU-27 overall, high-growth enterprises accounted for a greater proportion of enterprises with 10 or more employees in the digital sector than in the non-digital sector in 2017/2018 (Figure 73).

- In three Member States (IE, BE and NL), more than 20% of all enterprises with 10 or more employees in the digital sector were high-growth enterprises in 2017/2018 (Figure 73);

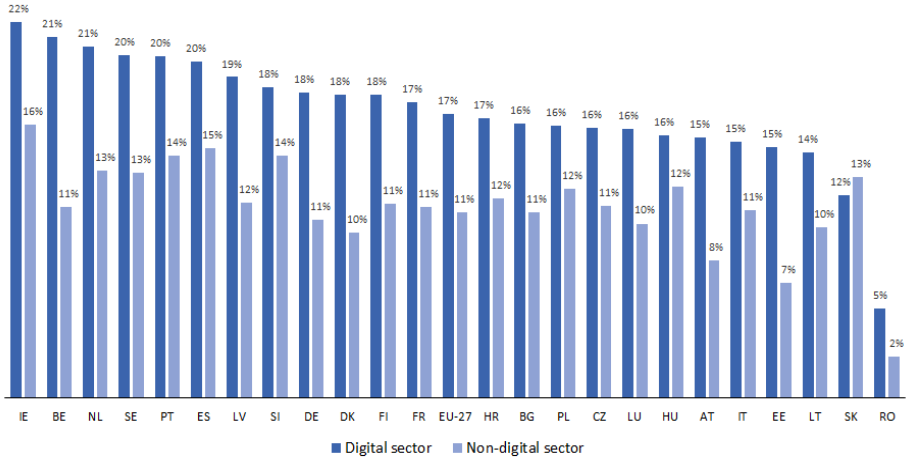
- RO had the lowest share (5%) of high-growth enterprises in the digital sector, followed by SK (12%). RO also had the lowest share (2%) of high growth enterprises in the non-digital sector;

- IE posted the greatest share of high-growth enterprises in the population of enterprises with 10 or more employees in the non-digital sectors and the digital sectors (16% and 22% respectively) (Figure 73);

- BE reported the greatest difference (10 percentage points) between the shares of high-growth enterprises in both sectors.

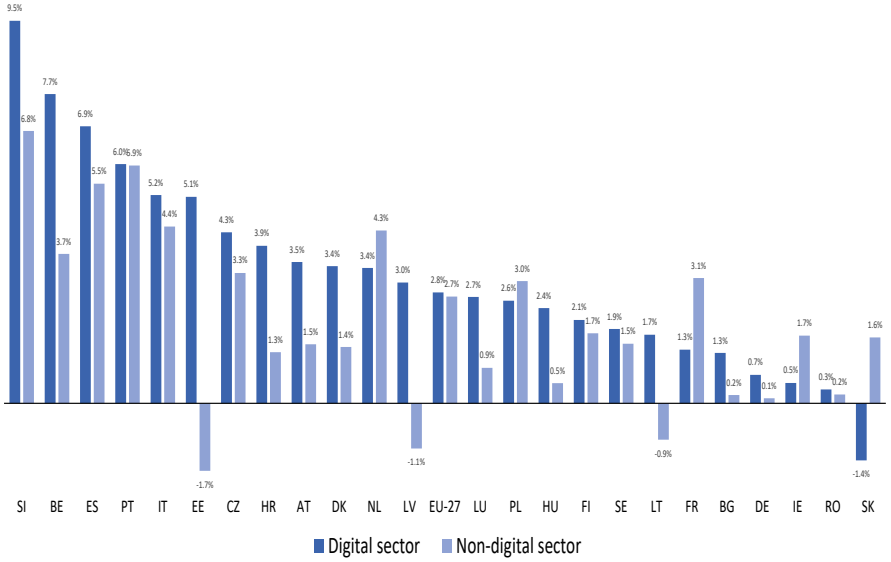
The majority of Member States (20 out of the 24 for which data are available) generated a greater rise from 2014/2015 to 2017/2018 in the digital sector, compared to the non-digital sector, in terms of the share of high-growth enterprises in the population of enterprises with 10 or more employees (Figure 74). FR, IE, NL, PL and SK were the only Member States that showed a greater rise in the non-digital sector. SK was also the only Member State which posted a fall in the share of the digital sector.

Figure 73 High-growth enterprises' share of number of enterprises in population of enterprises with 10 or more employees in the digital/non-digital sectors of EU-27 Member States in 2017 / 2018



Note: 2017 data are shown for DK, DE, EE, IE, ES, LV, LT, LU, HU, NL & EU-27. Data was not available for either 2017 or 2018 for EL, CY or MT. High-growth enterprises are enterprises with at least 10 employees in the beginning of their growth and which post average annualised growth in the number of employees greater than 10% per annum over a three year period. The 'digital' sector includes the following industries: 'Manufacture of computer, electronic and optical products', 'Telecommunications', 'Computer programming, consultancy and related activities' and 'Information service activities'. The 'non-digital' sector encompasses the total business economy less the digital industries.
Source: Eurostat

Figure 74 Change in high-growth enterprises' share (in percentage points) of number of enterprises in population of enterprises with 10 or more employees in the digital/non-digital sector in EU-27 Member States from 2014 (2015) to 2018 (2017)



Note: Sufficient data was not available for EL, CY or MT. DK, DE and IE compare 2015 to 2017. EE, ES, LV, LT, LU, HU, NL and EU-27 compare 2014 to 2017. High-growth enterprises are enterprises with at least 10 employees in the beginning of their growth and which post average annualised growth in the number of employees greater than 10% per annum over a three year period. The 'digital' sector includes the following industries: 'Manufacture of computer, electronic and optical products', 'Telecommunications', 'Computer programming, consultancy and related activities' and 'Information service activities'. The 'non-digital' sector encompasses the total business economy less the digital industries.
Source: Eurostat

A6.2 Gazelles

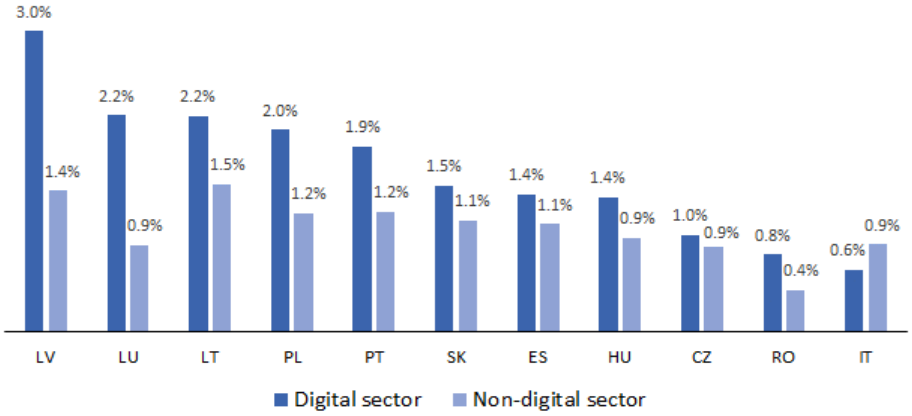
While the the previous section focused on enterprises of all ages with a strong growth spurt in recent years, this section focuses more narrowly on young enterprises which have grown rapidly; the 'gazelles' in EU-27 Member States. The Eurostat definition of a gazelle[51] is used in the analysis below.

Data on gazelles are only available for a limited number of Member States.

IT was the only Member State in 2017 with a lower share of gazelles in the digital sector than in the non-digital sector among the population of active enterprises with 10 or more employees (Figure 75). LV and LT reported the greatest share (3.0% and 2.2%) of gazelles in the digital sector. These two Member States also reported the largest difference (1.6 and 1.3 percentage points, respectively) between the digital and non-digital sectors.

[51] Eurostat uses the following definition for 'gazelles': a gazelle is a high-growth enterprise that is up to 5 years old and a high-growth enterprise is an enterprise with average annualised growth in number of employees (or turnover) greater than 10 % per year over a three-year period (t – 3 to t) and having at least 10 employees in the begining of the growth period (t – 3).

Figure 75 Gazelles' share of number of enterprises in digital/non-digital sectors of EU-27 Member States' population of active enterprises with 10 or more employees in 2017



Note: Gazelles are high-growth enterprises that are up to five years old, with average annualised growth (turnover or employment) greater than 10% per annum, over a three year period. The business economy includes the NFBS and financial and insurance activities (excluding holding companies). The 'digital' sector includes the following industries: 'Manufacture of computer, electronic and optical products', 'Telecommunications', 'Computer programming, consultancy and related activities' and 'Information service activities'. The 'non-digital' sector encompasses the total business economy less the digital industries.

Source: Eurostat

ANNEX 7: EXECUTIVE SUMMARY OF THE FLASH EUROBAROMETER 486 (SMES, START-UPS, SCALE-UPS AND ENTREPRENEURSHIP) PUBLISHED IN SEPTEMBER 2020

SMEs predominantly provide services, nearly four in ten are solely owned by one person and just over one quarter exported in 2019[52]

- Over four in ten (44%) SMEs are located in a large town or city, or (42%) in a small town or village and 10% in a rural area. A total of 12% are located in an industrial area. One in ten (10%) say they are located near a border with an EU country, while 2% say they are near a border with a non-EU country.
- SMEs, start-ups and scale-ups are more likely to mainly provide services than goods. About two thirds of them provide mainly services and about one third mainly goods.
- Just over one quarter (26%) of SMEs exported goods or services in 2019, with other EU countries the most common destination (23%). Start-ups (33%) and scale-ups (34%) are more likely to have exported than SMEs (23%) which are neither start-ups nor scale-ups.
- For 67% of SMEs that export to non-EU countries, exports outside of the EU account for less than 25% of their total turnover.
- SMEs that mainly sell goods are more likely to have exported than those that mainly sell services (35% vs 22%).
- Fewer than one in twenty SMEs sell goods online to buyers in other EU countries (4%), which compares to 11% of large enterprises.
- Almost four in ten (38%) SMEs are solely owned by one person, half (50%) are owned by more than one person, and some have other ownership structures. Around 2% of start-ups and scale-ups are co-owned by business angels.
- One in twenty (5%) SMEs interviewed are not-for-profit enterprises.
- More than one in ten (14%) SMEs are members of an industry cluster or another SME business support organisation in their region.

Half of respondents are the founders of the SME, and a large share are seasoned entrepreneurs

- Half (50%) of respondents are either sole founders or co-founders of the SME.
- About four in ten (42%) of the interviewed founders of the SME have also established or co-established other enterprises.
- Almost one fifth (18%) of the SME founders surveyed have closed - without bankruptcy - other enterprise(s) that they owned or co-owned, while 4% say they have closed other enterprise(s) due to bankruptcy.
- Over one in ten (12%) respondents who are sole founders or co-founders of the SME have sold other enterprises that they owned or co-owned.
- Founders interviewed among start-ups and scale-ups are more likely to have also established other enterprises before (48-50% vs. 40% of the founders of other SMEs). Respondents who are founders of start-ups are also the most likely to have closed (23% without bankruptcy and 9% due to bankruptcy) or to have sold other enterprises (16%) they owned or co-owned.
- One in twenty (5%) of the interviewed start-up founders plan to relocate the headquarters of their enterprise to another EU country.
- Amongst owners of an SME, which was originally established by someone else, 39% took over the enterprise from family members.

[52] Link: https://europa.eu/eurobarometer/surveys/detail/2244.

Around half of SMEs surveyed have increased their turnover and/or employment since 2016, and they are likely to plan growth in terms of turnover rather than in employment

- About half (49%) of all SMEs say their turnover has increased since 2016, while 30% say it has been stable, and 16% that it has decreased.
- Half (50%) of SMEs with at least 10 employees say they have increased their employment since 2016, 38% say numbers have remained stable and 10% say they have decreased.
- About a third of micro enterprises also say they have increased their employment in the last three years, thus since 2016: 24% say their enterprise has grown by 1-2 employees, while 8% say it has grown by at least 3 employees. Just under a half of micro enterprises (47%) say that the number of employees has stayed the same, 14% say it has decreased by 1-2 employees and 7% say it has decreased by at least 3 employees.
- In the last three years, thus since 2016, around two thirds of start-ups and scale-ups among micro enterprises - and over four in five start-ups and scale-ups among enterprises with at least 10 employees - have also increased their employment.
- More than four in ten (44%) SMEs have (or had, as these results predominantly reflect plans that were in place prior to the Covid-19 pandemic) plans to grow the number of their employees. A slight majority (51%), however, already said they had no plans to grow their employment in the next few years, while 5% were unsure.
- Start-ups (76%) were the most likely to say they had plans to grow their employment in the next few years, followed by scale-ups (62%).
- Two thirds (66%) of SMEs plan (or planned, prior to Covid-19 pandemic) to grow turnover in the next few years, compared to 82% of large enterprises.
- Start-ups were more likely to have had higher growth targets than other SMEs, and this was particularly the case for growth of more than 20% per year: 38% of start-ups planned this level of turnover growth over the next few years, compared to 22% of scale-ups and 5% of other SMEs that are neither start-ups nor scale-ups.
- Almost one in five (17%) SMEs (compared to 28% of start-ups and 24% of scale-ups) that plan to grow in employment or in turnover, intend to do so in other EU countries.
- More than one third (34%) of SMEs have a strategic growth plan, and around one third plan to grow by introducing innovation (33%), by operating in growing markets (33%), by entering new markets (32%) or by increasing digitalisation in their enterprise (31%).

More than one in ten SMEs that do not plan to grow say their enterprise does not have employees with the skills or expertise needed for it to grow

- Almost four in ten (39%) SMEs that do not plan to grow say there is no intention for their enterprise to grow beyond its current size, while 37% say there is decreasing demand for their products or services or the market is saturated.
- Just over one third (34%) of SMEs that do not plan to grow say additional regulatory or administrative burdens and requirements would be too high for their enterprise to grow.
- For one in five (20%) SMEs that do not plan to grow, the current location of their enterprise does not allow for growth and there is no desire to relocate, while almost as many (19%) say their enterprise does not have the financial resources to grow.
- More than one in ten (13%) SMEs that do not plan to grow say their enterprise does not have employees with the skills or expertise needed for it to grow.
- Nearly one in ten (8%) SMEs that do not plan to grow say their enterprise does not plan to grow because it would lose benefits linked to its SME status.

The majority of SMEs are positive about most aspects of their business environment, but point to regulatory obstacles or administrative burden as the biggest problems

- Seven in ten (70%) SMEs said (prior to Covid-19 pandemic) that their enterprise would be able to obtain external financing if they needed it. Start-ups and scale-ups (both 76%) were even more confident in this.
- Almost eight in ten (79%) SMEs say the infrastructure for businesses, such as available office space and internet connectivity is good, while 77% say this about the overall strength and performance of their regional business environment and 62% say this about access to and collaboration with business partners.
- The majority (55%) of SMEs think the availability of staff with the right skills is good, with 50% saying access to private and public finance is good and 49% saying the same for the quality of support services for business provided by private and public actors.
- Large companies are much more likely than SMEs to say the legal and administrative business environment is good (76% vs 65%).
- In general, large enterprises are considerably more likely than SMEs to rate the various aspects of their business environment positively.
- The areas that pose the biggest problems for SMEs are regulatory obstacles or administrative burden (55%), payment delays (35%) and access to finance (21%).
- SMEs that mention the regulatory obstacles or administrative burden as one of the biggest problems for their enterprise are significantly more likely to rate the legal and administrative environment as poor, than SMEs that do not cite it as one of the biggest problems (39% vs 19%).
- Skills, including managerial skills, are one of the biggest problems for 17% of SMEs, while 13% mention difficulties with digitalisation. Almost one in ten (9%) say difficulties with innovation is one of their biggest problems, while 8% mention internationalisation and 7% access to data.
- When describing their key problems in their own words, SMEs mention most often problems of regulation (26%, this includes problems of bureaucracy and administrative burden) and problems of finance (23%, including payment delays/cash flow, access to credit, etc.), followed by recruitment (16%, including issues such as recruitment of adequately skilled employees and retaining top talent).
- Over four in ten (42%) SMEs say that the availability of support to help enterprises become more sustainable is poor.

The majority of SMEs have introduced some kind of innovation in the past 12 months, however the majority also say there are barriers to innovation

- Almost six in ten (58%) SMEs have introduced innovation in the past 12 months. The most common innovations are new or significantly improved product or service (25%), introducing an innovation with an environmental benefit (21%) or introducing a new way of selling their goods or services (20%). Almost one in five (17%) have introduced social innovations. Large enterprises are more likely than SMEs to have innovated in each of the areas listed in the study.
- One in twenty (5%) SMEs surveyed have a patent or a patent application, compared to 17% of large enterprises, 10% of start-ups and 9% of scale-ups.
- Over seven in ten (71%) SMEs say there is at least one of the listed barriers to innovation in their enterprise. The most common difficulties are predicting the market response (35%), the legal or administrative environment (31%), a lack of financial resources (also 31%), or a lack of skills (22%). At least one in ten mention a lack of technology infrastructure (15%), a lack of collaboration partners (14%), or difficulties with protecting intellectual property (10%).

A large majority of SMEs proceed with digitalisation, but are held back by uncertainty about future digital standards, IT security issues and a lack of IT infrastructure

- About one in five SMEs (21%) have a strategy or action plan to digitalise. This compared to 43% of large enterprises, 30% of start-ups and 28% of scale-ups.
- A large majority (76%) of SMEs say they need to introduce digital technologies or have already adopted some of them.
- Almost one in five (18%) SMEs said their enterprise does not need to adopt any digital technologies, but it is important to note that given the timing of the survey, these results predominantly present reflections that were in place prior to the Covid-19 pandemic.
- More than six in ten SMEs (62%) have adopted at least one of the listed advanced digital technologies, with the most common being cloud computing, i.e. storing and processing files or data on remote serves hosted on the internet (43%), followed by high-speed infrastructure (32%) and smart devices (21%). One in ten (10%) use big data analytics, while 6% use artificial intelligence (AI). No more than one in twenty SMEs use robotics (5%) or blockchain (3%).
- Start-ups and scale-ups are more likely to have adopted each of the advanced digital technologies listed in the study than other SMEs. Big data analytics is used by 18% of start-ups and 15% of scale-ups, as compared to 8% of other SMEs that are neither start-ups nor scale-ups. The same pattern is observed for artificial intelligence (AI) which is used by 11% of start-ups, 9% of scale-ups and 5% of other SMEs.
- More than six in ten (62%) SMEs say they are facing at least one of the listed barriers to digitalisation in their enterprise. The most mentioned are uncertainty about future digital standards (24%) and a lack of financial resources or regulatory obstacles (both 23%). Information technology (IT) security issues and a lack of skills are both barriers to digitalisation for one in five (20%) SMEs, while 19% mention a lack of IT infrastructure and 17% say internal resistance to change is a barrier to digitalisation. The older the company, the more likely they are to mention internal resistance to change as a barrier to digitalisation.
- Start-ups are more likely to mention the lack of financial resources (29%) as a barrier to digitalisation, and both start-ups and scale-ups cite regulatory obstacles (30% and 27%) more frequently than other SMEs as one of the barriers to digitalisation.

One third of SMEs already have a strategy or action plan to become sustainable, and four in ten may consider it in the future

- 91% of SMEs say they are taking at least one of the environmental or social sustainability actions asked about. The most common actions are improving the working conditions of their employees (66%), recycling or reusing materials (61%), reducing consumption of or impact on natural resources, saving energy or switching to sustainable energy sources or promoting and improving diversity and equality in the workplace (each 52%). Almost half (49%) are engaging employees in the governance of the organisation. Three in ten (30%) are developing sustainable products or services, while 24% are evaluating the impact of their enterprise on society.
- Nearly all the environmental and social sustainability actions asked about are more frequently taken up by start-ups and scale-ups, with the only exception being recycling or reusing materials, where there is no difference between start-ups, scale-ups and other SMEs.
- About one third (34%) of SMEs say they have a strategy or action plan to become a sustainable enterprise, although only 13% have already implemented it and 21% say that it is in the process of being implemented. Four in ten (40%) say they may consider such a strategy or action plan to become a sustainable enterprise in the future, while 18% say they do not have it and will not have one in the future.
- Start-ups and scale-ups (both 44%) are more likely to have a sustainability strategy or action plan than other SMEs (31%) that are neither start-ups nor scale-ups.

Barriers to SME sustainability include a lack of consumer or customer demand, but also the view that becoming sustainable is not compatible with their current business model, and a lack of awareness of how to integrate sustainability into their business model

- Seven in ten (70%) SMEs say they are facing at least one of the of the listed barriers that prevent their enterprise from becoming sustainable, i.e. combining long-term success and profitability with a positive impact on society and the environment.
- The most mentioned barriers to sustainability are lack of consumer or customer demand (30%), lack of financial resources (27%), the view that becoming sustainable is not compatible with their current business model (24%) or that there is a lack of awareness of how to integrate sustainability into their business model (23%). More than one in ten say becoming sustainable would not be profitable (15%) or that there is a lack of skills to become sustainable (also 15%), while 7% say a lack of willingness from management is a barrier preventing their enterprise from becoming sustainable.

Comparing EU SMEs to US SMEs reveals some similarities as well as some differences

- The proportion of EU SMEs that have increased their turnover by at least 30% since 2016 is nearly the same as such proportion of US SMEs (19% in the EU vs 20% in the US). SMEs in the EU and SMEs in the US also have a similar proportion (16% in the EU vs 14% in the US) of those that have decreased their turnover during the same period.
- Among the biggest problems enterprises face, EU SMEs are more likely to report regulatory obstacles or administrative burden (55% vs 30% of US SMEs), payment delays (35% vs 29% in the US) and access to finance (21% vs 13% in the US). However, EU SMEs (17%) are less likely to mention skills, including managerial skills, among the biggest problems as compared to US SMEs (26%).
- The same share of SMEs in the EU as in the US (both 13%) say that difficulties with digitalisation are among the biggest problems for their enterprise, and access to data is also mentioned in this respect by the same share of EU SMEs and US SMEs (both 7%).
- Although nearly the same proportion of EU SMEs (70%) as US SMEs (71%) face barriers that prevent their enterprise from becoming sustainable, a higher proportion of SMEs in the US say that becoming sustainable is not compatible with their current business model (34% vs 24% of SMEs in the EU). The same pattern appears looking at those that say becoming sustainable would not be profitable (26% in case of SMEs in the US vs 15% of SMEs in the EU), or that there is a lack of willingness among the management to become sustainable (mentioned by 16% of SMEs in the US vs 7% in the EU).

ANNEX 8: CRITERIA USED TO CLASSIFY SMES FROM THE EUROBAROMETER 486 FLASH SURVEY BY THE LEVEL OF THEIR DIGITALISATION ACTIVITIES

To accurately measure the drivers of technology adoption amongst SMEs, we utilised responses from the Flash Eurobarometer on SMEs, start-ups, scale-ups and entrpreneurship survey.

Overall, the Eurobarometer response sample comprised 16,365 responses. For the purpose of the analysis in this report, the following survey responses were excluded:

a. 3,750 responses from survey participants located in countries outside of the EU-27;
b. 633 responses from survey respondents locacted in the EU-27 with 250 or more employees;
c. 116 responses from survey participants located in the EU-27 who did not provide information on the number of their employees;
d. 1,225 responses from survey respondents who indicated that they had closed their business; and,
e. 239 responses from survey respondents who did not report the age of their business.

As result, the response sample used in the analysis of the digitalisation of SMEs comprised 10,402 responses.

Participants of the survey were asked to indicate which of the following options best described their enterprise's approach to digital technologies. The respondents could choose one of the following options:

1) Your enterprise has adopted or is planning to adopt basic digital technologies such as email or a website but not advanced digital technologies;
2) There is a need to introduce advanced digital technologies but your enterprise does not have the knowledge or skills or financing to adopt them;
3) There is a need to introduce advanced digital technologies and your enterprise is currently considering which of them to adopt;
4) There is a need to introduce advanced digital technologies and your enterprise has already started to adopt them;
5) Your enterprise does not need to adopt any digital technologies;
6) Other;
7) None;
8) DK/NA.

For the purposes of this study, those SMEs which chose answer 1 and answer 4 are of interest. This is because in both cases enterprises had either already adopted digital technologies or were planning to adopt digital technologies rather than simply considering or recognising the need for adoption.

The most common response for SMEs overall was that the enterprise had adopted or was planning to adopt basic digital technologies such as email or a website but not advanced digital technologies. The answer to this particular question varied with the size of the SME. The adoption of advanced digital technologies was most prevalent among medium-sized SMEs, whereas small SMEs were split between adoption of basic and advanced digital technologies and micro SMEs were more focused on basic digital technologies.

Table 31 Frequency distribution of Q 22: Please indicate which of the following options best describes your enterprise's approach to digital technologies? (Single answer)

Answer no.	Which of the following options best describes your enterprise	All SMEs	Micro SMEs	Small SMEs	Medium-sized SMEs
1	Your enterprise has adopted or is planning to adopt basic digital technologies such as email or a website **but not advanced digital technologies**	33.13	36.76	29.35	26.74
2	There is a need to introduce advanced digital technologies but your enterprise does not have the knowledge or skills or financing to adopt them	7.89	8.2	8	6.65
3	There is a need to introduce advanced digital technologies and your enterprise is currently considering which of them to adopt	10.40	8.55	12.5	13.37
4	There is a need to introduce advanced digital technologies and your enterprise has already started to adopt them	25.23	19.68	29.35	37.69
5	Your enterprise does not need to adopt any digital technologies	16.92	19.97	14.78	9.84
6	Other	1.12	1.17	0.96	1.18
7	None	4.16	4.49	4.11	3.12
8	DK/NA	1.15	1.17	0.96	1.41
	Total	**100**	**100**	**100**	**100**

Source: LE Europe analysis of Flash Eurobarometer 486 survey responses

To ensure the consistency of respondents, we noted which specific technologies were adopted by SMEs who answered 1 or 4 to the above question. As per the table below, a number of enterprises who said that they were planning to adopt basic digital technologies had actually already adopted advanced digital technologies. Similarly, some businesses which said they had already adopted advanced digital technologies failed to identify any specific advanced technologies they had adopted.

Table 32 Summary of technologies adopted by enterprises (Q 23, multiple answers allowed)

Technology	Total Frequency	Percentage	Answered 1 to Q 22	Answered 4 to Q 22
Artificial intelligence, e.g. machine learning or technologies identifying objects or persons, etc.	651	6.26	127	332
Cloud computing, i.e. storing and processing files or data on remote servers hosted on the internet	4,741	45.58	1,358	1,750
Robotics, i.e. robots used to automate processes for example in construction or design, etc.	815	7.84	158	375
Smart devices, e.g. smart sensors, smart thermostats, etc.	2,615	25.14	688	1,032
Big data analytics, e.g. data mining and predictive analysis	1,285	12.35	259	610
High speed infrastructure	3,244	31.19	909	1,229
Blockchain	299	2.87	73	141
None of these	3,513	33.77	1,361	329
DK	151	1.45	54	24

Source: LE Europe analysis of Flash Eurobarometer 486 survey responses.

Whilst the survey identified cloud computing as an advanced digital technology, it is categorised as a basic technology due to its widespread use and adoption.

- Basic digital technology adopters are those firms that:

  - Noted they had adopted basic technologies in Q22 and had not adopted any of the advanced technologies in Q23;
  - Noted they had adopted basic technologies in Q22 and had only adopted cloud computing and/or high speed infrastructure in Q23;
  - Noted they had adopted advanced technologies in Q22 and had not adopted any of the advanced technologies in Q23;
  - Noted they had adopted advanced technologies in Q22 and had only adopted cloud computing and/or high speed infrastructure in Q23;

- Advanced digital technology adopters are those firms that:

  - Noted they had adopted basic technologies in Q22 and had adopted cloud computing, high speed infrastructure and one or several of the advanced technologies in Q23;
  - Noted they had adopted basic technologies in Q22 and had not adopted cloud computing or high speed infrastructure but had adopted one or several of the advanced technologies in Q23;
  - Noted they had adopted advanced technologies in Q22 and had adopted cloud computing, high speed infrastructure and one or several of the advanced technologies in Q23;
  - Noted they had adopted advanced technologies in Q22 and had not adopted cloud computing or high speed infrastructure but had adopted one or several of the advanced technologies in Q23;

ANNEX 9: DETAILS ON THE LEVEL AND TRENDS IN THE USE OF DIFFERENT DIGITAL TOOLS BY SMALL AND MEDIUM-SIZED SMES AND LARGE ENTERPRISES IN THE EU AND OTHER SELECTED COUNTRIES

To provide a high level perspective on differences in the digitalisation of SMEs and large enterprises in the EU-27, Table 33 and Table 34 report the difference (in percentage points) between the top and bottom interquartile Member State for each of the digitalisation indicators.

With the exception of the following digitalisation indicators: 'enterprises using computers', 'enterprises with internet access', 'order tracking available online', 'enterprises with e-commerce sales to rest of the world' (small SMEs only), 'enterprise recruited/tried to recruit personnel for jobs requiring ICT specialist skills' (small SMEs only) and 'enterprise had hard-to-fill vacancies for jobs requiring ICT specialist skills' (small SMEs only), the usage of ICT technologies varied greatly across Member States; the interquartile difference was above 10 percentage points and in many cases exceeded 30 percentage points.

Table 33 Interquartile range (in percentage points) of selected ICT usage by enterprises indicators (basic technologies, website usage, social media) across EU-27 Member States in the most recent year available, by size class.

	Year	Small	Medium	Large
Basic technologies				
Enterprises using computers	**2019**	3.3	0.6	0.2
Enterprises with internet access	**2019**	4.2	0.9	0.4
Persons employed using computers with access to the World Wide Web	**2019**	36.7	39.2	39.3
Website usage				
Enterprises with a website	**2019**	27.7	13.0	8.1
Enterprises with a website with:				
Description of goods or services, price lists	**2019**	38.6	37.9	35.9
Possibility for visitors to customise/design online goods or services	**2019**	18.8	30.4	49.1
Order tracking available online	**2019**	5.5	8.2	24.2
Personalised content on the website for regular/recurrent users	**2019**	17.8	23.4	27.7
Online ordering or reservation or booking e.g. shopping cart	**2019**	19.9	26.9	27.3
Social media				
Use any social media	**2019**	38.1	37.3	26.7
Use 1 type of social media	**2019**	17.9	15.7	18.0
Use at least 2 types of social media	**2019**	24.9	39.1	45.4
Type of social media usage:				
To develop the enterprise's image or market products	**2019**	35.9	39.4	32.0
To obtain or respond to customer opinions, reviews, or questions	**2019**	35.8	42.8	40.3
To involve customers in development or innovation of goods or services	**2019**	12.7	18.1	31.9
To collaborate with business partners or other organisations	**2019**	19.6	26.6	38.7
To recruit employees	**2019**	41.%	55.1	39.7
To exchange views, opinions or knowledge within the enterprise	**2019**	18.6	28.9	44.2

Note: No data on micro SMEs are available. The data excludes the financial sector. Small SMEs are defined here as enterprises with 10 to 49 employees. 2019 is used where available. For each indicator, the interquartile range is defined as the value for the Member State at the 75th percentile minus the value for the Member State at the 25th percentile. Social media usage includes the use of social networks (e.g. Facebook, LinkedIn, Xing, Viadeo, Yammer, etc.), enterprises' blog or microblogs (e.g. Twitter, Present.ly, etc.), multimedia content sharing websites (e.g. YouTube, Flickr, Picasa, SlideShare, etc.) and wiki based knowledge sharing tools.

Source: Eurostat ICT usage in enterprises.

Table 34 Interquartile range (in percentage points) of selected ICT usage by enterprise indicators (supply chains, e-commerce, ICT knowledge in enterprises) across EU-27 Member States in the most recent year available, by size class.

	Year	Small	Medium	Large
Supply chains				
Enterprises whose business processes are automatically linked to those of their suppliers and/or customers	**2017**	16.7	20.9	31.2
Enterprises using software solutions like CRM	**2019**	34.2	36.8	31.2
E-commerce				
Enterprises with e-commerce sales	**2019**	23.0	33.2	29.2
Enterprises with e-commerce sales to other EU countries	**2019**	10.0	21.1	23.9
Enterprises with e-commerce sales to own country	**2019**	22.7	32.1	30.7
Enterprises with e-commerce sales to rest of the world	**2019**	7.7	16.4	14.0
Enterprises' total turnover from e-commerce sales (as % of overall sales)	**2019**	23.6	18.5	27.0
Enterprises purchasing online	**2017**	37.1	34.5	34.9
Enterprises purchasing at least 1% of total purchases online	**2017**	40.9	48.8	52.3
ICT knowledge in enterprises				
Enterprises which employed ICT specialists	**2019**	15.0	16.6	14.6
Enterprises which recruited/tried to recruit personnel for jobs requiring ICT specialist skills	**2019**	5.8	12.8	24.6
Enterprises which had hard-to-fill vacancies for jobs requiring ICT specialist skills	**2019**	4.4	11.6	29.2
Enterprises providing training to their personnel to develop their ICT skills	**2019**	18.1	29.3	26.8

Note: No data on micro SMEs are available. The data excludes the financial sector. Small SMEs are defined here as enterprises with 10 to 49 employees. 2019 is used where available. For each indicator, the interquartile range is defined as the value for the Member State at the 75th percentile minus the value for the Member State at the 25th percentile.
Source: Eurostat ICT usage in enterprises.

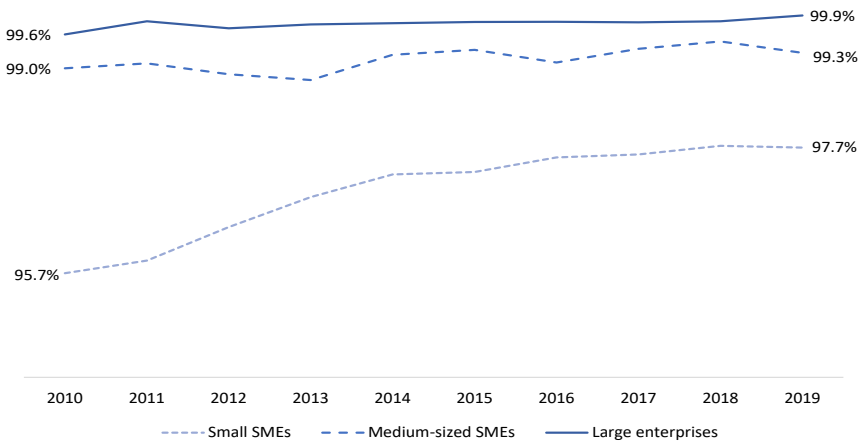
A9.1 Usage of basic technologies

Computer usage

In the EU-27 overall, the vast majority of enterprises used computers in 2019. However, a lower percentage of small SMEs used computers in 2019 (97.7%) compared to large enterprises (99.9%) and medium-sized SMEs (99.3%) (Figure 76). This almost 100% computer usage rate has been evident since 2010.

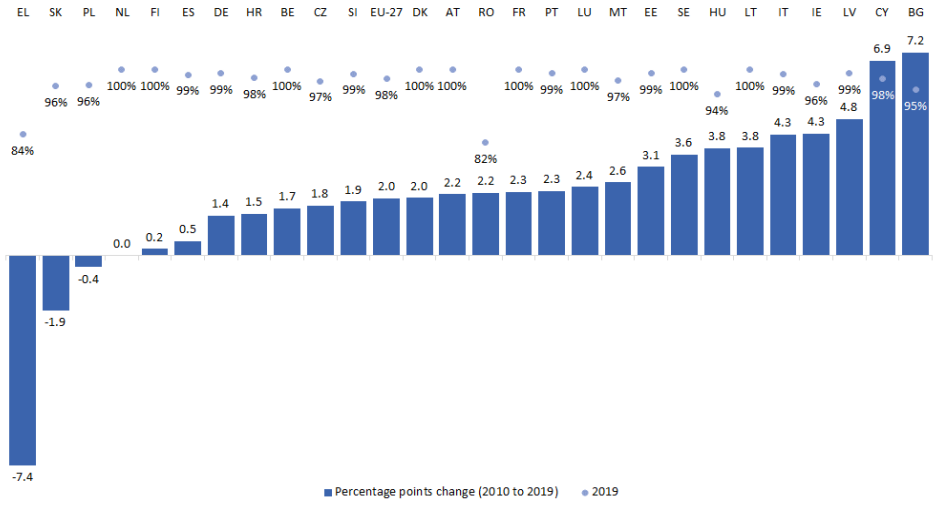
The percentage of small SMEs using computers in 2019 was at least 95% in every EU-27 Member State except three (EL, RO, HU) (Figure 77). The percentage of small SMEs using computers since 2010 has increased in all but three EU-27 Member States (EL, SK, PL), while there was particularly high growth in CY (6.9 percentage points) and BG (7.2 percentage points). From 2010 to 2019, Member States converged in the percentage of enterprises using computers, with the interquartile range decreasing for all size classes.

Figure 76 Percentage of enterprises using computers in the EU-27 from 2010 to 2019, by enterprise size class



Note: No data for micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 77 Percentage of small SMEs using computers in 2019 and change (in percentage points) since 2010 in EU-27 Member States and the EU-27 overall



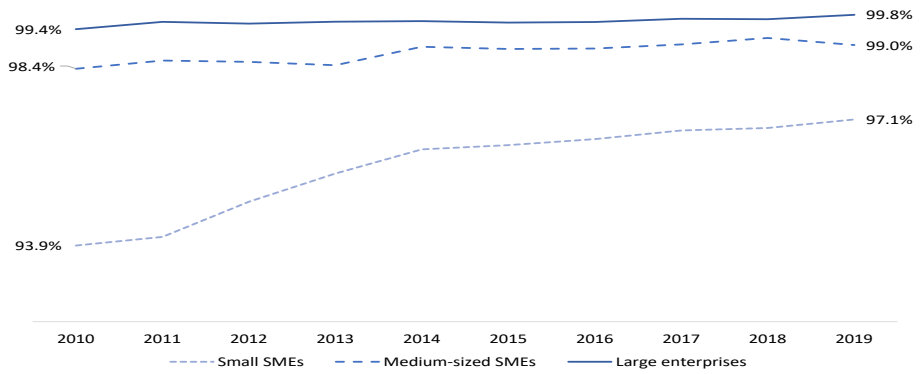
Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises, LE Europe

Access to the internet

In the EU-27 overall, the percentage of enterprises with internet access follows a similar pattern to that of computer usage. In 2019, the percentage of enterprises with internet access was very high, with a slightly smaller percentage of small SMEs (97.1%) having internet access in 2019 compared to medium-sized SMEs (99.0%) and large enterprises (99.8%) (Figure 78). Small SMEs mainly caught up with medium-sized SMEs and large enterprises between 2010 and 2019.

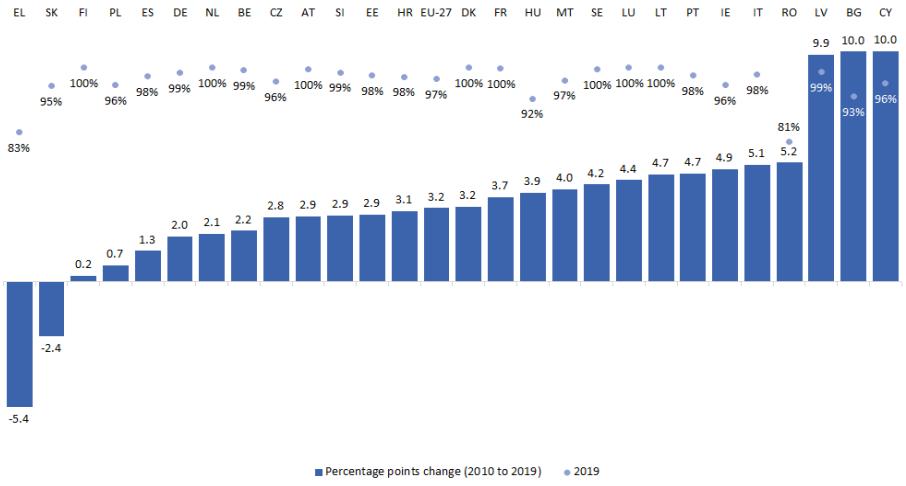
Across EU-27 Member States, the percentage of small SMEs with internet access in 2019 was at least 95% in all but four Member States (EL, HU, RO, BG). The percentage of small SMEs with internet access grew from 2010 to 2019 in all but two Member States (EL, SK), with particularly high growth in LV (9.9 percentage points), BG (10.0 percentage points) and CY (10.0 percentage points) (Figure 79). As with computer usage, there was a decrease in the dispersion across Member States (measured by the interquartile range), among all enterprise size classes from 2010 to 2019.

Figure 78 Percentage of enterprises with internet access in the EU-27 from 2010 to 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 79 Percentage of small SMEs with internet access in 2019 and percentage points change since 2010 in EU-27 Member States and the EU-27 overall



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises, LE Europe

Access to the World Wide Web

The percentage of persons employed in small SMEs in 2019 using computers with access to the World Wide Web varied greatly across EU-27 Member States: from 22% (RO) to 80% (SE) (Figure 80). The change in the indicator (in percentage points) since 2010 varied greatly, from -2.6 percentage points (LU) to 25.3 percentage points (SE). The variation across Member States increased over time for small SMEs, with the interquartile range increasing from 27.1 percentage points in 2010 to 36.7 percentage points in 2019. Despite this wide variation, all but two Member States (LU, EL) reported positive growth in the percentage of persons employed in small SMEs using computers with access to the World Wide Web from 2010 to 2019 (Figure 80).

The EU-27 performed less well than OECD comparator countries with regard to the percentage of persons employed in small SMEs in 2018 using computers with access to the World Wide Web: the figure was 48.5% for the EU-27 overall, compared to 63.7% in NO, 67.3% in KR and 59.5% in the UK (Figure 81).

Figure 80 Percentage of persons employed using computers in small SMEs in 2019 with access to the World Wide Web and percentage points change since 2010 by EU-27 Member State and for the EU-27 overall

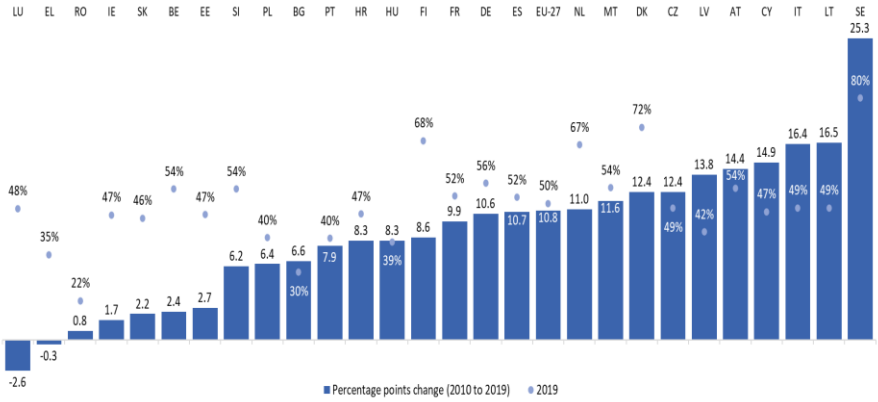
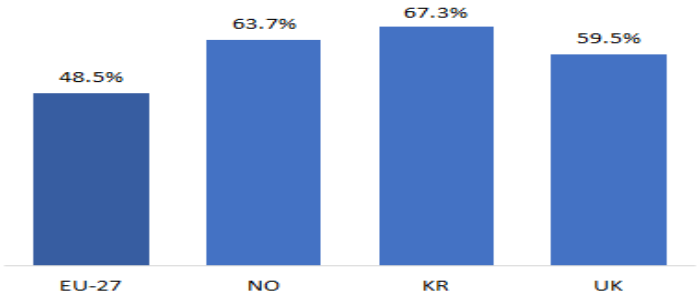


Figure 81 Percentage of persons employed in small SMEs in 2018 using computers with access to the World Wide Web in the EU-27 and comparator countries



Note: 2018 was the most recent data available for sufficient comparison with other countries. No data on micro SMEs are available. The data excludes the financial sector. Small SMEs are defined here as enterprises with 10 to 49 employees.
Source: Eurostat ICT usage in enterprises, OECD ICT Access and Usage by Businesses

A9.2 Website usage

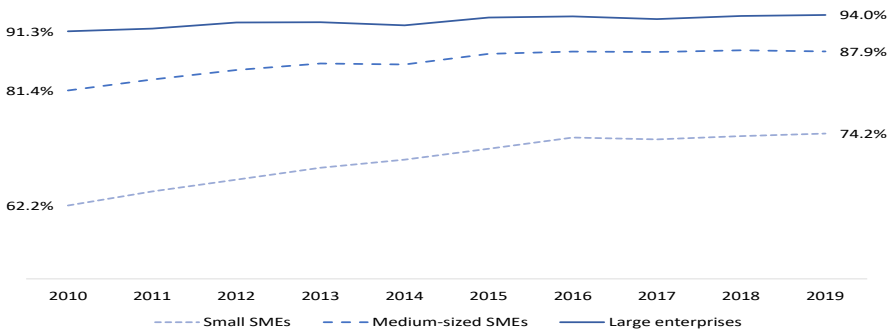
Having a website

There was a marked difference across enterprise size classes in the percentage of enterprises with a website in the EU-27 in 2019, ranging from small SMEs (74.2%), to medium-sized SMEs (87.9%), to large enterprises (94.0%) (Figure 82). Despite the large difference between small SMEs and the other size classes in 2019, small SMEs have shown more growth in this indicator than the other size classes since 2010: small SMEs (12.0 percentage points), medium-sized SMEs (6.5 percentage points), large enterprises (2.7 percentage points). In the case of small SMEs, growth was particularly strong from 2010 to 2016 (11.4 percentage points), after which growth flattened from 2016 to 2019 (0.6 percentage points).

Among EU-27 Member States in 2019, the differences in the percentage of small SMEs with a website varied widely, ranging from 43.8% (RO) to 92.7% (DK) (Figure 83). Moreover, the differences between small SMEs and large enterprises within Member States was wide: from 5.7 percentage points (NL) to 42.7 percentage points (PT). These large differences were mostly driven by low percentages of small SMEs with a website, whereas at least 80% of large enterprises in every Member State had a website in 2019. Across all size classes, the interquartile range of the percentage of enterprises using websites across Member States decreased, suggesting some convergence across the EU-27.

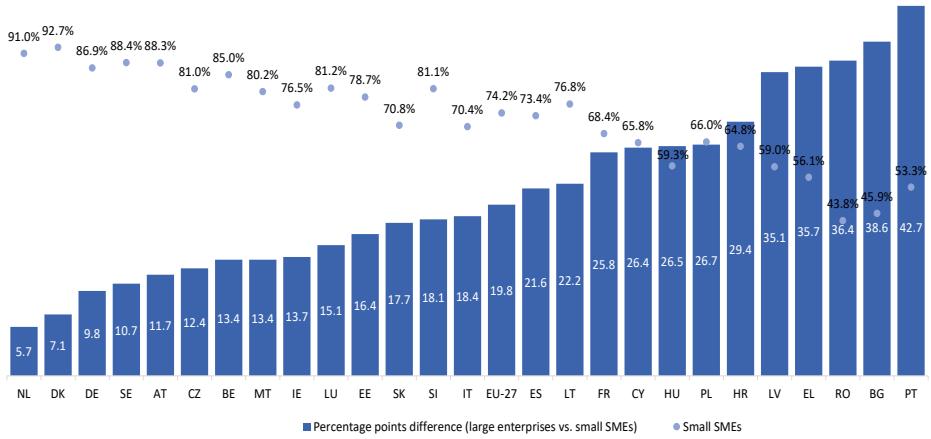
The EU-27 performed similarly to comparator countries in terms of the number of small SMEs with a website in 2017 (73.3%), outperforming KR (58.1%), but slightly lagging behind AU (76.2%), NO (77.7%) and the UK (81.4%) (Figure 84).

Figure 82 Percentage of enterprises with a website in the EU-27 from 2010 to 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

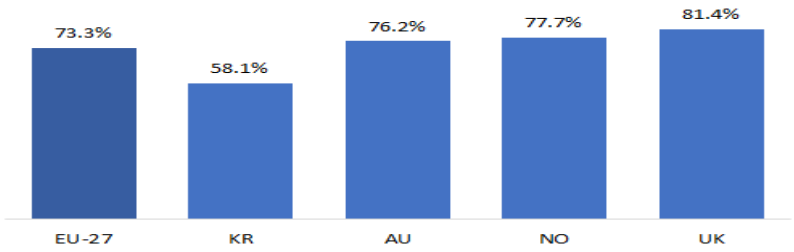
Figure 83 Percentage of small SMEs with a website in 2019 and percentage points difference between large enterprises and small SMEs with a website in 2019 in EU-27 Member States and the EU-27 overall



Note: Difference is calculated as percentage of large enterprises with a website minus percentage of small SMEs with a website. No data on micro SMEs are available. The data excludes the financial sector. Small SMEs are defined here as enterprises with 10 to 49 employees.

Source: Eurostat ICT usage in enterprises, LE Europe

Figure 84 Percentage of small SMEs with a website in 2017 in the EU-27 and comparator countries



Note: 2017 was the most recent data available for sufficient comparison with other countries. No data on micro SMEs are available.

Source: Eurostat ICT usage in enterprises, OECD ICT Access and Usage by Businesses

Functionalities of the website

Taking a closer look at how enterprises used websites in the EU-27 overall, Figure 85 shows that for each website functionality listed, the percentage of enterprises using each functionality increased by enterprise size class in 2019. These results follow the pattern of overall usage of websites in Figure 82, which suggests that large enterprises were more likely to have a website than small and medium-sized SMEs, and were also more likely to have a website with advanced functionalities. There was a particularly large gap (22.4 percentage points) between small SMEs and large enterprises in terms of the percentage of enterprises collecting information about visitors' behaviour on their websites (Figure 85).

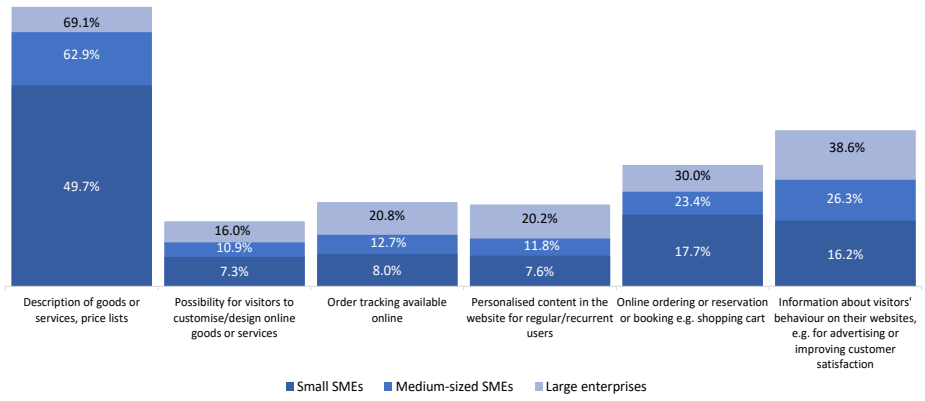
Moreover, in the case of small SMEs, for each website usage indicator, apart from 'order tracking available online', the dispersion across Member States (measured by the interquartile range) increased from 2010 to 2019, suggesting divergence across Member States in terms of advanced website functionality (Table 35). Furthermore, looking at the percentage of small and medium-sized SMEs with each type of website functionality, it can be seen that this percentage varied markedly across EU-27 Member States in 2019 (Table 35). In particular:

- The percentage of small and medium-sized SMEs with a description of goods or services or price lists varied from 33.8% (IT) to 80.9% (SI);

- The percentage of small and medium-sized SMEs offering the possibility for visitors to customise or design online goods or services varied from 1.6% (CY) to 26.7% (SE). However, SE is an outlier, as the second-highest value, after SE, was 14.7% (LT);
- The percentage of small and medium-sized SMEs with personalised content on their website for regular or recurrent users varied from 3.8% (LV) to 23.8% (NL);
- The percentage of small and medium-sized SMEs with online ordering or reservation or booking varied from 8.9% (LV) to 33.7% (MT);
- The percentage of small and medium-sized SMEs with information about visitors' behaviour on their websites varied from 10.0% (RO) to 25.4% (DE);

In every Member State, a higher percentage of large enterprises used each type of website functionality compared to small and medium-sized SMEs. Overall, the data highlight a major difference in the use of websites (in terms of number of websites and their functionalities) between small and medium-sized SMEs and large enterprises in the EU-27 overall and across EU-27 Member States.

Figure 85 Percentage of enterprises with different website functionalities in the EU-27 in 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises, LE Europe

Table 35 Percentage of enterprises with different website functionalities in EU-27 Member States and the EU-27 overall in 2019 - small and medium-sized SMEs and large enterprises

	Description of goods or services, price lists		Possibility for visitors to customise/design online goods or services		Order tracking available online		Personalised content on the website for regular/recurrent users		Online ordering or reservation or booking e.g. shopping cart		Information about visitors' behaviour on their websites, e.g. for advertising or improving customer satisfaction	
	SMEs	Large ent.	SMEs	Large ent.	SMEs	Large ent.	SMEs	Large ent.	SMEs	Large ent.	SMEs	Large ent.
AT	59.1%	68.8%	11.1%	22.4%	5.2%	15.4%	5.9%	21.3%	23.2%	35.8%	.	.
BE	71.1%	88.4%	7.9%	21.0%	12.7%	39.1%	12.0%	38.6%	25.7%	45.5%	21.0%	39.5%
BG	39.6%	58.4%	4.5%	8.3%	8.0%	13.9%	5.1%	10.1%	13.2%	17.6%	12.4%	23.5%
CY	69.1%	92.2%	1.6%	15.9%	2.7%	4.5%	9.2%	33.4%	10.2%	32.0%	17.0%	27.8%
CZ	42.0%	58.1%	14.2%	19.6%	.	.	.	.	31.9%	37.8%	.	.
DE	.	.	.	.	.	.	.	.	.	.	25.4%	52.4%
DK	65.7%	78.2%	6.7%	16.8%	9.1%	29.1%	12.9%	30.4%	33.0%	46.1%	19.6%	38.7%
EE	78.2%	83.4%	6.9%	12.9%	5.5%	10.4%	9.1%	23.3%	18.6%	30.7%	17.4%	32.0%
EL	35.0%	61.7%	5.3%	15.2%	7.2%	19.8%	6.5%	16.5%	15.8%	28.4%	17.9%	31.8%
ES	36.9%	49.1%	6.3%	10.7%	8.0%	17.9%	5.7%	14.0%	14.8%	24.0%	15.1%	33.0%
EU-27	51.5%	69.1%	7.8%	16.0%	8.7%	20.8%	8.2%	20.2%	18.5%	30.0%	17.7%	38.6%
FI	.	.	.	.	.	.	.	.	.	.	.	.
FR	58.6%	74.6%	7.8%	15.6%	11.0%	27.5%	9.7%	24.5%	19.0%	34.4%	15.2%	35.3%
HR	35.6%	53.2%	10.9%	15.6%	7.5%	15.7%	5.5%	13.8%	14.4%	25.5%	20.8%	44.7%
HU	51.3%	62.8%	9.2%	11.4%	8.5%	13.0%	8.3%	14.7%	18.6%	20.7%	13.4%	22.6%
IE	71.0%	75.5%	8.2%	17.2%	10.6%	22.5%	10.7%	25.7%	27.3%	33.4%	.	.
IT	33.8%	44.5%	3.0%	6.9%	7.5%	19.6%	5.2%	11.2%	14.3%	25.3%	12.0%	21.9%
LT	53.7%	80.1%	14.7%	20.2%	12.1%	18.1%	15.3%	23.4%	21.5%	28.5%	22.6%	41.2%
LU	62.8%	74.2%	6.0%	15.2%	7.3%	15.3%	7.8%	21.9%	16.2%	22.6%	19.3%	26.0%
LV	60.5%	89.6%	6.1%	13.6%	3.3%	12.2%	3.8%	13.1%	8.9%	21.3%	14.8%	33.7%
MT	79.5%	92.1%	13.2%	25.1%	7.6%	20.5%	21.8%	41.7%	33.7%	51.2%	21.4%	26.2%
NL	79.4%	84.3%	6.7%	13.3%	9.7%	21.7%	23.8%	39.0%	33.7%	40.2%	23.8%	48.0%
PL	65.5%	88.5%	9.4%	18.0%	8.7%	18.9%	6.6%	18.2%	12.8%	23.8%	12.8%	32.5%
PT	47.5%	72.2%	8.3%	16.0%	6.7%	17.1%	8.9%	18.1%	10.6%	20.6%	13.9%	28.6%
RO	43.0%	68.7%	7.6%	13.4%	9.5%	16.5%	6.9%	12.3%	17.0%	24.7%	10.0%	22.7%
SE	75.9%	86.2%	26.7%	62.4%	9.2%	27.9%	10.4%	32.6%	27.8%	46.3%	19.3%	47.6%
SI	80.9%	98.7%	5.5%	15.0%	7.6%	21.0%	4.2%	14.2%	17.2%	32.2%	23.5%	51.1%
SK	65.6%	70.3%	7.0%	10.5%	7.5%	11.7%	4.5%	8.6%	22.9%	22.1%	16.3%	20.4%

Note: No data on micro SMEs are available. The data excludes the financial sector. No data for FI was available. In this table, SM refers to small and medium-sized SMEs. Green shaded cells indicate highest percentage across Member States and red shaded cells indicate the lowest percentage.

Source: Eurostat ICT usage in enterprises

A9.3 Social media

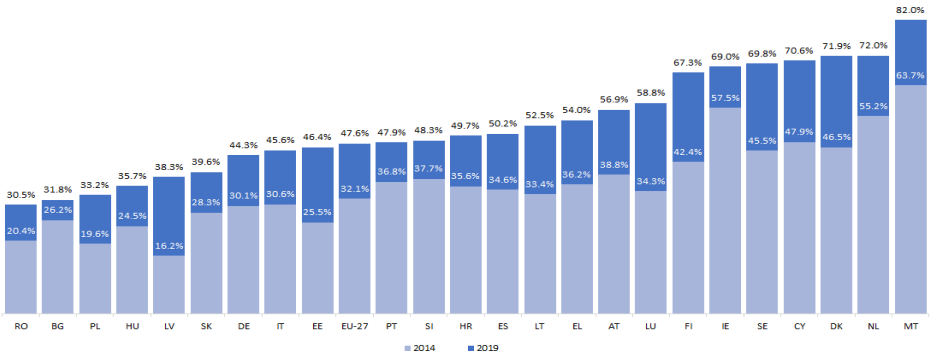
The percentage of enterprises using any type of social media in the EU-27 grew for all enterprise size classes by at least 15 percentage points from 2014 to 2019. Nonetheless, the percentage of enterprises using any type of social media in the EU-27 in 2019 remained markedly different across enterprise size classes and increased as size class increased: rising from small SMEs (47.6%), to medium-sized SMEs (61.2%), to large enterprises (76.9%). Furthermore, the percentage points growth in the percentage of enterprises using any type of social media was greater for large enterprises (23.8 percentage points) than for small SMEs (15.5 percentage points) and medium-sized SMEs (18.9 percentage points).

From 2014 to 2019, the percentage of small SMEs using any type of social media increased in every EU-27 Member State. However, this indicator varied widely in 2019 across EU-27 Member States, from 30.5% (RO) to 82.0% (MT) (Figure 86).

When looking in greater detail at the number of different types of social media used by enterprises in 2019, the ordering by enterprise size class changed for enterprises using only one type of social media, compared to those using at least two types of social media. Medium-sized SMEs had the highest percentage of enterprises using only one type of social media (27.3%), followed by small SMEs (26.9%) and large enterprises (23.3%) (Figure 87). This pattern changed for enterprises using at least two types of social media, with the percentage of enterprises using at least two types of social media increasing as the enterprise size class increased: from 20.4% for small SMEs, to 33.9% for medium-sized SMEs and 53.7% for large enterprises.

Across all enterprise size classes, there was a larger percentage points increase in the percentage of enterprises using at least two types of social media compared to only one type of social media. However, this was particularly marked for large enterprises, which posted a 1.2 percentage points increase in the percentage of enterprises using one type of social media, but a 19.7 percentage points increase in the percentage of enterprises using at least two types of social media (Figure 87).

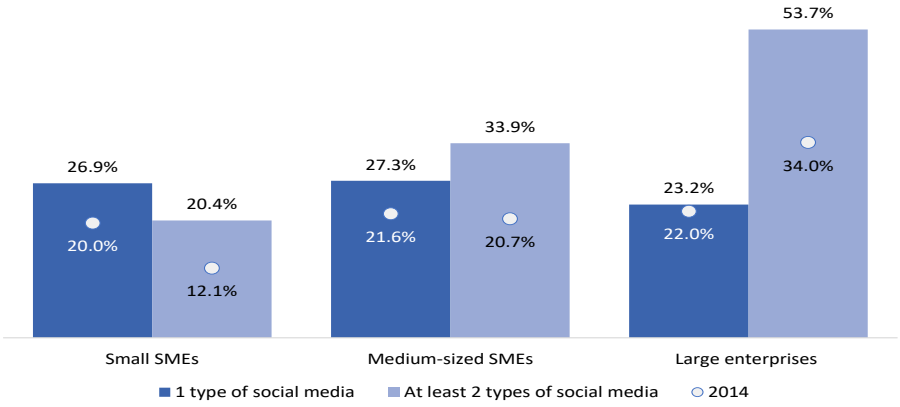
Figure 86 Percentage of small SMEs using any type of social media in 2014 and 2019 in EU-27 Member States and the EU-27 overall



Note: Data for CZ, FR and BE are not available. No data on micro SMEs are available. The data excludes the financial sector.

Source: Eurostat ICT usage in enterprises

Figure 87 Percentage of enterprises using one type, or two or more types, of social media in 2014 and 2019 in the EU-27, by enterprise size class

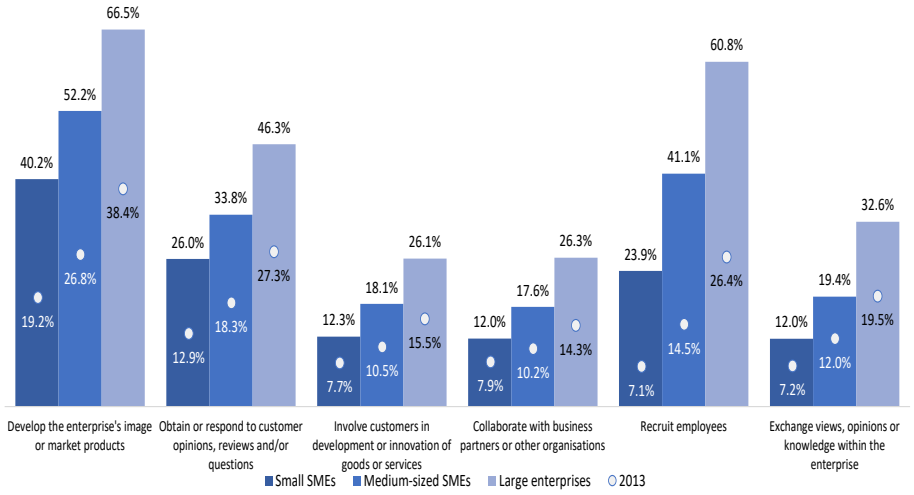


Note: Labels below dot denote 2014 values and labels above bars denote 2019 values. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

The data in Figure 86 and Figure 87 show that large enterprises were ahead of small and medium-sized SMEs in 2019 in the EU-27 in terms of the percentage of firms using social media and the number of types of social media used by enterprises. Another way of looking at this difference between the social media use of small and medium-sized SMEs and large enterprises, is to take note of the different purposes for which different size classes of enterprises use social media.

All types of social media use increased between 2013 and 2019 for all enterprise size classes in the EU-27 overall. However, the rise in the percentage of enterprises using each type of social media (of those listed in Figure 88) was directly related to the enterprise size class, with the percentage points increase in each type of social media use being higher for large enterprises than for small SMEs. There was a particularly large difference between small SMEs and large enterprises in terms of using social media to recruit employees (36.9 percentage points) and in developing the enterprise's image or marketing products (26.3 percentage points) (Figure 88). The evidence in Figure 88 adds to the evidence from Figure 86 and Figure 87, to suggest that there is a growing gap in social media usage between small and medium-sized SMEs and large enterprises.

Figure 88 Percentage of enterprises with different uses of social media in the EU-27 in 2013 and 2019, by enterprise size class



Note: Bars denote 2019 values and dots denote 2013 values. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

The EU-27 Member State data for 2019 (Table 36) show a similar pattern to that observed at EU-27 level, in terms of the difference between small and medium-sized SMEs and large enterprises regarding the types of social media they most frequently use. For every indicator and for each Member State, apart from 'collaborate with business partners or other organisations' in CY, there was a higher percentage of social media use in large enterprises than in small and medium-sized SMEs. In addition, between Member States, there were large differences in the percentage of small and medium-sized SMEs using different types of social media (Table 36). In particular:

- The percentage of small and medium-sized SMEs using social media to develop the enterprise's image or to market products varied from 24.5% (BG) to 74.5% (MT). However, the second-highest value, after MT, was 63.8% (DK);
- The percentage of small and medium-sized SMEs using social media to obtain or respond to customer opinions, reviews or questions varied from 18.0% (RO) to 60.3% (MT). However, the second-highest value, after MT, was 50.0% (CY);
- The percentage of small and medium-sized SMEs using social media to involve customers in the development and innovation of goods or services varied from 4.7% (BG) to 23.1% (MT);
- The percentage of small and medium-sized SMEs using social media to collaborate with business partners or other organisations varied from 7.4% (IT) to 32.4% (FI);
- The percentage of small and medium-sized SMEs using social media to recruit employees varied from 10.7% (BG) to 64.0% (MT);
- The percentage of small and medium-sized SMEs using social media to exchange views, opinions or knowledge within their enterprise varied from 7.9% (IT) to 30.1% (FI).

It is also the case that the dispersion (measured by the interquartile range) increased from 2013 to 2019 across Member States for each type of social media used by small SMEs, and for all but one type of social media used by medium-sized SMEs (Table 36). This increased dispersion across Member States suggests that divergence of social media usage across EU-27 Member States is taking place over time.

Table 36 Percentage of enterprises with uses of social media in EU-27 Member States and the EU-27 overall in 2019 - small and medium-sized SMEs and large enterprises

	Develop the enterprise's image or market products		Obtain or respond to customer opinions, reviews or questions		Involve customers in development or innovation of goods or services		Collaborate with business partners or other organisations		Recruit employees		Exchange views, opinions or knowledge within the enterprise	
	SME	Large enter.	SME	Large enter.	SME	Large enter.	SME	Large enter.	SME	Large enter.	SME	Large enter.
AT	52.7%	74.1%	32.0%	44.7%	11.2%	16.8%	17.2%	19.8%	36.8%	66.9%	17.8%	34.0%
BE	60.0%	83.0%	29.2%	52.1%	13.6%	29.5%	12.9%	33.1%	47.4%	84.9%	16.9%	49.8%
BG	24.5%	42.8%	21.0%	30.9%	4.7%	7.8%	9.9%	11.6%	10.7%	26.7%	9.5%	16.3%
CY	62.8%	77.9%	50.0%	64.1%	16.5%	26.6%	25.2%	22.8%	40.2%	58.5%	24.7%	39.6%
CZ	40.3%	66.2%	24.9%	42.7%	9.6%	21.5%	12.5%	24.5%	27.1%	65.0%	8.9%	24.9%
DE	39.9%	66.3%	26.7%	47.5%	13.7%	26.6%	12.2%	23.5%	32.3%	67.0%	11.9%	29.7%
DK	63.8%	88.0%	27.0%	47.3%	9.3%	18.3%	17.7%	35.4%	52.6%	87.5%	24.6%	48.0%
EE	44.7%	72.2%	20.1%	41.2%	11.6%	23.4%	16.6%	27.0%	30.7%	68.0%	13.0%	24.7%
EL	41.0%	50.8%	36.0%	45.2%	10.2%	15.5%	14.1%	16.7%	21.3%	37.4%	18.5%	23.7%
ES	46.2%	69.0%	33.0%	51.2%	17.1%	29.5%	13.0%	30.4%	13.9%	48.4%	13.6%	37.0%
EU-27	41.9%	66.5%	27.2%	46.3%	13.2%	26.1%	12.8%	26.3%	26.4%	60.8%	13.0%	32.6%
FI	62.7%	92.0%	40.1%	74.5%	20.8%	49.9%	32.4%	60.0%	45.2%	89.2%	30.1%	68.5%
FR	41.3%	68.0%	26.6%	45.4%	15.3%	30.7%	10.2%	25.7%	28.2%	64.5%	14.4%	37.9%
HR	40.1%	56.4%	26.9%	45.4%	11.8%	22.9%	15.9%	23.5%	20.8%	41.8%	17.6%	22.1%
HU	28.6%	47.7%	19.7%	30.0%	5.9%	9.1%	10.2%	12.1%	24.5%	55.3%	8.8%	22.8%
IE	62.5%	74.5%	44.5%	51.7%	16.9%	26.7%	20.0%	31.3%	44.9%	72.8%	21.5%	42.6%
IT	40.1%	61.3%	23.8%	39.5%	11.2%	20.0%	7.4%	17.9%	12.7%	45.8%	7.9%	21.9%
LT	43.6%	70.5%	32.7%	56.9%	13.4%	24.5%	24.6%	34.3%	32.4%	65.2%	19.9%	37.5%
LU	48.6%	69.6%	28.6%	36.7%	11.8%	14.2%	15.1%	24.0%	39.9%	75.2%	16.3%	28.0%
LV	37.1%	69.5%	25.8%	48.7%	15.7%	34.7%	14.4%	28.7%	22.3%	61.7%	11.6%	34.4%
MT	74.5%	93.4%	60.3%	82.3%	23.1%	31.7%	26.1%	47.2%	64.0%	88.3%	29.1%	50.8%
NL	61.1%	80.2%	30.0%	49.8%	21.9%	37.5%	26.7%	44.8%	58.8%	85.4%	20.6%	43.9%
PL	31.3%	66.0%	21.8%	48.2%	9.0%	28.4%	11.7%	30.8%	14.0%	50.3%	10.3%	34.7%
PT	39.8%	61.4%	27.7%	43.1%	15.9%	27.4%	18.0%	29.7%	25.1%	57.8%	17.2%	33.3%
RO	27.2%	44.6%	18.0%	32.1%	8.2%	18.8%	12.1%	18.7%	13.2%	32.0%	9.3%	19.8%
SE	56.7%	85.4%	37.3%	64.5%	19.6%	37.3%	16.0%	39.5%	49.3%	85.7%	17.3%	47.2%
SI	34.3%	64.4%	21.8%	45.5%	6.4%	17.6%	8.7%	24.5%	18.8%	54.5%	8.9%	24.0%
SK	27.4%	49.6%	22.1%	37.0%	7.3%	15.3%	10.8%	18.7%	19.7%	48.8%	9.4%	24.6%

Note: No data on micro SMEs are available. The data excludes the financial sector. In this table, SM refers to small and medium-sized SMEs, which are defined here as enterprises with 10 to 249 employees. L refers to large enterprises, which are defined here as those with 250 or more employees. Green shaded cells indicate the highest percentage across Member States and red shaded cells indicate the lowest percentage.

Source: Eurostat ICT usage in enterprises

A9.4 Supply chains

Processes automatically linked to those of their suppliers and/or customers

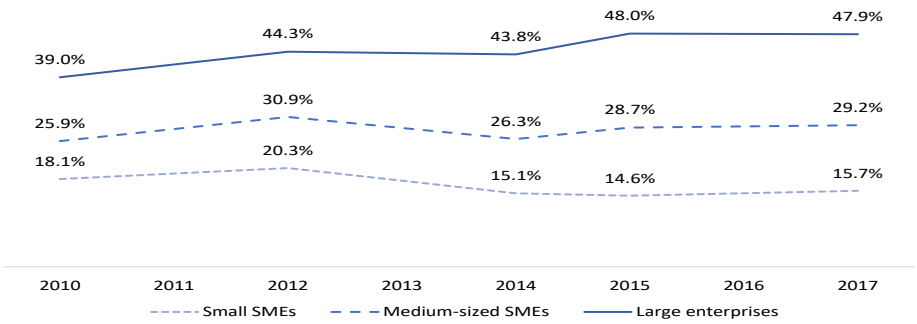
In 2017, the percentage of enterprises in the EU-27 with business processes automatically linked to those of their suppliers and/or customers increased as enterprise size class increased, rising from small SMEs (15.7%), to medium-sized SMEs (29.2%), to large enterprises (47.9%) (Figure 89). There was a decrease of 2.4 percentage points in the percentage of small SMEs with automatically-linked business processes from 2010 to 2017, whereas there were increases in the same time period for medium-sized SMEs (3.2 percentage points) and large enterprises (8.9 percentage points).

Looking more closely into the decreasing trend in automatically-linked business processes from 2010 to 2017 within EU-27 Member States, it can be seen that the majority of Member States (18 out of 27) saw a decrease in the percentage of small SMEs with automatically-linked business processes from 2010 to 2017 (Figure 90). In particular, three Member States had a decrease of more than 20 percentage points (HR, LV, PT). Moreover, there was wide variation in the percentage of small SMEs with automatically-linked business processes in 2017 in EU-27 Member States, ranging from 4.9% (LV) to 26.6% (LT).

The dispersion across EU-27 Member States (measured by the interquartile range) of enterprises with automatically linked business processes decreased greatly for small SMEs from 2010 to 2017, from 41.6% to 16.7%. There was also a relatively large decrease for medium-sized SMEs (30.6% to 20.9%) and a modest decrease for small enterprises (32.4% to 31.2%). Overall, this suggests some convergence across Member States in using automatically-linked business processes, particularly for small and medium-sized SMEs. However, this convergence appears to be downwards for small SMEs, as evidenced by the downward trend seen in Figure 89.

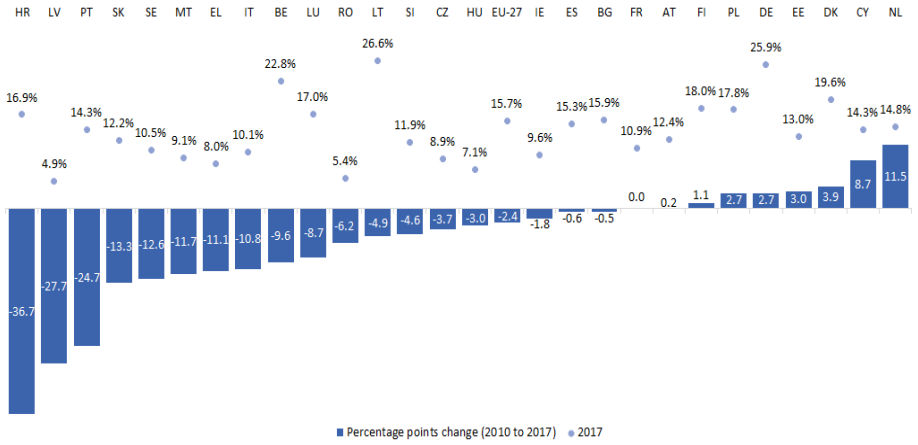
Despite the decreasing trend in the percentage of small SMEs with automatically-linked business processes in the EU-27 overall from 2010 to 2017, the EU-27 performed better than comparator countries in this indicator. The 15.7% of EU-27 small SMEs with automatically-linked business processes was a higher percentage than that of KR (3.6%), CH (4.9%), UK (9.2%) and NO (14.5%) (Figure 91).

Figure 89 Percentage of enterprises whose business processes were automatically linked to those of their suppliers and/or customers in the EU-27 from 2010 to 2017, by enterprise size class.



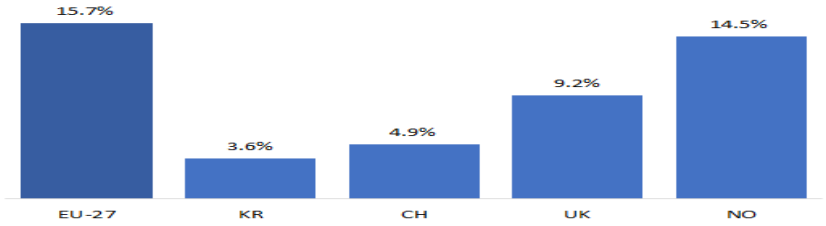
Note: There are no data for 2011, 2014 and 2016. No data on micro SMEs are available.
Source: Eurostat ICT usage in enterprises

Figure 90 Percentage of small SMEs whose business processes were automatically linked to those of their suppliers and/or customers in 2017 and percentage points change since 2010 in EU-27 Member States and the EU-27 overall



Note: No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

Figure 91 Percentage of small SMEs whose business processes were automatically linked to those of their suppliers and/or customers in 2017 in the EU-27 and comparator countries



Note: 2017 was the most recent data available for sufficient comparison with other countries. No data on micro SMEs are available. The data excludes the financial sector. Small SMEs are defined here as enterprises with 10 to 49 employees.
Source: Eurostat ICT usage in enterprises, OECD ICT Access and Usage by Businesses

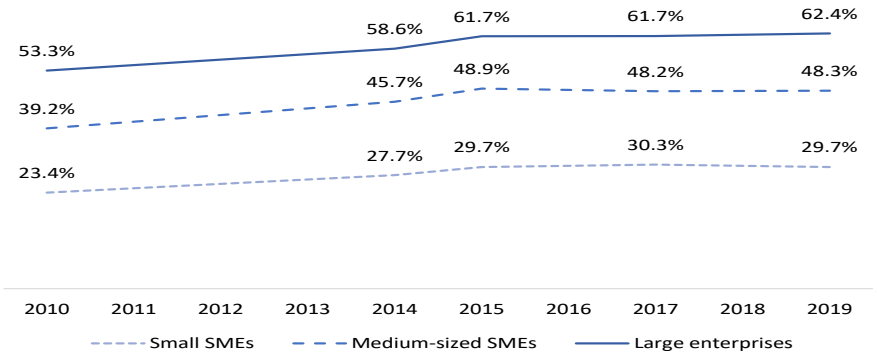
Use of CRM software

Some enterprises may use software solutions to link supply chains, rather than using automated processes. Therefore, to understand how technology is used to link supply chains, one can look at the percentage of enterprises using software solutions like Customer Relationship Management (CRM). The percentage of enterprises using software solutions like CRM rose across all size classes from 2010 to 2019 in the EU-27, but increased more (in percentage points) for large enterprises (9.1 percentage points) and medium-sized SMEs (9.1 percentage points) than for small SMEs (6.3 percentage points) (Figure 92). In 2019, the percentage of enterprises using software solutions like CRM increased with an increase in enterprise size class: rising from small SMEs (29.7%), to medium-sized SMEs (48.3%), to large enterprises (62.4%).

The overall figures for the EU-27 do not capture the variety across Member States in terms of the number of small and medium-sized SMEs that used software solutions like CRM. In 2019, the indicator ranged from 11.5% (HU) to 55.3% (NL) (Figure 93). Four Member States (SK, SE, AT, EL) showed decreasing percentages of usage from 2010 to 2019, while five Member States (CY, EE, PL, LT, NL) increased usage by more than ten percentage points. Across Member States, there appears to have been some divergence from 2010 to 2019, with the interquartile range increasing across all size classes.

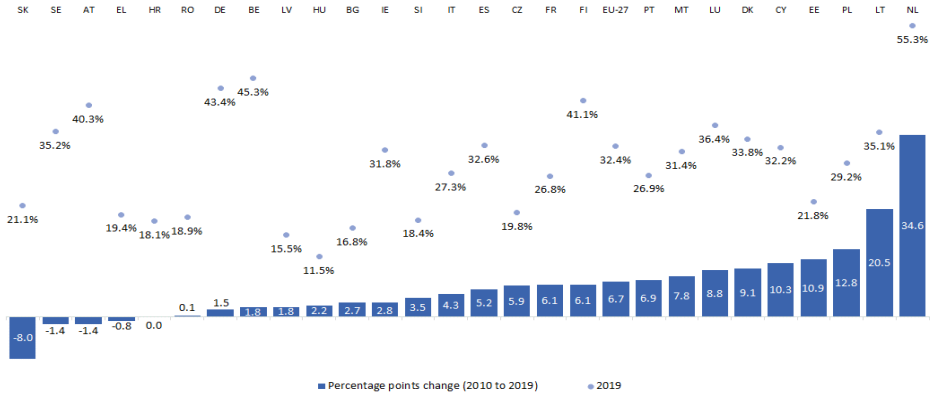
The EU-27 overall had a similar performance to comparator countries in 2017, with the percentage of small SMEs using software solutions like CRM (30.3%) being higher than that of KR (15.4%) and UK (28.0%) but slightly lower than of CH (31.1%) and NO (31.7%) (Figure 94).

Figure 92 Percentage of EU-27 enterprises using software solutions like Customer Relationship Management from 2010 to 2019, by enterprise size class



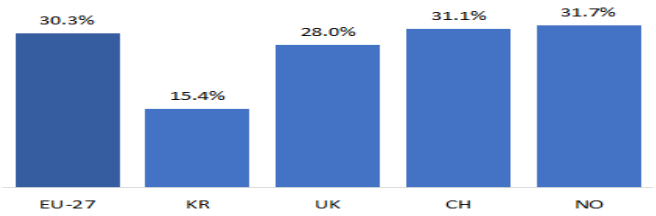
Note: There are no data for 2011, 2012, 2013, 2016 and 2018. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 93 Percentage of small and medium-sized SMEs using software solutions like Customer Relationship Management in 2019 and percentage points change since 2010 in EU-27 Member States and the EU-27 overall



Note: No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

Figure 94 Percentage of small SMEs using software solutions like Customer Relationship Management in 2017 in the EU-27 and comparator countries



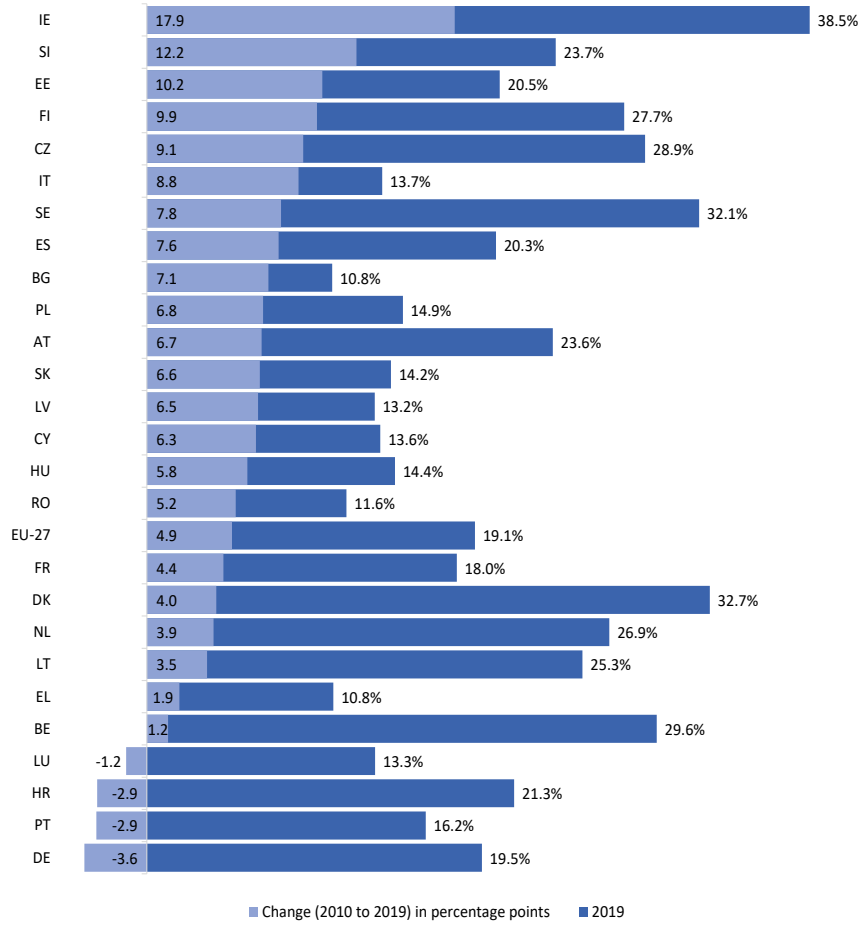
Note: 2017 was the most recent data available for sufficient comparison with other countries. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises, OECD ICT Access and Usage by Businesses

A9.5 E-commerce

Selling online

There was a large degree of variance in the percentage of small and medium-sized SMEs with e-commerce sales across Member States in 2019 (Figure 95). In the EU-27 overall, 19.1% of small and medium-sized SMEs reported that they engaged in e-commerce sales in 2019. Three Member States (IE, SE & DK) reported a share in excess of 30%, whilst three Member States (BG, RO & EL) reported a share of less than 12%. The interquartile range of this indicator across Member States increased from 2010 to 2019 for small SMEs (2.8 percentage points) and medium-sized SMEs (3.5 percentage points), but decreased for large enterprises (-3.7 percentage points). These statistics suggest a slight divergence over time across Member States in the percentage of small and medium-sized enterprises with e-commerce sales.

Figure 95 Percentage of small and medium-sized SMEs in the EU-27 undertaking e-commerce in 2010 and 2019

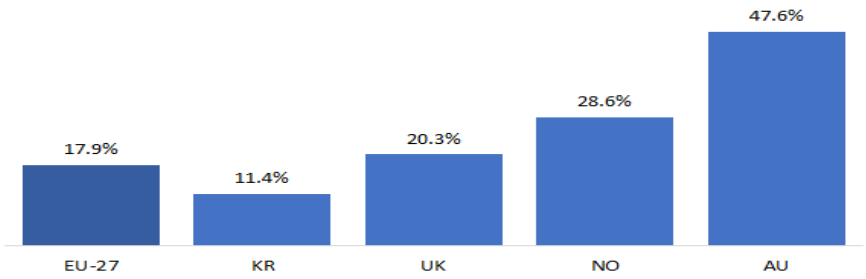


Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Relative to the comparable figure in 2010, 22 Member States reported an increase in the share of small and medium-sized SMEs with e-commerce sales in 2019, whilst only 4 Member States (LU, HR, PT & DE) reported a fall in this share (Figure 95). In the EU-27 overall, small and medium-sized SMEs reported a 4.9 percentage point rise in the share of e-commerce sales. Three Member States (IE, SI & EE) reported a rise in excess of 10 percentage points. IE in particular stood out, reporting an increase of 17.9 percentage points.

Figure 96 compares the EU-27's share of small SMEs with e-commerce sales in 2017 to that of comparator countries. The EU-27 had a greater share (17.9%) than KR, but a lower share than UK, NO and AU. AU's share (47.6%) was particularly notable in comparison to the EU-27 and other comparator countries.

Figure 96 Percentage of small SMEs with e-commerce sales in 2017 in the EU-27 and comparator countries



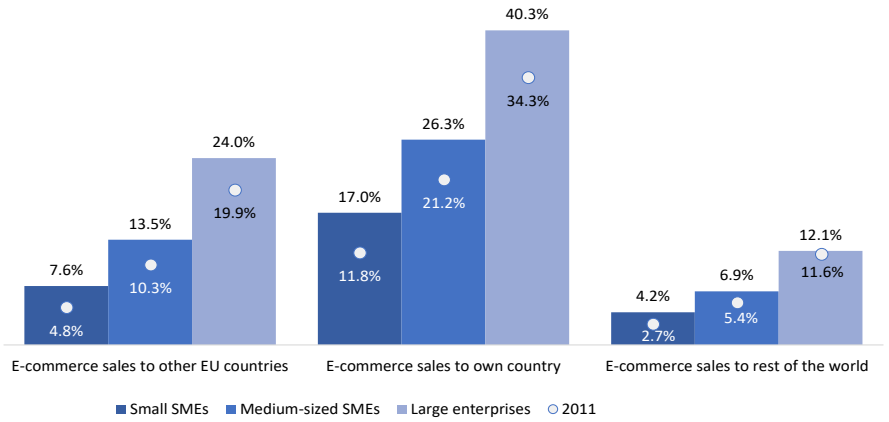
Note: 2017 was the most recent data available for sufficient comparison with other countries. No data on micro SMEs are available. The data excludes the financial sector. Small SMEs are defined here as enterprises with 10 to 49 employees.
Source: Eurostat ICT usage in enterprises, OECD ICT Access and Usage by Businesses

The percentage of enterprises with e-commerce sales to other EU countries, to their own country and to the rest of the world rose across all size classes in the EU-27 in 2019, compared to 2010 (Figure 97). In each of the three sales destination categories, the share of enterprises with e-commerce sales increased with the enterprise size class, so larger firms were more likely to undertake e-commerce sales to any destination in both reported years. The greatest rise in percentage points was in own country e-commerce sales in each of the enterprise size classes.

There was considerable variance in the shares of small and medium-sized SMEs undertaking e-commerce sales to their own country amongst EU-27 Member States in 2019 (Figure 98). Three Member States (IE, DK & SE) reported a share in excess of 30%, whilst three Member States (EL, RO & BG) reported a share of less than 11%. In the EU-27 overall, 18.3% of small and medium-sized SMEs undertook e-commerce sales to their own country. For small and medium-sized enterprises, the interquartile range across Member States increased for all three of these indicators from 2011 to 2019, suggesting divergence over time (Figure 97).

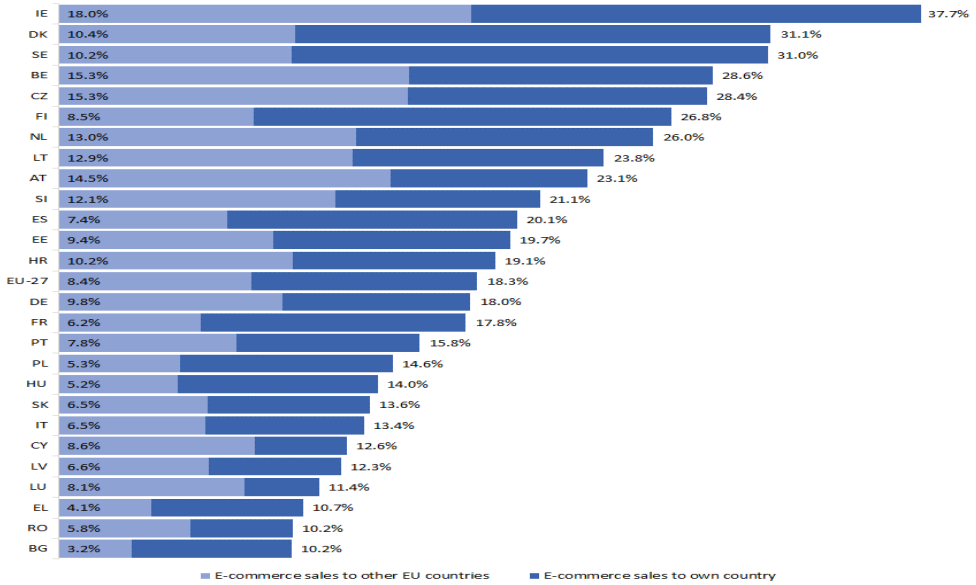
Similarly, there was wide variance in the shares of small and medium-sized SMEs undertaking e-commerce sales to other EU countries amongst EU-27 Member States in 2019 (Figure 98). Three Member States (IE, BE & CZ) reported a share greater than 15%. In contrast, two Member States (EL & BG) reported shares below 5%. In the EU-27 overall, a share of 8.4% of small and medium-sized SMEs made e-commerce sales to other EU countries.

Figure 97 Percentage of enterprises with e-commerce sales to the EU, their own country and the rest of the world in 2011 and 2019 in the EU-27, by enterprise size class



Note: Bars denote 2019 values and dots denote 2011 values. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 98 Percentage of small and medium-sized SMEs making e-commerce sales to other EU countries and to their own country in 2019 in EU-27 Member States and the EU-27 overall



Note: Data for MT are not available. No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

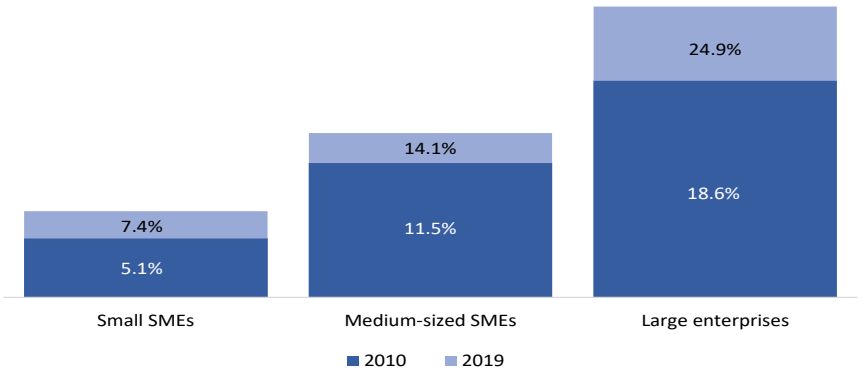
The share of enterprises' total sales from e-commerce sales increased with enterprise size class in the EU-27, in both 2010 and 2019 (Figure 99). Large enterprises in the EU-27 had the greatest share of turnover attributed to e-commerce sales: they reported a 6.3 percentage point rise in 2019 compared to 2010. Both small and medium-sized SMEs also saw a rise in this share in 2019 compared to 2010, with increases of 2.3 and 3.6 percentage points, respectively.

Figure 100 shows the share of total sales from e-commerce sales for the EU-27 overall and for EU-27 Member States in 2019 by small and medium-sized SMEs and large enterprises. Small and medium-sized SMEs in the EU-27 overall reported that 10.9% of total sales came from e-commerce sales in 2019. Small and medium-sized SMEs in IE reported the largest share (29.0%) of total sales from e-commerce, 8.1 percentage points higher than any other Member State. Small and medium-

sized SMEs in three Member States (BG, EL & RO) reported a share of less than 5%. Across all size classes, the dispersion across Member States (measured by the interquartile range) decreased from 2010 to 2017 for enterprises selling online, suggesting that there is some convergence across Member States.

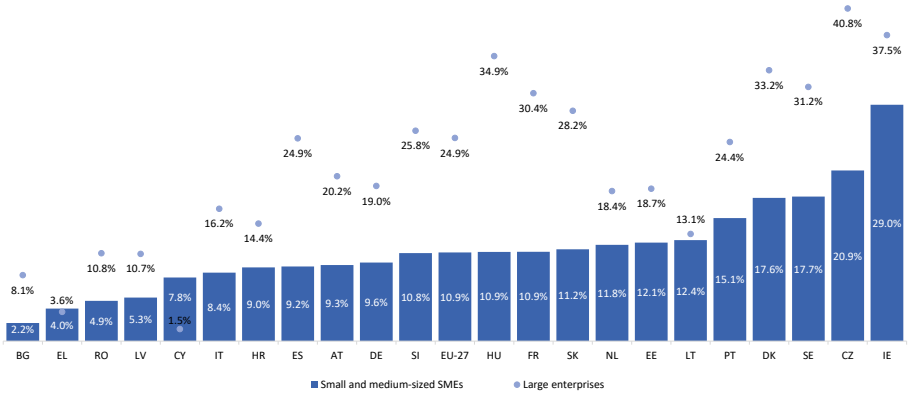
The comparable share for large enterprises was higher than that of small and medium-sized SMEs in the EU-27 overall and also in all Member States except two (CY & EL). Large enterprises in six Member States (HU, FR, DK, SE, CZ & IE) reported a share in excess of 30%, whilst large enterprises in three Member States (BG, EL & CY) reported a share of less than 10%.

Figure 99 Enterprises' total turnover from e-commerce sales, as a percentage of total sales, in the EU-27 in 2010 and 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 100 Enterprises' total turnover from e-commerce sales, as a percentage of total sales, for small and medium-sized SMEs and large enterprises in 2019 in EU-27 Member States and the EU-27 overall



Note: Data for BE, FI, LU, MT and PL are not available. No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

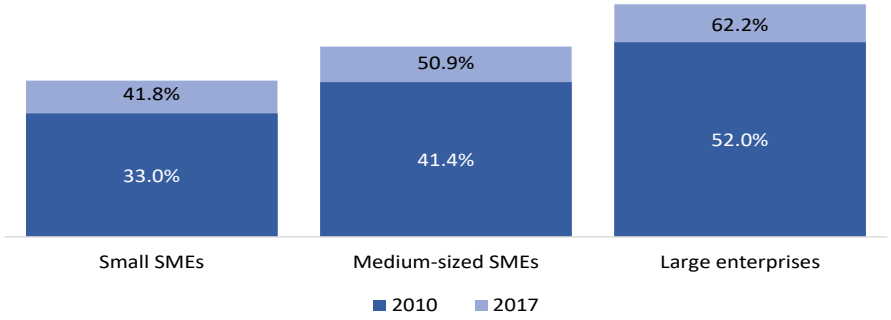
Purchasing online

The percentage of enterprises in the EU-27 purchasing online rose from 2010 to 2017 in all three size classes (Figure 101). This share was higher (62.2%) in large enterprises than in small SMEs (41.8%) or medium-sized SMEs (50.9%). Large enterprises reported a 10.2 percentage point rise from 2010 to 2017, whilst small and medium-sized SMEs reported increases of 8.8 and 9.5 percentage points respectively in this period.

The percentage of enterprises purchasing at least 1% of total purchases online also rose with enterprise size class (Figure 102). Large enterprises reported the greatest share (40.9%) of enterprises that purchased at least 1% of total purchases online, whilst small and medium-sized SMEs reported relatively similar shares (25.2% and 29.9%, respectively).

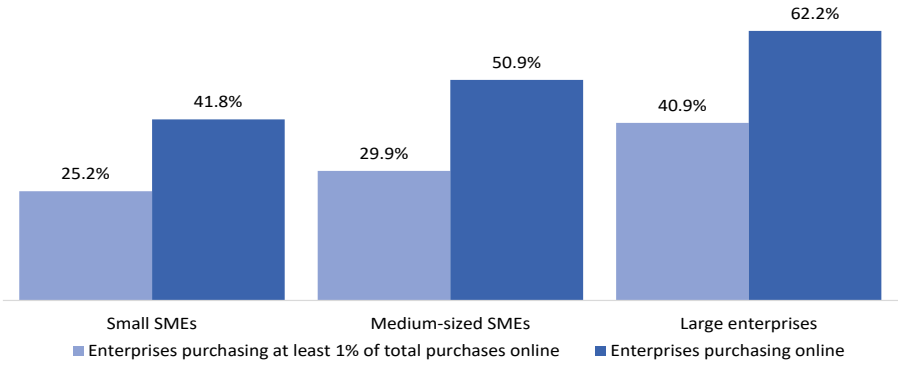
Figure 103 presents the share of small and medium-sized SMEs and large enterprises purchasing online in the EU-27 overall and in EU-27 Member States in 2019. The share of large enterprises was greater than that of small and medium-sized SMEs in the EU-27 overall and in every Member State. Approximately 43.1% of all EU-27 small and medium-sized SMEs made purchases online, whilst small and medium-sized SMEs in six Member States (AT, CZ, DE, FR, NL & SE) reported a share greater than 50%. Small and medium-sized SMEs in three Member States (RO, BG & EL) reported a share of less than 20%. Large enterprises in three Member States (AT, CZ & IE) reported a share in excess of 75%, whilst large enterprises in three Member States (RO, BG & EL) reported a share of less than 25%.

Figure 101 Percentage of enterprises purchasing online in the EU-27 in 2010 and 2017, by enterprise size class



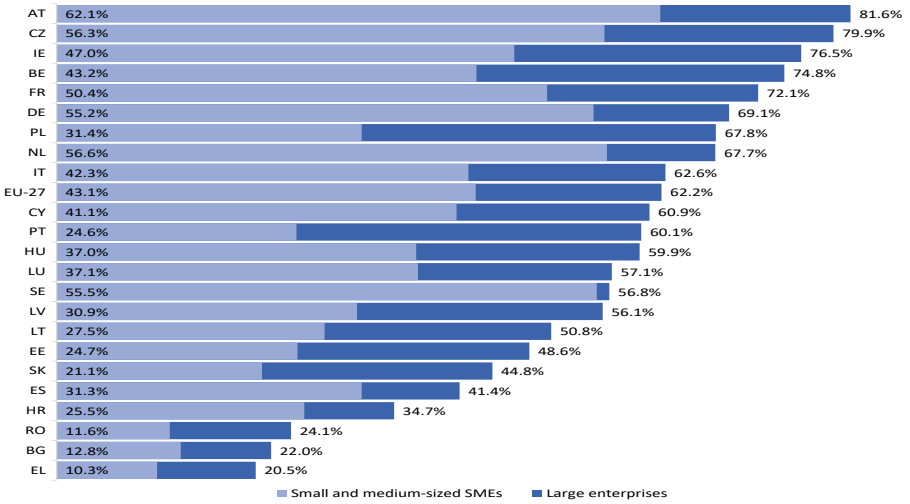
Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 102 Percentage of enterprises purchasing online and percentage of enterprises purchasing at least 1% of total purchases online in the EU-27 in 2017, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 103 Percentage of enterprises purchasing online - small and medium-sized SMEs and large enterprises in 2019 in EU-27 Member States and the EU-27 overall



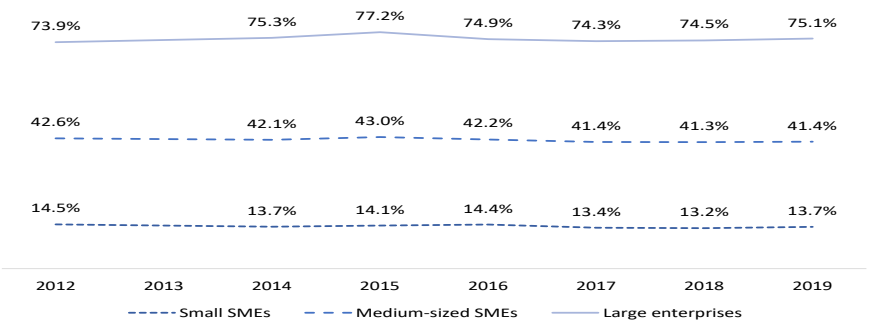
Note: Data for DK, FI, MT and SI are not available. No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

A9.6 ICT knowledge in enterprises

The percentage of enterprises employing ICT specialists remained almost constant in the EU-27 from 2012 to 2019 across all enterprise size classes, with a small rise for large enterprises (1.2 percentage points) and a slight fall for small SMEs (0.8 percentage points) and medium-sized SMEs (1.2 percentage points) (Figure 104). However, there was a wide disparity in absolute terms across enterprise size classes in the EU-27 in 2019, with only 13.7% of small SMEs employing ICT specialists, compared to 41.4% of medium-sized SMEs and 75.1% of large enterprises.

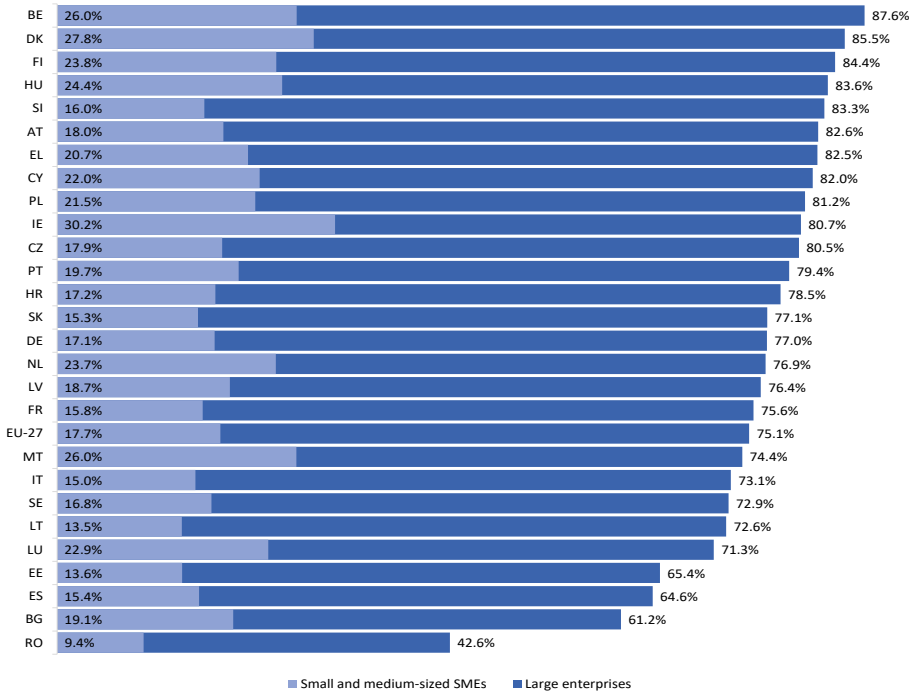
A similar trend was evident within Member States, with a percentage points difference of 33.2 to 67.3 between the percentage of small and medium-sized SMEs and large enterprises employing ICT specialists in each Member State. No Member State had more than 30.2% of small and medium-sized SMEs employing ICT specialists, whereas in all Member States, apart from one (RO), at least 60% of large enterprises employed ICT specialists. (Figure 105).

Figure 104 Percentage of EU-27 enterprises employing ICT specialists from 2012 to 2019, by enterprise size class



Note: There are no data for 2013. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 105 Percentage of enterprises with ICT specialist - small and medium-sized SMEs and large enterprises in 2019 in EU-27 Member States and the EU-27 overall



Note: No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

There was a similar disparity between enterprise size classes in the EU-27 overall in terms of the recruitment of staff with ICT specialist skills in 2019. Only 6.2% of small SMEs had recruited or had tried to recruit personnel for jobs requiring ICT specialist skills in 2019, compared to 17.7% of medium-sized SMEs and 45.8% of large enterprises (Figure 106). Since 2012, large enterprises have shown significantly higher growth (8.6 percentage points) in this indicator than small SMEs (1.3 percentage points) and medium-sized SMEs (3.5 percentage points).

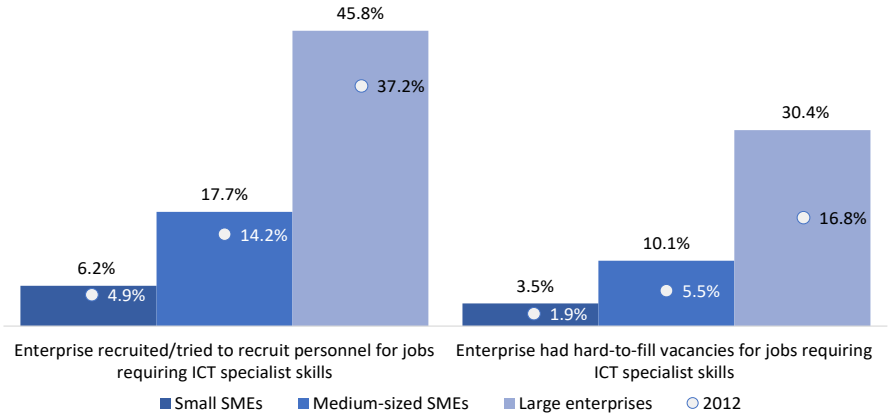
Across Member States, there was little variation in the percentage of small and medium-sized SMEs which recruited or tried to recruit personnel for jobs requiring ICT specialist skills in 2019, with the figure ranging from 3.3% (IT) to 12.9% (LU). For large enterprises, there was much wider variation in this indicator: from 20.0% (RO) to 60.4% (DK). The extent of this variation was somewhat driven by outliers, as all but three Member States were in the range of 30.2% to 53.8% (Figure 107). The evidence on the disparity between enterprise size classes recruiting for jobs requiring ICT specialist skills across the EU-27 suggests that there may be a continuation of the trend illustrated in Figure 104, which shows a disparity between enterprise size classes in the percentage of enterprises already employing ICT specialists.

A potential explanation for why only a small percentage of small and medium-sized SMEs employ personnel with ICT specialist skills may relate to their difficulty in finding employees with the required skills. However, the data presented on the right of Figure 106 would suggest that this explanation may not be entirely adequate, since a much lower percentage of small SMEs (3.5%) and medium-sized SMEs (10.1%), compared to large enterprises (30%), had hard-to-fill vacancies for jobs requiring ICT specialist skills in 2019 in the EU-27 overall. Nonetheless, there was relatively high growth in this indicator from 2012 to 2019, compared to the 2012 baseline, with increases of 1.6 percentage points (from 1.9%) for small SMEs, 4.6 percentage points (from 5.5%) for medium-sized SMEs and 13.6 percentage points (from 16.8%) for large enterprises.

There was little variation across EU-27 Member States in the percentage of small and medium-sized SMEs with hard-to-fill vacancies: from 1.5% (PL) to 8.5% (LU). In contrast, there was much

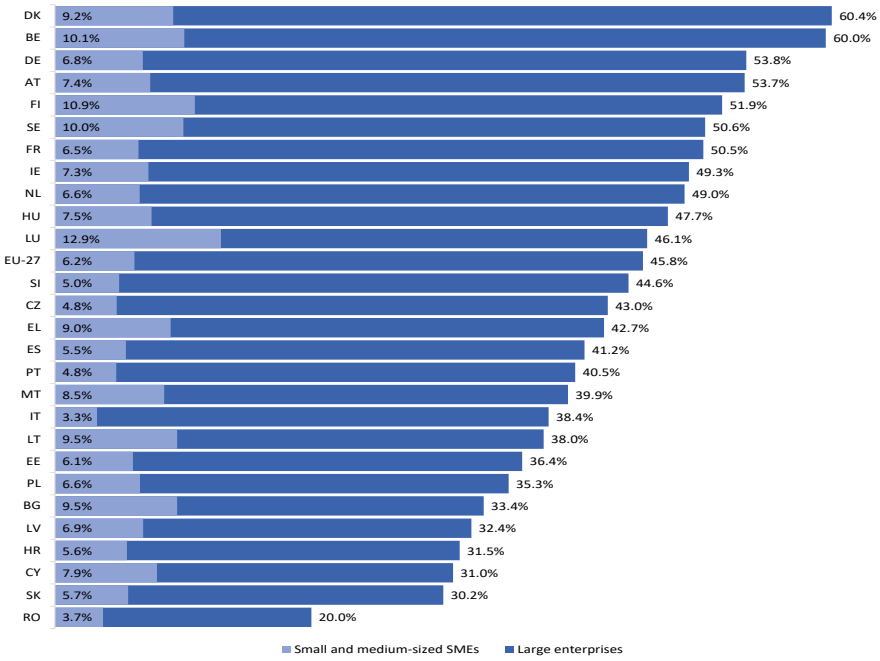
greater variation for large enterprises: from 15.2% (CY) to 47.7% (BE) (Figure 108). The lower percentages of small and medium-sized SMEs with hard-to-fill vacancies compared to large enterprises are most likely due to small and medium-sized SMEs having fewer vacancies for jobs requiring ICT specialist skills, rather than to a greater ability to recruit for jobs requiring these skills.

Figure 106 Percentage of enterprises which recruited or tried to recruit for jobs requiring ICT specialist skills and percentage of enterprises with hard-to-fill vacancies for jobs requiring ICT specialist skills in 2012 and 2019 in the EU-27, by enterprise size class



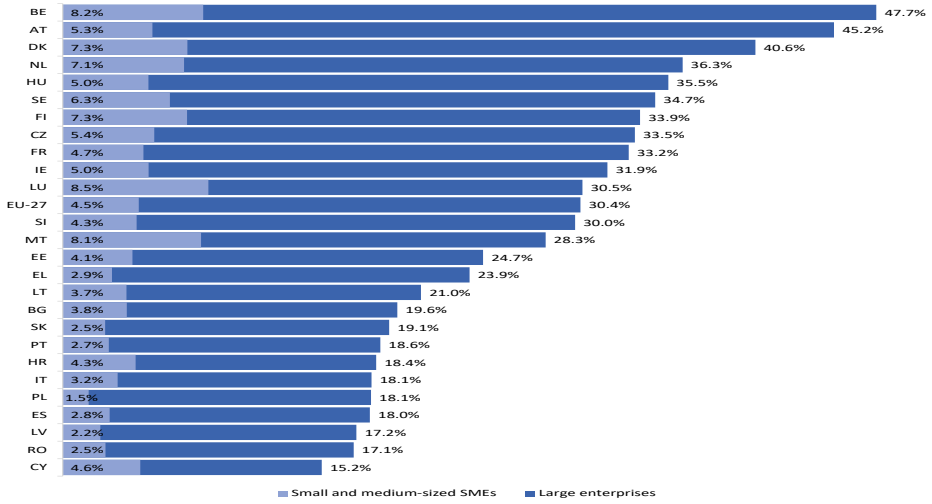
Note: Bars denote 2019 values and dots denote 2012 values. No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 107 Percentage of enterprises which recruited or tried to recruit personnel for jobs requiring ICT specialist skills - small and medium-sized SMEs and large enterprises in 2019 in EU-27 Member States and the EU-27 overall



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 108 Percentage of enterprises which had hard-to-fill vacancies for jobs requiring ICT specialist skills - small and medium-sized SMEs and large enterprises in 2019 in EU-27 Member States and the EU-27 overall

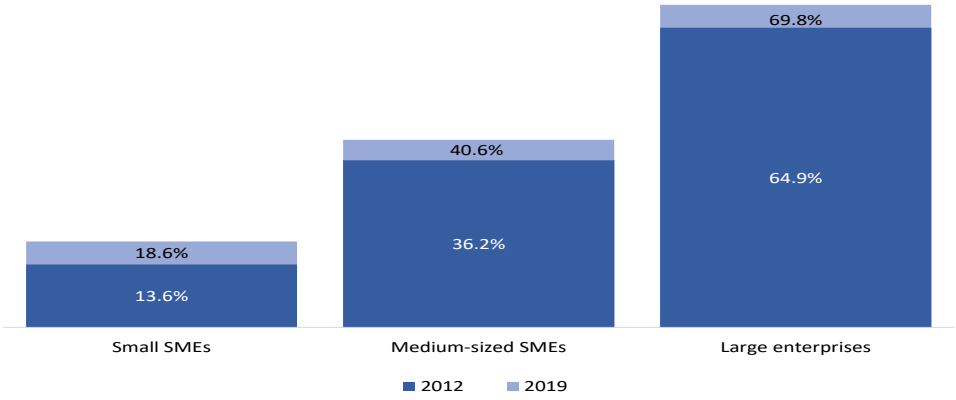


Note: Data for DE are not available. No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

There was a large gap in 2019 between enterprise size classes in the EU-27 overall in terms of the percentage of enterprises which provided training to their personnel to develop their ICT skills: only 18.6% of small SMEs provided ICT training, compared to 40.6% of medium-sized SMEs and 69.8% of large enterprises (Figure 109). There has been little change in this indicator since 2012, although the largest percentage points growth was for small SMEs (5.0 percentage points), compared to medium-sized SMEs (4.4 percentage points) and large enterprises (4.9 percentage points).

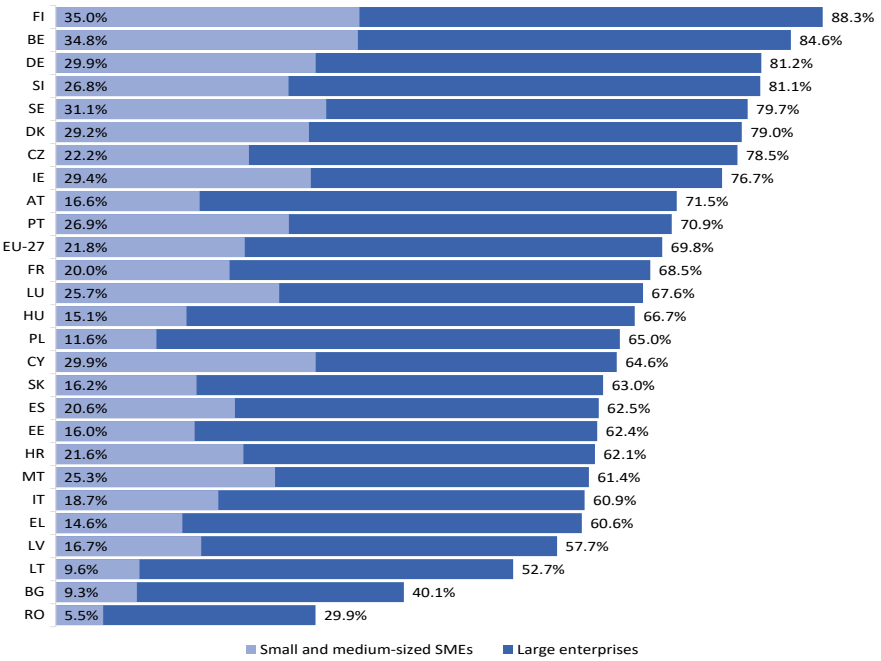
There was also wide variation in the percentage of small and medium-sized SMEs which provided ICT training to their personnel across EU-27 Member States in 2019: in three Member States (LT, BG, RO) less than 10% provided ICT training, while in two Member States (BE, FI) more than 30% did so. The variation was even wider for large enterprises, ranging from 29.9% (RO) to 88.3% (FI) (Figure 110). Despite the wide variation across all enterprise size classes, a clear disparity was still evident between small and medium-sized SMEs and large enterprises in all EU-27 Member States in 2019, with the difference ranging from 24.4 percentage points (RO) to 56.2 percentage points (CZ). However, the disparity (measured by the interquartile range) between Member States has decreased over time (from 2012 to 2019) across all size classes, with small SMEs showing a decrease of 4.4 percentage points, medium-sized SMEs a decrease of 9.8 percentage points, and large enterprises a decrease of 2.8 percentage points, suggesting that Member States are converging over time in the percentage of enterprises providing ICT training to their staff.

Figure 109 Percentage of enterprises which provided training to their personnel to develop their ICT skills in the EU-27 in 2012 and 2019, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Figure 110 Percentage of enterprises which provided training to their personnel to develop their ICT skills - small and medium-sized SMEs and large enterprises in 2019 in EU-27 Member States and the EU-27 overall



Note: Data for NL are not available. No data on micro SMEs are available. The data excludes the financial sector. Small and medium-sized SMEs are defined here as enterprises with 10 to 249 employees.
Source: Eurostat ICT usage in enterprises

A9.7 Advanced technologies

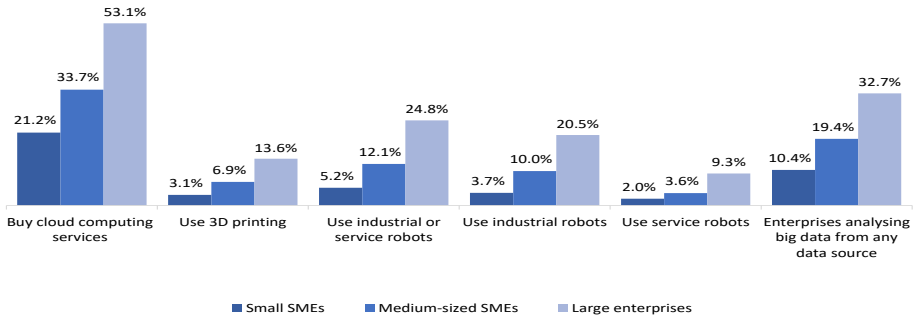
The usage of different advanced technologies in the EU-27 in 2018 has increased in each enterprise size class for each of the technologies reported in Figure 111. The most widely used advanced technology among all enterprise size classes was the purchase of cloud computing services used over the internet: approximately half of all large enterprises, a third of all medium-sized SMEs and

a fifth of all small SMEs used this technology. The next most utilised advanced technology was big data analysis, by around a third of large enterprises, a fifth of medium-sized SMEs and a tenth of all small SMEs.

Table 37 presents the percentage of small and medium-sized SMEs and large enterprises that used various different advanced technologies in the EU-27 overall and in EU-27 Member States in 2018. There was wide variation across Member States in technology usage. The highest and lowest shares of each technology are highlighted in the table. Small and medium-sized SMEs in FI reported the largest share of all Member States in 2018 for usage of cloud computing services (64.5%), industrial robots (7.9%) and 3D printing (6.3%). Small and medium-sized SMEs in ES reported the highest share of usage of industrial or service robots (10.4%) and service robots only (3.9%), whilst small and medium-sized SMEs in MT reported the highest share of big data analysis (23.7%). Amongst large enterprises, SI reported the highest share of enterprises using 3D printing (20.7%), industrial or service robots (33.8%) and industrial robots only (32.5%). FI, DK and BE reported the largest share of large enterprises using cloud computing services (92.1%), service robots (16.3%) and big data analysis (54.6%), respectively.

Both small and medium-sized SMEs and large enterprises in CY reported the lowest share of usage of 3D printing (1.0% and 2.9%), use of industrial or service robots (1.2% and 2.9%), industrial robots only (0.9% and 2.9%) and service robots only (0.4% and 0.0%). Small and medium-sized SMEs in CY also reported the lowest share of enterprises using big data analysis (4.2%) of all EU-27 Member States in 2018. Small and medium-sized SMEs in BG reported the lowest share of usage of cloud computing services (7.8%). Large enterprises in RO and HU reported the lowest share of usage of cloud computing services (25.2%) and big data analysis (16.5%).

Figure 111 Percentage of enterprises with usage of different advanced technologies in the EU-27 in 2018, by enterprise size class



Note: No data on micro SMEs are available. The data excludes the financial sector.
Source: Eurostat ICT usage in enterprises

Table 37 Percentage of enterprises with usage of different advanced technologies in EU-27 Member States and the EU-27 overall in 2018 - small and medium-sized SMEs and large enterprises

	Buy cloud computing services used over the internet		Use 3D printing		Use industrial or service robots		Use industrial robots		Use service robots		Enterprises analysing big data from any data source	
	SMEs	Large entr.	SMEs	Large entr.	SMEs	Large entr.	SMEs	Large entr.	SMEs	Large entr.	SMEs	Large entr.
AT	22.5%	50.0%	4.0%	16.8%	4.5%	29.9%	3.6%	26.7%	1.4%	10.1%	5.6%	28.7%
BE	39.0%	78.6%	5.4%	14.7%	.	.	.	.	.	.	19.4%	54.6%
BG	7.8%	29.7%	1.7%	7.6%	4.1%	17.6%	2.8%	15.0%	1.8%	4.0%	6.2%	24.8%
CY	26.3%	42.0%	1.0%	2.9%	1.2%	2.9%	0.9%	2.9%	0.4%	0.0%	4.2%	31.9%
CZ	25.7%	44.9%	3.7%	17.5%	5.0%	31.0%	4.6%	30.3%	1.2%	5.9%	7.4%	24.2%
DE	21.6%	48.7%	4.5%	18.1%	4.3%	25.5%	2.7%	20.3%	1.8%	9.8%	14.4%	33.9%
DK	55.0%	76.6%	5.9%	15.5%	8.9%	33.3%	6.6%	25.2%	2.8%	16.3%	12.6%	46.2%
EE	33.3%	56.9%	1.7%	6.6%	2.9%	18.6%	2.5%	16.8%	0.6%	6.0%	10.2%	35.3%
EL	12.3%	46.0%	1.8%	4.3%	2.7%	8.8%	1.9%	7.2%	1.1%	3.3%	12.5%	20.2%
ES	21.1%	54.9%	2.9%	8.0%	10.4%	25.6%	7.8%	21.6%	3.9%	9.3%	10.2%	30.5%
EU-27	23.1%	53.1%	3.6%	13.6%	6.2%	24.8%	4.6%	20.5%	2.2%	9.3%	11.7%	32.7%
FI	64.5%	92.1%	6.3%	15.7%	9.7%	33.6%	7.9%	27.6%	2.4%	12.9%	18.2%	43.9%
FR	18.3%	59.7%	3.3%	16.2%	7.3%	26.5%	5.5%	21.7%	2.5%	12.1%	15.6%	36.7%
HR	30.0%	50.3%	3.3%	4.2%	.	.	.	.	.	.	9.8%	26.9%
HU	17.3%	45.0%	1.8%	10.1%	2.7%	24.8%	2.3%	23.6%	0.7%	5.8%	5.9%	16.5%
IE	44.7%	61.4%	2.9%	8.3%	.	.	.	.	.	.	19.5%	46.8%
IT	21.9%	57.6%	4.2%	13.4%	8.4%	26.2%	5.9%	18.1%	3.3%	15.6%	6.7%	30.5%
LT	21.7%	54.6%	3.9%	4.6%	2.8%	18.3%	2.1%	14.0%	1.7%	7.1%	13.3%	26.3%
LU	23.6%	54.1%	3.7%	9.6%	.	.	.	.	.	.	15.9%	30.7%
LV	14.0%	38.5%	1.3%	5.0%	.	.	.	.	.	.	7.2%	29.5%
MT	35.8%	62.4%	5.6%	14.9%	4.1%	12.8%	2.8%	7.9%	1.7%	4.9%	23.7%	48.4%
NL	47.3%	76.0%	4.4%	10.7%	7.3%	18.1%	6.7%	15.7%	1.0%	4.7%	20.9%	52.5%
PL	10.4%	42.7%	2.1%	11.2%	5.7%	22.1%	4.3%	19.8%	2.2%	5.2%	7.3%	25.7%
PT	23.8%	59.6%	3.8%	7.2%	7.4%	22.9%	5.8%	18.4%	2.7%	9.5%	12.4%	33.7%
RO	9.7%	25.2%	1.9%	4.9%	2.2%	13.9%	1.9%	12.8%	0.8%	4.0%	10.7%	23.0%
SE	56.5%	82.5%	4.4%	16.7%	6.7%	31.9%	5.8%	26.6%	1.1%	12.2%	8.8%	34.5%
SI	25.1%	64.6%	4.0%	20.7%	5.6%	33.8%	5.2%	32.5%	0.9%	7.7%	9.3%	37.9%
SK	20.3%	41.1%	2.6%	12.4%	4.4%	29.0%	3.5%	24.2%	1.5%	10.1%	8.8%	23.7%

Note: No data on micro SMEs are available. The data excludes the financial sector. In this table, SM refers to small and medium-sized SMEs, which are defined here as enterprises with 10 to 249 employees. L refers to large enterprises, which are defined here as those with 250 employees or more. Green shaded cells indicate the highest percentage across Member States and red shaded cells indicate the lowest percentage.

Source: Eurostat ICT usage in enterprises

ANNEX 10: CLUSTER ANALYSIS

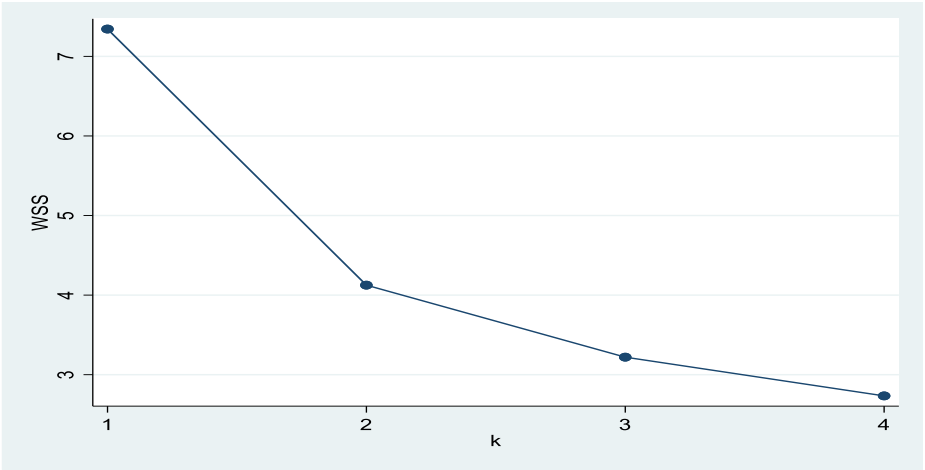
This annex examines whether consistent differences and commonalities exist across certain Member States in in terms of the degree of digitalisation on their SMEs.

The annex provides first detailed information on the K-means clustering methodology which has been used in the empirical analyis. Next, it presents the results of the cluster analysis and finally it provides the results of checks undertake to assess the robustness of the results.

A10.1 Overview of K-means clustering methodology

K-means cluster analysis has been used to determine the clusters, using the k-means clustering algorithm. This algorithm chooses clusters to minimise the variation within *k* clusters (James et al., 2013). In this case the Euclidean distance metric was used and the algorithm was run with 10,000,000 iterations. When using the k-means clustering algorithm, two choices need to be made: the initial cluster assignment with which to start the algorithm, and the number of clusters (*k*) to be found. In this analysis, both of these issues were dealt with by considering the within sum of squares (WSS) metric. This metric measures the variation within each cluster. To choose the starting point for the algorithm, it was run 500 times with random starting points each time. The WSS was calculated for each starting point and the starting point which generated the lowest WSS was used to run the final cluster analysis as the k-means algorithm is designed to give the local minimum of the WSS for a given *k*. The WSS was also used to visualise the number of clusters to use. The graph below (Figure 112) shows the within sum of squares for *k* equals 1 to 4. In this case, the random starting point chosen was the one that produced the lowest average WSS across all *k*. When running the k-means clustering algorithm, the WSS decreases with the number of clusters used, so one cannot select the *k* clusters based solely on the minimum WSS, as it would result in the same number of clusters as observations. Instead a rule of thumb is to look for a 'kink' in the WSS curve (Makles, 2012). The kink in this curve could be at either 2 or 3, suggesting that either two or three clusters could be appropriate.

Figure 112 Within sum of squares for different numbers of clusters from EU-27 Member State level cluster analysis of ICT usage in enterprises indicators for small and medium-sized SMEs.

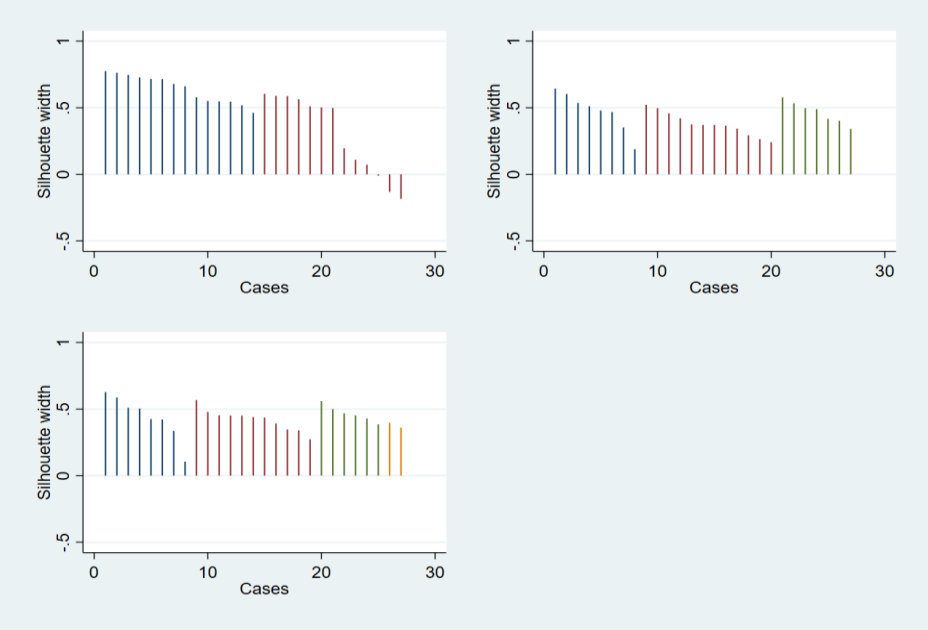


Note: *k* refers to the number of clusters used.
Source: Eurostat ICT usage in enterprises, LE Europe.

A further way to choose the number of clusters to use is by considering the silhouette width (Rousseeuw, 1987). The silhouette width indicates how close an observation is to its own cluster compared to other clusters and ranges between -1 and 1. A larger width suggests better clustering, while a negative width suggests that an observation is closer to another cluster than the cluster that it has been assigned to. A silhouette plot has been generated for *k* = 2, 3, 4 to assess the clustering using the Silhouette Stata module (Halpin, 2016). The silhouette plot (Figure 113) shows a higher average silhouette width for k=2 than for k=3, but with a negative silhouette width for k=2 for three Member States (CY, CZ, DE). This negative coefficient suggests that k=2 is not a suitable

clustering solution, as these three Member States are dissimilar from their clusters. This result suggests using three clusters rather than two. The average silhouette width is slightly higher for k=4 than for k=3. However, due to the relatively small drop in WSS from k=3 to k=4, three clusters have been used instead of four.

Figure 113 Silhouette plot for EU-27 Member State level cluster analysis of ICT usage in enterprise indicators for small and medium-sized SMEs.



Note: Top left shows k=2; top right shows k=3; bottom left shows k=4.
Source: Eurostat ICT usage in enterprises, LE Europe.

A10.2 Results of the cluster analysis

In total, 33 indicators were used to run the cluster analysis. These indicators were chosen as the most relevant indicators to assess the digitalisation performance of SMEs and are the same ones as those used to analyse the overall trends in SME digitalisation.[53] [54]. The cluster analysis used data for small and medium-sized SMEs and 2019 data has been used where possible. However, when 2019 data were not available, the most recent data point was used instead.[55]

The cluster analysis identified three groups of Member States with SMEs in the first cluster of Member States lagging the most in their digitalisation.

SMEs in the Member States in third cluster are the best performers in terms of the digitalisation of their activities and the performance of SMEs in the second cluster can be said to be about average:

- Cluster 1: BG, EL, HU, IT, LV, PL, RO, SK;

[53] 5 of the original 38 indicators could not be used, due to a lack of available data across Member States. These were: Enterprises' total turnover from e-commerce sales (as % of overall sales); Enterprises using information about visitors' behaviour on their websites; Enterprises using industrial or service robots; Enterprises using industrial robots; Enterprises using service robots.

[54] Before running the cluster analysis, the indicators were standardised to have a mean of zero and standard deviation of one, as each indicator had a different level of variation across Member States

[55] For example, the most recent data point for 'Enterprises where the website provided online ordering or reservation or booking,' for DE is 2018, while the most recent for DK is 2019, so 2018 data is used for that indicator for DE and 2019 data is used for that indicator for DK. This is done in order to use as many of the variables as possible because cluster analysis requires there to be no missing data points for each Member State. For 15 of the 33 indicators, there is at least one instance where different dates are used for different Member States.

- Cluster 2: AT, CY, CZ, DE, EE, ES, FR, HR, LT, LU, PT, SI;

- Cluster 3: BE, DK, FI, IE, MT, NL, SE.

For 30 of the 33 indicators used, the average value of cluster 3 is the highest, with the medium being cluster 2 and the lowest being for cluster 1. For SMEs employing ICT specialists and SMEs whose websites provided order tracking online, cluster 1 has a higher average value than cluster 2 (18.0% vs. 17.4% and 7.5% vs. 7.4% respectively). For enterprises whose business processes are automatically linked to those of their suppliers and/or customers, cluster 2 has a higher average value than cluster 3 (17.4% compared to 17.0%). A full list of available indicators and their means used in the cluster analysis are provided in Table 38.

Table 38 Average value of ICT usage indicators for clusters

	Cluster 1	Cluster 2	Cluster 3
Basic technologies			
Enterprises using computers	93.7%	99.1%	99.2%
Enterprises with internet access	92.8%	98.5%	98.9%
Persons employed using computers with access to World Wide Web	38.3%	49.4%	64.4%
Website usage			
Enterprises with a website	61.7%	77.2%	88.2%
Enterprises with websites with:			
Description of goods or services, price lists	49.3%	58.2%	75.3%
Possibility for visitors to customise/design online goods or services	6.5%	8.3%	11.1%
Order tracking available online	7.5%	7.4%	9.7%
Personalised content in the website for regular/recurrent users	5.9%	7.7%	14.5%
Online ordering or reservation or booking e.g. shopping cart	15.4%	17.8%	29.5%
Social media			
Use any social media	40.1%	53.3%	73.4%
Use 1 type of social media	24.6%	29.7%	35.2%
At least 2 types of social media	14.7%	23.6%	38.1%
Type of social media usage:			
Develop the enterprise's image or market products	32.2%	44.5%	63.0%
Obtain or respond to customer opinions, reviews and/or questions	23.5%	29.3%	38.3%
Involve customers in development or innovation of goods or services	9.0%	12.8%	17.9%
Collaborate with business partners or other organisations	11.3%	15.8%	21.7%
Recruit employees	17.3%	28.9%	51.8%
Exchange views, opinions or knowledge within the enterprise	10.7%	15.3%	22.9%
Supply chains			
Enterprises whose business processes are automatically linked to those of their suppliers and/or customers	11.3%	17.4%	17.0%
Enterprises using software solutions like CRM	20.0%	29.3%	39.1%
E-commerce			
Enterprises with e-commerce sales	12.9%	20.3%	29.9%
Enterprises with e-commerce sales to other EU countries	5.4%	10.2%	12.1%
Enterprises with e-commerce sales to own country	12.4%	19.2%	28.2%
Enterprises with e-commerce sales to rest of the world	2.7%	5.5%	7.0%
Enterprises purchasing online	28.7%	40.8%	54.8%
Enterprises purchasing online of at least 1% of total purchases	13.6%	27.0%	35.7%
ICT knowledge in enterprises			
Enterprises employed ICT specialists	18.0%	17.4%	24.9%
Enterprise recruited/tried to recruit personnel for jobs requiring ICT specialist skills	6.1%	8.3%	11.0%
Enterprise had hard-to-fill vacancies for jobs requiring ICT specialist skills	3.0%	4.5%	7.1%
Enterprise provided training to their personnel to develop their ICT skills	13.5%	22.2%	29.8%
Advanced technologies			
Buy cloud computing services used over the internet	14.2%	24.4%	49.0%
Use 3D printing	2.2%	3.3%	5.0%
Enterprises analysing big data from any data source	8.1%	10.7%	17.6%

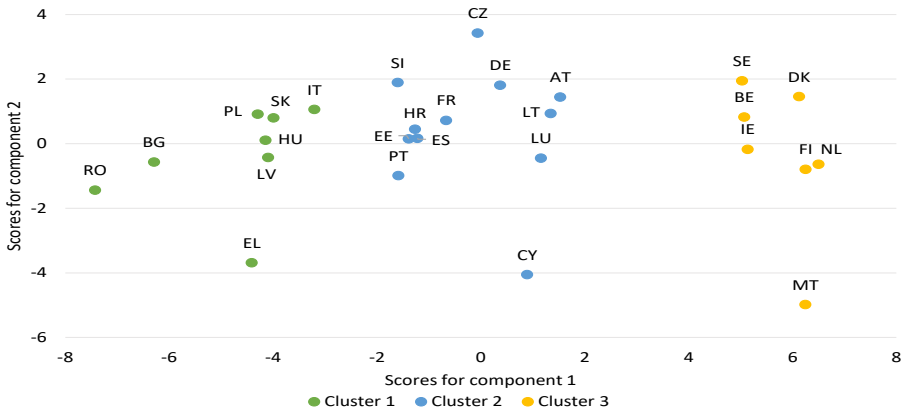
Note: K-means clustering used. The most recent data point was used for each Member State-size class-indicator cell. Data cover small and medium-sized SMEs

Source: Eurostat ICT usage in enterprises

The results of the cluster analysis can be visualised using principal component analysis. This technique reduces the dimensionality of the data while keeping as much of the variation as possible, which allows for the visualisation of many indicators using a smaller number of variables. Figure 114 shows the first two principal components, which capture 72.3% of the variation in the indicators. The chart shows three distinct clusters, which are separated on the first component. However, there is more variation on the second component, with EL, CY and MT being relatively

far from the other data points. As component 1 captures the majority of the variation, the results in Figure 114 suggest that the three clusters are indeed distinct based on most indicators, but that there are some indicators where the clusters are similar to each other.

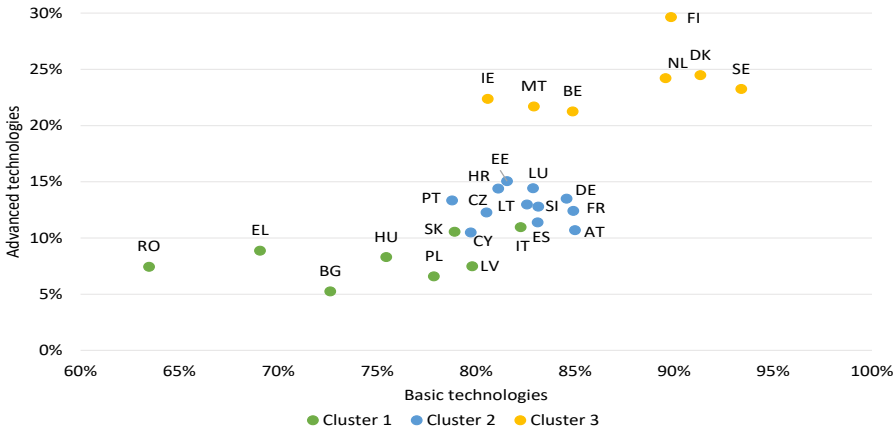
Figure 114 First two principal components from ICT usage in enterprises indicators for small and medium-sized SMEs in EU-27 Member States, with clusters highlighted



Note: K-means cluster analysis used. Analysis is restricted to small and medium-sized SMEs (10 to 249 employees).
Source: Eurostat ICT usage in enterprises

Principal component analysis does not allow for a simple interpretation of what the components represent, so a further way of representing the clusters is by plotting them against summaries of indicators. Figure 115 shows summary indicators for basic and advanced technologies, plotted with the clusters. It shows cluster 3 as being distinct from clusters 1 and 2, particularly in the use of advanced technologies, where every Member State in cluster 3 has a higher score than any Member State in cluster 1 or 2. In particular, four Member States (FI, NL, DK, SE) in cluster 3 have higher advanced and basic technologies scores than any Member State in clusters 1 or 2. There is a small amount of overlap between clusters 1 and 2, with IT and SK being close to cluster 2. The other Member States in cluster 1 are distinct from cluster 2, with 5 Member States (RO, EL, BG, HU, PL) having lower advanced and basic technologies usage than any Member State in clusters 1 or 2.

Figure 115 Average scores for basic technologies and advanced technologies indicators for small and medium-sized SMEs in EU-27 Member States, with clusters highlighted

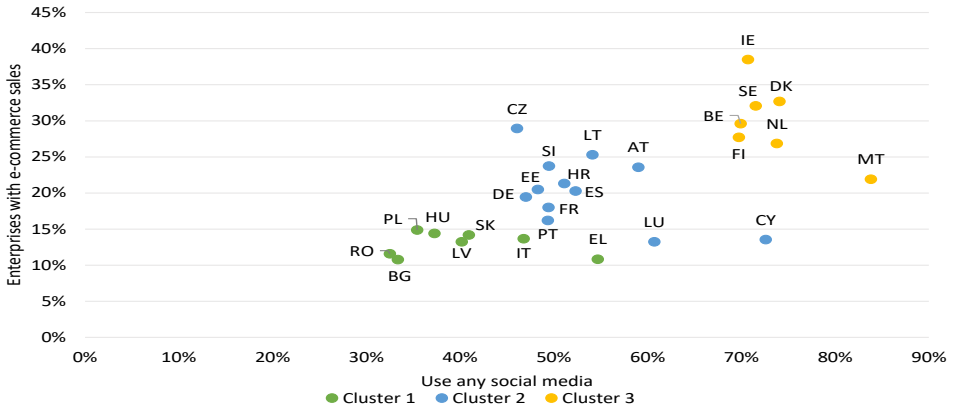


Note: K-means cluster analysis used. Analysis is restricted to small and medium-sized SMEs (10 to 249 employees). Summary indicators were created by taking the average score for each indicator within the group. Basic technologies are: Enterprises using computers; Enterprises with internet access; Persons employed using computers with access to World Wide Web. Advanced technologies are: Buy cloud computing services used over the internet; Use 3D printing; Enterprises analysing big data from any data source.
Source: Eurostat ICT usage in enterprises

Figure 116 shows the percentage of enterprises using any social media plotted against the percentage of enterprises with e-commerce sales. For these indicators, cluster 3 is distinct from

clusters 1 and 2 when looking at social media use, with only CY having a level of social media as high as any Member State in cluster 3. In terms of e-commerce, clusters 2 and 3 have more similarity, with 4 Member States in cluster 2 having a level of e-commerce usage at least as high as one Member State in cluster 3. Clusters 1 and 2 have some overlap, due to IT and EL (in cluster 1) having relatively high social media usage and LU and CY (in cluster 2) having a relatively low percentage of enterprises with e-commerce sales.

Figure 116 Percentage of enterprises using any social media and with e-commerce sales for small and medium-sized SMEs in EU-27 Member States, with clusters highlighted



Note: K-means cluster analysis used. Analysis is restricted to small and medium-sized SMEs (10 to 249 employees).
Source: Eurostat ICT usage in enterprises

A10.3 Robustness checks of cluster analysis

Several robustness checks were undertaken to evaluate the decisions made during the cluster analysis. One methodological issue relates to the number of indicators that should be used in the cluster analysis. 33 indicators were used, but many of them measured similar concepts,[56] which could have led to the clustering being biased towards those indicators. This was tested by re-running the analysis for a limited set of indicators which reduced the number of repeated observations of the same concept. In that analysis, the results were identical for 26 of the 27 Member States, with IT moving from cluster 2 to cluster 1. The same issue was tested by running principal component analysis, then running the cluster analysis on the components, as the components are constructed to be uncorrelated. The resulting clusters were the same as those from the original analysis. The two results suggest a high degree of robustness of the results to this potential issue of having indicators measuring similar concepts.

Another methological choice made in the cluster analysis was to standardise the indicators to have a mean of zero and standard deviation of one before running the cluster analysis. To check the robustness of the clustering results, this analysis was also run on non-standardised data. The results for the non-standardised data were the same as for the standardised data for 24 of 27 Member States, with HR, ES and PT being classified in cluster 1 rather than cluster 2 when using the non-standardised data.

[56] For example, 9 of the 33 were related to social media usage.

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Annual Report on European SMEs 2020/2021

Digitalisation of SMEs

ISBN: 978-92-9460-422-4
ISSN: 2467-0162
DOI: 10.2826/56865

Publications Office
of the European Union