Crisis costs for European SMEs: How COVID-19 changed the playing field for European SMEs

STUDY

European Economic
and Social Committee

Crisis costs for European SMEs – How COVID-19 changed the playing field for European SMEs"

Final Report

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List of Abbreviations

AGRO	Agriculture sub-sector
AR	Augmented Reality
AT	Austria
BG	Bulgaria
CAP	Common Agricultural Policy
CIS	Community Innovation Survey
COVID-19	Coronavirus Disease 19
CRII	Coronavirus Response Investment Initiative
CSOs	Civil Society Organisations
CZ	Czech Republic
DE	Germany
EC	European Commission
ECB	European Central Bank
EESC	European Economic and Social Committee
EISMEA	European Innovation Council and SME Executive Agency
EP	European Parliament
ES	Spain
ESIF	European Structural & Investment Funds
EU	European Union
F&D	Food&Drink sub-sector
FI	Finland
FR	France
GDP	Gross Domestic Product
GFC	Great Financial Crisis
GR	Greece
HORECA	Hotel / Restaurant / Café sector
HR	Croatia
ICT	Information & Communication Technology

ILO	International Labour Organization
ISIC	International Standard Industrial Classification
IT	Italy
KI(B)S	Knowledge Innovation (& Business) Services
MS	Member States
NATO	North-Atlantic Treaty Organisation
NFBS	Non-Financial nor Business Services
NGEU	NextGeneration EU Programme
NL	Netherlands
NRRP	National Recovery & Resilience Plan
OECD	Organisation for Economic Co-operation and Development
OSH	Occupational Safety and Health
PL	Poland
PPE	Personal Protective Equipment
PT	Portugal
R&D	Research & Development
R&I	Research & Innovation
RO	Romania
SE	Sweden
SGRL	Smart, Green, Resilient, Lean Strategy
SLR	Systematic Literature Review
SME	Small and Medium Enterprise
SURE	Support to Mitigate Unemployment Risks in an Emergency Instrument
UK	United Kingdom
VR	Virtual Reality

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Abstract

The advent of **the COVID-19 pandemic** has become the landmark for **one of the greatest recessions ever experienced**. As such, many **Small and Medium Enterprises (SMEs) were exposed to financial and employment-related losses.** However, not all industry sectors suffered same negative rates of income or job disruptions and there is still limited evidence on the matter. In addition, the **invasion of Ukraine from Russia** has **become the trigger for a new wave of economic crisis** for all business sectors and sizes.

Therefore, the objective of this study is to develop **a systematic classification of COVID-19 (and international crisis)-related impacts on SMEs**. It also includes an identification of **"winning" or "losing" adaptation factors shaping crisis management**. To achieve its finalities, the study develops **an explanatory framework by generating six categories of "pandemic challenge areas"** (*Containment Measures, Workforce, Finance, Digitalisation, Public Assistance, European Diversity*) and **a targeted performance analysis for SMEs in 6 industry sectors** (*Manufacturing, Construction, I&R, Tourism, Agro-Food, Retail*) **over an EU-12 sample of countries**. Based upon research evidence, the study ultimately proposes **a list of policy recommendations for recovery and competitiveness of SMEs alongside four pillars** (*emergency support, regulation & governance, training & skills and innovation, sustainability & cohesion*).

Executive Summary

The goal of the present study is to **identify and analyse the diverse impacts of the COVID-19 pandemic on European SMEs** and point out the "winning" or "losing" conditions that have shaped the variety of experiences and reactions of SMEs during crisis management and recovery.

Based upon research evidence, the study ultimately proposes **a list of policy recommendations for recovery and competitiveness of SMEs alongside four pillars**. A selection of most important topics is already introduced in the table below, while all proposals are discussed more in detail in the second section of the Executive summary and in study conclusions.

SHORT-TERM	MEDIUM TO LONG-TERM (I)
1. Emergency Structural Support	**2. Regulation & Governance for SMEs**
• **Simplified SME access to NextGenEU funding** • **Strategic prioritisation** of affected industry areas • Urgent need to **continue reinforcing the strategic action plan towards energy independency** • A mix of **direct support** and **further strategic advice to SMEs** to endure the prolonged crisis • Stimulation of **further SME networking**	• **Revision of** legislative framework for improved institutional and regulatory purposes **to improve European SMEs performance and competitiveness and to provide SMEs with a level playing field** • Reinforcement of the existing SME test on EU legislative proposals and introducing an encompassing "competitiveness check" • Further development of **an enabling business environment for SMEs** (including the strengthening of the current role of the SME Envoys network, appointment of an official EU SME Envoy and creating a network of "financial and funding ombudsmen") • Development of **inclusive public procurement for SMEs** • Design and reinforcement of **participatory & network approaches for SMEs**
MEDIUM TO LONG-TERM (II)	**MEDIUM TO LONG-TERM (III)**
3. Training & Skills	**4. Innovation, Sustainability & Cohesion**
• Increased focus on the revision of national **VET practices** • Priority for **training and capacity-building**, including for **employers**; consolidation of **innovation mentors** for SMEs • **Diversity and creativity in entrepreneurship**, including gender, third country nationals and social economy models	• Improving **awareness and participation of SMEs to all available EU programmes** • Inclusion of **SME compliance provisions for sustainability** in funding instruments • Creation of **fast-lane procedures for digitalisation**, including access to existing programmes and a brand-new fund for SMEs • Further creation of **Innovation Hubs**, particularly addressed at **traditional SME settings**

Study content

The study's methodology is qualitatively developed through **a systematic literature review (SLR)** from academic/institutional/grey literature sources *and* **semi-structured interviews** to SME associations at EU/international/national level. These are also coupled with a selection of real-life testimonials of SME companies. At quantitative level, the study is **supported by published real data and estimates on SME total numbers, employment and other financial factors** reinforcing the arguments of the analysis.

The results of the SLR and the fieldwork show two concrete reasons for prioritising analysis of SMEs in the global impact of recent crises on business companies. On the one side, **SMEs constitute the core of both the European and the global economy** as the most numerous business population. On the other, **SMEs present a so-called "liability of smallness"** which makes them even more sensitive to economic and market disruptions. Furthermore, the **COVID-19 crisis (and its continuation) has had a double knock-out effect on the global economy**. **It has conditioned both a crisis of supply and demand**. Thus, several recent studies have acknowledged the presence of correlation and causation links generating both new costs and opportunities for SMEs. Their re-elaboration in a framework for this research has identified **six pandemic challenge areas** (*containment measures; workforce; finance; digitalisation; public assistance and European diversity*) **which unveil interconnected impacts for SMEs**.

Impacts relative to ***Containment Measures*** include all those **restrictions meant to limit the spread of the virus during the pandemic** (e.g., lockdown and mobility restrictions; intermediate business guidelines; mandatory wearing of face masks). The impacts include **a series of disruptions on economic activities and increased costs for businesses** (e.g., disruptions in production/delivery of services, sales, supply chain provision). As a response, **successful factors for SMEs when adapting to this challenge area include (among others) classification of their industry as "essential"** by government definition (thus reducing restrictions), **adaptation of production/services to health emergency requirements** (including remote and digital means), **successful business adaptation** to containment measures and even **networking capacities with other competitors** to deal with the disruptions.

The ***Workforce*** **challenge area relates to all those measures taken by SMEs in order to deal with virus-induced disruptions at employment levels**. In order of gravity, the impact on the companies can range from a smart-working adaptation challenge all the way down to reductions in staff availability, lay-offs or even redundancies. **Among multiple factors**, **SMEs are found to be more successful if they** are able to **apply for extraordinary relief measures on employment** support, being capable of **fully switching to remote workin**g or even properly **adapting business spaces to containment measures**.

Economic impacts to SME *Finance* triggered by the prolonged period of crisis are multiple, **as they can range from liquidity squeezes and additional business costs to increased debt or even outright business failure**. This is also complemented by **new disruptive impacts of the Ukrainian crisis on businesses** (e.g., inflation, increase of energy and fuel, higher cost and barriers for access to raw materials, further disruptions in certain supply chains). **Potential strategies for SME** survival

should **include (among others) alternative strategies for costs reduction, renegotiation of supply chains or credit conditions and full exploitation of public relief measures**. Nonetheless, the study remains aware of the risks associated to extended public support and elaborates on **the danger of an Insolvency Debt Crisis for SMEs**, thus requesting preventive structural interventions at national/European level.

Digitalisation had already been identified **as highly beneficial to production, revenue and competitiveness of the small and medium businesses** prior to the pandemic emergency. The study thud identifies **three modalities of digitalisation** (and their relative impact) for SME (basic, intermediate, advanced) as a response to the prolonged crisis and highlights the main reasons as to why a majority of small and medium companies relies on the first two levels. Beyond **understanding the appropriate level of digitalisation to be pursued**, **optimal conditions for SME digitalisation include entrepreneurial awareness and extensive public support for digital transition** (e.g. policies, networks, infrastructure).

In the challenge area of ***Public Assistance***, **the study identifies the mostly positive impact of the relief measures on SMEs for business survival**, **continuity and development** while also returning to increased risk for insolvency. Altogether, this section turns towards policymakers in assessing the typologies and effectiveness of European and national rescue and recovery measures through scientific findings and stakeholders contributions. At the same time, the section highlights that **successful conditions for their deployment are influenced by timely, simplified, strategic and participative practices**.

Finally, in terms of *inter-national* and *intra-national* differences across Member States, ***European Diversity*** **is acknowledged as a dependent variable that can either reduce or amplify the magnitude of SME impacts for the prolonged period of crisis**. Differentiated management of containment measures, fiscal and administrative capacity and even the regional business environment all matter for the recovery rates of SMEs. Thus, **a variety of success factors can contribute to counterbalance the effects of European diversity (e.g., balance in containment measures, strong fiscal capacity, long-term industrial vision, strategic location of business ecosystems**).

The theoretical findings are then exploited in **a targeted performance analysis on SMEs relative to six industry sectors** (*Manufacturing, Construction, Innovation & Research, Tourism, Agro-Food, Retail)* **and through extracted data on a sample of EU-12 countries**. These provide key arguments and highlight sector-specific trends characterising the diverse ways SMEs have coped with the six pandemic challenge areas. Despite common losses at economic and job level, the study detects **diversified trends in productivity factors, rebounding rates and even customers' demand**. Therefore, it ascertains that through exceptional circumstances affecting physical proximity of workers/customers, **a. the typology of production process / services provided, b. the typology of business sale model**. **c. the "essential" nature of the product/service provided** and **d. the reliance on the supply chain** all mattered as general industry factors for enduring the pandemic crisis. However, **these often need to be coupled with further individual SME factors that influence assessments of company performance** (i.e., workforce skills and availability, pre-crisis levels of financial stability, awareness/capacity/resources to digitalise, fiscal capacity and public assistance availability in the national context, European structural differences at international and regional level).

As further findings, the research generates a **tentative ranking of the six SME sectors from most to least affected** (*1. Tourism, 2. Retail, 3. Manufacturing, 4. Construction, 5. Agro-Food, 6. Research & Innovation*). This is **accompanied by a narrative of the main drivers and obstacles of SME performance encountered by the six industries** subject of the study, and it is coupled to **a selection of the main winning and losing factors** experienced at sectoral level by the companies.

In addition, the study also accounts for specific impacts and industry variations in performance derived from the new round of economic crisis due to the Ukrainian conflict. As such, it emerges that **future equity and development aid may soon need to be split among industry sectors** (and their SMEs) **previously most affected** by the pandemic crisis **and new ones** which were previously capable of adaptation but are **now perceiving the additional weight of the crisis**.

Policy Recommendations

Based upon all previous research evidence, **the study insights allow to elaborate four categories of policy recommendations**, namely one short-term set of measures on *a.* **emergency structural support** and three medium-to-long-term suggestions referring to: *b.* **better regulation and governance of SMEs,** *c.* **improved training & skills** for workers/employers and lastly *d.* general support to **innovation, sustainability and European cohesion** aimed for small and medium companies.

In light of the findings, **the most urgent objective for policymakers is to restore the business environment** disrupted by the prolonged period of productivity crisis. **To this end, there exist three thematic pathways in which urgent action is required**.

First, concerning the initial phase of implementation of the National Recovery and Resilience Plans through **NextGenEU opportunities**, **virtually all the consulted stakeholders have mentioned a lack of SME knowledge, focus and difficult access/implementation to recovery funding**. As a consequence, there is a comprehensive need to increase thematic focus, simplify procedures and improve communication of opportunities to SME. This should be accompanied by significative slimming of administrative burden for access, application and implementation of resources for this business category.

Second, the performed sectoral analyses have highlighted **the need for strategic prioritisation of industry areas and streams of investments when considering future equity injections into European businesses**. Due to the exploratory attempt of this research in performing comparative analyses, it is suggested to further take into account factors acknowledged by the study when considering policy support design (i.e., sector-specific *nature, extent and cause of losses experienced during the acute stage of the pandemic*; the *company's position in markets, value chains and business ecosystem*).

Meanwhile, it is also suggested **to stimulate the promotion of further associationism, networking and cooperative partnership for SMEs** as these constitute participatory instruments closing the gap between policymakers and business companies. Representative organisations can become useful agents of interest in providing sector-specific data alongside assisting their company bases in matters related to recovery funding communication, better application/implementation and even business stimulation.

Third, to create a sustainable post-crisis economy for Europe and to endure the new challenges brought forth by tensions in the domain of international relations, **the European Union and its Member States need to continue reinforcing the current strategic action plan towards energy independency, particularly from Russian markets**. Aware of this long-term strategy, **a mix of direct support to SMEs** (i.e., tax reduction, direct subsidies, re-structuring of the supply chains) **and further strategic advice to SMEs** (i.e., methods to control speculation and demand transparency on prices) is strongly recommended at present time to endure the financial storm.

On a medium to long-term basis, this study has also recollected **a series of interventions in regulation and governance that are still necessary for improving European SMEs performance and competitiveness**. It identifies two thematic areas that could substantially help towards this achievement.

The first one relates to **an increased alignment of current legislative and regulatory frameworks** in favour of the best interests for European markets and small and medium businesses. *A priori*, European institutions and Member States should consider aligning the current framework to the emerging challenges and needs of the present period. Adjusted SME categories based upon differentiated criteria (i.e., productivity types, services provided, ownership base as in the case of family-owned businesses) could also help providing more refined tools for structural assistance.

Next, **a series of governance proposals recommend both the strengthening of the SME Envoys Network** (i.e., increased participatory capacity, pending appointment of EU-SME envoy) and **the consolidation of a new network of "financial and funding SME ombudsmen"** pursuing decentralised but coordinated supervision of recovery funding implementation for the business category.

Other **reforms in the European regulatory framework** can also provide long-term benefits for SMEs. These include: *a*. the **reinforcing of the existing SME test on EU legislative proposals** and even the elaboration of **an encompassing "competitiveness check"** for checking the impact of new EU policy initiatives on small and large companies and their business environment (e.g., in terms of cost of doing business, capacity to innovate, international competitiveness, level playing field, etc.); *b*. **more refined measures to ensure orderly exit of unviable businesses from the European economy** (i.e. efficient implementation of the *EU Restructuring and Insolvency Directive*, re-opening discussions on a "second-chance" framework for European entrepreneurs); *c*. a substantial **revision of obsolete national regulatory legislation for SME activity in certain Member States**.

Meanwhile, the second area of framework intervention is specifically dedicated **to promoting a more inclusive, value-based system for public procurement granting better access for SMEs**. Increased participation should be based on availability of more opportunities, the speed-up of public investment and payments (thus including revision of the *EU Late Payment Directive*) and more flexibility in contracts and clausulae.

An essential component of SME recovery and boosting also lays in delivering on the ambitions of the green and digital transitions through **improving small and medium companies' training and skills.** For a necessary approach to workforces, the study suggests to European institutions and Member States **to promote an increased revision of Vocational Education and Training practices** specifically designed to reinforce the twin transition. However, **it is also requested not to forgo specialised**

training for employers (also including digitalisation) with a particular outlook on more traditional sectors. These should be aimed at **promoting diversity and creativity in European entrepreneurship** by fostering diversified presence of women, third-country nationals or even social economy models (i.e., worker-owned cooperatives). Further assistance could be provided through the **training of specialised mentors and intermediaries of SME innovation** siding the businesses or even **the promotion of business transfer-specific training** dedicated to the pick-up of small and medium businesses in risk of closure.

One final set of recommendations looks at **interconnections across processes of (digital) innovation, sustainability and European cohesion for SMEs**. On the one side, small and medium companies are in **greater need of advanced technical and logistical support for awareness-raising, application and implementation of European regulation and funding**. This holds multiple implications for the increased participation of SMEs to EU-funded projects and for obtaining guidance on compliance with the new climate and environmental policies (i.e., New Green Deal and Fit for 55 package). On the other side, **the study considers that improvements to these processes are also strictly connected to further digitalisation**. To face such a challenge, additional investments will be required both for closing national gaps among digital levels (i.e., physical infrastructure and digital services) and to enable the development of **a specific EU fund for broad SME digitalisation capacity**. Of special interest may be the use of "one-sheet" application procedures and employment of different criteria according to the level of desired upscale in digitalisation (akin to the classification offered by this study). Last, for the successful implementation of such a digital capacity-building plan it may well be necessary **to consider the creation of a new generation of Innovation hubs.** These would not only be dedicated to digital and startup services, but rather **connected to practical implementation of technological innovation in traditional SME settings**.

1. Introduction to the Study

1.1 Rationale

According to a traditional definition updated in 2003 by the European Commission (EC), **Small and Medium Enterprises (SMEs)** are defined as the ecosystem of businesses comprised under an employee's threshold (max. 250 people) and either a balance sheet/financial turnover respectively under € 43 and € 50 million (EC, 2003, 2015. See Table 1). Both the European Union (EU) institutions and the international economy experts claim that **SMEs are at the heart of both the European (and global) economy**. As a matter of fact, there were more than 23 million active SMEs in the EU-27 by the start of 2020 (99.8% of all Non-Financial nor Business Services [NFBS] companies in Europe). By the same year, global economic growth was slowing due to a series of consequences tied to the world of international relations (i.e., Sino-American trade war), but EU economies were still on the route of recovery from past crises. On their account, SMEs showed growing performance in 2019 for total added value of NFBS (+3.8%) and in their employment rate (+1.8%) (EC Report, 2021, 2022). Yet, 2020 and the advent of the *Coronavirus Disease 19* (COVID-19) pandemic became instead the landmark for one of the greatest economic recessions ever experienced. Due to the lack of scientific knowledge of the COVID-19 disease and its overall mortality rate, public authorities deduced that **the only way to cut the transmission chain would be reducing social interaction** to relief pressure on healthcare systems (Didier et al., 2021; Thukral, 2021). But many did not fail to foresee that the disruptive potential of the COVID-19 pandemic to our daily lives would immediately evolve into an encompassing economic, social and political crisis. Restrictive measures enforced to stop transmission and contagion would soon bring cascading effects into all aspects of human activity.

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

Table 1. Classification of European SMEs (Source: EC, 2003)

It is however becoming evident that such pandemic challenges were not perceived equally by all SMEs. For example, across EU Members States (MS) the EC identified that while certain sector-industries were severely affected (i.e., accommodation and food service activities, transport and storage, manufacturing) or moderately decreasing (e.g., home energy supply, construction or scientific and technical activities), other sectoral SMEs (particularly in the digital sector and information and communication industries) experienced either a very small decrease or even an increase in added value and employment rates (EC Report, 2021).

Furthermore, another unexpected event brought additional challenges to a European economy that has spent more than two years dealing with the acute stage of the pandemic. The sudden **military invasion of the Russian Federation towards Ukraine at the end of February 2022** – coupled with **the increasing escalation of tension between EU/North Atlantic Treaty Organisation (NATO) countries and Russia – quickly became the trigger for a new wave of economic crisis**. The costly call to reducing energy dependency from Russia, a new shortage of raw materials and dangers of spiking inflation all translated into new dangerous crisis costs for all SMEs (EC Report, 2022). At the time of

writing, it is still unclear how long the conflict will last and what will be the final consequences for the global economy.

It is therefore fundamental for experts **to produce accurate analyses to provide support** to stakeholders and decision-makers **in the definition of solutions for this prolonged time of financial hardship**. During the first year and a half of the pandemic, public institutions at both national and European level have opted for generous stimulus packages and rules relaxation at the fiscal and financial level in order to stabilise the European economy. In addition, the Ukrainian War has also called for emergency relief measures in covering utility costs for all economic actors (including SMEs). It is clear that the situation will be unsustainable in the long run and that **any further recovery and recapitalisation policies will need to be increasingly addressed towards the industrial sectors and companies most in need.**

Due to all the above, the **key objective** in this study is **to identify the diverse impacts (whether positive or negative) of the pandemic** on different SMEs sectors **as to show relevant changes in the playing field *and* the "winning" or "losing" conditions shaping companies experiences' during crisis management**. All of this will be required **to also enquire into future perspectives of SMEs, particularly in the unexpected context of raising tension in international relations**. To achieve this, the study *a.* develops **a systematic classification** of **COVID and crisis-related impacts** on SMEs (classified through 6 "pandemic challenge areas" categories: *containment measures; workforce; finance; digitalisation; public assistance and European diversity*); and *b.* produces a **targeted performance analysis on 6 sectors** (*Manufacturing, Construction, Innovation & Research, Tourism, Agro-Food, Retail)* **and over a sample of 12 EU countries** (*Bulgaria [BG], Croatia [HR], Finland [FI], France [FR], Germany [DE], Greece [GR], Italy [IT], Netherlands [NL], Poland [PL], Portugal [PT], Romania [RO], Spain [ES]*).

The results of the enquiry are aimed **at highlighting a set of pandemic-related and individual company factors affecting the crisis management experience of companies**. Next, the research attempts **a tentative ranking of SME performance in the six industries through understanding what have been the main "winning" and "losing" adaptation factors** in their response to the various pandemic challenge areas. These are analysed in a perspective of continuity with the most recent Ukrainian crisis. Lastly, based upon research evidence the study presents a list **of policy recommendations that can potentially assist the recovery and future competitiveness for all European SMEs**.

1.2 Methodology

The key methods selected include **a qualitative theoretical study, a work of quantitative data collection for mapping purposes and the realisation of qualitative interviews**. This section provides a short description of the operational methodology followed for its execution, while an extended description is provided in Annex I. In order to develop a comprehensive, yet accurate review of the impressive abundance of literature dealing with the impacts of the crisis on SMEs, the researchers first proceeded to the execution of an adapted **Systematic Literature Review (SLR)** concerning the 6 pandemic challenge areas in our classification applied to the 6 sectors and the EU- 12 country sample requested by the analysis. Whenever available and appropriate, quantitative results and arguments from

the SLR are included in several parts of the study for backing empirical findings. The main process thus included: *a.* a **systematic data collection** throughout institutional, academic and stakeholders' database sources; *b.* the **storage, refining and categorisation of the list of references** through the auxilium of the Zotero referencing software; *c.* the construction of a **database in Excel spreadsheet format** for the screening and further classification of the publications; *d.* a **multi-stage process of screening** involving eligibility checks, verification of content (main arguments, results) and a progressive filtering towards final selection of most relevant references to be employed for final use in different chapters of the study (see Table 2).

Zotero Literature Collections	1. TOTAL SLR (Zotero Process)	2. TOTAL Eligible for Screening (Abstract Check)	3. TOTAL Eligible for Inclusion (Content Check)	4. SELECTED for use in the Study	Corresponding chapters in the study
0. General Framework	571	185	105	84*	1.1 – 2 – 4.1
1. Manufacturing	410	54	25	24	3.1
2. Construction	281	57	24	19	3.2
3. R&I	656	63	24	24**	3.3
4. Tourism	192	76	36	16	3.4
5. Agro-Food	341	54	20	20	3.5
6. Retail	165	38	32	12	3.6
7. Info on EU Countries	284	82	68	8	2
TOTALS	**2900**	**607**	**332**	**207 (*206*)**	
**** Excluding duplicate references in 1. Introduction and 4. Discussion and Policy R. (N. 6)*** ***** This result necessarily includes a duplicated use of EC Report 2022 for extra data (+1)***					

Table 2. Multiple screening process, totals of publications analysed in the SLR and study chapters where these are employed (source: authors' elaboration)

In contrast to the abundance of qualitative argumentation, the **quantitative data collection process** has requested the development of a more integrated solution based upon multiple sources (i.e., statistical information, estimations, survey data). The main databases have been the **SME Performance Review study** (produced parallel to the *Annual Report on European SMEs*) and several entries from the **EUROSTAT** and **PORDATA** statistics portals[1]. Complementary information was also extracted from **SLR findings, other EU datasets/reports and grey literature data** provided by the stakeholders. Meanwhile, the analysis of secondary sources and the quantitative mapping have been accompanied by **an interview fieldwork composed by two modalities of semi-structured interviews**: *a. in-depth interviews* to SME-oriented EU & International Organisations/National SME associations for discussing COVID-19 impacts in terms of the sectors, geographies, and national backgrounds of SMEs; *b. testimonial interviews* directed to a selection of twelve SMEs. While the former helped complement the findings relative to the EU-12 sample of countries examined in the study, the latter helped in collecting

[1] However, for the quantitative data collection in this study please note that the only real data are listed for 2019 and proceed from EUROSTAT. For 2020-2021, the research employs detailed data estimates elaborated by the SME Performance Review in both the 2021/2021 and 2021/2022 editions. **Estimations for the year 2022 have not been included** as the very same authors of the Performance Review admitted that data were elaborated before the Ukrainian crisis and thus do not take into account economic effects derived from this event. For more details, check Annex 1b.

real-life practices of enterprises dealing with the pandemic disruptions. These last ones are introduced in the format of info-boxes in the study, as they represented a chance to enquire into the adaptation capacity and the real-life obstacles of the companies while enduring the persisting crisis. Lastly, the **policy recommendations** specified at the end of the study constitute **a synthesis of solution-gathering formulas** through SLR findings, stakeholder contributions and previous literature from the contracting authority.

1.3 Structure

Having introduced the **rationale** behind its development (**1.1**) and summarised **the qualitative and quantitative methodologies** employed (**1.2**), **Chapter 1** is completed by this section describing the main content and how it is organised.

In **Chapter 2**, the study provides **a theory-based framework for the systematic analysis and assessment of crisis-related impacts** by feeding into the results of the SLR. While section **2.1** and **2.2** provide more context on SMEs and previous attempts at similar analyses, section **2.3** deals with the logic of the framework and the six main areas it involves. Next, in section **2.4** (**and relative sub-sections) the study explores the main costs and opportunities generated by the crisis on SMEs ("impacts")** by means of the literature and the stakeholder contributions. It also provides **a selection of "winning" and "losing" adaptation factors that SME can experience throughout the six challenge areas**.

Chapter 3 leads the way towards **the results of the individual analyses of SMEs impacts in the chosen sample of industries**. After a short introduction to the comparative analysis of industry sectors, the outcomes of individual enquiries are outlined through **sector-specific sections** (**3.1 – 3.6**). All findings are accompanied by "testimonial" narratives of individual companies. The results of the analysis are once again a combination of literature evidence, quantitative data and the insights provided by stakeholders at EU and national level.

Finally, in **Chapter 4**, section **4.1** provides a **discussion of findings while attempting a tentative ranking of the six industry sectors and an identification of main winning and losing traits of their SMEs during the pandemic crisis**. Section **4.2** leads to some stakeholder-reinforced **considerations on latest developments over the European SME ecosystem after the events of Ukraine**. Lastly, the research elaborates in section **4.3** a series of **multilevel and time-bound policy recommendations** aiming to chart a roadmap over a still uncertain path to recovery.

2. Crisis Impacts on SMEs

2.1 Why focusing on SMEs?

The pandemic brought profound consequences over the global economy, affecting all business companies in some way through its disruptive impacts. However, there exist **two reasons** that prioritise analysis of SMEs. These are extracted from eleven publications in the SLR. First, as already mentioned at the beginning of the study (see 1.1), **SMEs constitute the core of both the European and the global economy**. It has been demonstrated in the literature that all societies (i.e., Western and Eastern, developed and developing) show a considerable presence of this typology of businesses in their economy. Second, when compared to large firms, the sources remark that **SMEs in the modern globalised economy are subject to a "liability of smallness".** This refers to a set of **common features in the business category across all industrial sectors in which they operate** (i.e., Belghitar et al., 2021; CoR, 2019; DeNicolai et al., 2021; EC, 2021a; European Parliament [EP], 2020a; Organisation for Economic Co-operation and Development [OECD], 2021a, 2021b; McKinsey e co., 2020a).

Therefore, SMEs in general tend to:

a. have **limited resources** in comparison to large enterprises and thus show less capability to deal with market fluctuations and periods of inactivity. This also refers to **more obstacles when accessing into new markets or obtaining private funding** from investors and banks.

b. establish **strong business relationships with their commercial partners**, often due to their degree of specialisation in a smaller number of products and services. However, **sudden disruption of the supply or retail chains can hold a tremendous impact** on the companies.

c. hold an **informal management style** through a limited pool of human resources and no marked divisions of tasks (also including family-owned businesses). Even in the case of medium enterprises, **straightforward ways of management** (i.e., employer's leadership or a small board of directives) **provide greater operational flexibility** than large corporations.

d. show **increased resilience by adjusting to new market conditions or requirements**. This allows for **faster adaptation to new public measures or goods production, as well as the agile exploitation of new market opportunities**. As a reverse effect, the lack of intra-department checks and balances (typical of large businesses) can sometimes mean that internal regulations are not fully respected nor subject to review.

Pre-pandemic discussions over a European SME strategy already showed that many small and medium companies suffered from structural obstacles preventing their full economic potential (EC, 2020a; EP, 2020b). A position paper on SMEs adopted by the Bureau of the EESC Section for Internal Market, Consumption and Production draws up a comprehensive list of **structural challenges for a majority of SMEs** in the 21st century, namely: *a.* fierce competition and even market abuses from larger or more competitive actors in the international market; *b.* persisting shortages of specialized labour for stimulating innovation and technology applications; *c.* slower adaptation to new forms of work and consumption in society; *d*. difficulty in navigating intense and complex flows of international market information; *e*. limited resources for investing in innovation; *f*. a downgrading of the entrepreneur's role in the modern economy; *g*. vulnerability to volatile financial markets; *h.* complicated access to private finance (national, but also EU level); *j*. high dependence on their supply chain; *k.* limited bargaining

power in trade; *l.* complexity in achieving advanced standardisation (i.e., intellectual property, data protection regulations); and finally *m.* complex access to public procurement at national and EU level. From the point of view of EU policymaking, the paper was even more incisive in determining **that further action is required with respect to initiatives aimed at SMEs**. The effort made so far in EU policy and programme initiatives is deemed as too fragmented. Further progression in the reduction of red tape and restrictive criteria for SMEs' access to public procurement and funding programs is required, jointly with a more active involvement of the business category in EU governance (Bureau of the EESC Section for Internal Market, Consumption and Production, 2020). However, half a year later, in EESC opinion INT/898 on the "SME Strategy" the Committee claimed to understand deeper reasons for not amending the definition of an SME while admitting that there are different views as to what extent it is fit for purposes. At the same time, EESC also asked the EC to help the MS be flexible when choosing their implementation method on SME strategies[2].

An example of such flexibility is encountered in **the lack of a differentiation for SME Family Business**. In principle, a family-based company is defined as such when most of its shares belong to the same kinship, and the relevant members (i.e. spouses, parents, child, or children's direct heirs) have a tangible role both in the administration and in the direction of the business. Family businesses make up more than 60% of all European companies, encompassing a vast range of firms of different sizes and from different sectors. In addition, they also account for slightly less than 50% of all jobs of European private employment (Ayce.es, 2021; European Family Business Foundation, 2022). There are many additional-value features associated to family businesses, such as an unwillingness to lose control of the business and a tendency to reinvest profits responsibly by preferring equity over debt financing. It is also believed that that these companies tend to act through a higher sense of social and territorial responsibility in their environment (i.e. employees, customers, stakeholders and communities). Most family businesses begin their lifecycle as SMEs (especially micro and small enterprises), and it is estimated that a large majority of currently existing family companies are SMEs. Over time, if financial opportunities are exploited and the business risks overcome, they can expand and bring increased social and economic capital which is safeguarded from one generation to the next. Yet, despite all such reasons, family-owned businesses are mostly studied and accounted without discerning sizes, and SME-dedicated statistics and definitions are still secluded into pilot studies (i.e. EC, 2009; Spanish INE, 2009).

As a consequence to all the above, **a more detailed and differentiated approach to devising tailored SME support measures** requires further studies as to cover the diversity of the SMEs constellation and the different market dangers they face. Such argument becomes even more compelling in times of prolonged crisis as the one described in this study.

[2] For more information on the debate, see EESC Opinion INT/898 "SME Strategy" at https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/sme-strategy

2.2 Interconnections across costs and opportunities for SMEs

Up to twelve contributions from the SLR identified clear interconnections among impacts on SMEs derived from the pandemic disruptions. These are the basis for the work of analysis conducted by this research.

Unlike recent experiences of financial crises, the **extraordinary circumstances of the COVID-19 crisis (and its continuation) have had a double knock-out effect on the global economy**. **They have conditioned both a crisis of supply** – of human labour (workers) and value chains (shortage of production parts and intermediate goods) – **and of demand**. Indeed, **global demand went down both at company level** (as less revenue meant fewer corporate purchases) **and consumer experience** (loss of income and purchasing power). In addition, both were affected by similar concerns such as fear of contagion, heightened business uncertainty and reduction of spending and consumption (OECD, 2021a). Due to these, Caiazza et al. (2021) define **the relationship between SMEs and COVID-19 as a multi-level systemic phenomenon** bringing long-lasting changes for companies in the foreseeable future.

Other contributions provide further insights on categories of impacts to SMEs. During the development of a previous EESC study on Civil Society Organisations (CSO) the consulted stakeholders' categories also included "*SMEs, Crafts and Family Business*". In its results, three main costs were identified for organisations and companies: *a.* workforce shortages tied to social distancing; *b.* digitalisation acquisition (technical equipment and IT expertise); and *c.* accessibility and exploitation of national relief measures (Tageo et al., 2021). Two more attempts at SLRs on similar topics (Klein & Todesco, 2021; Zutshi et al., 2021) highlighted economic challenges as a clear consequence of preventive health measures. Both studies quoted innovation and digitalisation as possible ways out of the crisis. On their account, Lu et al. (2021) and Sun et al. (2021) also linked labour market issues and economic hardships for SMEs to the disruption of production provoked by social distancing measures. However, while the former proposes the relief measures of public governments as a recovery solution, the latter consider innovation (including digitalisation) as a better mitigating tool against negative impacts. Similar arguments are claimed by studies specifically analysing the response to the crisis of SMEs (Klyver & Nielsen, 2021; Thorgren & Williams, 2020). On the one side, SME survival strategies against the pandemic are found in their adaptation to financial instability (i.e. reduction and deference of costs and expenditures). On the other, it is suggested that crises can be both sources of threats and opportunities and that companies should rather persevere, dare and innovate to continue thriving in their sectoral markets. There have also been **previous attempts of structured theorisation similar to the framework employed in this study**. Bartik et al. (2020) try to understand **all impacts across the SMEs business ecosystem** in the US. In their analysis, they connect the effects of social distancing to financial fragility (both in terms of workforce disruption and financial instability) and stress the importance of public assistance measures for recovery. Adam & Alarifi (2021) come the closest to this research by developing **a theoretical model between diminished SMEs performance** – tied to social distancing measures and their consequences to supply/demand – **and the survival practices required to get through the crisis.** These include both the need for public relief and the implementation of innovation models and digitalisation. However, their lack of territorial focus on country diversity prevents consideration of the European national backgrounds for SMEs.

2.3 Explanatory framework in the study

On the basis of study antecedents illustrated in section 2.2, this research proposes an explanatory framework for categorisation intended to facilitate analysis and reflection. This is introduced in the study as **an analytical toolkit for filtering the specificities of each industrial sector and to generate explanatory patterns towards SME performance.** It attempts to establish relationships among the main business determinants and policy areas affecting the performance of SMEs as a consequence of the pandemic and its continuation through the Ukrainian conflict. The main classification system entails: ***a.*** six **pandemic challenge areas to SMEs**, understood as thematic groupings of impacts (both threats and opportunities) influencing the activity of European SMEs, (see Figure 1 below, also showing their interconnections); ***b.*** the individual **impacts**, defined as sets of events/consequences with the potential to alter, disrupt and ultimately transform company practices and performance. These are identified and associated to the challenges that trigger them.

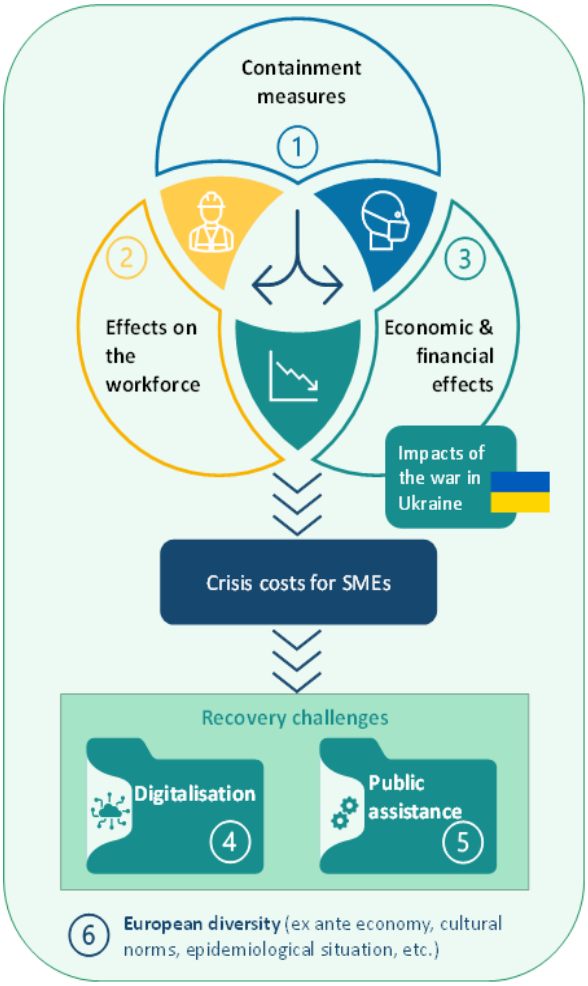


Figure 1. Sequential interconnection of pandemic challenges areas (and international military crisis) leading to impacts on SMEs

Next, the **logic of the framework** is based upon the following reasoning. On the losing side, the baseline challenge for economic business was the need to mitigate the explosive outbreak of the pandemic through the health emergency challenge of implementing **(1) Containment Measures**. In this context, it emerged that both **(2) Workforce** and **(3) Finance** areas of businesses for SMEs were strongly influenced by the disruption of supply/demand. This helps unveiling multiple *a priori* links with pandemic challenge area (1) and **the appearance of business costs for many SMEs**.

However, on the recovery side, the pandemic also determined the appearance of *a posteriori* impacts triggered by interventions for restoring business activity and mitigating negative effects in challenge areas (2) and (3). These are intended as **a set of opportunities for remedy and recovery** and are mainly classified as the push for further **(4) Digitalisation** of production and services – to supply as much as possible to the lack of physical contact and restore revenues – and the spike in **(5) Public Assistance** measures at national and EU level to increase liquidity and promote investments. Finally, the magnitude of the above-mentioned impacts must also be considered **according to the different national (and regional) (6) European Diversity** of EU-27. Such diversity conditioned: *a.* different cultural approaches to social distancing measures (e.g., Swedish lax restrictions vs. Italo-Spanish hard

lockdown), *b.* different epidemiological situations based on alternating waves of infections across different countries; *c*. different policy instruments based on the resources available to governments (e.g., generous relief package from DE vs. high-loss-only packages provided by the ES government); *d.* pre-existing regional inequalities at intra-national level which affected the severity of negative impacts and may have limited the ones for recovery.

Based upon such reasoning, the rest of the chapter represents an effort to produce **a systematic classification of challenge-related impacts on European SMEs.** It contains **a selection of key determinants and examples of "winning" and "losing" conditions for all SMEs** against such pandemic challenge areas, also **highlighting continuity to prolonged impacts** connected to the Ukrainian crisis.

Thus, while the framework is **initially employed for the analysis of SMEs impacts in individual business sectors, the research results are then further extracted and compared in Chapter 4.** These will help producing **both theoretical research results** (pandemic and individual SME factors, ranking of SME sectors performance, continuity with the Ukrainian crisis) (section 4.1 – 4.2) **and elaborating evidence-based recommendations** for SME recovery and future competitiveness (section 4.3).

2.4 SMEs Crisis impacts and adaptation conditions: A quali-quantitative overview

This chapter section exploits the six pandemic challenge areas to elaborate in-depth over the typologies of impacts experienced by SMEs throughout the enduring crisis begun in February 2020. At qualitative level, it includes research findings from the SLR and various stakeholder contributions (national SME associations from the EU-12 sample of the study, EU & international-level SME associations). Quantitatively, the section relies on data collection from recent surveys/statistics (see 1.2) based on total numbers of SMEs across all industrial sectors. The framework is also accompanied by sponsor statements from some of the key-stakeholders interviewed for this study.

2.4.1 Containment Measures

Thirteen contributions in the SLR helped understanding the impact of ***"Nonpharmaceutical Interventions"*** (Bendavid et al., 2020) more in detail. The restrictions were more or less severe according to the rates of contagion and the political will to maintain containment. They represent the original pandemic challenge area upon which all other impacts onto SMEs derive in the framework. Thus, containment measures include a broad range of regulations ranging **from extreme isolation** (i.e., national border closures, territorial "lockdowns" prohibiting population circulation) **to intermediate restrictions** (i.e., directives and guidelines to small and large businesses across all the industry sectors, including closure of "non-essential"-classified businesses or opening hours limitations) **all the way down to regulation of individual behaviour** (i.e. maintaining a minimum safety distance between people; wearing Personal Protective Equipment [PPE] such as face masks; enforcing personal hygiene through hydro-alcoholic gels). On a business level, this translates in a systematic reduction of social interaction across all business development spaces. In addition, it has been acknowledged that containment measures become shock policies affecting general production of certain goods and services

while conditioning reduced consumption (Caiazza et al., 2020). Through **the linkage with the crisis of demand and supply**, **the prolonged pandemic emergency enables shifts in customer consumption patterns**. On the one side, fear-of-contagion effect leads to reduced mobility and spending on "contact-intensive" industries and an increased reliance on safer virtual solutions (i.e., e-commerce or online entertainment) (CEA-PME Interview). In 2021, EUROSTAT has estimated that 74% of internet users in the EU shopped online and that 42% of e-buyers made purchases for an amount between €100-500 in the last 3 months prior to data collection. Even the older and traditionally reluctant European generation (55-74 years) was increasingly exploiting this shopping modality, showing a light-upward variation since the beginning of the pandemic (EUROSTAT, 2022a). In addition, transition to digital also seems to be creating new customers more attentive in comparing prices online and capable of finding alternative products through platforms leading them to alternative/distant markets (OECD Interview). Nonetheless, broader research on consumer patterns also showed that **income decline, fear of unemployment and persistent uncertainty strongly encouraged forced savings and reduced spending at household level**. Direct correlations have been signalled between the large-scale and long-term application of containment measures and the decline in economic growth (Lu et al., 2021; OECD, 2021b).

From these assumptions, it is possible **to classify disruptive impacts on economic activities and specific consequences associated to increased costs for businesses** (i.e., Al-Fadly, 2020; Lu et al., 2021; Thukral, 2021). These include: ***a*. disruptions in the manufacturing of products / delivery of services** (i.e., slowdown or shutdown of productivity); ***b*. disruptions in sales** (i.e., mandated closure of "non-essential" business, business hours limitations, social gathering restrictions); ***c*. disruptions in supply chain** (either on the receiving end of intermediate components/services, or the delivery end of final products/services); ***d*. additional costs aligned with compliance to health-related containment measures** for staff and customers (i.e., costs connected to adaptation of spaces, distancing of workers, purchase of PPE, testing).

While the above discussion can in principle refer to all firm sizes, there are concrete arguments supporting the idea that **SMEs may be more vulnerable to the impact of containment measures** (OECD, 2021a; McKinsey, 2020b). Besides the features derived from their **liability of smallness** (i.e., size and level of resources, see section 2.1), SMEs are overrepresented **in sectors most affected by physical distancing** due to the local nature of their customer demand and their lower barriers for entry in the market. In terms of absolute effects, **intermediate containment measures were also likely to be those concerning the largest share of SME enterprises**. While extreme measures were mostly affecting trading sectors and individual (proximity) measures were of concern to all businesses, most SMEs across sectors were affected by intermediate restrictions in activity across their local markets and business networks (OECD Interview).

Several arguments from both the SLR and the stakeholder interviews provide additional evidence on many of the above-mentioned arguments. For example, from an experimental survey developed by the OECD in collaboration with the World Bank and Facebook, it was also possible to confirm a very strong drop in sales for SMEs worldwide across sectors. For 2020, the maximum reported drops depending on the month of the year could range from 55% to 70%, while two thirds of SMEs reported reductions in sales above 30% (OECD Interview). Approaching more concrete examples from the

EU-12 sample, in PL it was demonstrated that larger firms enjoyed a greater degree of slack resources (as measured in absolute terms), which are the key to agility in reacting to containment measures. The size is influential on the perception of the COVID-19 interruptions related to the increase in operating costs, ability to continue sales, worsening of financial liquidity, access to bank loans and the overall threat for the business survival (Wieczorek-Kosmala, et al., 2021). According to the National Office of the Trade Registry of RO, in April 2020 the business environment registered a drastic drop as regards entrepreneurial initiative as compared with the same period of the previous year. In addition, the number of new registered companies was the smallest recorded over the last 5 to 10 years (Antonescu, 2020). Throughout the interviews to the national SME associations, it was also possible to observe interesting features in the containment measure debate and their application across MS. ES signalled that strong application of containment measures (at all levels) tends to have an even bigger knock-down effect on the economy of a country structurally based around services and tourism. High cross-sector damage is induced by both mobility restrictions *and* disruptions in the supply chains. In IT – another of the countries with the highest concentration of containment measures (see also 2.4.6) – the understanding of what initially constituted an "essential sector" was the subject of strong debates on the onset of the pandemic and led to many revisions of government decrees. However, the social dialogue was always extremely coherent in ensuring priority to high standards of Occupational Safety and Health (OSH) measures for workers through the various stages of the pandemic. Among other countries, HR also commented on a hard period of uncertainty across the national business environment because the extraordinary circumstances led to many revisions of government instructions. GR even experienced intra-sector tensions, as quarrels were born between closure-mandated SME retail shops and "essential" and operative supermarket chains selling both Agro-Food but also other appliances (i.e., domestic equipment and other electronics). Lastly, BG shows that – even in the case of a less severe lockdown – previously low structural levels of digitalisation proved an important additional obstacle for SMEs in their quest to social distancing adaptation. Indeed, an overall majority of the national SMEs did not even have a website at the time of pandemic outbreak.

Nonetheless, thorough analysis of evidence from the SLR and the stakeholders' contributions has confirmed that there exist some **important common determinants influencing the level of economic loss for companies**. Across the various industry sectors, it has been ascertained that: **a. the typology of production process / services provided** (whether physical or digital/intangible in nature e.g., manufacturing/face-to-face services vs. knowledge-based), **b. the typology of business sale model** (e.g., reliance on physical stores or e-commerce), **c. the "essential" nature of the product/service provided** (i.e., agro-food production vs. tourism and live leisure) and **d. the reliance on the supply chain** (whether a standalone business vs. a specialist supplier/end-receiver) all matter as factors conditioning increased costs for businesses. Thus, **a company can more easily endure this challenge area if**:

- its industry has been **classified as "essential" by government definition** (thus reducing restrictions) or has been **able to adapt production/services to health emergency requirements** (i.e. manufacturing production of face masks or medical ventilators);
- its **business model depends on a digital/remote setting** or has been able **to introduce related innovations** into its traditional processes;

- its **supply chain was successfully diversified** (including regionalisation and re-shoring) and its inventory stock-up capacity increased, thus abandoning *lean inventories* and *just-in-time delivery* business models;
- it showed **collaborative networking capacities with other competitors** in the same industrial sector to deal with the supply chain challenges (i.e., joint procurement and supply coordination);
- and lastly, **if it was successfully allowed to / capable of adapting to compliance with the containment measures.**

On the opposite end, either **companies dependent upon a physical-presence business model** and **included in a "non-essential" field of society** (i.e., tourism, leisure & entertainment) **or those uncapable to pursue the adaptations** described above have ended on the losing side of the containment challenge.

Based upon this preliminary set of important findings for assessing SME performance in the face of productivity disruptions due to the health crisis, the policy suggestions of this study elaborate on the short-term inclusion of new factors for assessing SME performance (section 4.1, section 4.3.1) as well as considering further promotion of collaborative networking for SMEs (4.3.1).

The **Italian National SME Association CONFAPI** recently collaborated with researchers from the Harvard Business School to develop **a study on business practices in times of crisis**. In terms of resilience, the study identifies no easy solution but rather a combination of factors based on **skilful entrepreneurship, rightful implementation of health & safety measures and the capacity to enact conversion of business models** by attentively listening to customer needs. Given the right conditions, **it is provided that innovation, creativity and adaptation are therefore not dependent on size or financial resources of a given company and can be applied by SMEs** (CONFAPI Website, 2020).

2.4.2 Workforce

The SLR has returned ten contributions elaborating on the impact of COVID-19 on SMEs workforce. As a very direct consequence of the containment measures, the baseline challenge for all companies became **the reduction of social interaction across all business development spaces, either in terms of worker-to-worker or worker-to-customer**. The trade-off between public health and economic productivity was represented by **the balance between preventing contagion outbreaks in business venues while at the same time maintaining acceptable levels of workforce productivity or sales**. **Employers also needed to safeguard the contracts of experienced/skilled/specialised workforces**, even more so in the case of smaller business realities such as SMEs. According to EU institutions data, during the pandemic almost 1 in 4 jobs in the EU (approx. 45 million) faced a very high risk of disruption precisely because of preventive physical distancing, while 22% were exposed to some kind of infection risk since the inception of the pandemic (CEDEFOP, 2021). Indeed, the social distancing measures have also conditioned **an unprecedented classification of work based on their level of physical proximity to people** (whether to colleagues, customers, or the general public). In broad terms, it was possible to classify **three conceptual categories of jobs across all industry sectors**: ***a.* positions that require varying degrees of social interaction** (many of which "non-essential" to society. i.e., entertainment &

leisure, tourism); ***b.* "teleworkable" occupations** (usually white-collar and office-related) and ***c.* work associated to crucial societal needs** (i.e., agro-food production or food retail sales) (EC, 2021a).

The contributions from the SLR and the stakeholders' interviews have brought to the identification of the following **employment-related impacts on SMEs**. These are: ***a.* compulsory switch to remote working** (only possible for "office" and "teleworkable" jobs); ***b.* hiring freezes** (understood as deferring investments in new human capital due to uncertainty and financial instability); ***c.* deteriorating effects on workforce productivity** (i.e. physical and mental stress); ***d.* disruptions to regular staff availability** (i.e. mobility restrictions, sick leaves, quarantine, family attendance such as child care during school closure and care for ill relatives, alongside other disruptions in work-life balance); ***e.* reduction of hours and/or temporary layoffs** (in case of temporarily limited business volumes); lastly, ***f.* redundancy-related terminations** (understood as an extreme business survival strategy due to severe financial loss and persisting limited activity).

In terms of the high number of existing SME enterprises and their significance as workforce employers, there exist concrete evidences that this typology of impacts has had a significant effect on SMEs (i.e., International Labour Organisation [ILO] Monitor, 2021). But **for the EU case the most severe impacts to SMEs** (*e-f* in the list above) **were greatly mitigated by the public support measures** that both MS governments and the EU have been targeting to preserve job contracts (Canton et al., 2021. See also 2.4.5). While the containment measures may have still granted for a contraction in worked hours, public assistance strongly helped in maintaining company workforces, particularly in the case of SMEs. In terms of evidence, while on the one side national occupation rates for 2019-2021 of the EU-12 sample would tend to confirm this assumption (EUROSTAT, 2022b. See Graph 1 below), on the other EC-specific studies on the temporary Support to Mitigate Unemployment Risks in an Emergency (SURE) instrument (EC 2021b, c) identify a sizable presence of small and medium businesses among applicants to the support schemes (Graph 2). Parallel to this, estimations for SMEs job losses elaborated in this study (between 2019-2020) also reveal limited decreasing trends with small positive exceptions (Table 3 below). For example, see IT and its political choice to greatly invest in safeguarding economy and employment (Politico.eu, 2020) or the largely negative scenario in ES attributed to structural issues tied to its industry composition and great reliance on tourism and services (El País, 2020). Overall, **employment losses for all SMEs can be seen as considerably lower than what expected by the strong collapse in economic activity**. Additional evidence is also extracted from the analysis of the EU-12 countries at SLR level showing that, through SME Performance Review data (EC Report, 2021), in FR the construction ecosystem is the only ecosystem that experienced positive SME employment growth in both 2020 and 2021, with growth rates of 0.1% and 2.8% respectively. In DE, compared to 2020, most ecosystems recovered in 2021. In particular, SME value added in the mobility - transport - automotive ecosystem and the retail sector grew by 6.7 % and 7.8 %, respectively, after declining by 4.5 % and 4.0 % in 2020. Employment in these two sectors grew marginally by 0.3% and 1.0% respectively, after a sharp decline of 11.1% and 11.5% in 2020.

As for further stakeholder evidence, **a total majority of countries in the EU-12 sample (national SME associations) confirmed both the preponderance of the remote working adaptation** for feasible businesses **and the large-scale availability and use of public employment support** for businesses in need. In addition, some stakeholders elaborated further on the above-listed impacts. One EU-level

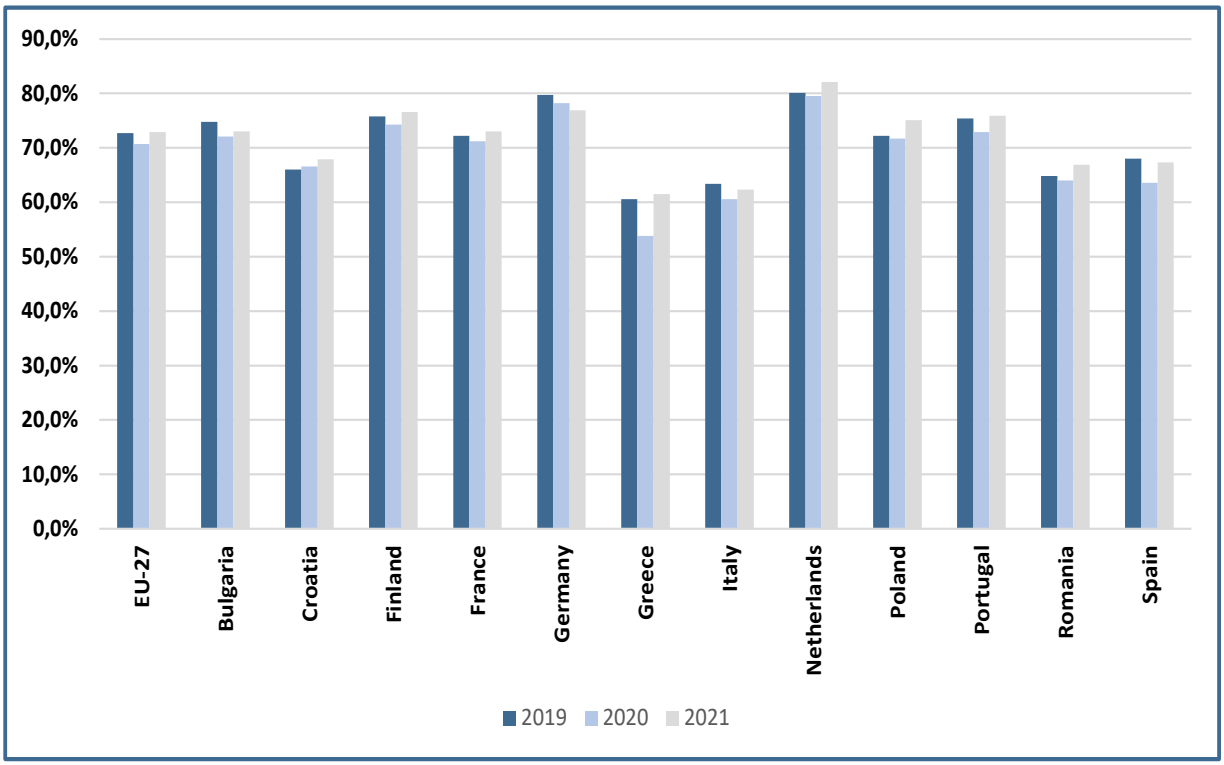
association strongly believed that SMEs were genuinely preoccupied with retaining employees rather than firing them. In a small or medium business, all staff is a precious asset as they know the job, the company, the products, the suppliers and the customers (SMEUnited interview). Others commented instead on the **increased difficulty in new hiring for companies during the prolonged crisis**. On the one side, they believed that higher losses experienced by certain sectors have made it **more difficult to assume the cost of staff increase/replacement** (i.e. OECD interview). On the other, **the pandemic has also generated a strong disruption on the seasonal worker system,** particularly for sectors such as agriculture or tourism. In simplified terms, the high uncertainty associated with the prolonged period of crisis has made it more likely for workers to abandon seasonal contracts and to consider more stable employment solutions (ES, CEPYME interview). A separate yet related discourse referred to **hardships encountered by the Self-Employed**, **a baseline entrepreneur category** often not fitting in the public support scheme of many Member States – and despite explicit mentioning in EC early documents during pandemic outbreak (CEA-PME interview). This typology of freelancer professionals (i.e. interpreters, artists, designers, programmers) is often connected to SME activities without being regularly hired by the company and can in turn be able to generate enough business activity to start up their own company in the future. Thus, it also constitutes a possible entrepreneurship category which should be deemed worth of future attention in policy support regulation.

Finally, based upon general results of the SLR and the stakeholder contributions, this research has identified **the following features which enable SMEs to endure employment-related challenges**:

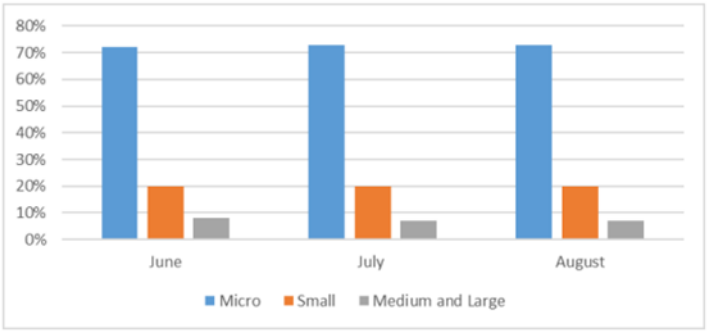
- first and most relevant, **access to public assistance measures relative to employment support** for SMEs (i.e., national social security schemes, also fuelled by the European SURE);
- possibility to ensure **workers' productivity via remote working** (i.e. knowledge-based services) and **ability to increase digital skills of workforce**;
- ability to **successfully adapt business spaces to containment measures** (i.e. wearing of PPE, effective distancing of workers, alternative shifts, streamlined customer affluence, etc.);
- **entrepreneurship capabilities** in leading workforces through difficult times.

Vice versa, if there are **strong sector-dependent obstacles** in adapting business spaces to preventive measures or to carry out business activities in the lack of physical proximity – often coupled with an a **priori lack of digital skills** in the workforce – the SME business is more prone to failing these challenges.

To sustain future challenges related to workforce and entrepreneurship management for SMEs, the policy recommendations of this study include a set of medium-to-long term training & skills initiatives which can be consulted in section 4.3.2 of the document.



Graph 1. Variation in national employment rates between 2018 and 2021 across the EU-12 sample and EU-27. (Source: EUROSTAT data: "Employment and activity by sex and age - quarterly data". Reference data is for Q2 of each year)



Graph 2. Typologies of companies receiving support (STW, aka short time work schemes and similar) based on the reporting of 11 MS during July-August 2020 (Source: EC, 2021b, p. 19)*

**June based on data from AT, BE, BG, CZ, DE, EE, HR, IT, LV, RO, SK. July, August based on AT, BE, BG, CZ, DE, HR, IT, RO, SK)*

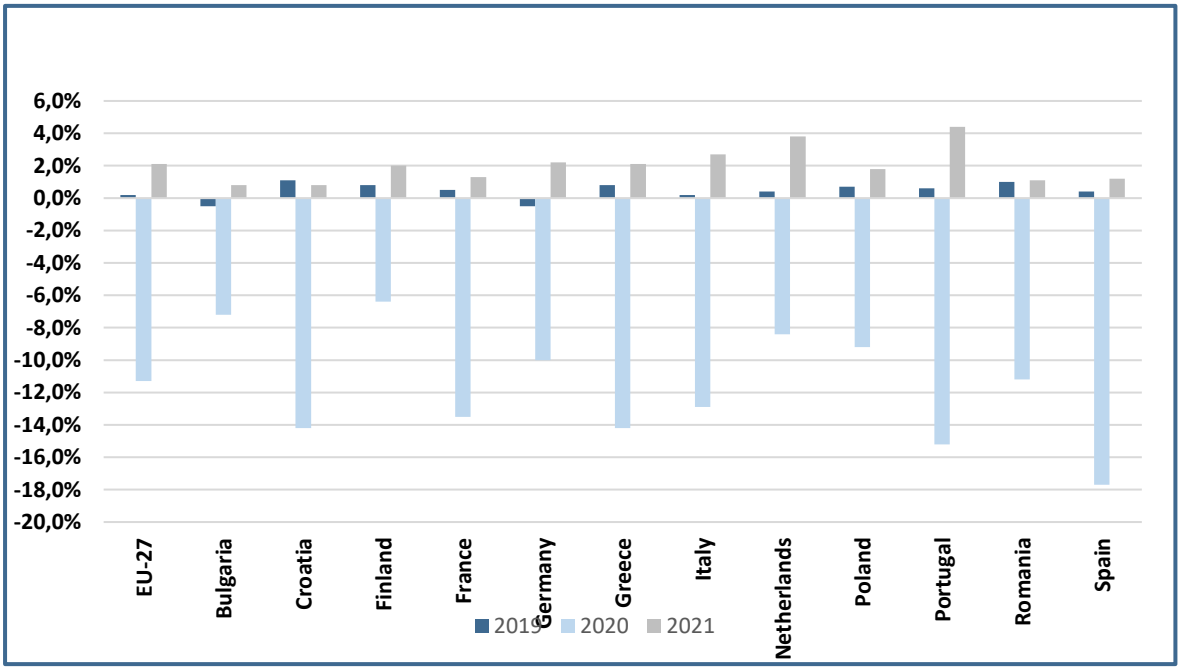
Countries	Variation 2019-2020
Bulgaria	-4,4%
Croatia	-0,4%
Finland	-1,1%
France	-1,7%
Germany	-1,3%
Greece	-1,4%
Italy	+2,6%
Netherlands	-0,1%
Poland	+0,2%
Portugal	-3,9%
Romania	+1,1%
Spain	-4,6%
EU-27	**-1,7%**

Table 3. Estimations of workforce losses for SMEs in the EU-12 sample and EU 27(2019-2020) (Source: EC Report, 2021)

2.4.3 Finance

The implications of the prolonged period of financial crisis for SMEs have been identified in twenty contributions of the SLR and then complemented by stakeholder interviews – even more so for the most recent impacts of the Ukrainian crisis. Although policymakers were immediately aware of the disruptions to the economy provoked by the containment measures, there existed an important trade-off between maintaining business activity and facilitating the spread of the virus, at the risk of provoking a self-repeating cycle (Didier et al., 2021). As a consequence, the continuous alternation of business disruptions derived from alternating COVID-19 waves and the application of containment measures (see 2.4.1) brought to **"synchronised collapses" in economic activity** (both in terms of demand/supply but also at stock market level). As a graphical example, Graph 3 (below) clearly denotes the differentiated plunge of Gross Domestic Product (GDP) rates (2020) and the slow and differentiated recovery for countries included in the EU-12 sample (2021) (EUROSTAT, 2021).

However, **this economic shock was quite different from traditional experiences of other financial crises** (i.e., 2008 Great Financial Crisis [GFC], Eurozone crisis). Furthermore, **during the acute stage of the pandemic certain instability factors were already starting to affect the global economy**. The **prolonged nature of the business disruptions** – **coupled with the legacy of a relatively slow recovery from the 2010s and pre-pandemic trade tensions** (e.g., EU anti-dumping policies in the steel industry) – were **already paving the way for a rise in inflation and business costs for utilities** (i.e., **cost and supply of raw materials, transport and logistics, energy**). A stabilisation of the situation was in principle reliant on the completion of the vaccination campaign (at least for western countries) and the progressive easing of the containment measures. But **the recovery and resilience scenario envisioned by Europe would soon be disrupted by the military invasion of the Russian Federation to Ukraine in February 2022**, thus highlighting once again the structural weaknesses of a globalised economy.



Graph 3. GDP Variations across both the EU-27 and the EU-12 sample of countries (Source: EUROSTAT, 2021)

Amongst raising international military tensions, **the business environment was inferred yet a new blow of financial uncertainty and instability fuelling costs in economy**. On a prominent level, the matter of fossil energy dependency from Russian prices and supply channels sent a costly shockwave into European markets. This was followed on the one side by the **multiple rounds of European economic sanction towards Russian markets** and by **new supply chain disruptions in Ukrainian markets** across multiple sectors. It may even be too soon to consider the pandemic as an event from the past, especially when considering the additional instability brought by **the second Chinese lockdown** for some of its main industrial cities during spring 2022 (interviews to EUROCHAMBRES, Anonymous EU-level Association, IT CONFAPI, ES CEPYME). As a direct result to all these event-based disruptions, virtually all businesses across multiple industry sectors have noticed a simultaneous increase in costs for economic activity (i.e. capital, energy, labour).

The **European Entrepreneurs association CEA-PME** has often attempted to draw the attention of EU and MS institutions into **the ongoing shortage, production delay and price increase of the Steel and Aluminium industries** also affecting large numbers of SMEs. By June 2022, three causes have been identified: a. The "**trade defence measures**" decided by the European Commission in 2018 during Sino-US trade tensions; b. the European steel and aluminium producers' **reduction of activities during COVID-19**, making them unable to satisfy EU's domestic demands; c. most recently, the **sanctions against Russia** (and the countersanctions by Russia against the EU) together with the **breakdown of the Ukrainian economy** and the symbolic destruction of the Asov Steel Plant in Mariupol (CEA-PME et al., 2022).

The risk factors may be shared between different firm-sizes, but there is strong evidence that **SMEs hold a protagonist spot** in this persisting threat to the European economic landscape. **They hold higher fixed costs that make them more sensitive to a sudden drop in product/service demand and in need of increased financial assistance to support them**. **The SME ecosystem has already taken on more debt** since the start of economic crisis attached to the health emergency (i.e. OECD, 2021b, OECD Interview**) alongside experiencing crippling supply chain challenges**. In addition, virtually all the consulted stakeholders have stressed the **unrelentless continuity between the two crises**, confirming the pre-pandemic and health-crisis related origins of the current economic reality, the death-axe effect of the Ukrainian conflict over expected recovery and how future uncertainties in international relations are also questioning the future of the globalised economy.

The study thus highlights the following **financial impacts on SMEs** identified both through SLR literature (i.e., Amankwah-Amoah et al., 2021; Didier et al., 2021, Thorgren & Williams, 2020) and stakeholder consultations (both EU-level and national associations) and **experienced throughout the prolonged period of instability (pandemic and Ukraine-related crises)**. These are: ***a.* persistent liquidity squeeze**, understood as the inability to raise revenues and cover increased business costs due to multiple disruptions to business activity[3]; ***b.* costs afforded to implement health-related preventive measures** during the acute stage of the pandemic (i.e., purchase of PPE, introducing social distancing

[3] This was also the primary impact reported by an overall majority of the stakeholders (both EU-level and EU-12 national associations)

in physical production or provision of services, etc.); ***c*. additional business costs originated shortly before or during the pandemic, and now simultaneously fuelled by international tensions** (e.g., spiking rises in inflation and negative interest rates; higher costs and increased barriers for access to raw materials, transport and logistics, increased energy and labour costs); ***d*. disruption of cash flow and capital availability**; ***e*. temporary delays in payments and contract fulfilment**; ***f*. deferment of new investments** (i.e. advanced digital uptake, business expansion) **and new business ventures** (e.g. creation of new SMEs); ***g*. increased demand for finance** (public/private); ***h*. increased chance for high debt and future insolvency**; ***i*. risk of outright business failure**.

To provide **additional evidence on the most impacting year of the pandemic**, Table 4 below attempts to define **variations between real and estimated numbers of existing SMEs** (2019-2020 / 2020-2021 variations) in the EU-12 sample and to the whole EU-27 (EC Report, 2021, 2022). This provides a varied scenario marked by SME losses with rare positive exceptions and some extreme circumstances. It was only in 2021 that most countries experienced a rebounding effect. Finally, to complement data on SME losses, Graph 4 below shows that new businesses registration – usually meant to replace exits from the market – have been mostly on negative balances during 2020 for all of the detected countries in the EU-12 sample (EC Report, 2022). Similarly, **the PL stakeholder** (Family Business Foundation) performed in March 2020 **a national internal survey of 900+ family-owned businesses** on the scale of the threat posed by pandemic economic blockade. At the time, 60% of such businesses claimed inability to deliver their services and/or products without direct client contact. Meanwhile, 83% of the entrepreneurs indicated that their business organisation was the sole means of support for their family. In the lack of public relief measure, more than 50% of the surveyed businesses claimed that they would not survive more than a month without layoffs and that extended lockdown would double the number of businesses forced to terminate all contracts. Beyond raw numbers, the Foundation also acknowledged **the additional risk in family-owned business transfers away from the families due to COVID-19 induced failure** (i.e. absorption into business chains, outright business closures and loss of territorial richness in business value and diversity) (PL Interview).

For what concerns the presence of a reactive response to the negative financial impacts identified above, the results of the SLR and the contributions of the stakeholders (particularly at EU-12 national association level) have highlighted the following **strategies for SMEs to endure the financial storm**:

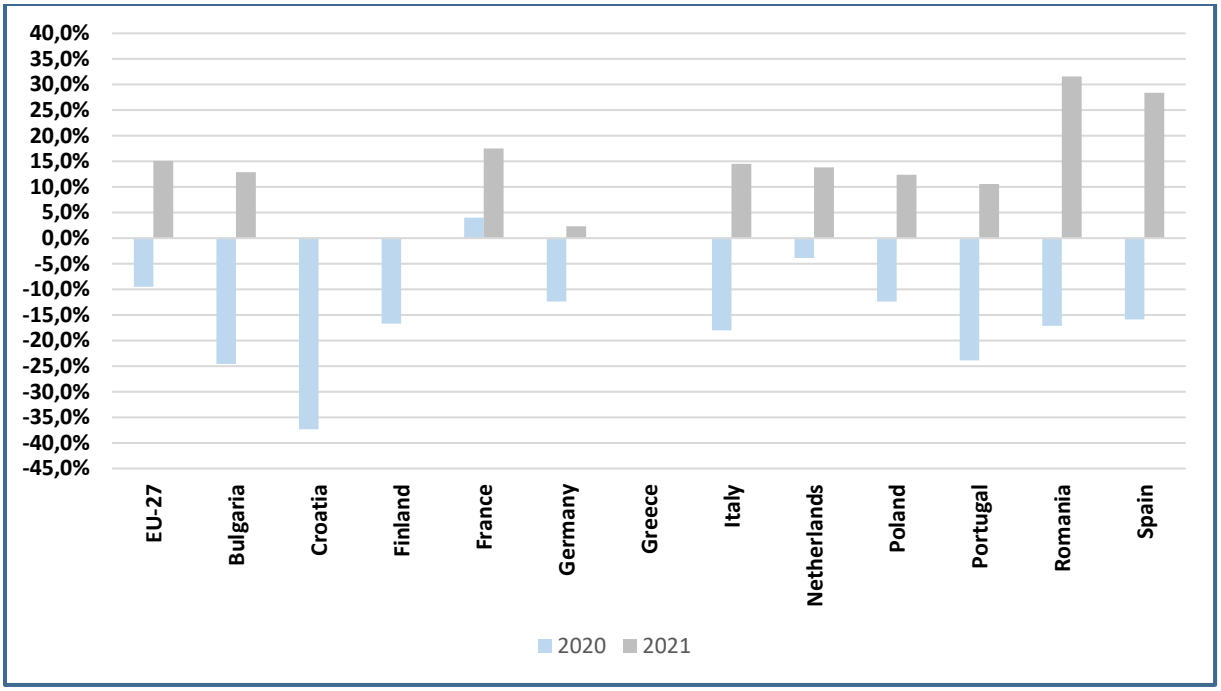
- seeking out **alternative strategies for costs reduction** (i.e., outsourcing of products or services);
- renegotiating **the supply chain** (i.e., **through cooperative network affiliations or through exploitation of new institutional frameworks**);
- renegotiating **the terms of business contracts** (with customers, providers);
- seeking alternative forms of financial and non-financial support, including renegotiation of **credit conditions** (i.e., private sector through banking) or taking full advantage of **public relief measures** (i.e., employment costs, liquidity support, business development including digitalisation).

It has however been ascertained that **key-conditions at the base of these options** are: ***a***. the **financial stability** of the company prior to the crisis (i.e. previous shares of SME liquidity); *b*. the **viability of the business model** and *c*. the relative **macro-economic stability** of the national and European business environment.

Countries	2019*	2020**	Variation	2021***	Variation
Bulgaria	344.609.00	330.679.00	-4.04%	332.225.00	0.47%
Croatia	179.795.00	177.993.00	-1.00%	178.333.00	0.19%
Finland	230.702.00	225.688.00	-2.17%	229.173.00	1.54%
France	2.929.724.00	2.901.996.00	-0.95%	2.939.143.00	1.28%
Germany	2.568.490.00	2.536.818.00	-1.23%	2.520.981.00	-0.62%
Greece	710.530.00	695.189.00	-2.16%	694.346.00	-0.12%
Italy	3.589.948.00	3.503.216.00	-2.42%	3.544.509.00	1.18%
Netherlands	1.282.708.00	1.262.387.00	-1.58%	1.269.039.00	0.53%
Poland	1.999.262.00	1.974.901.00	-1.22%	2.040.017.00	3.30%
Portugal	924.469.00	890.723.00	-3.65%	923.099.00	3.63%
Romania	511.111.00	513.968.00	0.56%	530.050.00	3.13%
Spain	2.660.980.00	2.534.834.00	-4.74%	2.564.893.00	1.19%
EU-27	22.824.477.00	22.526.457.00	-1.31%	22.808.796.00	1.25%

* Data for 2019 represent real statistics from EUROSTAT
** Data for 2020 are estimates from the 2020/2021 SME Perfomance Review
***Data for 2021 are estimates from the 2021/2022 SME Perfomance Review

Table 4. Estimated losses of SMEs calculated through variation between 2019 EUROSTAT data and 2020 estimates in the SME Performance Review 2020-2021, and then between 2020-2021 estimates from the SME Performance Review 2021-2022. These are calculated for the EU-12 sample and EU-27 (Source: authors' elaboration)



Graph 4. Volume of business registrations across EU-12 sample countries + EU 27 (Partial Data for FI, GR not available) (Source: EC Report, 2022)

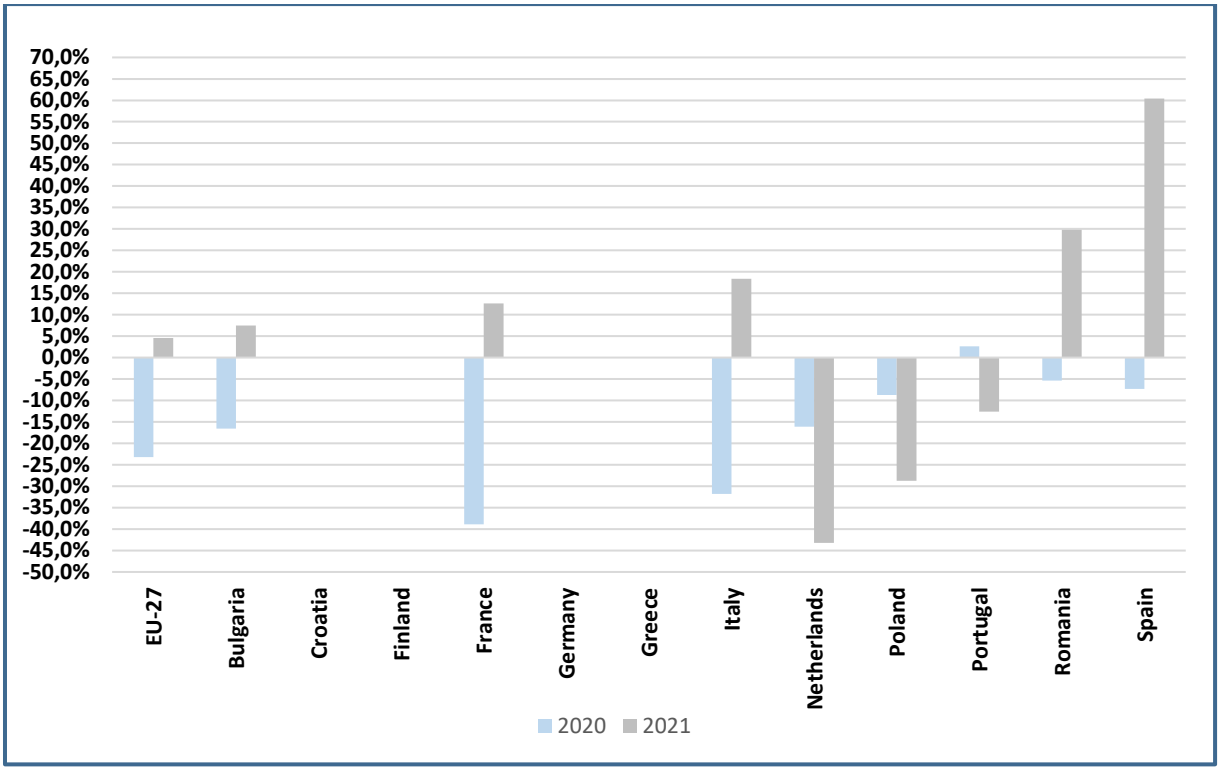
In addition to all the above, **there also exist additional implications in the long-term employment of government support for business survival** which need to be mentioned (see also section 2.4.5). The conceptual strategy behind this approach has been described as a **"firm hibernation"** where **companies are provided multiple lines of credit to weather the crisis storm**. During the acute stage of the pandemic, this was a willing attempt to **avoid virus spread by slowing down economic actors through using liquidity interventions** to compensate for at least some of the damage (Didier et al., 2021). At the time of writing, this is being supplemented by **new Ukrainian crisis-related interventions such as subventions to face the costs of energy increases or salary complements** to endure spiking inflation. Although extraordinary policy toolkits may be adequate for short-term prevention of economic and job losses, **their phasing out must be carefully addressed as to avoid an "Insolvency Debt Crisis" leading to unsustainable business default**. Indeed, recent reports from the *European Systemic Risk Board* (2021a, b) and the OECD (2021c) frequently made mentions of **a new "sovereign-corporate-bank" nexus in the EU economy**. Unlike the past, the financial sector did not contribute to this economic shock and has instead become a generous contributor to stability. It has done so via resilient balance sheets and capital buffers built since the GFC, an accommodative monetary policy supported by the European Central Bank (ECB) and regulatory/supervisory leniency for financing. On their account, fiscal guarantees from governments also kept backing businesses, hence giving banks further assurances for maintaining credit lines open. Under these conditions, public assistance is claimed to have successfully rebuffed worsened impacts at financial and employment levels and banks have turned into the first line of reference for SMEs in accessing both rescue (at first) and then later recovery packages at national and EU level (i.e., SMEUnited, OECD Interviews).

However, **two factors tend to obscure the future of this policy strategy**. **Firstly**, **the economic shock is exogenous to the financial world and transmitted through either the containment measures or the conflict-related disruptions to most productive sectors in the economy**. This means that, contrary to previous experiences, it is nowadays impossible to isolate a single financial sector in trouble and liquidate firms in distress from an individual industry (Didier et al., 2021). Secondly, there exists growing belief that previously selected **national criteria for public assistance measures may have been too generous in extending funding to firms** (ESRB, 2021a; Dörr et al., 2021). While general applicability may have been tolerated in the wake of extraordinary situations, insolvency procedures due to unsustainable company debt are a "natural" mechanism to push inefficient firms out of the market. Despite initial losses this procedure usually brings to a reallocation employees and capital to more efficient companies. But if this does not happen due to persistent public intervention, then the European economy witnesses the presence of an **"insolvency gap**" **across EU countries made out of financially weak "zombie firms" that simply do not leave the market**. In this regard, Caiazza et al. (2021) denote both the danger and impossibility of permanently pumping money into the economy since no amount of liquidity will "make people fly in planes, eat in restaurants or go to the cinema if they feel unsafe". Ultimately, **systematic crisis could detonate if the public assistance measures were pulled all too quickly in the wake of post-crisis recovery**. In such a situation, the banking sector may suddenly be faced with a higher number of insolvent companies with too much debt and little guarantees. As the GFC's history has shown, such a burden would be laid again on top of governments, conditioning further public expenditure to sustain the economy (ERSB, 2021a; Dörr et al., 2021; OECD, 2021c). To counter-verify the insolvency crisis argument, the graph below (Graph 5) illustrates the currently available data on bankruptcy declarations across the EU-12 sample and the EU-27 (EC Report, 2022). Despite the lack

of data for some countries, it is possible to identify a grouping of traditional MS clearly experiencing an abnormally high reduction in bankruptcy filing for 2020, later showing complete reversal of trend in 2021. At the time of writing, further analysis of the economic scenario will be necessary in order to understand the implications of new Ukrainian crisis-related public support.

Contrasting views emerge among those who believe policy-relief to have been directed to viable businesses truly in need (i.e., Groenewegen et al., 2021) and those who claim the dangerous presence of "zombie firms" (i.e., Belghitar et al., 2021). But the centrality of SMEs into this debate is underlined not only by their overwhelming presence in the European economy but also by recent empirical analysis. For example, a recent study involving ECB data before the Ukrainian conflict already showed that **European SMEs had their insolvency risk increased by circa 21% in comparison to pre-pandemic levels** (Kaya, 2021). Furthermore, other contributions detected by this study agree with the need for structural solutions. Khan (2022) suggests **focusing equity intervention on most vulnerable sectors and viable firms experiencing financial constraints.** A recent report from the EP (2021) looks at economic and financial context of the Union beyond the pandemic. It thus highlights the inefficiency of relying solely on fiscal and monetary relaxation and **the necessity to inject more equity for European firms to address solvency risks**. Ebeke et al. (2021) run data simulation on a broad sample of European firms to determine that **while immediately useful, public assistance will still need to gather approx. 2 to 3% of Gross Domestic Product (GDP) to close the equity gap for all EU companies. Most importantly, it detects that the effectiveness of relief measures on SMEs has been more limited than large-sized firms** (only half of SMEs liquidity shortfalls could be mitigated) **and that the business category will require increased attention in the future. At national level**, while a majority of EU MS still has a way to go in addressing these issues, an initial window of opportunity may be granted by **an efficient implementation of the *EU Restructuring and Insolvency Directive*** (EU 2019/1023) planned even before the advent of the pandemic (ESRB, 2021a; Madaus & Aria, 2020). **At EU level**, the situation of prolonged crisis could even generate **a political opportunity for recovering the original proposal of a "second-chance" framework for European entrepreneurs.** Through its common provisions, this would enable them **to have a full discharge from previously owned companies in no more than 3 years after insolvency, thus allowing the return to business**. At present, much of the original EC legislative package proposed (EC, 2016) was largely cut out of the above-mentioned directive (EU 2019/1023. See EU, 2019 for full reference) due to interinstitutional negotiations.

Therefore – and despite the prolonged impact of double crisis uncertainty – at the time of writing **an Insolvency Debt Crisis may still be under control** if policymakers will be willing to address an ordinate transition towards recovery. As outlined by the ESRB (2021a,b), the main solution will be **to shift from liquidity to solvency support by injecting further equity funding into companies.** However, this will be once again conditional to ***a.* strong targeting of investments for most affected sectors, and *b.* a solid viability assessment of firms' businesses models**. Likewise, **EU institutions and national governments will also need to *c.* return to revise the terms of the national insolvency systems and proceed to legal reforms** to improve overall efficiency and speediness of procedures (i.e. inclusion of the *second chance* framework for entrepreneurs). **Of major importance will be the direct support to insolvent businesses** in need of simplified court proceedings assisted by fast-track procedures and administrative support.



Graph 5. Numbers of Bankruptcy Declarations across EU-12 countries in the sample and EU 27 (Source: EC Report, 2022)

Given the need to ensure both micro and macro-financial stability for SMEs during the prolonged period of crisis and the need to provide a better insolvency framework for businesses, several policy recommendations included in this study provide blueprint solutions both for emergency structural support at the short-term (section 4.3.1) and medium to long-term improvements to SME regulation and governance (section 4.3.2).

2.4.4 Digitalisation

Eight contributions lead to the development of this chapter sub-section in conjunction with several stakeholder interventions. On a basic definition level**, digitalisation refers to the adoption and employment process of digital artifacts, platforms and infrastructure related to information, computing, communication and connection technologies**. Their application virtually covers all business processes from marketing and design to management, production and even delivery (Guo et al., 2020; OECD, 2021d). It is worth underlining that a **spotlight on digital capabilities acquisition for SMEs was present since before the advent of the pandemic**. Already in the 2010s decade, the buzzword promoted by the DE government and then adopted by European and global institutions has been **the "Industry 4.0" transition**. This latest trend in technological adoption involves the acquisition of powerful (and complex) instruments and techniques such as big data analytics, artificial intelligence

through machine learning, social business intelligence, Internet of Things (IoT) integration or even safely encrypted blockchain technology.

In any case, **the general transformative impacts of digitalisation on SMEs had already been identified prior to the pandemic emergency as highly beneficial to production, revenue and competitiveness of the businesses**. These can include: ***a***. increases of productivity, ***b***. rise of product quality and process efficiency, ***c***. better decision-making process, ***d***. superior flexibility, ***e***. time-to-market reduction, ***f.*** business model innovation, ***g.*** internalisation of businesses, ***h***. a new level of involvement with the consumer and even ***i.*** increased environmental sustainability (DeNicolai et al., 2021).

It is also certain that **a strong correlation exists between pandemic developments and a noticeable increase in SMEs digital uptake/online sales at global level** (OECD, 2021d). One stakeholder even commented that with regards to the use of digital tools, a very large number of SMEs ended up "doing in two months what they were scheduling to do in two years" (SMEUnited Interview). Adherence to digital technologies to supply the lack of physical proximity during business development quickly became an ideal solution for sustaining productivity and sales levels. However, **it is important to acknowledge that overall SMEs achieved lower thresholds of technological adoption than what desired by Industry 4.0 strategies**.

At the base of the pandemic challenge, **it is possible to distinguish across three modalities of digitalisation** (and their relative impact) for SME:

- **Basic level of digitalisation**: application of virtual-reality and digital spaces for smart working and remote training/learning (i.e. virtual offices, VoIP & conferencing software, remote project/business/accounting management); adoption of websites and social media marketing strategies. *Expected increase in work coordination, organisation, marketing and management.*

- **Intermediate level of digitalisation***:* adoption of e-commerce and mobile technologies for sales and delivery (outsourcing or own implementation, business-to-customer); use of platforms for interactions with customers or industry partners (business-to-customer /business-to-business solutions). *Expected increase in rates of sales, delivery and advanced customer interaction.*

- **Advanced level of digitalisation***:* adoption of advanced trending technologies for increasing efficiency, productivity and competitiveness (i.e. big data analytics, cloud computing, artificial intelligence, automatisation and robotisation). *Expected increase in overall productivity/competitiveness.*

Indeed, the **most immediate necessities for SMEs have been related to basic digitalisation for smart-working** (i.e., VoIP & conferencing software, remote project and business management) **and web-based marketing** (i.e. website adoption, social media presence), followed by **some intermediate integration in e-commerce and other platform technologies** for improved customer interaction or product delivery (Akpan et al., 2021; Gregurec et al., 2021). Recent trends from survey data collected by EC across the EU-27 also adhere to this reality. In Table 5 below, it is possible to compare digital technology adoption in 2020 compared between European large companies and SMEs (EC, 2021d). The

use of more sophisticated technologies is described in descending order, and the gap level between the two business typologies becomes even more pronounced at the bottom part of the table describing Industry 4.0 technologies. For e-commerce, more detailed data unveil that the overall increase in virtual shopping is still absorbed by large companies (e.g., large retailers such as Amazon), while SMEs experience a much more nuanced growth in usage (17.5%) and derived turnover (11.7%) (Graph 6) (ibid.). While most individual countries confirm in the EU-12 interviews (national associations) that the majority of digitalisation investments have been focused on teleworking equipment and digital marketing/sales, the research also identifies a variety of nuancing arguments for different MS. For example, in DE the online food retail has so far mainly operated in an urban market niche. Generally, the share of online retail users of the largest cities in Germany (Berlin 73% and Hamburg 71%) is much higher than the German average (65%) and the most rural *Bundesland Mecklenburg-Vorpommern* in the Eastern part of Germany (55%), (Dannenberg, et al., 2020). In IT, it was confirmed that an effective Industry 4.0 strategy aiming at business digitalisation was already under development before the advent of the pandemic. In ES, mixed arguments shaped the debate. On the one side, the EC DESI report (EC, 2021d) indicates that even if the rate of SMEs with basic digital skills is above the EU average, ES enterprises structurally lag behind in the integration of advanced technologies such as cloud or big data. This gap, combined with a lack of *Information and Communication Technology* (ICT) specialists, hinder SME from benefitting fully from the digital economy. On the other, the interviewed stakeholder indicated that 20% of state-surveyed SMEs had increased their budget for digitalisation following the pandemic, and that it was finally possible to observe how small and medium employers seemed to have finally lost a conservative "fear of technology" in favour of business modernisation and agile solutions (CEPYME interview).

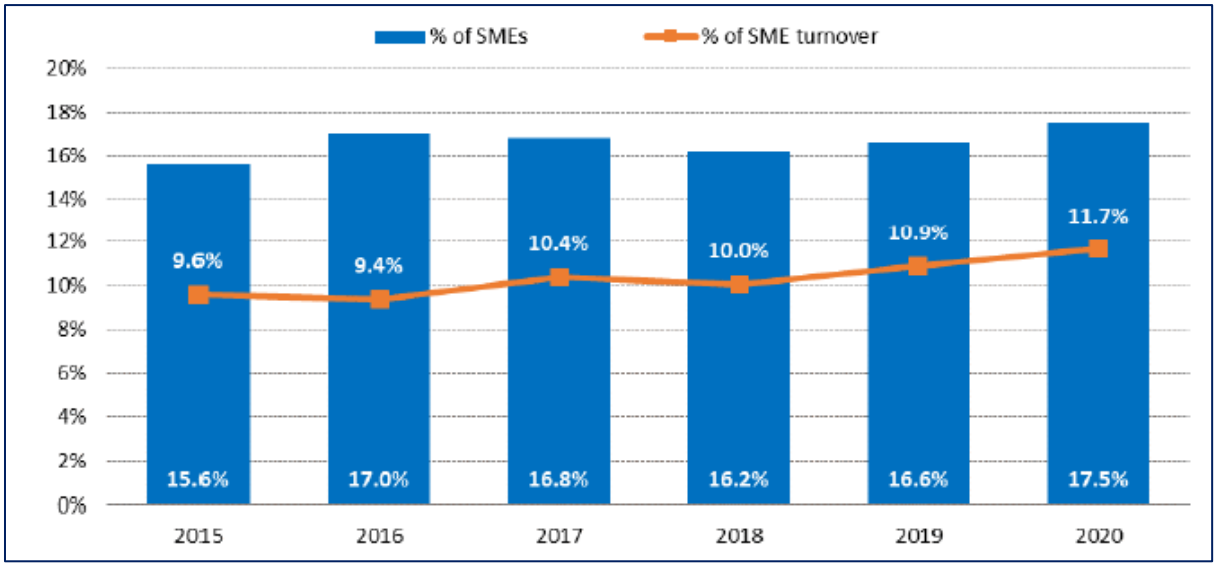
At general level, **different factors intervene in defining why a majority of SMEs would remain at a low or intermediate stage of technological adoption**. A first one **is to be found once again in their liability of smallness principle** (section 2.1). In times of great economic instability and uncertainty, many SMEs may have rather favoured working through *a.* existing digital equipment, *b.* previously consolidated and well-known channels and *c.* reliance on basic digital skills. Conversely, a lack of resources, expertise and financial certainty may have prevented the pursuit of innovative and economically sustainable business models based on advanced digital technologies (Gregurec et al., 2021). This is also confirmed by a quantifiable gap in adoption which increases when technologies become more sophisticated or there is a greater mass/size stake for implementation (OECD, 2021d). **In addition, SMEs do not universally follow equal trends in digitalisation**. At company level, Priyono et al. (2020) identified differentiated paths for SMEs and their digitalisation in times of COVID-19 **as dependent on previous levels of technology-readiness and available resources and capabilities**. Similarly, age and growth-intensity of enterprises can also determine the level of access to digitalisation (i.e. startups and scale-ups). The consulted stakeholders have also offered additional insights with regards to SME obstacles in advanced digitalisation. Some considered 4.0 to be useful for small and medium companies, but very complicated to enable because **SMEs rarely have big amount of data on their own** and (even when willing to use them) they need to acquire databases from big data platforms (i.e. Google, Amazon, social media) (CEA-PME Interview). Others saw that **the real concern for SMEs** at basic and intermediate digitalisation level **should firstly be on cybersecurity**, precisely because of the danger to business provoked by hacking (SMEUnited Interview). Another one even considered that due to the traditional or small nature of their business, **certain companies should rather consolidate**

basic and intermediate levels without heading into automatisation, big data or robotics (Anonymous EU-level Association Interview).

Through its own "Economic Survey", the **Eurochambres** network organisation has also identified that 46% of their surveyed businesses indicated that they have introduced **digital sales and selling promotions** in response to the confinement measures, with an increase of e-commerce activities. The second major change was in **consumer behaviour**, which, together with the growth of e-commerce, meant that companies had to adapt to this reality (EUROCHAMBRES, 2022).

	Large	SMEs
Have a website	94%	76%
The maximum contracted download speed of the fastest fixed line internet connection is at least 30 Mb/s	92%	76%
Website has at least one of : description of goods or services, price lists; possibility for visitors to customise or design online goods or services; tracking or status of orders placed; personalised content in the website for regular/ recurrent visitors	78%	62%
Enterprises where more than 50% of the persons employed used computers with access to the internet for business purposes	56%	46%
Provide more than 20% of the employed persons with a portable device that allows internet connection via mobile telephone networks, for business purposes	47%	39%
eInvoices sent, suitable for automated processing	53%	32%
Buy medium-high CC services	48%	25%
Employ ICT specialists	76%	18%
Enterprises with e-commerce sales of at least 1% turnover	39%	17%
Analyse big data internally from any data source or externally	34%	14%
Use industrial or service robots	28%	6%
Use 3D printing	17%	5%

Table 5. Digital Intensity Index indicators tracking digitisation processes (% enterprises), 2020 (Source: elaborated by EC DESI Report, 2021 on the basis of data collected in the EU survey on ICT usage and e-commerce in enterprises, p. 54)



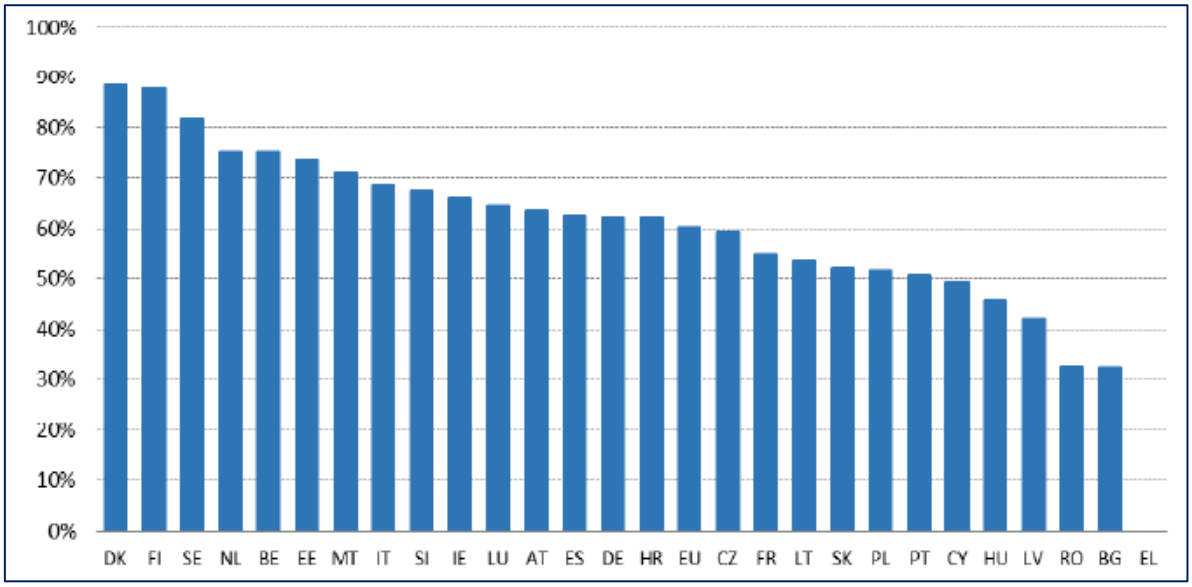
Graph 6. Trends in e-commerce for European SMEs showing the % of users in blue and the % of turnover for these in orange (Source: elaborated by EC DESI Report, 2021 on the basis of data collected in the EU survey on ICT usage and e-commerce in enterprises, p. 64)

Despite all the above, the OECD (2021d) also warns that **cross-industry differences in implementation seem more pronounced than differences in firm sizes** while the EC reminds of strong **variations in levels of digitalisation still present at MS level**. The graph below (Graph 7) identifies SMEs with at least a basic level of digital intensity for 2020 across all EU countries (EC, 2021d). The strong differences in percentages (more than 80% in Nordic countries vs. below 35% for RO, BG) are a reminder of intra-EU differences in national digital infrastructure and digital skills alike. Such considerations are shown in greater detail in section 2.4.6.

Thus, based on empirical research this study has identified **the following winning conditions which help increase the uptake and benefits of digitalisation for SMEs**:

- availability of **entrepreneurial awareness** of digitalisation processes and benefits
- adequate **understanding of the level of digitalisation to be pursued** according to business model (i.e. a small retail shop may stop at intermediate digital solutions rather than seeking industry 4.0 transition)
- presence of **triple helix alliances** with higher education and local public administrations for advanced digital training and uptake
- access to **public assistance measures** for digitalisation (i.e. equipment, training)
- availability of **national/regional infrastructure and services for digitalisation** (i.e. broadband/5G network, digitalisation of public services)

On the losing end, the **lack of knowledge/interest/awareness at entrepreneurial level** (particularly for traditional-sectors SMEs), coupled with a **lack of digital skills in workforce and cost/benefit hesitation** due to persistent financial uncertainty will keep preventing SMEs from chasing more advanced levels of digitalisation.



Graph 7. SMEs with at least basic level of digital intensity, 2020 (Data for GR unavailable) (Source: EC DESI Report, 2021 on the basis of data collected in the EU survey on ICT usage and e-commerce in enterprises, p. 55)

Based upon the findings of the study framework on digitalisation, the policy recommendations also include medium to long-term proposals under the theme of *innovation, sustainability and cohesion* addressing a more ambitious digital and green transformation for SMEs (section 4.3.2).

2.4.5 Public Assistance

This section is tied to considerations exposed in other parts of the framework, but greater emphasis is hereby placed on **identifying EU and national level measures** and the SME challenge in their **typology, access levels, successful exploitation and foreseen efficacy**. Through the SLR content, ten contributions are included for their identification and discussion. In the classification, policy measures have been captured both in terms of temporality (short vs. long term nature) and on governance level (European vs. national level). **Due to the continuity across disruptions from the two most recent crises** (pandemic and Ukrainian, see the financial effects in 2.4.3)**, this section also tackles public relief measures derived from conflict-related matters**.

At European level, the EU has executed a series of short-term coordination measures for macro-economic support and stability. These included: ***a***. creation of **"Green Lanes"** to continue ensuring trade routes during the first wave (EC, 2020b); ***b.*** immediate **relaxation of state aid rules** and first-time activation of **the "escape clause" from the *Stability and Growth Pact*** (allowing MS to increase public spending as necessary to alleviate the socio-economic impact of the pandemic); ***c.*** **fast-track financial instruments** to ensure social support across MS (i.e. the already mentioned **SURE instrument for employment**, flexibility and initiatives in existing European Structural and Investment Funds [ESIF]), including the development of the *Coronavirus Response Investment Initiatives* (CRII/CRII+). **In terms**

of long-term policy, the EC and the 27 members closed in July 2020 a**n historic agreement on the largest stimulus package ever funded in European history** (***NextGeneration EU***). This last one includes a temporary redistributive instrument (the *Recovery and Resilience Facility*) and an increased EU budget for the period 2021-2027 (EC & ESPN, 2021). **While all of these policies did not directly envision a support instrument for SMEs, an indirect benefit-transfer should be granted via access to funding through national implementation**. At the same time, for 2021-2027 the EU has further developed **a series of pre-existing supporting tools specifically addressed at this business category** such as the *SME Test* on legislative proposals, consultations through the *SMEs Envoys Network* or even additional investment through the new *European Innovation Council and SMEs Executive Agency* (EISMEA, replacing the former EASME agency), the COSME pillar (*Competitiveness of Enterprises and SMEs*) and the new EIC Instruments (Pathfinder, Transition, Accelerator)[4]. For what concerns the Ukrainian crisis, the long-term goal for EU leaders in the European Council has been the decision **to act in order phase out the EU's dependency on Russian fossil fuel imports** and **coordinate for a comprehensive response to food security challenges** derived from market disruptions. As a result, a recent proposal of the EC has considered the modification of the *REPowerEU* chapters of **National Recovery and Resilience Plans (NRRPs)** for addressing energy transition and foreign dependency (EC, 2022). In addition, **the European Commission announced a new State Aid Temporary Crisis Framework to support the EU economy following the military aggression against Ukraine**. A number of MS already have taken measures to financially support their enterprises such as: the extension of *the Bulgarian State aid* programme (BG) to companies to help them deal with energy price increases; *the French Plan of Economic and Social Resilience* (FR), which aims to support individuals and enterprises; the Greek program to help households and businesses over the next three months to deal with a spike in energy prices (GR); a new loan program from the German Development Bank KfW24 (DE); even the *Spanish National Plan to respond to the economic and social impact of Russia's unprovoked and unjustified invasion of Ukraine* (ES) with similar aid finalities (EC Report, 2022).

Meanwhile, **the public sector at the national level** has traditionally been on the forefront of emergency assistance. A **comprehensive list of policy-relief measures for SMEs during the acute stage of the pandemic** (based on both OECD, 2021a and the national SME associations' interviews) would include at short-term: ***a.* working time shortening, temporary lay-off and special sick leave contribution** to the companies, ***b.* wage and income support** for employees and even for the self-employed, ***c.* deferral, relief or moratorium of payments on public contributions such as tax and social security**, **but also at private level towards debt, rent and utilities**, ***d.*** the provision of **loan guarantees** to enable commercial banks to keep lending to SMEs; ***e.*** either **direct lending or conditional grants and subsidies** seeking to limit financial losses (i.e. helicopter money). However, **the additional scenario of financial instability provoked by the Ukrainian conflict** and the ensuing disruptions/costs increases have also conditioned the appearance of a new round of short-term relief measures at national level, including ***a.*** limited grants for companies most affected by the crisis (i.e. agro-food supply disruptions); ***b.*** further liquidity support through state guarantees and subsidised loans; ***c.*** aids to compensate for

[4] For a complete framework, see SME-dedicated sections on the EC and EIC websites: https://single-market-economy.ec.europa.eu/smes/sme-strategy/sme-envoys-network_en; https://ec.europa.eu/growth/smes_en ; https://ec.europa.eu/growth/access-finance-smes_en ; https://eic.ec.europa.eu/index_en

higher energy prices; ***d.*** salary support for compensating spikes in inflation. On a long-term basis, public assistance during the acute stage of the pandemic involved either ***a.*** the **creation/strengthening of monitoring and participatory instruments** for SMEs, or ***b.*** the development of **structural policies leading SMEs towards the twin transition envisioned by the EU (green and digital)**. These should be greatly reinforced by the territorial implementation of the NextGenEU funds through the individual NPRRs elaborated by MS. As mentioned above, these will also be further adjusted for addressing the consequences of military conflict in Eastern Europe.

As a result, both the SLR and the stakeholder contributions have easily assessed **the potential impacts of the relief measures on SMEs**, highlighting ***a.*** the **protection of macro-level business continuity** and the **European financial stability**; ***b.*** the **immediate survival of individual companies** by means of broad liquidity support; ***c***. the **provision of strategic funding aiming at modernisation and increasing competitiveness** of SMEs through the twin transition; ***d***. due to the centrality of SMEs in the prolonged crisis, **an increased opportunity for development** and reinforcement of **lobbying networks** and **participatory instruments** for SMEs in policy-making. Conversely, an additional effect was unveiled by the **increased exposure of financially weak SMEs to insolvency** (see 2.4.3).

There are however important considerations regarding **the levels of access and exploitability of public funding for SMEs, both for rescue packages and successive recovery funding**. Indeed, it must still be assumed that final **public measures' efficiency is connected to the agility of the national administrative system and to advanced digital infrastructure** (OECD, 2021c; Guo et al., 2020). On the side of public administration, effective implementation of rescue packages has been conditional to new disruptive pandemic waves, national circumstances (in some cases even delaying programme approval) and structural fiscal capacity (OECD, 2021c). However, one international stakeholder reported that certain hardships (i.e. delays in distribution and administrative filing) were also encountered by businesses located in traditionally efficient countries from a public administration side (Anonymous EU-level Association Interview). Nonetheless, based on ex-post evaluation, the national stakeholders generally confirmed that the supporting financial instruments worked reasonably well (i.e. FI, FR, PT), although across countries some complaints were given to factors such as a low overall budget and a limited amount of financial assistance per company (i.e. ES), complexity of the businesses application process (i.e. BG) or a state aid which was very delayed in distribution (i.e. PT). **The interviews also confirmed that employment support, fiscal relief and business loans were the most requested public assistance measures from SMEs** across the EU-12 sample.

In turn, **for approved recovery funding (NRRPs)** most of the interviewed **national stakeholders** (and some EU-level associations, i.e., EUROCHAMBRES Interview**) overall agreed that most SME owners are not sufficiently informed on what funding is available, how to access them and that most SMEs are poorly communicated about these opportunities**. Moreover, when they are able to request funding, **there is often a too low budget available for the number of SMEs in need, the process is too bureaucratic or long and the reporting requires hiring specialised support, increasing costs severely**. From the point of view of individual SME businesses, the main risk may be represented by a lack of involvement in application and exploitation due to complicated procedures too similar to traditional European project management (ABC.es, 2022).

On the national level, some stakeholders even expressed further concerns on NRRPs' final effectiveness. For example, HR commented on the lack of a clear tender for big investments aimed at the green transition in Croatian public procurement. On its account, IT insisted that without the necessary structural reforms at the political level, there is a great risk that long-lasting transition will not occur in the country beyond NRRP spending. Meanwhile, some among the consulted stakeholders at the international level (i.e. Interviews to OECD, CEA-PME, Anonymous EU-level Association) even proceeded to compare the rates of SME-targeted policies in-between the rescue packages and the NRRPs. In their view, while the former paid much attention to small and medium business survival, the latter have been attached more to structural interventions aiming at improving the business environment (i.e. infrastructure, cutting of red tape, digital connectivity, e-government). However, these last one would only bring indirect and long-term benefits to companies and could not tackle immediate challenges such as the digital and green transitions of businesses themselves.

Beyond a difficult reform of the already approved NRRPs, a possible solution in this regard can be offered **by the role of SME networks at European and national levels**. Holding **representative, lobbying and assistance roles for the companies, stakeholder organizations can act both as gatekeepers and agents of interest in policy support/implementation for SMEs**. For example, during the acute stage of the pandemic most national level stakeholders discussed their contribution to the policy debate on containment measures with government agencies and ministries, often leading them to see implementation hardships or needs for restrictions' refinement / exceptions for SMEs. Similarly, among the consulted stakeholders **some began executing assistance programmes for companies interested in pursuing recovery funding**. Therefore, associationism and networking are seen as participatory instruments for closing the gap between policymaking at EU and national level and business realities, as well as dedicated communication channels of businesses looking into policy participation / understanding and new financial channels.

One final argument claiming the attention of the public sector lays in **recent industry trends advocating for the return of manufacturing production back to Europe**. Known in technical terms as **"reshoring"**, "onshoring" or "regionalisation" of value chains, **it refers to a reversal of a previous globalisation-induced practice to offshore major production to third countries** in an attempt to cut labour costs and protect margins (Bloomberg, 2022; Finance-Monthly.com, 2022). The circumstances connected to endless disruptions in the provision of goods and services throughout the pandemic (and now reinforced by the Ukrainian crisis and the new Chinese lockdowns of 2022) thus seem to be leading several businesses to close the distance across production sites in the old continent. In turn, this could create **strategic opportunities for new businesses registrations (many of whom at SME size) favouring job creation inside renewed factories powered by sustainable and digital technologies**. While it does not take long to appreciate the potential benefits for the European economy, **it is equally important to raise awareness on the possible challenges and risks associated to these business operations**. Reshoring operations require **considerable investments** both in terms of abandoning old locations and equipping new establishments. In multiple cases, it is also dependent on the **availability of highly-trained workforces** suited for working in complex technological environments. In addition, **new environmental concerns** can arise from the typology of re-shored productive activity as well as **recent questioning of the viability of EU chains impacted by energy dependency and international tensions**. To all of this it must be added that, despite some initial efforts, the **reshoring of business**

supply chains is a difficult process to monitor and whose decision is to be detected at individual business level. If all of these issues cannot be resolved, the most likely solution for business will become renewed dispersion of the supply chain across other third-countries with different business attitudes (i.e. shifting of production from China to India). To make a real difference and be able to seize the opportunity for Europe, both EU institutions and MS governments will be increasingly called to provide stimulating policy strategies and tangible financial support to specific value chains in need of readaptation. **So far, best practice examples of EU-level strategic partnerships have materialised for the European semiconductor industry and for battery cell productions** as means to obtain strategic autonomy for future technology-related challenges. It is thus expected that in the near future further sectors and countries will be called to new networking efforts for securing the restoration of EU supply chain.

At the end of this *excursus*, the joint results of the SLR and fieldwork for this challenge area have led to the identification of **the following successful conditions** for the deployment of public assistance measures:

- **Timely deployment** of emergency relief measures (short-term) concretely ensure business survival (especially for SMEs)
- **Simplification and improved accessibility** of public assistance measures (i.e. reduced admin. costs/fees, shortening of approval, tailor-made support) improves overall efficiency and efficacy for SMEs
- **Affiliation to an SME Network** and other representative business organisations **can provide an intermediary between SME realities and complex regulations** from public administrations
- **Strategic and sectoral partnership for the reshoring of productive activities for specific products** can secure sustainable and digital training/investments for the development of value chains and companies suitable for the double transition.

Vice versa, it is important to consider that **lack of industrial vision strategy**, **poor communication, excessive bureaucratisation and administrative burdens** on the public side – coupled with **a lack of resources, expertise and awareness of SMEs** in public funding access and exploitation – is detrimental to their implementation.

In a final round of enquiry, national SME associations were also requested during the interviews what would be their biggest assistance needs in their own country context and what policy measures could better assist their SMEs to recover from the prolonged period of crisis. A non-exhaustive list of requests from the stakeholders include: further support for companies' digitalisation and for upgrading skills of the workforce (i.e. BG, DE, PT); either moratorium or alleviation of burdens on fixed costs, especially high taxation or bureaucracy (i.e. DE, GR, HR, RO); assistance in supporting labour shortages across sectors (i.e. HR, FR); attention towards the requirements of family businesses as a special category of SMEs with particular needs (PL); some countries also indicated a moratorium on sustainability fulfilment and the injection of further equity capital into their economies. Proposals addressing such issues are included throughout all the themes of the policy recommendations in section 4.3.

2.4.6 European Diversity

The sixth and final pandemic challenge area of the framework is endogamic to **the heterogenous nature of the current EU-27**. Eleven contributions in the SLR are employed to provide an outlook on European diversity. Broadly speaking, they refer to either inter-national differences across the 27 MS (whether structural or relative to the management of the pandemic and Ukrainian disruptions) or intra-national differences where regional performance variations inside a country's economy may condition timings and opportunities for national recovery. For differences in levels of health emergency and crisis-management through **containment measures**, Cifuentes-Faura (2021) has identified that **different clusters of country-behaviour have emerged**. For example, IT and ES are easily branded as the countries executing most extreme interventions, being the eye of the contagion storm during the first wave. Others, such as Austria (AT), GR, Czech Republic (CZ) and PL have preventively chosen stricter measures despite lower number of infections. DE was yet a different case, as it relied on its advanced fiscal capacities to increase hospitalisation capacity and enable softer restrictions. At the other end of the spectrum, the generally lax restrictions of the Baltic countries were spearheaded by Sweden (SE), the only proclaimer of an "immunity herd" strategy with a minimum level of measures. It is also worth underlining that such diversity in management, different fluxes of citizens movement (i.e., tourism) and the appearance and spreading of new variants across countries have all conditioned alternating waves of infection. Similarly, it has also been conditioning further public health strategies such as vaccination campaigns and employment of the COVID-19 digital certificate at domestic level. Naturally, **all of these factors also determine different instruments and timings for the deployment of public assistance measures**.

Furthermore, **long-standing economic and structural variations among EU MS also affect the process of recovery.** Drawing from the literature on EU convergence theory, Fedajev et al. (2021) demonstrate that differences in growth models (the national debt-growth model of Southern Europe vs. the export-oriented growth-model of Northern Europe) will provide obstacles on the joint way to recovery. As for the efficacy of return to growth, additional obstacles will be due to differences in economic magnitude volume, the national industrial landscape and the effective capacity of states to withstand fiscal burden (Brault & Signore, 2020). Even when considering the most recent scenario of increasing tension in international relations, **different levels of energy and trade dependency from Russia and Ukraine can affect the level of economic struggle of companies and the policy-effort of countries** seeking alternative markets and supply chains**.** Despite all this, it is also important not to overplay structural international differences at the expense of European unity (OECD Interview). Indeed, due to the high interdependence of EU countries' economies, a coordinated European-level policy response still represents an efficient strategy for the European Single Market.

One further (and often less acknowledged) level of territorial differentiation is hidden in the **uneven regional impacts of a crisis at intra-national level**. On the one side, it is true that COVID-19 has defied previous economic "infection-theories" believing that only urban agglomerations would be affected. Indeed, SARS-COV-2 **has proved capable of super-spreading both in rural and urban/metropolis areas** (ESPON, 2020). **But on the other side, it has been showed that: *a.* the timing and efficacy of containment measures at sub-national level; and *b.* the local industry base and economic structure are also essential in determining the magnitude of impacts at regional**

level (Bailey et al., 2020; EC, 2021a). While it is true that all regions are affected by disruptions in interregional and international trade, if the regional territory holds multiple economic activities that are not "teleworkable" the impact of physical distancing measures tends to be more severe. Similarly, territories with greater dependence on the service sector, elevated levels of job informality and weak safeguard against work termination are also disproportionally affected. The whole issue is **also connected to the typology of dominating regional industry sectors most vulnerable to the containment measures** (i.e., tourism, hospitality and accommodation). Conversely, high quality human capital, R&D intensity and quality of public administration are seen as boosters of regional resilience (ECB 2021; EC, 2021a; ILO Brief, 2020; OECD, 2021b). Wang & Kang (2021) thus summarise that **how SMEs react to crises depends not only on business factors, but also on economic, social and demographic vulnerability at regional level**.

From this framework, it is thus possible to appreciate **the following impacts on SMEs derived from European diversity** at the inter-national and intra-national level:

- European Diversity is acknowledged as **a dependent variable that can either reduce or amplify the magnitude of the previously encountered impacts** (for the prolonged period of crisis).
- Differentiated **severity in development, implementation and enforcement of containment measures** for businesses (i.e. policy-culture and epidemiological situation)
- Differentiated **fiscal and administrative capacity** in deploying public assistance measures (both short and long-term)
- Differentiated **opportunities/barriers for recovery in regional business environment** (i.e., availability of diversified supply chain, workforce and financial investments, business innovation ecosystem)

Additionally, based upon SLR results and stakeholders' contributions, this study has identified **the following success factors when trying to counterbalance the effects of European diversity**:

- Leniency in the **containment measures** has favoured the business environment (especially for customer-oriented SMEs), but must always be counterbalanced by the epidemiological situation;
- Successful **national/regional diversification of the supply chain** (i.e. reshoring of specific products and intermediate parts, energy and raw materials dependent from Russia and Ukraine) in the long-term will increasingly favour SMEs and alleviate financial tensions;
- Strong **fiscal capacity** allows the deployment of more generous, efficient and efficacy-oriented measures for companies;
- **Long-term industrial vision and strategy** in a country provide consistency, clarity and a level playing field which is beneficial to SME development;
- **Strategic location in core / metropolitan area** increases access to opportunity (i.e. alternative supply chains, new financial investments, replacement or integration of new skilled workforce).

Conversely, SMEs located in territories whose supply chain will be unable to diversify at both national/regional level, whose public authorities hold more limited fiscal and strategic capacity or whose peripheral/rural location may condition **extra barriers to recovery will be further in need of specialised assistance for recovery**.

Further evidence from quantitative data and qualitative interviews helps appreciating the effects of European diversity, particularly for the different SME ecosystems. At *intra-national* level, virtually all the national EU stakeholders consulted (with the exception of FI and RO) agreed that while their whole country was overall affected as a whole, regional differences mattered for individual territories and their businesses. The severity of the impacts was even more evident when contrasting urban and rural areas or mainland and islands. Furthermore, due to the nature of their political governance, two countries from the EU-12 sample (DE, ES) even reported that their distribution of competences across a quasi-federal or federal-style system had contributed to exacerbating differences in containment measures' application and corresponding effects for SMEs. From an *inter-national* point of view, instead, one of the interviewed stakeholders pushed the argument as far as considering an EU gap across countries with non-centralist attitudes and responsive political interest towards implementing SME policy vs. states traditionally attached to large industrial policy (Anonymous EU-level Association Interview).

On its account, a team of researchers from the *Lisbon Council* think tank has recently produced an innovative index for measuring the environmental sustainability, digitalisation and competitiveness levels of SMEs across a ranking of the EU-27 (Hofheinz et al., 2022, see also the illustrative map in Figure 2). For the purpose of this study, the data are extracted specifically for the EU-12 sample (see Table 6 below). Altogether, it is shown that the selected range of countries is illustrative of various typologies of SME ecosystems across Europe and that the ranking displays an expected primacy of northern European countries (i.e. NL, FI) vis-à-vis Eastern European laggards (i.e. BG, RO). Notwithstanding, there also exist notable exceptions to traditional structural views associated to North vs. South Europe dynamics. For example, DE is not even ranked among the Top 10 EU countries due to its low ranking on SME competitiveness. Two other traditional EU Member States (FR and IT) are surprisingly located on the lower end of the ranking (closer to GR), showing the presence of structural obstacles for at least digitalisation and competitiveness of their SMEs. Although not topping the ranks, the Iberian Peninsula (ES, PT) displays a moderately positive score due to some specific advantages (either sustainability or competitiveness) but are then located on an intermediate path for digital transition.

The matter of EU diversity is also included in the policy recommendations derived from this study. Factors derived from territorial variations at inter-/intra-national levels are considered relevant both for the urgent assessment of SME performance (section 4.3.1) and for targeted implementation of business assistance in innovation, sustainability and – most importantly – the implementation of cohesion-style assistance (section 4.3.2).

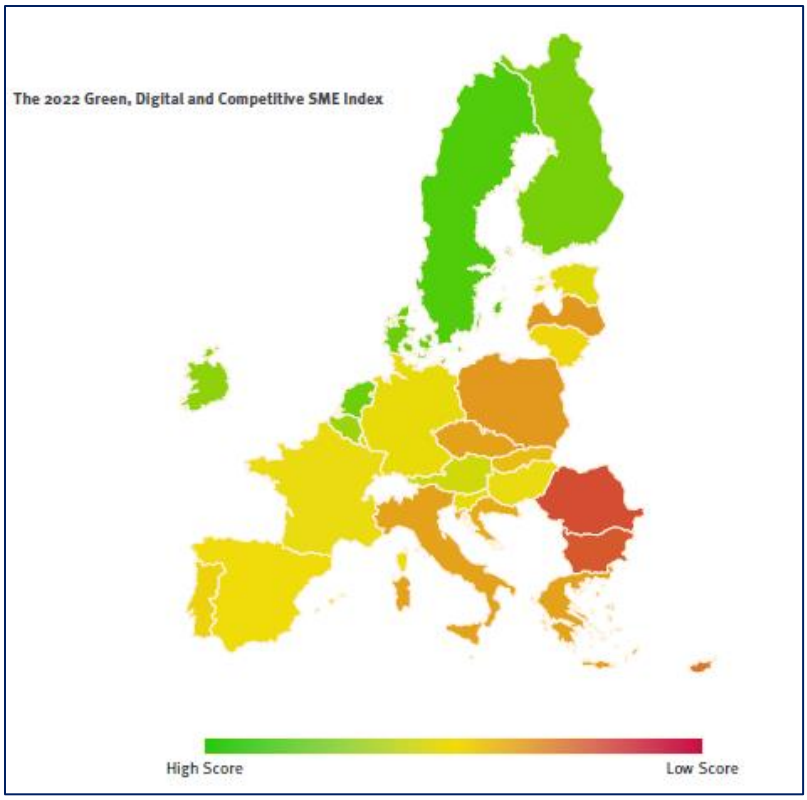


Figure 2. Graphical map of the Green, Digital and Competitive SME Index for EU-27 (Source: Hofheinz et al., 2022)

General Ranking (in EU-27)	Country	General Score	Digital Transition Rank (in EU-27)	Green Transition Rank (in EU-27)	SME Competitiveness Rank (in EU-27)
2	NL	69.97	6	2	1
4	FI	68.21	2	7	6
12	DE	50.94	11	9	19
13	ES	50.31	15	10	14
15	PT	48.89	16	21	7
17	FR	46.22	17	8	24
19	HR	43.62	9	24	23
21	IT	41.38	21	17	21
22	GR	41.22	22	22	15
23	PL	40.58	24	19	22
26	BG	31.28	27	26	18
27	RO	29.54	26	15	27

** The General Ranking is based upon the weighted scores of the three categories*
*** The index is based on calculations of 3 categories (Digital, Green, Competitive) nine indicators and 21 sub-indicators*
**** Data Sources include EUROSTAT data (2019-2021) and EC Flash Eurobarometer (2022)*

Table 6. SME data from the EU-12 sample extracted from the 2022 Green, Digital and Competitive SME Index (source: authors' elaboration from Hofheinz et al., 2022)

3. The impacts of prolonged crisis on SME Sectors

This chapter provides individual **quali-quantitative analyses on the six sectors chosen for the study** (*Manufacturing, Construction, Innovation & Research, Tourism, Agro-Food, Retail)*. They employ a **standard structure to facilitate cross-comparison and readability and have been updated during study execution as to include most recent impacts of the Ukrainian crisis**. Each chapter section is dedicated to SMEs in a sector, as it always includes: ***a.*** the operational definition employed for delimiting business inclusion; ***b.*** an estimation of the SME relevance in the sector; ***c.*** the main results of the impact analysis via the study framework (whose full results can be observed in the tables included in Annex VI) and contrasted with the findings of the fieldwork; ***d.*** a quantitative collection of SME performance data in the sector; ***e.*** sectoral policy recommendations encountered in the literature and fieldwork; ***f.*** some quote boxes with special argumentation mentioned by relevant stakeholders; **g.** two testimonials of SME companies for each sector and from the EU-12 sample. **While chapter 3 addresses sector-specific impacts, in chapter 4 the study proceeds to a comparative discussion of general research findings alongside a tentative ranking across performance of SMEs in the six industries and a focus on "winning" and "losing" factors (section 4.1). In addition, the study will also provide recovery recommendations for the entire SME ecosystem (section 4.3)**. Sources for the development of this chapter include SLR results, quantitative data gathered as described in section 1.2 (and Annex I.b) and the stakeholder interviews. The full reference of interviewed actors can be consulted in Annex V.

3.1 Manufacturing

The manufacturing sector represents **a consolidated industry whose definition is agreed both by international and European standards** (EUROSTAT, 2022). It is broadly described "*as the physical or chemical transformation of materials of components into new products, whether the work is performed by power- driven machines or by hand, whether it is done in a factory or in the worker's home, and the products are sold at wholesale or retail. Included are assembly of component parts of manufactured products and recycling of waste materials*". Three different typologies of manufacturing SMEs exist according to their positioning across the industrial ecosystem (Juergensen et al., 2020). These include:

- *Stand-alone* SMEs carrying their own brand and product (i.e., ceramic tiles).
- *Specialist-supplier* SMEs dealing with the production of intermediate components and connected to large firms (i.e., the automotive or textile industries).
- *Knowledge-based* SMEs dealing with the supply of complex technologies (i.e., medical equipment, research-based, ICT and other computing technologies).

Due to the vast range of activities, production techniques and final products generated, it is likely **the most varied economic activity within the non-financial business economy**. Prior to the pandemic, the magnitude of the European manufacturing sector included approximately 2.1 million enterprises generating ca. 31 million jobs and representing about 15% of EU's GDP. Approx. 59% of the companies were SMEs (EUROSTAT, 2022; I4MS.eu, 2022). The SLR results for SME Manufacturing include analysis and elaboration of 24 contributions (*Agostini and Nosella, 2019; Agrawal et al., 2021; Bonilla-*

Enriquez & Caballero-Morales, 2020; Cai & Luo, 2020; Canton et al., 2021; CEEMET, 2020; Cimini et al., 2020; Cugno et al., 2022; Culot et al., 2020; Digital Europe, 2020, 2021; European Parliament, 2021;EUROSTAT, 2022; Harris et al., 2020; Horobet et al., 2021; Hulla et al., 2021; I4MS.eu, 2022; Jones et al., 2021; Juergensen et al., 2020; Kapoor et al., 2021; Lepore et al., 2021; Rapaccini et al., 2020; Ricci et al., 2021; Touriki et al., 2021). Further insights for this sector were provided by interviews with CEEMET, ORGALIM and CONFAPI (IT). Both the specialised literature and dedicated stakeholders confirm that the manufacturing **industries** were able to endure the worst impacts of the COVID-19 pandemic. Nonetheless, the containment measures employed to curtail virus spread, the consequential global supply chain disruptions and the renewed geopolitical and financial instability set forward by the invasion of Ukraine have been increasing **disruptions and costs for SMEs**. Thus, the sector quickly sought **adaptation and adjustment to the new international context** while managing to partially rebound its activities. There are nonetheless important challenges ahead regarding the modernisation of the sector through "Industry 4.0" implementation, the diversification of supply chains for the foreseeable future and the stabilisation of largely increasing business costs (i.e., energy, transport and logistics). From the combined analysis of the different areas relevant for the impacts of crises and the stakeholder contributions on Manufacturing SMEs, the most **relevant conclusions to be considered are**:

1. Manufacturing establishments are understood as close-production environments involving physical proximity and fast-paced teamworking and thus vulnerable to social distancing. However, few weeks **after the initial shock provided by pandemic outbreak**, **the social partners and the companies could quickly find an understanding with the public sector to ensure productivity**. Thus, companies **progressively rebounded activities while dealing with additional costs, a liquidity squeeze and a deferment of investments** derived from the implementation of health measures, a weakened business economy and intermittent disruptions in supply chain and workforce presence. To cope with the situation, during the first lockdown some manufacturing companies showed resilience by temporary repurposing and mass-producing health-related products (i.e., ventilators, PPE, other medical and sanitary equipment). Notwithstanding, **European manufacturing SMEs were assisted to a great extent by public liquidity support measures** granting fiscal relief and employment support, alongside renegotiating credit conditions through loan guarantees ensured by the MS.

2. Notwithstanding, manufacturing SMEs are highly energy-consuming and strongly embedded in the value chain both as suppliers and receivers of intermediate goods and services. The strong **delays in the supply-chain** (e.g., intermediate components, raw materials) have generated **some ripple effects still impacting production past the acute pandemic phase** (i.e., semiconductors shortages in the high-tech and automotive industries, logistics and transport delays through the new **Chinese lockdowns** of 2022) **and are now amplified by new events such as the Ukrainian crisis** (i.e., future cost of energy supply, access to raw materials for industrial production). In addition, the sector was already suffering **from the consequences of previous trade war tensions** (i.e., Sino-American trade rivalry) **and the relative policies that ensued** (i.e., EU anti-dumping policies in the steel industry).

For these reasons, future EC/MS action should look at **providing structural support for this business environment**. At *short-term* level, most urgent interventions should be aimed at **the stabilisation of the supply chain for energy and access to raw materials** hindered by the Ukrainian crisis. This should be followed by **a reinforcement of the chain process among supply partners** to endure future disruptions (e.g., supplier diversification including regionalisation or reshoring), **stimulating its 4.0 digitalisation to increase traceability and overall resilience** (i.e., blockchain) **and increasing the external social capital of SMEs** (i.e., innovation clusters, universities and research centres, suppliers and customers). *Long-term*, the public sector should also consider **further aligning decision-making to industrial realities** (i.e., industrial and raw supply) and **increase EU/national value-based public procurement**, including **improved accessibility for SMEs**.

3. There exist additional factors which help understanding the overall negative impact of the prolonged crisis on Manufacturing SMEs. Ultimately, their **financial performance was also diversely affected on the basis** of **a.** their **size and financial capability** prior to the pandemic, conditioning their capacity to face additional business costs or resilient solutions (i.e., increasing stock-up on inventory to counter disruptions); **b. the typology of produced products** (i.e., negative demand of industrial durables from automotive or aerospace sector vs. steady demand of daily use products or increased ICT use); **c. the level of dependence upon value chains and markets** (whether stand-alone business or specialist supplier for an industry sector).

At *long-term* level, MS developing and implementing programmes should be considering **diversified policy support based upon manufacturing SME typology** (a list of examples includes for a. *stand-alone*: internationalisation or product/marketing innovations; for b. *specialist-supplier*: increasing clustering and innovation for competitiveness in the value chain; for c. *knowledge-based*: further entrepreneurship and investment support) as well as **concentrating funding for companies stimulating alternative business models**, such as *Smart, Green, Resilient and Lean strategies* (SGRL) or companies favouring *servitisation* of business (creating value by delivering a service enabled by the product).

4. Despite high rates of persisting workers unavailability (i.e., sick leave, quarantine, but also shrinking of cross-border labour workforce due to restricted mobility during the first lockdown), manufacturing companies responded **by switching to remote working all office departments** (i.e. research & development, human resources, accounting, sales, finance) and **for implementing guidelines for physical distancing of production-line workers**. For the second category, negotiated employment support in the form of "short-time work" reductions of hours has also been essential to grant contract stability for many companies.

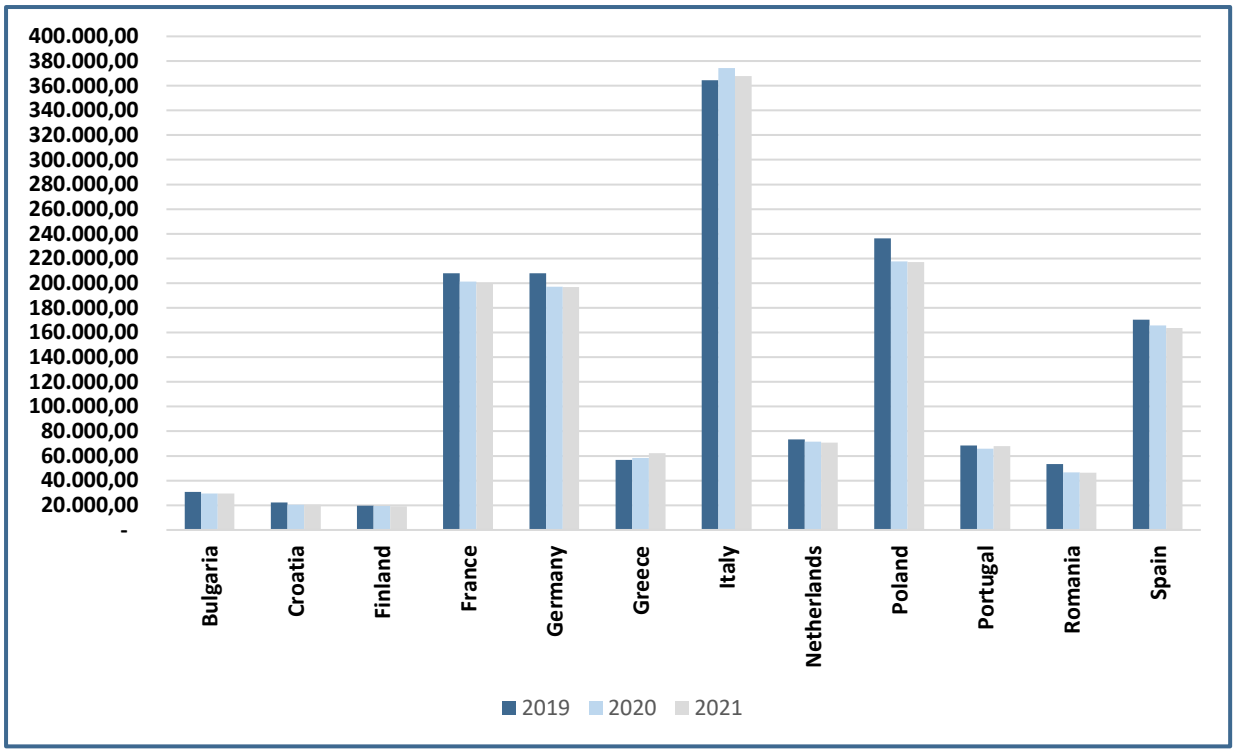
5. Manufacturing SMEs are among those that most employ Industry 4.0 technologies, as they are driven by seeking improvements for customers' experience, product quality and the workforce environment. Thus, **the pandemic has only slightly accelerated a pre-existing trend in adopting Additive Manufacturing Technologies** (i.e., physical/digital interface and process, including automatization and robotization; network and cloud computing; data-processing). However, additional financial uncertainty may condition the desire of SME entrepreneurs to digitalize further when balanced against competitiveness and market volatility, compatibility with sustainability, cybersecurity issues and worries of poor implementation or lack of specialized workforce.

At *long-term* level, EU/national authorities will have to **keep supporting digital investments not only suitable for the purchase of new equipment and the improvement of infrastructure and data management quality, but also including the digital learning and training of manufacturing workers**. Currently, manufacturing jobs (especially on production line) are seen as less attractive because of uninformed fears of automatisation replacement. It also becomes an ageing workforce as the higher-educated, younger generation does not see it as a lucrative career opportunity. Thus**, specific programmes will be necessary beyond mere technological implementation**. These include cultural and organisational adaptations which will be necessary both from the workforce and at entrepreneurship awareness level.

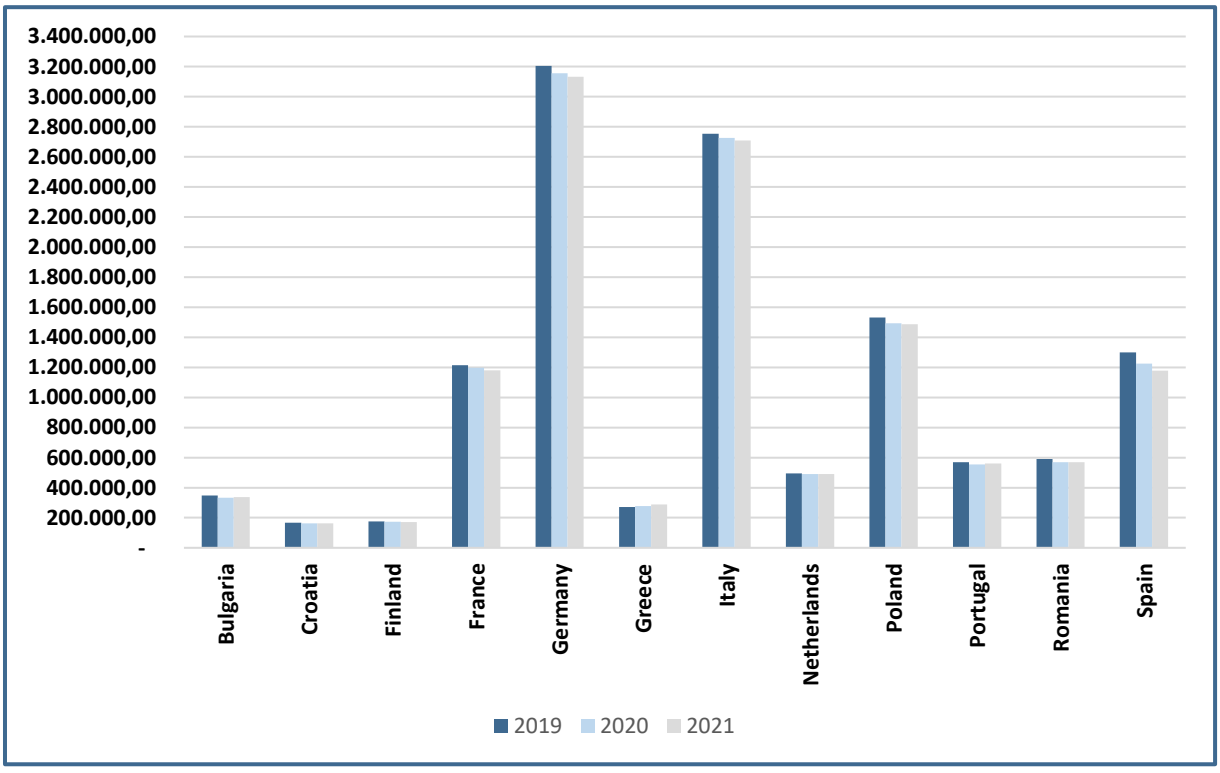
6. Prior to the pandemic, **the European manufacturing ecosystem performance displayed a general West vs. East divide**. While Western Europe showed a leading role in technological implementation for manufacturing, Eastern Europe relied on wage competitiveness to ensure improved performance. While the prolonged period of crises has not altered this differentiation, **quantitative analyses performed by this study reveal the broad strike suffered by SMEs in this industry across most countries in the EU-12 sample** (see Graphs 8 and 9). The variations in total numbers of companies between 2019-2021 are shown in Graph 11 below. Altogether, the situation between 2019-2020 illustrates declining trends for a strong majority of countries in the EU-12 sample. Some MS experienced heavier losses (e.g., RO: -5,90% of SMEs; ES: -5.69%; BG: -4,81%, PL: -4,20%; HR: - 7,41%; DE: -2,40%); others varied under the -1% (e.g., from HR: -0,81% to NL: -0,57%); only GR experienced a slight increase in manufacturing companies[5] (+0.71%). For most countries in the EU-12 sample, variations between 2020-2021 still indicate a scenario of reduced business failures (e.g., from ES: -3,47% to FI: -0.12%) and just four national cases with increasing numbers (e.g., BG: +0,43%; HR: +0,40%; PT: +1,29%; GR: +2,07%). Negative trends also affect the total number of employees in Manufacturing SMEs (Graph 12). Between 2019-2020, only GR experienced raises in employment levels (+2,30%), while all the others ranged from a -0,96% (NL) to a significative -5.83% (ES). For 2020-2021, 6 MS experienced a rebounding of employment comprised between the +0,13% (RO) and +3,81% (GR). Meanwhile, negative rates still affect FI, FR, DE, ES, IT, PL (minimum of -0,40% for PL; maximum of -3,78% for ES and -1,20% for FI).

According to **CEEMET**, Europe **must ensure the strategic autonomy of the EU** through a dynamic industrial policy, **support for small and medium-sized enterprises (SMEs) and startups**, and an effective screening of foreign direct investment. CEEMET identifies 12 concrete actions within **3 key-areas**: **a.** Restore the European single market and transform it into **a seamless secure digital single market**; **b. Be big on the big things** - Finance the future of the European project and act on the 2021-2027 MFF on top of the recovery and resilience initiative with industry at its heart; **c.** Support national processes to **establish agile labour markets** linked with boosting innovative approaches of blended permanent up-and right-skilling (CEEMET, 2020).

[5] The GR stakeholder commented on extraordinary pre-pandemic rates of national recovery from crisis, alongside temporary repurposing of production for production of medical equipment. Similar positive rates are frequent across all sectors for the country.



Graph 8. Variations in total numbers of Manufacturing SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021-2022)



Graph 9. Variations in total numbers of jobs in Manufacturing SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021-2022)

SME Testimonial: **Vebi Biochemical Institute SRL (IT)**

Website: **https://www.vebi.it/**

Vebi is a medium-sized SME operating in two specialised fields of manufacturing production: *a*. parasite control/gardening products, and *b*. cosmetics and sanitizers. It is a highly digitalised business which also hosts (among others) its own Research & Development as well as regulatory departments for commercialisation of products.

In terms of response to *Containment measures*, Vebi was classified as an "essential" business by Italian regulation and was exempt from the majority of mobility restrictions and business limitations. It also faced some obstacles in supply chain provision and transport/logistics of products, but it successfully navigated them throughout the crisis.

As for *Workforce* solutions, pre-existing levels of high digitalisation allowed for the rapid deployment of most workers to the smart-working modality. It only kept some production workers close to the industry 4.0 production machines through relevant hygiene measures.

Indeed, even before the pandemic the company had invested in advanced *Digitalisation* solutions: upstream deployment of optical fibre to its rural location, drop-out from the use of paper in the company and acquisition of big data and sensor integration processes for its production line.

Vebi was mostly affected in terms of SME *Finance* during the first month of the pandemic, but then proceeded to a partial and temporary adaptation of production through joint projects for disinfection by automated machines. This, in conjunction with conducting business with other economic operators in the agricultural sector via remote sales (i.e. videoconferencing) and a light renegotiation of credit conditions allowed to maintain sound revenues despite the perceived increases in business costs. In terms of customers' changing habits, they naturally increased the production of disinfectants and even observed increased demand of domestic cosmetics (i.e. hair colouring) as a by-product of mobility restrictions. Despite all this, they have recently experienced a business-threatening increase in business costs (e.g. pressure to supply chains, energy and raw materials' prices) due to Ukrainian crisis and even to adverse environmental conditions (e.g. drought for the agricultural sector).

When evaluating *Public Assistance,* Vebi expressed mixed views on the rescue and recovery packages. Although they made a very limited use of the public relief measures, they highly valued EU-level assistance against pandemic uncertainty and the financial packages. However, they expressed concerns towards the regulation and application of the recovery funding (the Italian NRRP), as at the time of interview it did not seem to show interesting perspectives for their SME. They also expressed strong concerns towards EU and national-level decision-making in regulatory aspects connected to their pesticide production, claiming the need for more consideration on smoothing production transitioning and banning of certain products.

Lastly, when inquired about their national and territorial context in *European diversity*, they confirmed location in Northern Italy to be ideal for proximity to national and international markets, alongside claiming the country to hold a marked business mentality with a strong reality of dynamic SMEs.

SME Testimonial: **Vuk Leather (HR)**

Website: **https://www.vuk.com.hr/**

The Vuk Leather workshop is a micro-to-small family business SME founded in 1972 and exclusively focused on the production of leather goods. It includes the production of business haberdashery or business gifts, the development of customer-tailored products or even specialised sewing into various types of canvases.

The *Containment Measures* and the ensuing restrictions have primarily influenced a decrease in turnover and in the production of goods for the company. However, they have also encouraged the development of new products and production adaptation to a new customer environment through the development of single sales (i.e. door-to-door deliveries) and the suspension of products required in catering and other physical events. At *Finance* level, during the acute stage of the pandemic Vuk experienced up to a 50% drop in its turnover. Although the client profile remained approximately the same, orders drastically decreased. Luckily, the company already possessed sufficient stock of materials to keep producing despite disruptions in the supply chain. Likewise, the SME possessed enough financial resources to help enduring crisis-induced liquidity squeeze. At *Workforce* level, it also made use of Croatian relief measures for employment in order to safeguard contracts. However, when consulted about the recent Ukrainian crisis the company reported a mix of threats and opportunities for business. On the one side, it commented about price increases for energy and raw materials, especially when considering that a large part of their production materials are connected to oil (e.g., leather, polyurethane, glue). At the same time, they also noticed that price rises in logistics and shortage of some products can also lead new customers to becoming more interested in their local products. In their view, this can provide some degree of compensation in business activity.

In terms of *Digitalisation* response to the crisis, the company is aware that craftsmanship is simply not possible from home and it has instead relied on a set of basic and intermediate solutions such as enhancing digital marketing (e.g., website, social media) and creating their own e-commerce portal. While they acknowledge being somewhat limited in comparison to other professions, they are open to applying all possible novelties for increasing production (e.g., digitalisation of production preparation processes).

Vuk made use of the rescue recovery measures from *Public Assistance* (e.g., financial support for salaries; write-off of some contributions on tax, pension, or health insurance). However, despite welcoming all assistance, they also reminded of the increased hardship for micro-entrepreneurs in accessing programmes due to elevated threshold for application. An equal argument was made for the national recovery plan, where for them there is also a lack of clarity and communication in programme's finalities.

Finally, as for their national and territorial context in *European diversity*, Vuk acknowledged that operating in the capital city of Zagreb offers both a strategic position for business in the country alongside increased costs. Croatia should also take advantage of a renationalisation of its production due to the prolonged period of crisis.

3.2 Construction

One of the best **definitions for the Construction sector** is offered by the ILO (2021), defining this industry as the joint activities that include "*construction, renovation, maintenance and demolition of building (residential and non-residential), as well as work conducted in civil engineering projects such as roads and utility systems. (…) Value is added by transforming source materials into capital assets essential both for economic activity and the delivery of infrastructure services*."

At global level, the construction industry employs 7% of the total world's workforce and accumulates 13% of the global GDP (Deloitte, 2017). At European level, the EC estimates that the sector provides 18 million direct jobs and contributes to about 9% of the EU's GDP. **Nearly 95% of construction, architecture, and civil engineering firms are micro-enterprises or SMEs** (EC Website, 2022) and **these refer to several different market segments**, such as architecture and design, equipment and material manufacture, transportation, and energy and waste management. **The high number of SMEs is intrinsically related to the high number of intermediaries, subsidiaries and subcontractors working on construction sites, with a large variety of specialised services**. For example, even highly professional entities often hire engineering or design services to complement construction services (ILO, 2021). Labour force is also often supplied by external labour agents and building materials, plant and equipment are frequently purchased or hired from other companies. Both the nature of the sector (through its labour-intensive character) and its strong connections with other economic sectors imply a high potential for creating new jobs, although often not stable and with conditions that vary widely throughout Europe and through the world (ILO, 2015).

According to the EBC, **small companies and crafts are the overwhelming majority of companies active in the European construction sector**, which represents almost 9% of the EU GDP and represent around 95% of the entire construction sector. They are the operational arms implementing the environmental ambitions of the EU by delivering on the Renovation Wave trend. They can also help shaping a construction environment that is less dependent on energy fluctuations and more environmentally responsible (EBC, 2022).

This chapter section was produced according to the SLR results and based upon 19 contributions (*Deloitte, 2017; Euler Hermes, 2020; EBC, 2020a, 2020b, 2021, 2022; EC, 2021, 2022; EP, 2021; Fernandes, 2020; FIEC, 2020; Harris, 2020; Horobet et al., 2020; ILO, 2015, 2021; Markovic et al., 2021; Pamidimukkala & Kermanshachi, 2021; Schulten & Schulze-Buschoff, 2015, Stiles et al., 2020*) and interview contributions from EBC and CNIPMMR (RO). The construction sector **has not been one significantly affected during the pandemic**, as building sites closed for limited time in some countries in 2020, but overall kept their activity. Before COVID-19, construction was coming out of a cyclical peak but still in expansionary mode. **Despite this, the pandemic hindered major economic investments, namely from the public sector and caused significant supply chain disruptions**, which implied delays and increase in the costs of materials. Moreover, extra measures and costs had to be incurred to ensure that sites could operate in a COVID-safe manner. During that period, the construction sector was not prioritized in most countries, but there were still interesting support measures to account for. For example, in IT the Super Bonus 110% was implemented, a government program to boost activity in the construction sector through recovery funds, that contributed significantly to support the construction companies to maintain their activity. However, **the impacts of the Ukrainian war –**

namely the inflation spike, increase in costs and disruptions in the delivery of raw materials and the huge increase of energy and fuel prices – **bring additional challenges and new burdens for the SMEs in the sector**. Although there is high demand for several types of construction work, without materials and transport the work is not possible. Also, many contracts were signed under the previous pricing conditions and without updates to such contracts acknowledging the inflation rise and increase of fixed costs, meaning the deliveries may not be feasible within budget. Thus, the sector is relying on the potential of the Recovery Plans and significant public investment to promote new construction contracts. From the analysis of the different areas relevant for the impacts of prolonged crisis on SMEs from the construction sector, further elicited through the stakeholder contributions, the most **relevant conclusions to be considered by SMEs and organisations representing them at EU and national level are**:

1. Construction is a sector dependent on physical activity and presence of workers on site. It requires physical proximity and teamwork in construction sites. This was a major hindering factor during the pandemic and PPE use/distancing rules increased the costs of the operations. However, these issues should not be a major constraint for the recovery period. In fact, several countries learned fast and the EU should leverage on the existing good practices. For example, in the United Kingdom (UK), the top three investments in structural planning for Construction SMEs include: new equipment (26%), an increased online presence (20%) and new technology (17%) (Euler Hermes, et al., 2020).

2. Demography in the construction sector is a structural and historical issue and it is not related to the crisis in the economy, nor to COVID, nor to the War in Ukraine. It is related to the fact that the activity is not attractive for young people and women, and most of the workforce is from previous generations, hence the key aspect is to change this reality, because there is a shortage of available workers. Construction manages to create demand and maintain activity, but for many years there have not been enough people with the right skills. Digitalization and environmental issues may be two key trends to attract new worker profiles and that updates the training offers for the sector. Digitalisation in FR, for example, is more developed as there are several SMEs participating in innovation forums or even developing own applications on health and safety; meanwhile, in countries such as PL or Hungary (HU), digitalization is still at the level of owning a computer and for an SME this is already an investment to consider.

In the *short-term*, the NGEU through the NRRPs needs to include measures that not only reinforce the digitalisation of public services but that incentivize and quickly provide to SMEs the equipment, infrastructure and operational means to embrace the twin transition. These measures should be easy to apply and fast to implement. In the *long-term*, **preventive measures that enable workers to use and adapt to technology** for performing tasks remotely should be foreseen, including investment in digital infrastructure and new digital applications, **training for managers and workers and investment in digitally-rooted business models.**

3. The opposing dynamics between large and small companies in the sector were reinforced during the pandemic. Because of its structural issues, construction already counted with 20% of all insolvencies in 2020 with SMEs lacking negotiating power, project size and scale to compete with the larger companies

in the sector. Also, often SMEs are subcontracted by big construction companies and are the first to suffer with the cost reduction actions.

In the *short-term*, once more the NGEU structure and implementation is of key importance. **Policy stimulus** such as public works, health infrastructure and large-scale contracts **will most likely benefit large companies. Thus, measures to ensure SMEs are not left behind** shall be foreseen. These shall be explicit in the regulation to access funding to ensure that SMEs can also actively participate in public procurement calls. As for the *long-term,* there are **strategic areas for SMEs to invest** that will most likely be fruitful**:** remote working may increase the request for retrofitting and move demand for residential construction. SMEs can target such needs with competitive local offers and direct contacts to costumers. Also, climate change and environmental-related works may be of interest to focus on. Although still in a very fragile context to consider, the need to rebuild Ukraine after the war may be an opportunity to several companies in the field. However, to respond to any of these challenges SMEs need to increase awareness on the emerging opportunities and be flexible to pursue them fast. Greater focus needs to be placed on facilitating the participation of SMEs in public procurement.

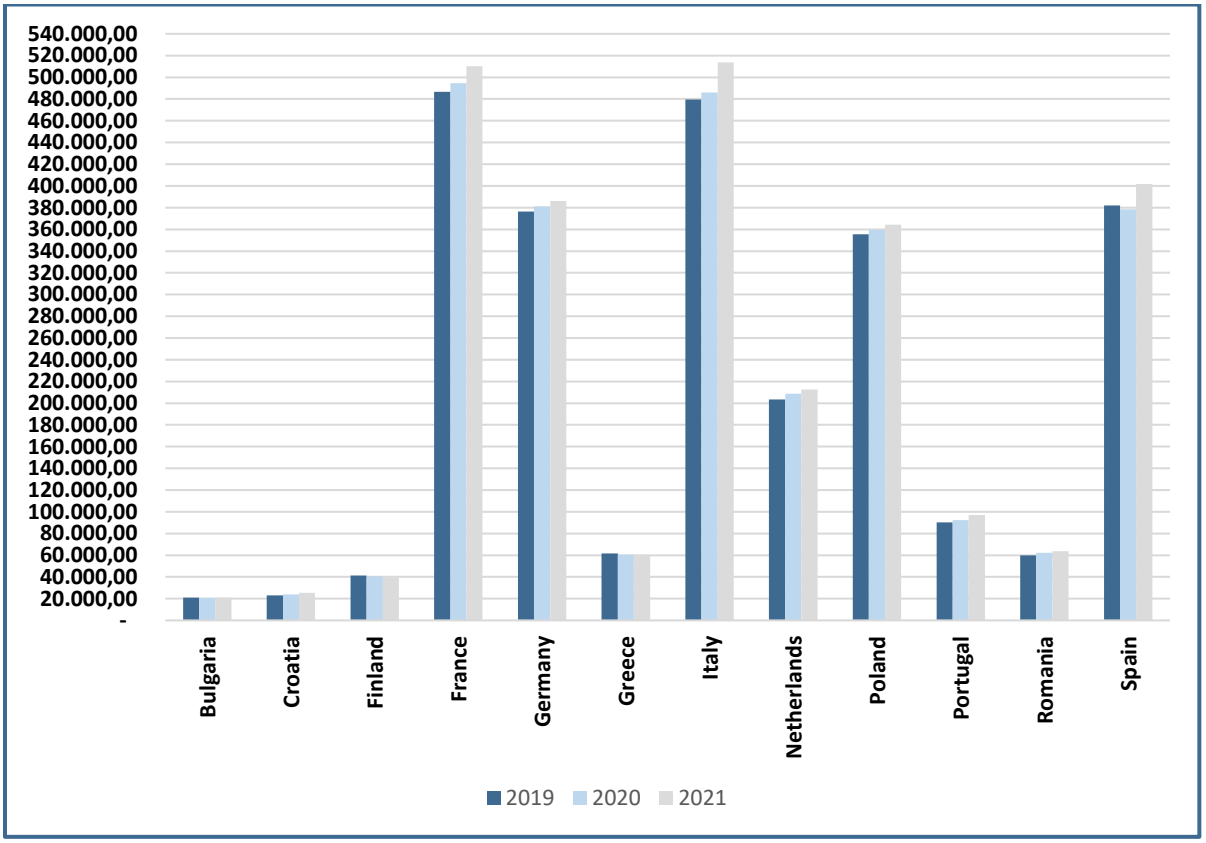
4. Supply chain delays were particularly evident when materials or raw materials came from other countries. Building materials were in short supply and have seen price spikes, driving up project/rebuilding costs and affecting companies ranging from contractors to insurers. More recently, the increasing energy costs due to the Ukrainian war are an additional pressing factor to SMEs competitiveness.

In the *long-term*, **SMEs should leverage on the spirit of closer collaboration that emerged during the pandemic.** They have started to collaborate actively between themselves and this can help them build resilience for the future, namely to create scale and key resources (i.e., information, ideas, negotiation power and access) required for rapidly responding to challenges.

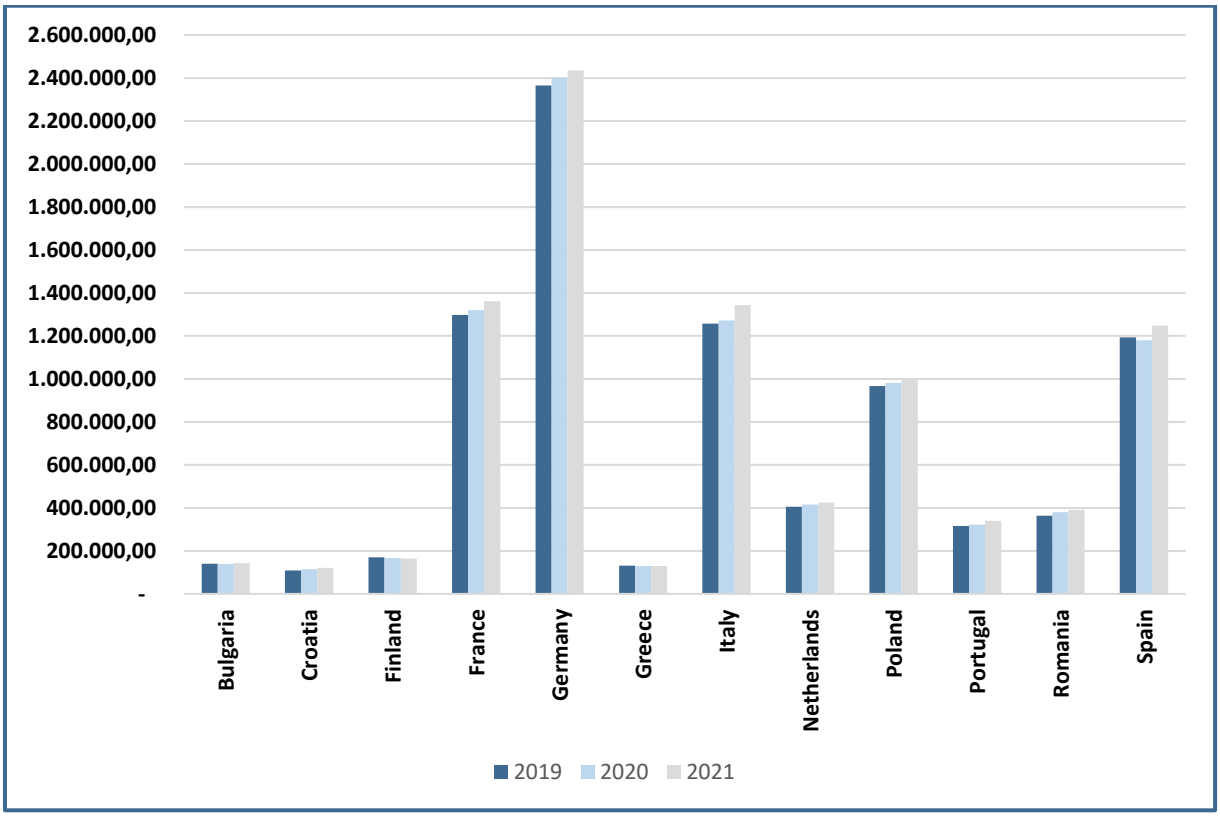
5. The construction sector is highly dependent from the levels of regional development inside each country, which led to high geographical variation in the impacts of the pandemic effects on construction ecosystems, e.g. most insolvencies in Spain, France, the Netherlands and Italy. **A concerted European agenda for the Construction sector resilience after 2022**, with common measures and shared goals will improve competitiveness and strength for future years. Acknowledging the huge potential of the Construction sector **to create jobs**, promote healthier living and working environments (ILO, 2021), aligning growth and productivity for stable working conditions and more **sustainable building practices** (EC, 2021).

In the *short-term*, **policy measures to control the current crisis**, such as the implementation of methods **to control speculation, to have transparency on prices, the raising prices from the energy suppliers and the high costs for raw materials are essential** and the European Commission can take the lead in those concerted efforts. In the *medium- and log-term* **concrete measures that reinforce the sector in a capillary manner, at regional and local level are key**, such as the creation of one stop shops for energy efficiency, where construction experts, architects, public authorities are brought together in one place to clarify how fundings (small and bigger) can be implemented, what can be the technical and financial support to the SMEs and provided by whom. This could represent a big opportunity for the SMEs in the sector and would also serve public interest for citizens.

6. In terms of European diversity, quantitative analyses performed for this study make it **possible to estimate the quantitative economic and employment impacts on the construction sector for the EU-12 sample** (Graphs 10 and 11 below). In terms of total numbers for Construction SMEs (Graph 13), the situation for 2019-2020 is divided between only 4 MS experiencing a loss of companies (BG, FI, GR, ES. Ranges from -0,92% in ES to -2,44% in FI) and all the rest experiencing growth (SMEs range from as little as +1,19% in PL to a noticeable +4,73% in HR). In the following year variation (2020-2021), only GR and FI experience losses (respectively, -0,53% and -2,75%) while all other countries show growing rates from +1,31% in PL to a recovery-based +6,13% in ES. The variation of job positions for Construction SMEs initially follows a similar trend. Between 2019-2020, the same 4 MS experience job losses (BG, FI, GR, ES. Range from -1,10% in ES up to -1,67% in FI) while all others experience growth (Ranges from +1,41% in PL up to noticeable +4,26% in RO and +5,11% in HR). The following year, only FI still experiences job losses (-1,86%), while all other MS experience strong recovery ranging from +1,46% in DE up to rates above 5% (e.g. HR, IT, PT, ES).



Graph 10. Variations in total numbers of Construction SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021-2022)



Graph 11. Variations in total numbers of jobs in Construction SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021-2022)

SME Testimonial: **Kallimanis Design & Construction (GR)**

Website: **www.k-constructions.com**

Kallimanis Design & Construction is a small-sized SME that provides services in the field of Civil and Topographical Engineering. As construction is a dynamic industry sector that requires frequent contact with the client, the business was greatly affected by the *Containment measures*.

The company had already integrated basic *Digitalisation* solutions before the pandemic (digital documents and online means of communication), but many of the clients did not have the means to communicate remotely. This led to project deadlines not being met and to corresponding compensation claims. As for *Workforce* solutions, some of the departments started working remotely from home. However, with the relaxation of restrictions the departments with the greatest need for face-to-face work returned to the company through employing a mix of reduced and alternate hours. On the construction sites, the work was organised by respecting social distancing and thus not gathering workers in the same area.

In terms of SME *Finance*, at the beginning of the pandemic uncertainty was high and customers were hesitant to start new projects, leading to business profits fall by 80%. Through the easing of restrictions, construction investments started to increase satisfactorily and, by the end of the acute stage of the pandemic, Kallimanis Design & Construction increased its profits of about 20% compared to 2019. Nevertheless, they have had to deal with the lack of liquidity and with difficulties in paying employees and suppliers. As partial financial solutions, the SME started asking for partial payments to the clients before the start of the project and the rest during development. In addition, on the onset of the pandemic the suppliers started cutting off credit, therefore demanding immediate payment. The increase in energy prices due to the Ukrainian conflict also brought an increase in the operating costs that resulted in a price rise by around 40%.

For *Public Assistance*, the SME claimed that although the State provided rescue assistance during the various stages of the pandemic through multiple measures (i.e. loans, special assistance to workers), these were not enough for recovery. They expressed concerns about the difficult access that small businesses have to national and European financial programmes due to the large number of applications. They showed similar concerns about the procedure for accessing the NRRP in their country, explaining that it is not sufficiently clear and accessible, leading to companies not understanding its advantages.

When inquired about their national and territorial context in *European diversity*, they considered their geographical location as a positive aspect that will facilitate the financial return of their business.

SME Testimonial: **Majster-Pol (PL)**

Website: **https://majsterpol.eu/**

Majster-Pol is a manufacturer of isolation materials mostly embedded as a supplier for the construction industry. It is a family-owned, medium-sized business aged ca. 23 years. They hold different departments with positions ranging from production line to sales direction for Ukrainian and Russian markets. They are based around their own expertise for Research & Development of products, market implementation and even sponsoring to customers.

During the onset of the pandemic, the company was allowed to operate as "essential" sector but was quick to adapt to *Containment measures* by applying all measures relative to social distancing, monitoring safety regulations and equipping staff with face-masks and other PPE. This was especially true in actions relative to *Workforce*, where the accountancy and sales departments were sent to remote working while on-site employees were regularly screened for infection. The company even experienced the loss of a worker due to COVID-19. Notwithstanding, although forced to reduce production at times for personnel safety and shortages, it managed to avoid employment support or to cut its staff.

At *Finance* level, the SME initially experienced economic uncertainty due to hold on spending and payments. During the first and second quarter of 2020, they could visibly notice the reduction in demand due to crisis. Furthermore, the company experienced during the same year a real problem with the supply chain of chemical ingredients and the increase of prices for materials (reaching 2-3 times the cost of 2019). However, the company ended up the year with a financially solid turnover. In terms of customers' behaviour, a noticeable increase in domestic investment for small house renovations was attributed to the much-reduced spending on social gathering and a desire to improve homes for additional lockdown comfort. A new temporary financial shock came with war in Ukraine, where the company initially lost access to an important part of its international market in the country and was reacting politically and emotionally by cutting commercial ties with distributors in Russia (e.g. Kaliningrad). However, reconstruction pressures in Ukraine have also seen this line of business increase more since April 2022. Overall, at the time of the interview the company still managed good turnover but could noticeably see business costs increase.

Meanwhile, to face the challenge of social distancing the company only applied a basic form of *Digitalisation* through largely employing virtual office solutions for meetings, sales follow-up and even training and schooling actions for employees. It was also capable to escape reliance on rescue *Public Assistance* measures, as it considered that other sectors could be more in need in the country. For the issue of recovery funding, at the time of the interview Poland still hadn't received the funding for initiating the NRRP. However, the company expressed a strong Europeanist message in not refusing the opportunity for better survival and development of the nation.

Lastly, when inquired about their territorial context in *European diversity*, Majster-Pol acknowledged both the strategic positioning of the country in Central Europe (thus allowing international access to Scandinavian and Eastern countries) and the central location in the region of Warsaw. This last one provides better access to job talent and other services required for optimal business development (e.g. logistics, cleaning).

3.3 Innovation & Research

The *Innovation & Research* (R&I) sector represents a broad and heterogenous landscape where **innovative SMEs permeate several industrial activities**. According to the specialised literature, there exist **different ways to identify and study innovative enterprises:**

- the **EU Community Innovation Survey (CIS)** broadly defines **an innovation-based firm as a company which undertakes one or several product, process, marketing or organisational innovations** identified **through enquiring via survey on a broad sample of real businesses practices** (EU CIS Website, 2018a). The European institutions also classify best performers of specific EU-support SME programmes as "*European Innovation Champions*" (De Massis et al., 2021; Di Minin et al., 2021).
- **"High-Growth Enterprises" (HGE)** are generally understood as **business companies with high employment and/or turnover growth sustained in time for at least 2-3 years** (Benedetti Fasil et al., 2021) Among these, multiple studies back the evidence that **HGEs are mainly composed of smaller, younger and technology-based companies** (i.e. EIB, 2019, Greene et al., 2020).
- **Intellectual Property Rights (IPR)-intensive companies** are businesses with higher levels of IPRs (i.e. trademarks, designs, patents or copyrights) which introduce innovations into the economy while being protected against unfair practices. Although corresponding to a minor portion of the sample, **innovative SMEs also belong to this category (**EUIPO, 2018).
- Lastly, **Startups have been defined as an SME-sized company that**: ***a.*** are usually young in business age (between 0 and 10 years); ***b.*** have an exclusive focus on innovation (whether of products, services or business model); and ***c.*** have a clear aim to scale-up in the market by increasing employees and turnover in the short period (EU StartupMonitor.eu, 2018).

Thus, **this study takes account of sources exploiting all the definitions** by opting for an inclusive approach for commonalities while mentioning individual specificities. To this end, the nature of the pandemic challenge areas employed by the research **inspires the use of a multiple classification of R&I SMEs into sub-categories. These are based either on "Innovative Manufacturing SMEs" focused on the physical manufacturing of complex products** (i.e. knowledge-based companies already observed in the Manufacturing sector, see 3.1) **or onto "Innovative KI(B)S" delivering innovative services** (EIB, 2019). The name of the second typology is derived from the separation in-between ***Knowledge-Intensive Services (KIS)*** (i.e. technological and creative industries such as ICT and software, scientific R&D. See Khlystova et al., 2022) **and *Knowledge-Intensive Business Services* for the market (KIBS)** (i.e. legal and accounting activities, consultancy, advertising and market research. See Miles et al., 2021)[6]. Finally, a third distinction is also necessary on the basis of the age and turnover criteria of innovative SMEs. **In contrast to already established innovative SMEs** with an ongoing business model, **innovative Startups are even more sensitive to existential threat or to novel crisis**

[6] Incidentally, these last ones also fall in line with the EU NACE Rev 2 definition of **Professional, Scientific and Technical Activities**, described as businesses that *"often require a high degree of education and training while making specialised knowledge and skills available to clients who may be other business users or private individuals".*

opportunities for growth according to the industrial sectors in which they operate and the entrepreneurship capabilities of their founders. For what concerns R&I SMEs' presence across the European territory, one of the latest available CIS surveys indicated that 50,3% of surveyed SMEs across the EU-27 had performed some kind of innovative activity by 2018 (EU CIS Website, 2018b) . At the same time, their presence varied greatly across the EU-12 sample (see Table 7).

Countries/ Political Entities	Total SMEs Surveyed	Innovative SMEs (Total N. identified)	Innovative SME enterprises (%)
European Union - 27	729.301	366.758	50,3
Bulgaria	15.495	4.664	30,1
Germany	147.759	100.250	67,8
Greece	12.213	7.368	60,3
Spain	70.645	21.986	31,1
France	69.358	35.716	51,5
Croatia	7.452	3.915	52,5
Italy	118.412	74.856	63,2
Netherlands	27.217	(d) 13523	(d) 49,7
Poland	62.048	14.675	23,7
Portugal	20.730	7.843	37,8
Romania	28.776	4.198	14,6
Finland	8.721	5.399	61,9

Table 7. Percentage of Innovative SME enterprises identified by CIS survey across EU-12 sample vs. EU-27 (Total N. identified and % over total) (Source: EUROSTAT, CIS Survey 2018)

The SLR results for R&I include the exploration of 24 contributions across the various definitions (*Benedetti Fasil et al., 2021; Canton et al., 2021; Catapult Website, 2022; De Massis et al., 2020 ; Di Minin et al., 2021 ; Eurofound, 2021; EC, 2019; EC 2021a,b,c; EC Report, 2022; EU CIS, 2018a, b; European Investment Bank, 2019; EPO & EUIPO, 2018; EUIPO, 2021; EU CIS Survey, 2018a,b; EU StartupMonitor, 2018; Greene et al., 2020; Hrivnák et al., 2021 Khlystova et al., 2022; Kuckertz et al., 2020; Miles et al., 2021; ORGALIM, 2022; Shapovalova et al., 2021*). Specific insights for this sector were provided by stakeholders ORGALIM and CEEMET. Both the specialised literature and dedicated associations confirmed that **although the R&I sector was not one of the most affected industries by the pandemic crisis**, the **product nature of innovative SMEs** (whether physical manufacturing or services, including digital ones) **and the customer/client profile greatly conditioned the impact on company productivity** during the acute stage of the pandemic. In turn, **the direct impacts of the Ukrainian crisis tend to be transversal across the R&I sector**. Notwithstanding, Innovative KI(B)S were able to experience minor disruptions in all pandemic challenge areas when compared to Innovative Manufacturing SMEs, and even more so when compared to other industry sectors. This was due to the frequent provision of knowledge or tech-based services less affected by the containment measures. Meanwhile, **increased existential risks were identified for Startups** in terms of their financial stability when compared to more established companies from the other two typologies. A mix of **financial support, strong entrepreneurship capabilities and most importantly a fitting innovation** responding to crisis disruptions **thus become all perfect ingredients for converting threats into growth opportunities**. Nonetheless, the prolonged period of crisis constituted by the new Ukrainian-related disruptions (and the ensuing risks for economic recession) may also rebound on the financial activity of R&I in the near future. From the analysis of the different areas relevant for the impacts of

prolonged crisis on SMEs from the R&I sector and further contrasted with stakeholder contributions, the most **relevant conclusions to be considered by SMEs and organisations representing them at EU and national level are**:

1. Innovative Manufacturing SMEs experienced similar disruptions to what described in section 3.1, with special emphasis on supply chain shortages in components (i.e., semiconductors for hardware ICT). However, compared to other businesses they could better rely on 4.0 technologies and were backed by a much-increased consumer demand for ICT technologies and other electronic equipment. Employment levels of the SMEs workforce were supported through public schemes during the worst phases of the pandemic, and businesses in this typology even experienced an increase of demand (and even a shortage of) high-tech skilled expertise. In terms of financing, these companies have endured the shock associated with the first lockdown through short-term liquidity support (i.e., fiscal relief, further digitalisation acquisition) and then proceeded towards an uneven V-shaped recovery until 2022. Nowadays, major concerns for these businesses have appeared due to the worst effects of the Ukrainian conflict. These refer to the increase in business costs provided by inflation, raises in energy prices and access/affordability of raw materials for complex technologies.

Similar to other manufacturing establishments, future EC/MS action should look at **reinforcing support for this innovative SME typology based on physical production**. At *short-term* level, most urgent interventions should be aimed at **the stabilisation of the supply chain for energy and access to raw materials** hindered by the Ukrainian crisis. This should be followed by **a reinforcement of the chain process among supply partners** to endure future disruptions (e.g., supplier diversification including regionalisation or reshoring). A good example was provided by recent EU-level initiatives for the reshoring of semiconductors in Europe. *Long-term*, institutions should also consider the **further consolidation of industrial alliances for SMEs** in this knowledge-based sector.

ORGALIM's latest economic forecast for Europe's technology industries marks **a clear differentiation between a strong growth in 2021 marked by healthy recovery and a completely different road that what hoped for in 2022**. Europe's technology industries are highly integrated upstream and downstream, which means they are also **very susceptible to indirect effects that are felt when demand or supply sectors fail**. Thus, the indirect consequences of the Ukrainian war have led to an enormous **increase in the prices of energy, industrial metals and other raw materials**. Furthermore, the corona pandemic continues to have a negative impact on the free movement of goods in our sectors. **Covid-related restrictions, especially in China, are aggravating supply bottlenecks**. In short: there are many reasons to believe that **Europe's technology industries will need to continue to adapt to volatile times (ORGALIM, 2022)**.

2. Innovative KI(B)S are among the best performers in this sectoral analysis, as their productivity was dependent on a massive reliance on basic digitalisation for service development (i.e., acquisition and adaptation of ICT tech for remote working, remote customer interaction). Precisely for this reason, some KI(B)S were initially excluded from national relief measures due to apparent financial stability, but later experienced financial stress through their own customers' uncertainty and market instability. While it is

also claimed that these companies may have lost intangible assets such as formal/informal knowledge-exchange opportunities, innovative KI(B)S still showed a higher resilience in maintaining job contracts through switch to remote working. At public assistance level, employment support (for reduced hours), fiscal relief and digitalisation assistance were the most effective measures employed to their support. This typology of companies was also affected by some cost-reduction strategies (i.e., overheads reduction, cuts on marketing), but rather experienced a W-shaped path of recoveries dependent upon COVID-19 waves and the business environment. However, they were overall less affected than the time of the 2008 GFC.

Although included among the best performers, **innovative KI(B)S reliance on affordable utilities** (i.e. electricity) **and over a healthy business environment** also require *short-term action* at EC/MS level for **stabilising the additional costs** fuelled by the Ukrainian conflict. At *long-term*, the business typology could also benefit from the a**daptation of MS legislative frameworks for flexible work arrangements** (improving remote working quality and further reducing utility costs) and from **further EC/MS consolidation of entrepreneurial networks/lobbying initiatives** for innovative KI(B)S SMEs.

3. Startups showed a variety of outcomes depending on individual company attitudes and a strong dependence upon the industrial sector in which they operate. The containment measures were not a direct obstacle for these businesses, as they most often responded with agile adaptation of work environments to social distancing and remote working while only suffering diminished disruptions to their supply chains. The smaller size of their workforce also made it more likely to retain job contracts for these businesses, although it often disrupted opportunities for new hiring. Nonetheless, Startups are **affected both by a liability of smallness and to an additional one of "newness"**. They are **experimental environments for innovation** characterised by dependence upon grants or capital venture, risk investments, as well as uncertain though progressively increasing returns, which make them **more fragile to the market effects of crises**. Disruptions in financial markets and capital flows made many Startups react by employing cost-reduction and survival adaptation strategies (i.e. company share-splitting, optimised investments, partnerships with larger firms). Economic crisis was also highly likely to decrease new startup business registrations in the long term. In addition, access to new financial funding was more complex for Startups than other R&I SMEs. At private level, due to size and "newness" the access to equity is often obstructed by a lack of collateral guarantees (even in case of state-backed schemes). At public level, applications for public relief measures can be hindered by national criteria and long administrative processes. Notwithstanding, this category of young, tech-based SMEs are generally highly digitalised compared to EU average enterprises, and **if led by capable entrepreneurship, they can work towards re-orienting towards innovative products and services taking advantage of new market opportunities in times of crisis** (i.e. startup providing digital health services via mobile app).

Thus, while both EU/MS institutions should once again focus on the *short-term* to **secure a stable European business environment for startups development and upscaling**, multiple *long-term* interventions will still be required to favour this R&I SME typology. Further effort should be dedicated on **further "Innovation-finding" programme**s based on economic-non/economic indicators for company value (i.e., adjusted equity requirements, sustainability or technological level criteria). Considering the success of certain startup sin countering crisis hardship, these may also offer **high-level**

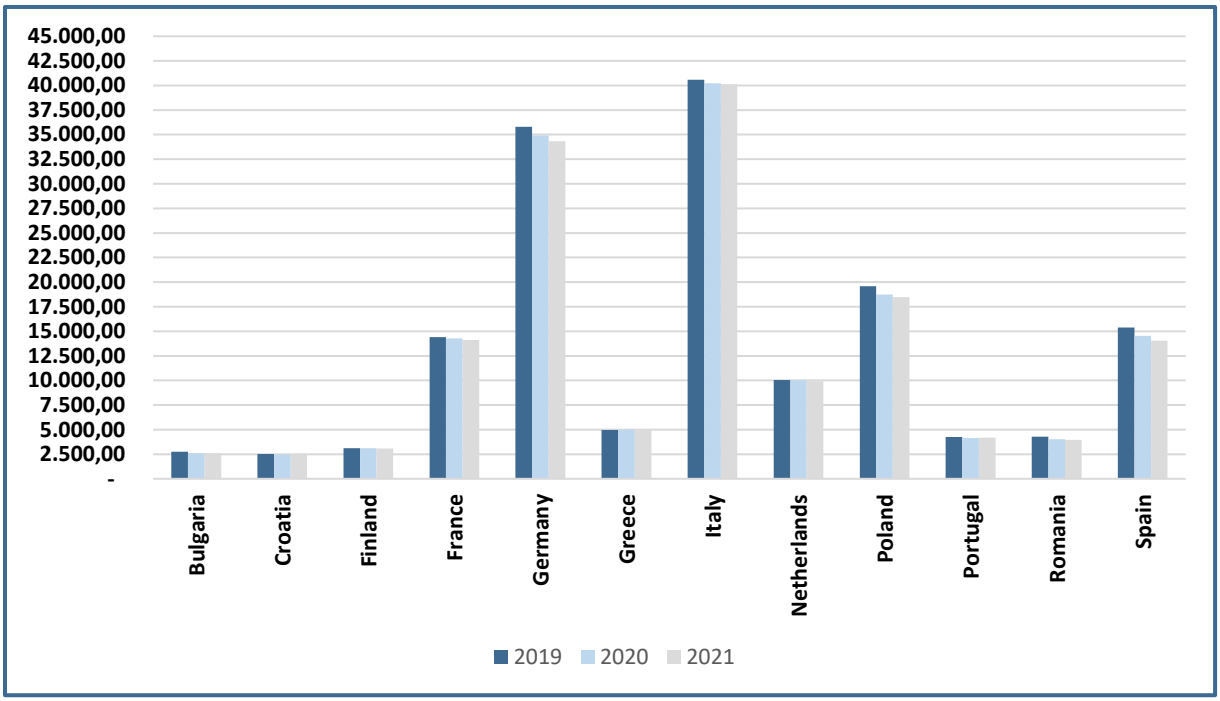
employee development programs for advanced digitalisation and entrepreneurship skills or further development of **Digital Innovation Hubs** involving triple and quadruple helix processes (public-private-academia-citizens). Further study of the so-called "European Innovation Champions" of the *European Innovation Council* could also lead to tailored policy strategies.

4. The **EU innovation ecosystem has been traditionally weaker than global competitors**, especially considering inter-national differences across MS. The *EU Innovation Scoreboard 2021* (32 indicators stimulating R&I, including Innovative SME activities) identifies **different geographical areas of innovation at country-level**: Eastern Europe at lowest ("Emerging"), average for Southern Europe ("Moderate"), consolidated for Central Europe ("Strong"), and advanced for Scandinavia and Belgium ("Leader"). At intra-regional level, the *EU Regional Innovation Scoreboard 2021* (21 indicators) breaks down the analysis to NUTS 1 and 2 regions and **unveils intra-national disparities in Innovative SMEs distribution and activities** (i.e., Northern vs. Southern Italy/Spain; Center vs. Periphery dynamic in France). This reinforces the perspective that **regional core/periphery dynamics affect resilience levels of all typologies of Innovative SMEs. The proximity to Clusters or Innovation Hubs is also of particular important for ensuring innovative** activity.

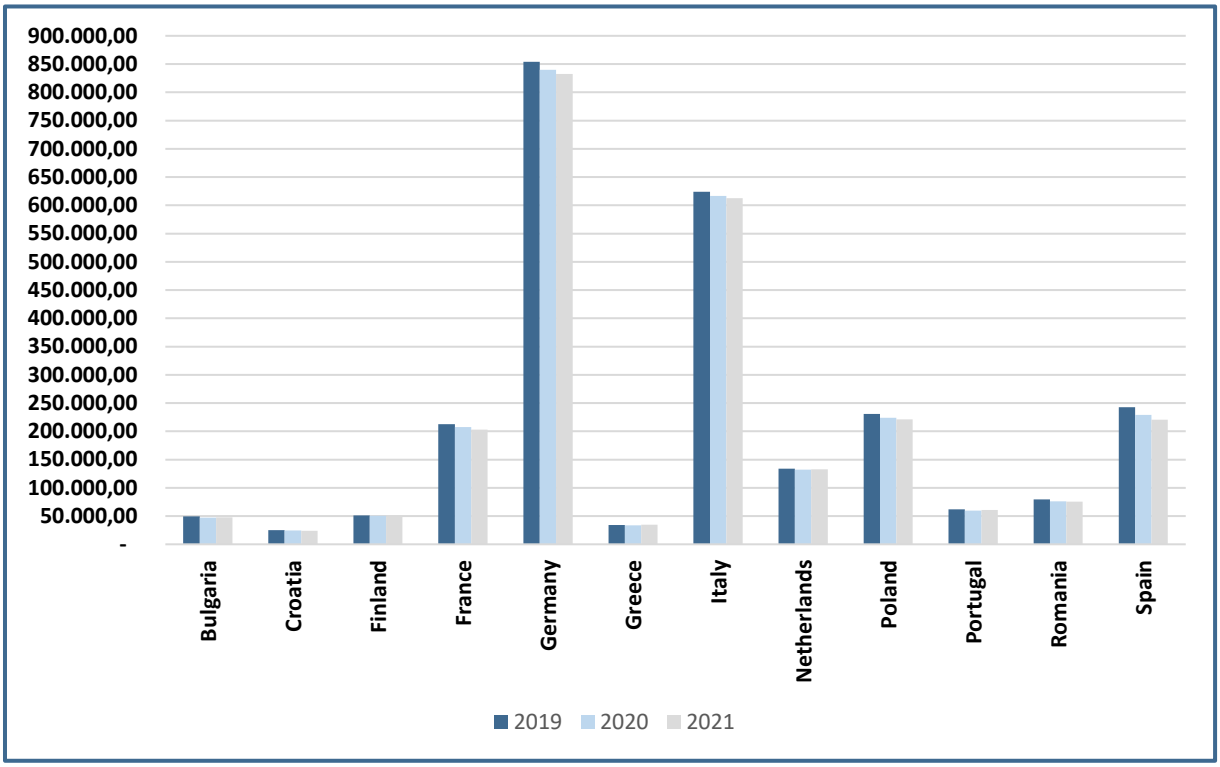
5. In terms of European diversity, it is **possible to estimate the quantitative economic and employment impacts on at least 2 of the 3 SME typologies identified[7].** For **Innovative Manufacturing SMES** (Graphs 12 and 13), the variation in total numbers of SMEs between 2019-2020 is indicative of the heavier impact sustained by this sub-category. With the exception of GR (+0,60%), all other MS experience rates ranging from -0,48% (NL) down to noticeable negatives such as PL (-4,31%), ES (-5,59%) and RO (-6,24%). The following year (variation 2020-2021), there is a scenario of partial recovery shown by reduced losses (ranges from -0,10% in FI to -3,38% in ES) and some small positive trends below +2% (BU, HR, GR, PT). A similar scenario is depicted for employment rates in Innovative Manufacturing, where all 12 MS experience job losses between 2019-2020 (ranging from -0,43% in GR to -5,79% in ES) and then some rebounding between 2021-2021 (8 MS with losses ranging from -0,09% in HR to -3,73% in ES; 4 MS with recovery up to +2,47% in GR). For **Innovative KI(BS) SMEs** (Graphs 14 and 15), reduced losses and greater rates of recovery are shown by the data. For 2019-2020 variations in total numbers of SMEs, 8/12 MS experience reduced losses (no further than -3,28% in NL) while between 2020-2021 there is a strong rebound for 9 MS (up to solid +8,23% for PT) and only 3 MS KI(B)S still experiencing negative rates (HR, FR, RO). Variations in job totals for Innovative KI(B)S show very similar trends. The 2019-2020 variation shows 8 MS experiencing some positions' losses (from -0,57% for FI to -3,44% in GR), whereas the 2020-2021 variations only show 2 MS experiencing losses (RO at -3,00% and HR at -4,51%) while the other 10 show marked recovery rates (e.g. noticeable levels achieved by IT at +3,60%; BG at +3,37%; PL at +5,66%; GR at +6,40% and PT at +11,02%). For **Startups**, the most recent Annual Report on SME confirms the non-existence of complete and comparable data on the EU SME startup population (EC Report, 2022, p. 49). Nonetheless,

[7] For methodological clarifications on calculations of Innovative SMEs according to the SME Performance Review Data, check Annex 1.b.

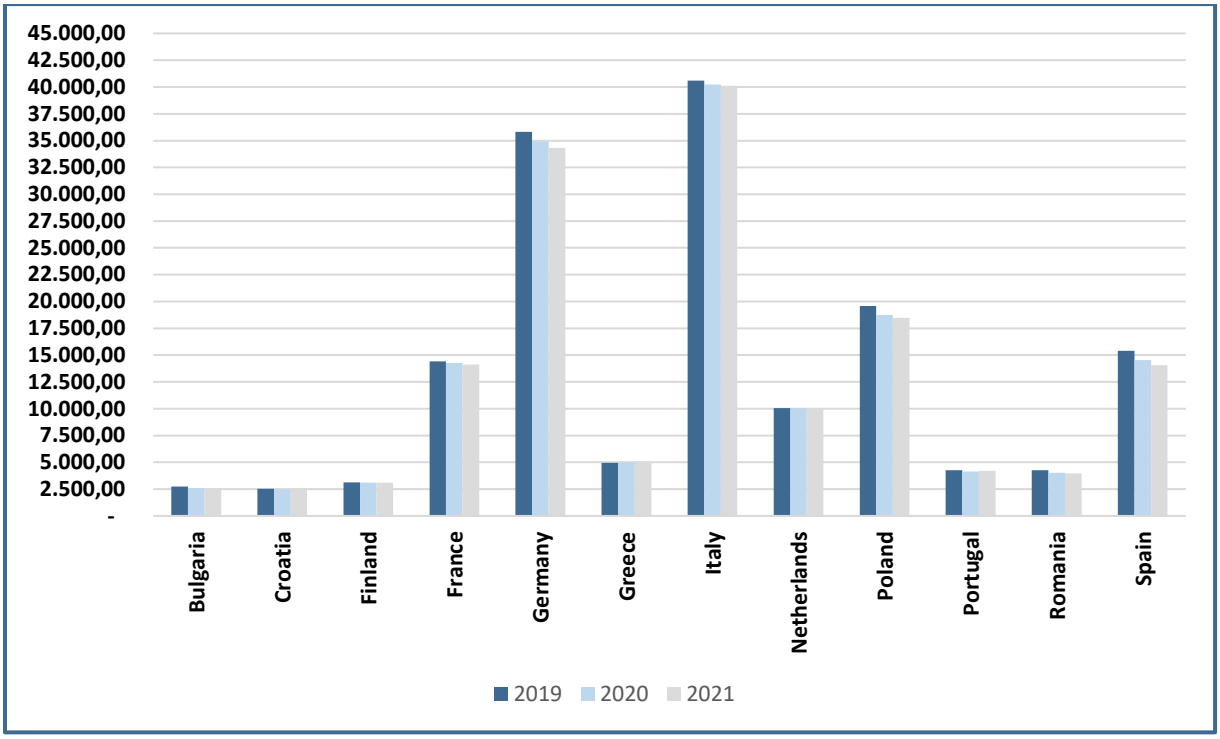
it still offers a photograph of the existing startup population at the end of 2021. The totals and averaged percentages have been isolated for the EU-12 sample in this study (see Table 8 below).



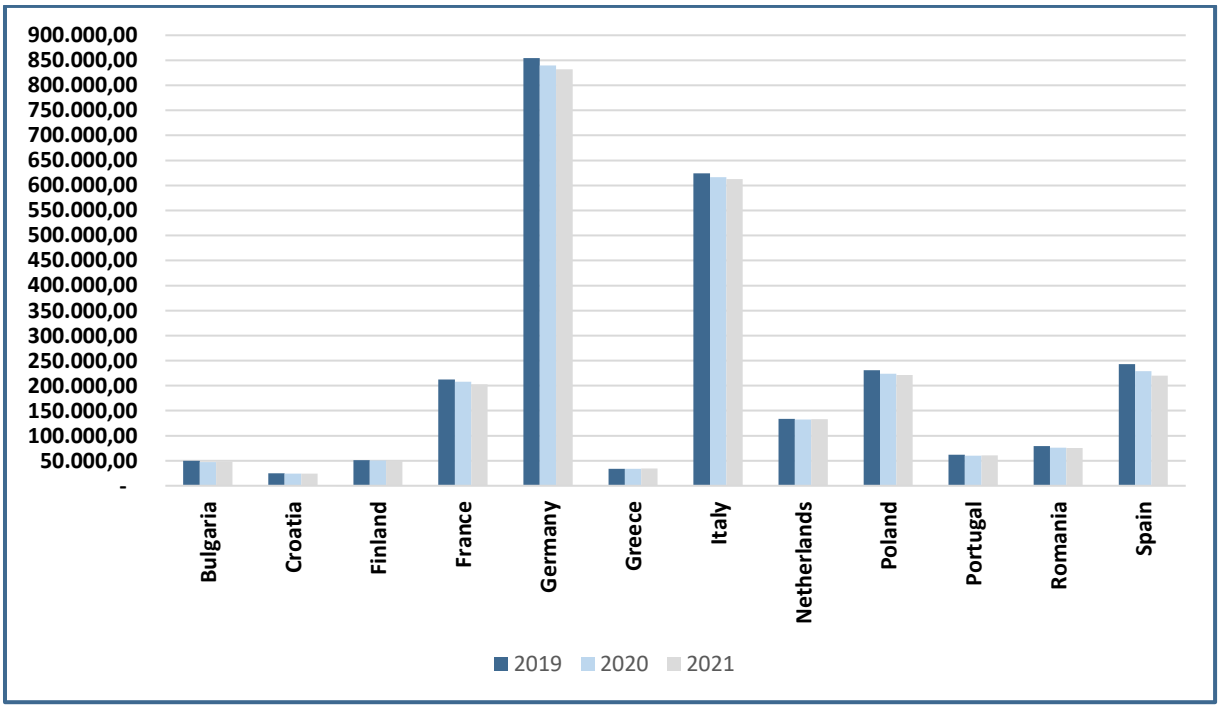
Graph 12. Variations in Total Numbers of Innovative Manufacturing SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021-2022)



Graph 13. Variations in total numbers of jobs in Innovative Manufacturing SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)



Graph 14. Variations in Total Numbers of Innovative KI(B)S SMEs between 2019-2021 (Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)



Graph 15. Variations in total numbers of jobs in Innovative KI(B)S SMEs between 2019-2021 (Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)

Country	% of EU-26 Startup population	Number of Startups in EU-26 in Crunchbase in December 2021
EU-26 (EU-27 excluding NL*)	100%	16.253
NL*	N/A	N/A
FI	2,6%	429
DE	20,6%	3353
ES	1,9%	2097
PT	2,5%	403
FR	15,9%	2587
HR	0,7%	115
IT	5,7%	925
GR	1.00%	163
PL	3,8%	615
BG	1,0%	166
RO	1,9%	313
** Dutch definition of Start-up in Crunchbase database provokes distortions in contrast to EU-26 countries and is thus excluded from calculations (Source: EC Report, 2022, p. 49)*		

Table 8. SME Startup population at the end of December 2021 (number of startups and % of EU-26 startup population, excluding NL) (Source: EC Report, 2022)

SME Testimonial: **REGISTRUL MIORITA SA (RO)**

Website: **http://www.registrulactionarilor.ro**

Registrul Miorita is a KI(B)S SME working in the field of business support services: setting up companies, implementing restructuring plans (mergers, splits) and selling companies. To deal with the *Containment measures*, they created conditions to switch employees to teleworking. But as a consequence of this *Workforce* solution, they faced a dilution of connections between employees, a decrease in the feeling of belonging to the company and a migration of staff to companies that offered higher salaries.

Registrul Miorita invested in *Digitalisation* solutions, mostly in software and financially accessible systems, without experiencing a real digital evolution. At the end of 2021, they started to analyse the cost/benefit relationship in migration to full online work, but the investment would be high and with no short-term return. There were no changes in the relationships with clients as communication continued to be made online and via telephone, with some face-to-face meetings to discuss specific projects. In terms of *Finance*, the SME turnover was maintained, with persisting activity such as the organisation of annual general meetings, the preparation of activity reports, the distribution of dividends, the dissolution of companies with financial difficulties and the sale of others due to the end of the mandate of the first generation of entrepreneurs. The outbreak of the pandemic and the transport blockade have also been causing European companies to relocate from Asia to Eastern Europe (notably in RO), which could have generated more business transactions for the company. According to this SME, the war in Ukraine has provoked a slowdown of this process, as companies do not want to relocate activity closer to a conflict zone. In terms of *European Diversity*, their activity is not influenced by geographical location, but by the maturity of the business environment. Currently, they need to increase the number of medium-sized clients, since most of their clients are small SMEs.

Registrul Miorita did not ask the government for rescue *Public assistance*. According to this SME, recovery and resilience plans have macro-objectives, and there is no in-depth information on how SMEs can benefit from support. In their opinion, the communication structure is not sufficiently efficient. They suggest that there should be a group of advisors in employers' associations, serving as vectors for communication with the business' environment.

***SME Testimonial*: R2M Solution France (FR)**

***Website*: https://www.r2msolution.com/**

RM2 is a SME headquartered in Italy but with independent branches in Spain, United Kingdom and France. They develop their work in R&I and commercialization of new products, mainly in the sustainability sector. This interview was made with the French branch.

When the *Containment* measures were implemented some of the SME projects, in particular those involving fieldwork, were delayed. Many commercial activities, such as exhibitions in fairs and communication activities were cancelled, postponed or turned online. Despite that, they managed to keep most of the activities running thanks to long-term projects.

In terms of *Workforce* solutions, most of the team was working remotely even before the pandemic, so the only change was the impossibility for the employees to get together. During the strictest lockdown period, when children were also home schooling, RM2 facilitated the working hours and objectives, so that parents could take care of their children during the day.

The *Digitalisation* solutions implemented by RM2 included marketing and communications online tools whose large-scale implementation they had to learn through trial and error. They even organized an annual scientific conference fully online with 600 attendants. This experience was considered a challenge but also a great success.

The SME was mostly affected in terms of *Finance* at the beginning of the pandemic but could return to usual level of revenues after few months. The decrease in activity was perceived in the sponsoring of innovative products and not so much in consultancy activities, as long-term projects were slightly delayed but not jeopardized by the pandemic. Although the shorter-term projects were impacted, they still managed to compensate the loss. For R2M no serious economic impact was observed, and the activity has been growing depending on business lines.

The *Ukrainian conflict* had no direct impact yet; however, it is expected that a gas crisis will accelerate the uptake of renewable energy and energy efficiency solutions, and this SME is already working on energy transition projects.

R2M did not make use of *Public Assistance* measures because it did not have to face financial difficulties. Regarding the potential benefits of NGEU/NRPP investments in FR the interviewees are not convinced that they have impact on their customer business. Most likely due to their remote working modality, no particular comments were registered regarding the effect of territorial *European diversity* on the business.

3.4 Tourism

The Tourism sector constitutes a **very broad industry** which necessarily requires a work of identification and classification of involved businesses. The sector definition for statistical and economic purposes is **understood as accommodation and food service activities**, namely "*the provision of short-stay accommodation for visitors and other travellers and the provision of complete meals and drinks fit for immediate consumption. The amount and type of supplementary services provided within this section can vary widely*." (United Nations, 2008). However, this sector also entails tour operators, wholesalers, attractions and similar activities and within this spirit the World Tourism Organization defines Tourism as "*the social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors (which may be either tourists or excursionists; residents or non-residents) and tourism has to do with their activities, some of which involve tourism expenditure* "(UNWTO, 2008).

Europe is one of the most sought tourist destinations and, according to the UNWTO (2022), five of the EU MS are among the world's top 10 destinations for tourists. In the EU, the tourism sector has great economic and employment potential. Before the pandemic, more than one in ten enterprises in the European non-financial business economy belonged to the tourism industries. According to recent statistics for tourism,. **the EU had about 1,8 million of SME, employing about 10 million people (EUROSTAT, 2022)**. In 2020, in the main summer months (the season with the highest demand), the number of nights spent in tourist accommodation in the EU was 779 million, compared to 1 531 million the previous year, i.e. demand decreased by about half (-49,1%). In 2019, domestic tourism represented 51.2% of total nights spent in tourist accommodation and international tourism 48,8%. In 2020, domestic tourism increased to 73% and international tourism decreased to 27%. Consequently, employment in the tourism sector followed the negative trend, according to Eurostat.

The results of this chapter section derive from the joint analysis of 16 contributions from the SLR (*Bera, et al., 2020; Casado-Aranda et al., 2021; Del Valle, 2020; European Commission, 2020, 2021; EUROSTAT 2021, 2022; HOTREC, 2021a,b; ILO, 2022; Rodrigues, et al., 2021; UNWTO, 2008, 2022; World Travel and Tourism Council, 2021; UN, 2008 Toptsidou, et al., 2021*) and of interviews with **HOTREC, Suomen Yrittäjät (FI) and CPME (FR).** These have helped defining that **tourism was indeed one of the most affected industries by the impact of the COVID-19 pandemic**. The sector includes a wide range of services and types of establishments, namely in the field of **hospitality (i.e., hotels, restaurants and cafes)**, the vast majority SMEs (about 90%), and affected by the pandemic in different ways. The hospitality sector is in principle regulated by EU provisions, but practical matters such as regulations, licensing and business rules (i.e., opening and closing hours) are decisions taken at national and even local/regional level. For example, in FR decisions are centralised but in ES it varied from region to region; for example, in Madrid, all establishments stayed open while in other regions they closed completely. There were also differences between the countries of northern Europe and those of southern Europe, according to the different confinement measures taken in each country. In contrast, while in PT, IT or ES there was a complete confinement during the first wave, in SE nothing closed. Moreover, not only regulations affected the businesses, but also consumer behaviour. The number of home deliveries soared, allowing some sectors to maintain their activity and stay open. However, the other forms of business were less fortunate. Again, in FR, hotels did not have to close but they were still

empty due to lack of travelling guests. Later on in the pandemic period, other establishments were already open but they had to change the format to keep the distance, and the organisation of work had to be adapted (e.g., hotels rules for cleaning the rooms), which also progressively became very important for the customers. And in the current period, even if social contact is not avoided anymore, there is still a changing trend in daily habits with a direct impact on non-leisure hospitality offers (e.g., not going to lunch anymore to a restaurant in working days). The tourism industry is one of the few sectors to already suffer from both the pandemic and the war in Ukraine. Close monitoring of its sector is essential to avoid unnecessary bankruptcies.

"Almost two years after the pandemic upended our lives and shook our industry in its foundation, **European hospitality is still the hardest hit**. We are talking about roughly 2 million businesses of all sizes – from large chains to SMEs and micro-enterprises: behind this number are millions of workers that are still facing incredible hardships. Our number one goal in 2022 and beyond will be to first and foremost ensure survival while remaining committed to our long-term goals" (HOTREC, 2021a).

From the combined analysis of the different areas relevant for the impacts of prolonged crisis and the stakeholder contributions, the most **relevant conclusions to be considered are**:

1. As elicited in the previous paragraphs, the tourism sector **was drastically affected by the pandemic of COVID-19**. With the adoption of the social distancing measures and restrictions on free circulation (both national and international), **the biggest fall in revenues for the sector ever recorded began**. As most of the companies in the sector are SMEs, and despite existing government support in some EU countries, **many have gone bankrupt and those who have survived face serious financial problems**. A very limited solution has been represented by adapting tourism offer to national/local destinations still accessible during restrictions, but this was most often a temporary and incomplete recovery solution. Furthermore, due to the seasonality of tourism activities and the insecurity of the restrictive measures, the employability of the sector, in itself already with exceptional characteristics (majority of workers under 35, part-time, seasonal jobs), has accompanied the crisis. In later stages, the sector has also been unable **to refill workforces due to disruptions in the seasonal workers' flow** (i.e., mobility restrictions, changing worker preferences, see 2.4.2 for more details)

In this context, in the *short-term*, **the sector's recovery primarily involves guaranteeing the safety provided to tourists and freedom of movement.** The efforts to ensure harmonization and broad implementation of the vaccination certificates, for example, was key to allow for tourism to be maintained. However, for the *long-term*, **the sector needs to be rethought**, and find new ways **to ensure stable and competent workforce**, for example by considering specific favourable conditions for workers of these sectors that come from outside the EU. Even if the legislation exists there is still the need to refine several practical conditions that allow for a quick integration of workers, such as tempestive issue of visa or social security numbers). Several interviewed stakeholders report that the lack of professionals is higher and rising in 2022. Many migrants went back to their countries or decided to work elsewhere during the pandemic, and it is now difficult to attract new professionals, especially in touristic countries with low wages, such as reported by RO. Lack of human resources' availability has meant that for micro-sized and SMEs there has been a much increased effort in the hiring process.

In addition, some have had to review their processes or adapt their markets as a result. For example, many restaurant owners are still looking for employees and cannot meet the demand (CPME interview).

2. There is a very **important distinction between leisure hospitality**, which is recovering well in 2022 and will possibly rise its profits above the ones achieved in 2019, **and the non-leisure and business hospitality** which is not recovering due to the changes in behaviours, where either for economic or safety reasons, people restrain from going to cafes, eating in restaurants in daily life as before. Much of the State support measures for SMEs in this sector has ended already but it is not yet known how the pandemic will evolve in the Winter to come and the war in Ukraine is worsening the capability of SMEs to be able to cover fixed costs.

In the *short-term*, the Member States **need to ensure continued support** in terms of worker protection, payment of fixed costs, especially energy and rent, and the continuation of the VAT decrease, namely through the National Recovery and Resilience Plans for hotel, restaurant and catering (HORECA) sector and micro-SMEs. In the *medium- long-term,* it is **essential to improve the conditions for accessing funds under NGEU**. According to the stakeholders interviewed, SMEs cannot access EU funds, nor do they know how to do it and it is still the large companies that benefit most from this support. Better communication, principles that favour small businesses and low bureaucracy procedures are to be implemented in public procurement and other support measures. In order for all economic actors, to fully benefit from the recovery plan (in particular for small and medium companies), it is necessary that the latter be known, easily accessible, fast, accessible and adapted to SMEs (CPME interview).

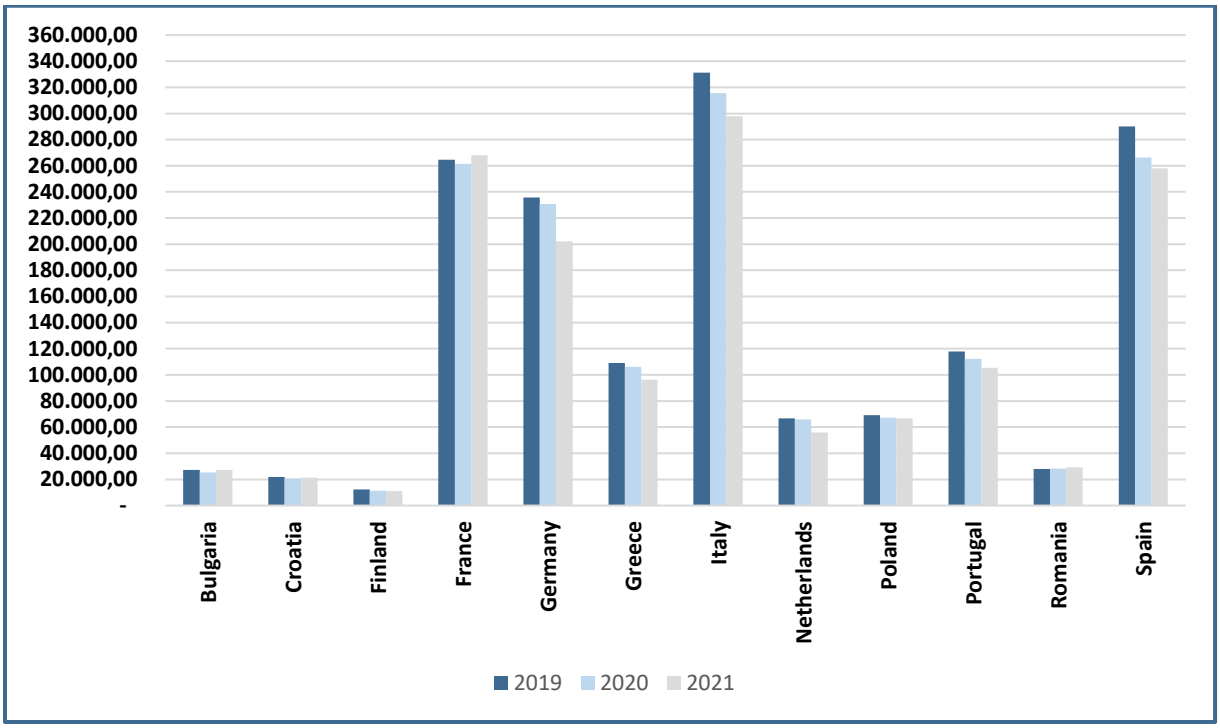
3. The pandemic has **accelerated digitalisation**, resulting in contactless solutions for ticketing, payment for transport services and virtual tourism, leading to a more sustainable and environmentally friendly approach. The digitalisation of processes is an opportunity to **promote destinations** while reassuring travellers with clear-cut communications that they are **safe while traveling.** Also, the increased use of digital media and higher need for access to information (e.g. pandemic developments, restrictions, country situations, precautions, among others) has reinforced the use of new technologies, digitalisation, ICT and data sharing to improve the performance of tourism enterprises (i.e. digital products to keep destinations in mind, offering virtual visits and inspiration for future holidays).

However, to this aim it is necessary to engage investments in such areas and, in the *short-term*, it is essential to create support measures that provide **funding lines for the digitalisation** of the sector, as well as **prioritising vocational and educational training on the twin transition for SMEs workers** at national and regional level. In the long-term additional measures should be taken at the level of training and capacity-building, focusing on digital and sustainable skills, in particular to promote rural and remote areas, as well as new destinations. Additionally, a ***long-term*** **EU strategic plan for the tourism sector** is needed, especially aimed at accelerating the transition towards a resilient and more sustainable business model and adapting to the "new costumer" derived from the pandemic period.

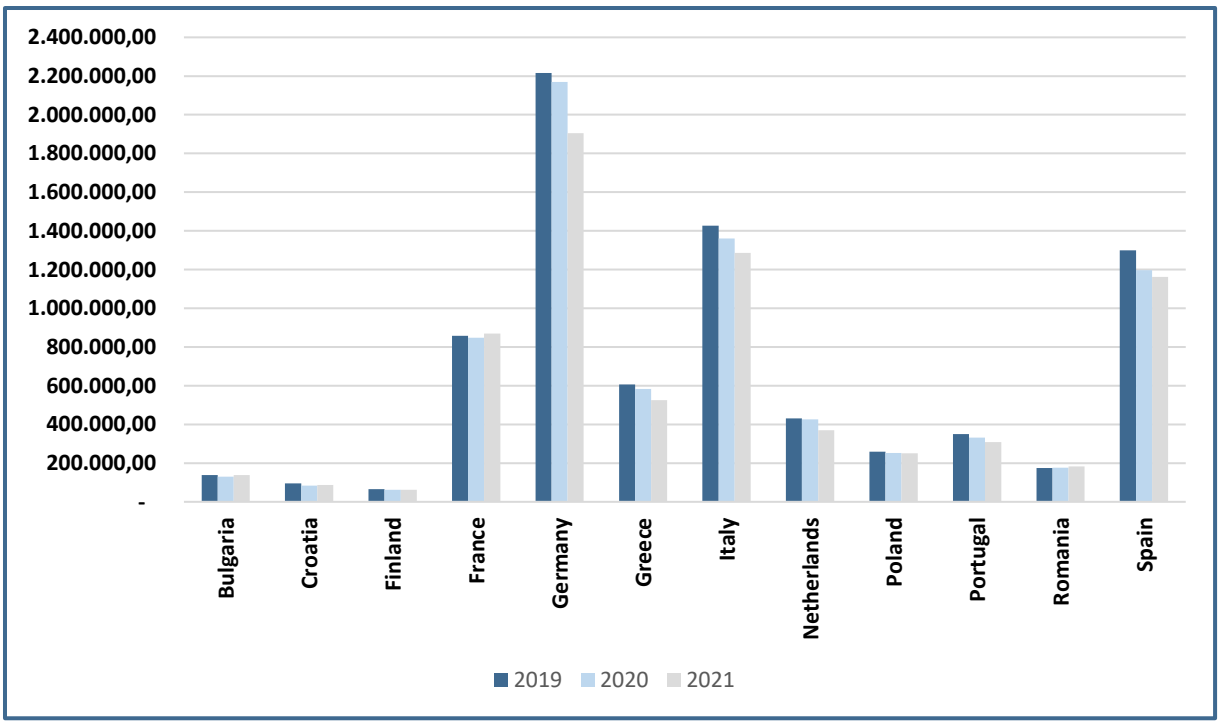
Funding support schemes have played a vital role to help many businesses survive the pandemic **but need to be continued and boosted** with ease-of-access for SMEs at the core. Initiatives to promote eco-friendly infrastructures and buildings, nurture employees and help develop their skills will be essential. There are short term and long-term challenges to address, but HOTREC believes that with the right approach, a mix of policies and respect for both the fast-movers and the more reluctant, it will be possible to achieve positive changes over the next decade (HOTREC, 2021b).

4. Different **national attitudes towards mobility restrictions, high public health requirements and even the pacing of vaccination campaigns** have further hindered adaptation responses of companies in the sector. In addition, **European Diversity** had a strong effect for countries with higher dependence on services and international tourism (i.e. ES) and on Urban/Rural or Island areas (i.e. Mainland vs. Islands in GR)

5. Updated estimations prepared for this study strongly confirm the collateral damage of the COVID-19 pandemic to the Tourism industry and its SMEs ecosystem (Graphs 16 and 17). Variations considering the total number of SMEs during the first year of the pandemic (2019-2020) hold negative values for 11/12 countries in EU-12 sample (Graph 15). Thus, all countries experienced SME losses. The only positive value is held by RO (+1,47%), while all other MS experienced losses with increasing degrees of severity (e.g. FR and NL below 2%, PT and IT below 5%, BG at -6,52% and ES with a noticeable -8,22%). By the following year (variation 2020-2021), only 4 countries rebound towards a partial recovery (i.e. BG, HR, FR, RO) while others persist in negative rates, with the presence of exceptionally negative records (i.e. PT at – 6,05%; DE at -12,34%; NL at -15,06%). Very similar rates are shown by variations in available job positions for Tourism SMEs (Graph 16), with collateral damage even higher than the one relative to company numbers. Casting aside the exception of RO (+1,43%), all other MS experience heavy job losses in-between a range of -1,12 to -11,54% for job positions. In the variation between 2020-2021, only 4 MS manage to perform some recovery in tourism jobs for SMEs (BG, HR, FR, RO), while all other maintain negative rates with some exceptional records (i.e. DE: -12,20%; GR: -10,05%; IT: -5,46%; NL: -13,19%).



Graph 16. Variations in total numbers of Tourism SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)



Graph 17. Variations in total numbers of jobs in Tourism SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)

SME Testimonial: **Anonymous Tourist Resort (BG)**

Sub-Activity: **Accommodation**

This interview is based upon the Bulgarian experience of a tourist resort facility by the sea with rooms for accommodation. The SME preferred anonymity for the company in this Testimonial series. As expected, the very contact-intensive nature of tourism has greatly affected its business operations.

The *Containment Measures* were felt at all levels of business activities. Restrictions of people's mobility conditioned massive cancelling of reservations. Mandatory guidelines influenced the disposition and use of business spaces, conditioning many extra costs for providing sanitary equipment, body-check temperature devices and even disinfection measures in kitchen equipment. All guests were also subject to stringent individual measures (e.g. physical distancing, mandatory face-masks, hand disinfection).

The effects were also strongly felt at *Workforce* level, as the company could afford to send to remote working only a few employees (e.g. admin staff). It was thus forced to a reduction of on-the-ground staff by applying layoffs and reductions of hours or salaries. However, it eventually managed to retain all personnel.

Such conditions also derived in strong *Finance* issues for the SME. In 2020, the company closed with only 30% of their regular income basis while witnessing the definitive closure of many companion businesses on the seaside. Due to the cancelled foreign visits, during the pandemic the company turned on guests from the local market. Although Bulgarian citizens are said to traditionally prefer the Greek sea for their holidays, the pandemic conditioned a return of nationals to their own seaside. However, this was still in reduced numbers due to citizens' fear of contagion and a tendency to prefer the country's isolated rural areas. Lastly, the pandemic also conditioned a shortening of the tourist seasons. While it could previously last from May/June until September/October, the last couple of years were shortened to only July/August. At the time of interview, this was expected to replicate even during 2022's reservations recovery, alongside experiencing tangible effects due to the military crisis. Ukrainian, Russian, Belarus and Moldavian citizens are all potentially affected in the Bulgarian foreign tourist market. In addition, increases in prices for energy and chain deliveries have a tangible effect on prices. As reported, due to the whole situation of the past 2 years, for a 4-people family a full vacation of 10 days would go from approx. 500 euros in 2019 to 1.000 euros nowadays.

Meanwhile, the SME has also taken a leap forward in basic and intermediate *Digitalisation* practices by intensively increasing its online presence (e.g. social media and website) and implementing some software and platforms for online reservations. Some digital devices were also implemented in physical spaces, such as button devices for contact-free room service.

Through the crisis the company naturally resorted to rescue *Public Assistance* measures, making sound use of fiscal relief and employment support policies. It also benefited from complementary initiatives such as the government-induced reduction of prices for spots in the seaside (e.g. chair, sun umbrella) and the leverage on certain prices for products (e.g. bread). While appreciating the financial help, the company also expressed concern on future application to recovery funding and the NRRP due to multiple administrative burdens, heavy documentary requirements & procedures and associated deadlines. When inquired on strategic positioning in their national and territorial context for *European diversity*, the SME claimed all of Bulgaria to be a competitive destination for tourism markets in Central and Eastern Europe, alongside claiming the potential of their regional location for seaside Tourism.

SME Testimonial: **Anonymous Restaurant (DE)**

Sub-Activity: **catering & food services**

According to the interviewee, the hospitality sector was one of the sectors that suffered the most with the *Containment* measures applied during the pandemic. As their work is focused on company and care catering, their largest business field almost shut down completely during the first months.

Regarding the *Workforce*, since they work on the touristic sector and the activities to be performed require physical presence, it was not possible to switch to remote working. Nevertheless, the organization was capable to reorganize the employees to the needed functions, and with the support of the *Public Assistance* measures, it was not necessary to dismiss any staff. The SME took advantage of the government's subsidy of 60% for employees' salary and they provided an additional contribution of 20%, so the employees received 80% of their usual salary during the period they kept from working due to the confinement measures.

All the pandemic context caused a strong impact in terms of *Financial* issues, and the turnover of this SME went from 588M€ in 2019 to 394M€ in 2020, representing a decrease of 33%. Adding to this impact, the *Ukrainian conflict* brought a price increase in several products that the organization usually purchases from Ukrainian suppliers, besides the general increase in energy cost.

During the pandemic, this SME implemented at least some *Digitalisation* solutions. For example, they developed an application that delivered food directly to the customers' offices, and that allowed the company to continue working. But since the restrictions were lifted, customers returned to physical catering in the restaurant, thus leading the establishment to stop employing the digital tool. Most likely due to their local-market base, the company did not express a particular feedback in terms of territorial differences in *European diversity*.

3.5 Agro-Food

The unified approach to the Agro-Food dimension is part of a modern industrial trend **considering the whole supply chain of food generation and processing rather than the individual productive sections**. While the two industrial activities hold some production-specific implications, it is also evident that the activities show strong linkages conditioning their joint economic development. Thus, the Food & Agriculture Sector (*Agro-Food* or *Agri-Food*) represents an integrated industry shaped by all those economic actors in the field of agriculture/farming plus the Food & Drink processing activities (EC ATI Report, 2021b). Allegedly, some definitions are at times more comprehensive and consider the entire industrial food ecosystem which extends to the logistical distribution, retailing service and food marketing (i.e., ILO Brief, 2020). However, due to the multi-sectoral nature of the study**, the operational definition is hereby restricted to agricultural/livestock and food manufacturing activities**. On the one side, **agriculture** constitutes a sizable portion of the EU economy. In 2016, the EU accounted for **10.3 million agricultural holdings, the majority being family-run small-farming businesses of less than 5 hectares**. In 2019, investments in agriculture totalled 56 billion euros. In addition, it is worth mentioning that this industrial sector is characterised by **a high level of horizontal cooperation**. Around 41.000 farmers' organisations are estimated to be active across the EU, the majority of which in the legal form of cooperatives (EP Report, 2021). An even stronger relevance is encountered in the **Food & Drink Processing** sector. In 2020, it was estimated that the EU sub-industry was capable of generating 1.2 trillion euros spread across 291.000 companies, of which 99.2% are represented by SMEs (FoodDrinkEurope, 2020).

The SLR results for the Agro-Food sector are based upon 20 contributions across the two sub-sectors (*Apostolopoulos et al., 2021; Bakalis et al., 2020; Barman et al., 2021; Benedek et al., 2021; EIT, 2021a, 2021b ; EC ATI, 2020; EP, 2021; FoodDrink Europe, 2021, 2022a,b,c; Galanakis et al., 2021; Geopa-Copa and EFFAt, 2020; ILO, 2020, 2021; Meuwissen et al., 2021; OECD, 2020; Rowan & Galanakis, 2020*) while specific insights for this sector were provided by **COPA-COGECA and FoodDrinkEurope**. Both the specialised literature and the dedicated stakeholders confirm that due to food being an imperative necessity for survival, **levels of agro-food demand were comparatively less affected than those of other goods or services**. However, there have nonetheless been **strong challenges for the sector both for employers and workers**. During the acute stage of the pandemic, examples included overcoming the social distancing restrictions (i.e. workers' mobility restrictions in agriculture or addressing outbreak risks in food-processing plants) or the adjustment to a new structure of demand (i.e. closure of catering and restaurants; changing home consumption habits) (OECD, 2020). Furthermore, **the sector is now heavily impacted by the economic impact of the Ukrainian conflict**, both in terms of increased business costs for utilities and supply chain interruptions for raw materials (i.e. grains). From the analysis of the different areas relevant for the impacts of prolonged crisis on SMEs from the Agro-Food sector, further elicited through the stakeholder contributions, the most **relevant conclusions to be considered by SMEs and organisations representing them at EU and national level are**:

1. The "essential" nature of food generation and processing ensured that **Agro-Food businesses (AGRO + F&D) could avoid direct business closures**, **although important limitations and increased business costs were also derived** from the consequences of the pandemic. For AGRO SMEs, while the

production environment is always located in large spaces or open environments, the mobility restrictions of the workforce were the most relevant issue. For F&D SMEs, physical distancing limitations were similar to other typologies of manufacturing establishments, but additional risk for virus spread was granted by production conditions such as refrigerated and damp environments for treating and preservation of products.

COPA COGECA's conclusion for the first year of the pandemic was **that the labour market for agriculture at EU level still lacked harmonisation.** However, seasonal workers in the EU currently stand at almost 1 million workers and the sector is highly reliant on cross-border mobility for activities such as planting and harvesting. To this end, a larger alliance between the employers' side of COPA-COGECA with other EU-level stakeholders (GEOPACOPA with European Federation of Trade Unions – Food, Agriculture, Tourism) brought to the signature of **a joint declaration on the EU movement of workers through corridors due to the pandemic, shortage of workers and lack of financial support** (GEOPA-COPA & EFFAt, 2020).

2. Additional pandemic side impacts affected all Agro-Food SMEs. While food demand is naturally stable across time and increases with raises in population, the pandemic strongly conditioned customer consumption behaviours. The prevented out-of-home food consuming (due to stay-at-home policies) coupled with increased remote working tendencies pushed for the decline and price impact of certain high-quality products most often employed in the restauration & catering sector (i.e., flowers, wines, fish, high-quality meat cuts, olive oil and dairy) while on the other side products for home-cooking, ready-made food and products available for domestic delivery experienced a sharp increase. In addition, despite the hard evidence showing no sign of COVID-19 transmission via food, the pandemic has nonetheless risen sensitivity to disease risks in food management including more extensive requirements on pre-packaging and alongside growing concerns for healthier diets and immunity-boosting nutrition.

3. Furthermore, **the containment measures and the consumption patterns affected the structure of the Agro-Food value chain both for supply and demand**. On the receiving end, SMEs experience frequent disruptions to the supply chain during the first waves in terms of intermediate goods (i.e. seeds, cultivation equipment, food packaging) and interrelated delays in transport and logistics (with particular emphasis on maritime transport and the delay in shipping containers). On the demand side, traditional chains associated to distributors for outdoor-food consuming majorly reduced demand due to the containment measures of the virus. In some cases, new business-to-customer sales channels were established through the help of digitalisation processes (ICT-related marketing and e-commerce). However, while the entire value chain has showed resilience and adaptive capacity in the face of ensuing COVID-19 waves**, the new disruptive impacts of the Ukrainian conflict** bring additional increases in prices for transport and logistics, as well as further limiting access to certain raw materials in the Agri-Food sector (i.e., forages, grains, sunflower seeds).

The **supply chain of the Agro-Food sector for SMEs** shows some similarities to other forms of manufacturing, but **it also deals with the essential nature of products for human nourishment and the increased urgency of trade in perishable products**. Due to the prolonged period of crisis, future EC/MS action in the *short term* should steadily **focus on identifying further weaknesses, choke points and vulnerabilities in value chains** began through the pandemic and further diversified by the Ukrainian conflict**. The final objective should be to enable alternative business channels** both in

national and international markets, without forgetting **a strong business & marketing support for SMEs incurring in persistent disruptions and changing consumer preferences**. In the *long-term*, present and future challenges to food security (i.e., climate change) should further **push policymakers to consider a "food-systems" approach dedicated to the whole Agro-Food value chain** rather than individual sub-sectors.

4. Agro-Food SME workforces were mostly affected by cross-border mobility issues during the first pandemic wave and from regular labour supply shortages and lower productivity due to outbreak prevention and physical distancing. Notwithstanding, a direct consequence of the pandemic has been a rising interest in further mechanisation (i.e., agricultural machinery) and intermediate (i.e., original e-commerce platforms, new mobile apps for delivery, platforms for hiring agricultural seasonal workers) or even advanced **digitalisation processes for the sector** (i.e., automatisation and traceability in food supply-chains, smart farming, precision livestock farming, smart food processing and packaging). However, these last ones are usually patchier in their application. Indeed, there still exist **important barriers to technological adaptation for workers** in a sector permeated by an ageing workforce, conservative attitudes and limited human, skills and capital resources (particularly for AGRO SMEs, and both at employers' and employees' level) which will require specific support from clusters and other R&I actors. Allegedly, the EU has witnessed a recent increase in innovative SMEs taking advantage of niche markets and technological advancements for production and sale of agro-food products. Nonetheless, this is counterbalanced by a highly regulated business environment where innovation is at times hampered by strong health-safety requirements and cross-national legislative barriers.

While in the *short-term* **immediate digitalisation support may constitute an important feature of EU/MS structural support for Agro-Food SMEs to endure the prolonged crisis** (i.e. blockchain technology in supply chains, increased automatisation, ICT marketing and e-sales support), *long-term* **structural interventions will be required to fully transition the integrated sector in the modern digital economy**. Traditional supporting programmes for digitalisation or further mechanisation of productive processes will have to be accompanied by **specialised training for workers capable of bridging the gap between innovative activities and traditional farming and F&D manufacturing**. On the agro-food R&I side, there is **a concrete need to invest more in health and food security with a keen eye towards environmental sustainability** (i.e. decarbonisation efforts such as minimisation of plastic packaging or support to decrease emissions). However, **it will be essential to reinforce the SME side of innovation implementation** through the training and re-skilling of field advisors and innovation intermediaries assisting businesses in the sector. This will also include legal business support to address the strong European regulatory requirements of the agro-food industry.

5. In terms of **financial consequences of the pandemic crisis**, while the beginning of the pandemic marked a neat value decrease with respect to 2019 for both AGRI farms (-7,9%) and F&D establishments (-9% in Q2), the sector showed a great capacity of resilience through a rebounding effect during subsequent COVID-19 waves. Beyond an initial economic shock including fall of exports, delivery delays, order cancellations and even episodes of panic-buying/stockpiling, agro-food companies adapted through a series of additional business costs (i.e., applying stricter food hygiene & safety measures; temporary adaptation of the supply chain through diversification, including national/local products; additional utility costs for packaging or animal feed). For AGRO SMEs, liquidity problems have

persisted throughout the acute stage of the pandemic and the farms have often relied on the mobilisation of AGRO cooperatives supporting small farms in multiple business fields (i.e., farm-gate for agricultural prices; recruitment of temporary workers). F&D manufacturing proved instead to be one of the most resilient industries in terms of production, but the sub-sector was even further affected from the lack of demand in the food-service channel. Notwithstanding, **tangible rates of economic recovery for 2022 have again been curtailed by the economic effects of the Ukrainian crisis**, conditioning newly increased business costs for production and acquisition/access to raw materials in the supply chain. According to COPA-COGECA data, over the past few months some farmers have been obliged to reduce or halt production altogether amid rising utility costs (i.e., feeds, energy, fertilisers) and increased hardship into accessing feeds, grains or even obtaining agricultural machinery.

Over the subject of Ukraine, FoodDrink Europe considers appropriate that the EC has taken decisive action with its range of emergency measures for farmers and consumers today, but **it must be ensured that companies in the food and drink manufacturing sector, with its many SMEs, can also have access to the appropriate assistance**, where needed, so that they can continue to supply. **All parts of the supply chain**, from farmer and processor to wholesaler, retailer and trader, **need support to mitigate the impact of rising energy costs and curb continued inflationary pressures**. Certain SMEs in the sector are also particularly vulnerable to bankruptcy and job losses and will require support. According to them, the Temporary Crisis Framework for State Aid should provide at least some kind of relief for the companies (FoodDrink Europe, 2022a,b,c).

6. Compared to other industry sectors, **the Agro-food regulatory and funding framework holds a higher number of competences between the EU and the MS due to the Common Agricultural Policy** (CAP) **which condition the nature and scope of public relief measures**. On the regulatory side, EU-level coordination favoured the preservation of single market functionality through ad-hoc measures (i.e. *Green Lanes* for products circulation, COVID-19 related guidelines for the agri-food workforce and seasonal workers, temporary flexibility on regulations for agro-food trade to reduce logistical burden). However, the deployment of financial crisis assistance at CAP level was strongly limited by MS negotiation complexity, as it was only capable of mobilising 80 million euros in total for 2020-2021. As a result, all but two MS (DE, ES) were forced to develop dedicated assistance to agro-food companies estimating a total of 63.9 billion euros across EU-25 for the same period. The most employed measures have been employment support and the provision of public loans or grants in order to sustain business activity.

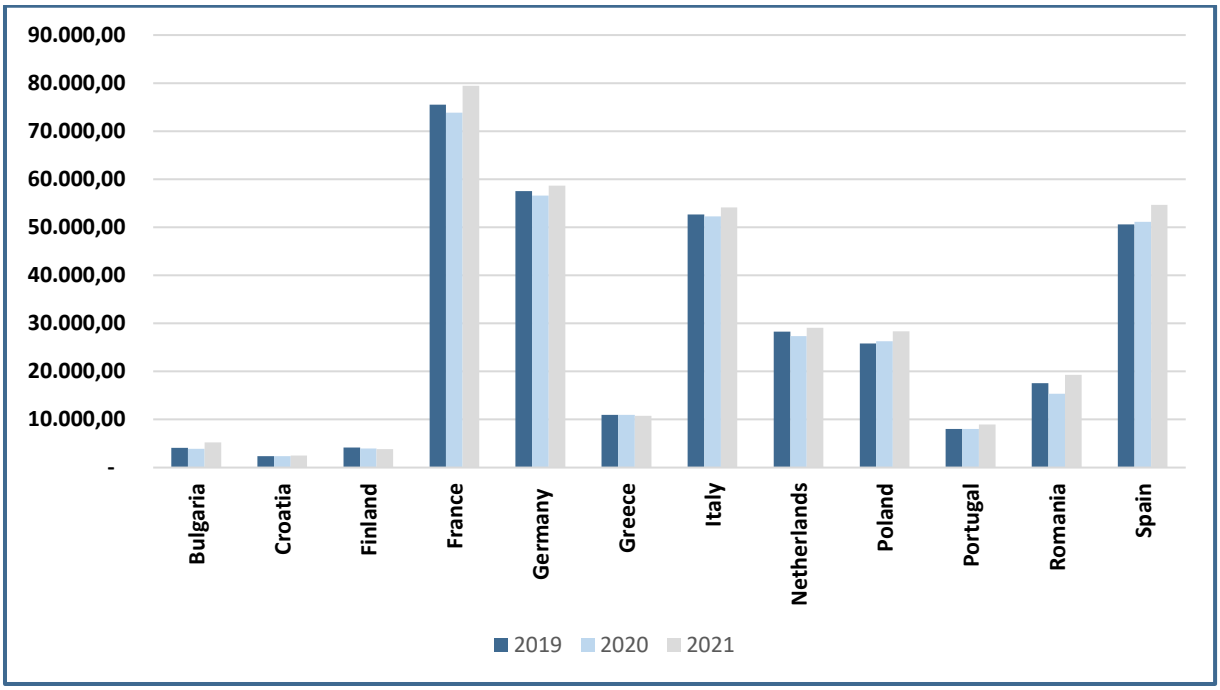
At EU level, the extraordinary circumstances of the pandemic have clearly outlined **the limitations of existing agreements on EU public policies such as the CAP with respect to crisis management and SME assistance**. At *long-term* level, European institutions and MS will be called **to consider reform of the agreements in the face of present and future common challenges to food security**, alongside **ensuring adequate outreaches for all small and medium farms / F&D manufacturing companies**.

7. While the integrated European agro-food sector has experienced a substantial growth since 2015, pressing concerns remain regarding the modernisation and environmental sustainability of the sector. In addition, **the AGRO sub-sector is most affected by European diversity in its management, structure and environmental conditions**. For example, it has been showed that MS more dependent upon seasonal workers (e.g. DE, FR, IT, ES) have had their labour agricultural markets most affected

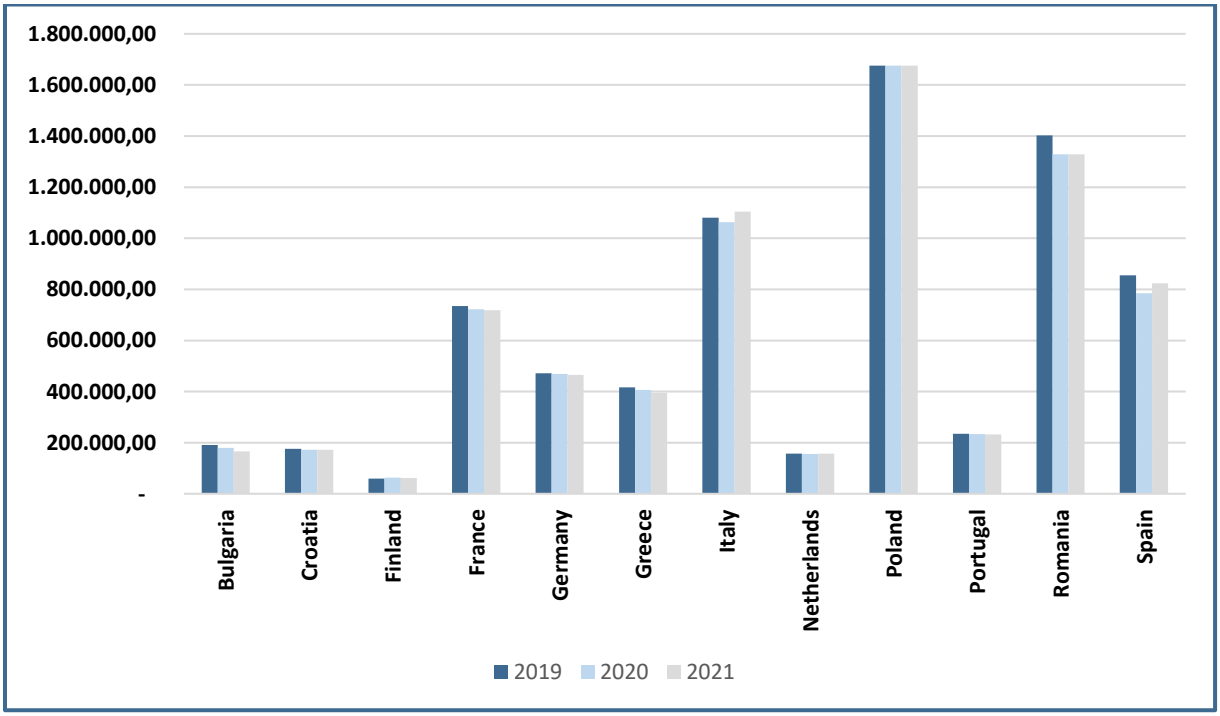
by pandemic disruptions. Similarly, farm structure across the EU varies according to national traditions. While Southern and Western Europe employ more family farm-based models, Eastern Europe is more influenced by socialist cooperatives and previously state-owned large farms structures. AGRO production is also influenced by the climate and seasonal timing of farming systems (i.e. tillage, seeding, planting seasons), and the occurrence of different lockdowns according to COVID-19 waves could determine outcomes at national level. Lastly, at regional level the AGRO sector is strongly connected to core-periphery structures and to differentiation between rural/urban areas.

8. On their account, the quantitative analyses on AGRO SMEs EU-12 performance had to overcome **the lack of available data on SMEs from the Agricultural sector, also mentioned by other sources** (i.e., EP Report, 2021). However, it should still be reminded that the overwhelming majority (±99%) of AGRO companies are SMEs. Thus, real data and estimates on the whole agricultural industry (in terms of industrial output and total employment) were collected from EUROSTAT for the EU-12 sample. For the whole **Agricultural industry**, Graph 18 illustrates variations in Agricultural Outputs (both crop and animal/livestock) across the EU-12 sample for the same reference period (2019-2021) and calculated through production value at basic price. In the 2019-2020 variation, 7 MS register production losses (BG, DE, FR, IT, NL, RO, FI. Range from -0,77% in IT up to -12,69% for RO) while the remaining 5 experience small growth (the top performer being PL:+1,84%). The following year, the new variation (2020-2021) shows strong recovery levels in production for 10 out of 12 countries. Positive sub-groups include a satisfactory recovery in-between +1 and +10% (DE, ES, FR, HR, IT, NL, PL) and 3 MS with extremely positive growth (PT: +11,22%; RO: +25,68%; BG: +33,31%). The only negative scoring exceptions are GR (-1,96%) and FI (-4,79%). However, it is by looking at employees' variations in the agricultural industry that one can notice the stronger effects of the pandemic disruptions (Graph 19). The advent of COVID-19 is registered through the 2019-2020 variation, and to this all MS register the loss of jobs in agriculture (the variations are included between a -0,42% for DE and a -8,21% for ES / -14,80% for PL). The following year (variation 2020-2021), there is a general scenario of job recovery with some notable conversions in tendencies (i.e., ES up to +6,34%; IT from -1,69% for 2019-2020 up to +4,41% in 2020-2021) and some persisting losses (i.e. BG, DE, GR, PT, RO).

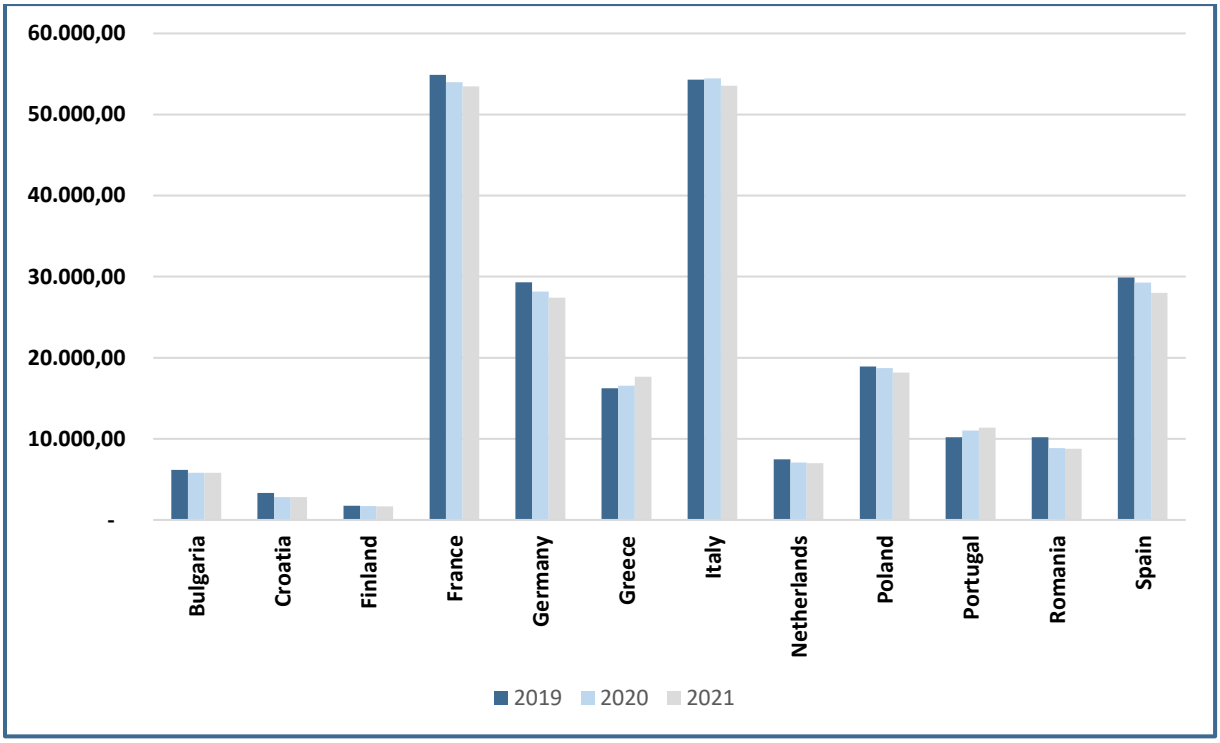
On a similar outlook, asymmetric shocks also invested the **Food & Drink processing SMEs**. Over the total number of companies (Graph 20), the 2019-2020 variation returns the image of 11/12 MS suffering SME losses (range from a -0,75%% in PL up to noticeable -5,92% in RO, only exception is GR at +0,32%). The following year, the estimation based on the variation 2020-2021 registers prolonged SME losses for 8 MS (range from –0,12% in IT up to -3,44% in ES). A similar trend emerges in employment rates inside Food & Drink processing SMEs (Graph 21). Under this variable, between 2019-2020 11/12 MS experience job losses in F&D SMEs (ranging from -1,08% in NL down to -5,82% in ES, only positive exception is GR at +1,49%). The following year (2020-2021 variation), a general scenario of resilience heads towards stabilisation of job offers with 6 MS still experiencing lighter losses (FI, FR, DE, IT, PL, ES range from -0,58% for IT up to -3,78% for ES) and the remaining headed for increases (from +0,20% in RO up to +3,45% in GR).



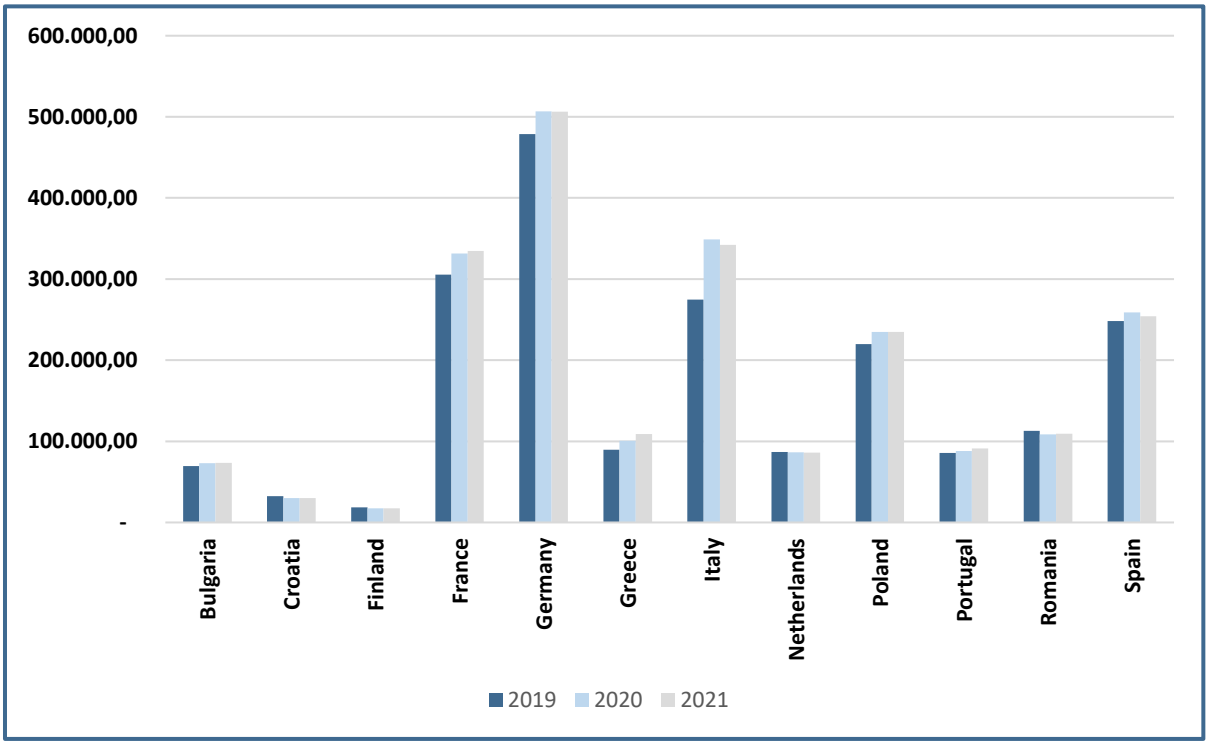
Graph 18. Variation in Agricultural Output between 2019-2021 (production value at basic price. It includes both crop and animal outputs) (Source: EUROSTAT real data and estimations)



*Graph 19. Variation in Total employment levels for the whole Agricultural industry (both large and SME companies) between 2019-2021 (Source: EUROSTAT real data and estimations) * Data for PL are unvaried for the 3 years in EUROSTAT source * Data for HR are unvaried between 2020 and 2021 in EUROSTAT source*



Graph 20. Variations in total numbers of Food & Drink processing SMEs between 2019-2021 (Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)



Graph 21. Variations in total numbers of jobs in Food & Drink processing SMEs between 2019-2021 (Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)

SME Testimonial: **Anonymous Sales Company (NL)**

Sub-Activity: **Sale of seeds and pot plants**

This testimonial is based on an interview made to a CEO of a SME in the agro-food sector, engaged in importing germinated seeds from Australia. As the business of green pot plants is mostly carried online, the *Containment measures* did not have much influence on general business activity.

In terms of *Workforce* solutions, as multiple work task is developed from a home office, the staff only implemented distance measures between colleagues. With regard to *Digitalisation* solutions, they chose to employ a greater number of online meetings and virtual office solutions, but this did not prove to be an inconvenience to their business development.

This company did not see their *Finance* situation much impacted by the pandemic. There was not a significant change on the average sales, although the prices increased due to reduced transport options and increased prices for logistics. They did not experience specific financial difficulties nor the need to resort to support during or after the pandemic. In relation to the Ukrainian conflict, the SME has already felt the effects, namely in price increases in the grain trade, which is also one of the company's side activities. Despite this, the turnover of the company has not been affected significantly and geographical location of production had no direct impact on business because the seedlings come from both Norfolk Island and Lord Howe Island in Australia.

This company did not feel the need to resort to *Public Assistance* measures financed by national and European programs and did not feel to be receiving either direct or indirect benefits of NGEU/NRRP investments. In addition, they claimed to not hold specific information about these procedures.

When inquired about differences in their regional context by virtue of *European diversity*, the SME explained that such differences have a minor effect on their business because the sales office is mainly engaged in importing germinated seeds and germination of the seeds takes place in the company's own nurseries. After its growth, they are sold mainly to offices, restaurants and household, thus not affectively significantly the operational choice of doing business in NL.

SME Testimonial: **Goodio (FI)**

Website: **https://goodiochocolate.com/**

Goodio is an agro-food startup SME specialised in the production and sale of vegan craft chocolate. Located in Helsinki, its production is sustained by an organic and fair supply chain, an attractive box design and a mix of Nordic flavours which are sold through individual bars and bundle packages of premium specialty chocolate.

The *Containment Measures* have greatly impacted upon the demand and production of the business. The company is well aware of their location in the markets of gift purchases connected to social gatherings (i.e. visit to friends), the impulse-buy driver of chocolate lovers and the travel-related sales channels (i.e. airport sales, hotels). As a consequence to the clear shift in consumer behaviour through mobility restrictions, Goodio experienced an almost complete paralysis of business.

Economic hardships was such that in terms of SME *Workforce*, the company was compelled to temporarily lay off a majority of staff. Luckily, it was reported that many of them were able to successfully relocate in other companies/fields despite the pandemic. Indeed, the impact of COVID-19 on Goodio's *Finance* strongly levelled out the fast growth expected from such a startup business. The

company has been therefore forced to cut down on costs and resources while applying for some government-sponsored relief packages. However, the SME managed to endure the storm and it is now experiencing a return of sales to the pre-pandemic pace. In this regard, Goodio also underlined the reactivation of mobility and the travel-related retail as one of the main drivers behind recovery. Despite this, awareness of the prolonged continuity in crisis (pandemic and Ukrainian conflict) has currently led them to notice an unfavourable business environment for many of their customers (i.e. increase of energy prices and cost of raw materials) besides directly experiencing increased costs in logistics and packaging materials.

Meanwhile, in terms of *Digitalisation* the company noticed that the pandemic pushed consumer behaviour towards food online sales. It has therefore willingly chosen to develop their own e-commerce channels, which partially helped during the severe stage of the pandemic but upon which Goodio is now planning to continue investing in.

On the matter of *Public Assistance*, Goodio stated to have applied to small national monetary allowances from rescue packages, but when inquired about the effectiveness of recovery measures they claimed to not be currently receiving any direct/indirect benefits from the investments while actively requesting a possibility to apply to some kind of funding.

Lastly, when inquired about their geographical context in terms of *European diversity*, Goodio admitted that Finnish geographical location in the northern corner of Europe and next to Russia was not a great benefit for international market expansion. This was even more so in the face of the current increases in logistics costs which matter significantly for their businesses growth plans.

3.6 Retail

According to the International Standard Industrial Classification (ISIC), *"retail trade is defined as the re-sale (sale without transformation) of new and used goods to the general public, for personal or household consumption or utilisation"*(OECD, 2022). Retail trade includes the following ISIC Rev. 3 Groups in Division 52 (except repair of personal and household goods):

- non-specialised retail trade in stores;
- retail sale of food, beverages and tobacco in specialised stores;
- other retail trade of new goods in specialised stores;
- retail sale of second-hand goods in stores;
- retail trade not in stores.

The International Standard Industrial Classification (ISIC) Rev. 3, states that goods sold in the retail trade sector are limited to so-called consumer goods. Thus, retail trade data record details of transactions in consumer goods between customers and sellers. This sector generates a large part of total employment and private final consumption expenditure, which represents around 60% of total GDP of OECD Member countries. Therefore, retail trade statistics are a very useful indicator of short-term developments for the whole economy. For European Union member countries, Eurostat is currently implementing regulations for the compilation of retail trade statistics within the context of the Council Regulation Concerning Short-term Statistics. This Regulation specifies that the scope of retail trade indicators should include the activities listed in Division 52 of NACE Rev. 1, the equivalent European Union classification of ISIC Rev. 3" (ibid.). The overall impact of retailing is large, due to a number of factors. The retail sector is an **economic heavyweight**: on average across OECD economies, about 1 in 12 workers are employed in retail, and the sector accounts for almost 5% of GDP. Moreover, it mainly serves final demand, and thus occupies an **important position in value chains** both as a provider to households and as an outlet for upstream sectors. It also often complements activities in other hard-hit sectors, e.g. tourism. In addition, the retail sector is very **labour intensive**, so any disruptions have disproportionate employment consequences. The sector also relies on low-wage and part-time, on-call and gig workers which, depending on the national systems, might not always be covered by traditional social protection measures. It is likely that this could further strengthen the social consequences of the crisis in this sector (OECD, 2020).

This analysis is based upon the results of the SLR review (based upon 12 contributions: *Beckers, et al., 2021; Untaru, et al., 2021; Blasetti, 2020; OECD, 2020b; Beckers, et al., 2021; EuroCommerce, 2021; ECDC, 2022; Grant, et al., 2021; Brandtner et al., 2021; EuroCommerce, 2021 Hodbod, et al., 2021; Eurostat, 2022*) and of interview contributions with **EUROCOMMERCE, ESEE (GR) and CCP (PT)**. Altogether, they show that despite the broad scope of the retail industry (in terms of the diversity of products and the different types of trade)**, the pandemic has had a strong impact on the sector as a whole**. However, it is important to **distinguish the commercial behaviour of SMEs vs. large enterprises, of essential vs. non-essential stores, and possibly the most impactful factor, the online-commerce of companies vs traditional commercial enterprises**. Considering the social distancing measures, the restrictions of movement and the closure of physical stores in some activities, there was **a considerable increase in online purchasing**, leaving the **"face-to-face" trade with a significative loss of revenue**, even more serious in the trade of non-essential products. Specifically, food retailers

were faced with an unprecedented challenge of delivering an essential service to consumers, while preserving the safety of employees and customers under difficult circumstances. Food catering and SMEs in the area of hospitality were closed everywhere and for longer, thus having a major disruption. Non-food services were extremely affected, as they were forced to close for long periods and had serious limitations due to curfews and hour limitations. As a graphical example, the time sequence below outlines the implementation of business hours limitations for "non-essential shops" across the EU-12 sample employed by this study. Altogether, the visualisation allows to witness the presence of all kinds of disruptions to businesses activities in this category during the two acute years of the pandemic (ECDC, 2022)[8] (Graph 22 below).

Graph 22. Application of business hours limitations to "non-essential shops" across the EU-12 sample. Time/application sequence between March 2020 and January 2022. (Source: adapted from "ECDC Data on country response measures to COVID-19" dataset.)

From the analysis of the different areas relevant for the impacts of prolonged crisis on SMEs from the retail sector, further elicited through the stakeholder contributions, the most **relevant conclusions to be considered by SMEs and organisations representing them at EU and national level are**:

1. The situation was especially **difficult for SMEs**, especially those companies with less liquidity and less access to finance. SMEs were able to receive support through various measures, including compensation of labour costs, tax deferral mechanisms and State guaranteed loans. Taking into account a selection of examples from the words of a consulted stakeholder, "In PT, the Government has implemented several measures to support demand; in IT, the government announced an export pact to undertake a "re-branding" campaign for sectors most hardly hit by the crisis including innovative sectors and integrated supply chains; In DE, the Government supported local authorities, subsidies for electric cars, investment in national transport infrastructure, revitalization of city centers, and others." (EuroCommerce, 2021). Nevertheless, in practice, access to schemes has been slow or difficult for

[8] Note that the time sequence produced by the ECDC has condensed all kinds of policy-imposed limitations from mandatory all-day closures during the 1st wave down to curfew-based closures and generical business hours limitation. It should also be underlined that the individual definitions of "non-essential activities" vary from country to country.

companies, especially the smaller ones. For example, in DE, a problem faced by big SMEs with loans, until the government made changes, was that only companies with an annual turnover under 500 million euros a year were eligible for this aid. In other countries, e.g. LU, the direct subsidies were too low to have a material impact. Some countries e.g. the NL, reported SMEs returning the subsidies, as the cost of accountants to provide the required accounts were more expensive than the money received. In others, like FI, SMEs were not sure they wanted to take on more debt, as the length of the crisis was uncertain.

2. However, **the Ukrainian war is causing further challenges** and high inflation is causing consumers to spend less, while manufacturers demand higher prices. SMEs, who also have much less negotiating leverage, face a double squeeze while still trying to recover from COVID lockdowns and loss of turnover and footfall. In non-food, 30% or more of SME city centre retailers face insolvency. Higher costs for raw materials are also an effect, along with direct disruption of supplies of cereals, oilseeds and cooking oils, as well as paper products and packaging. SMEs may suffer more disruption than larger retailers and wholesalers where supplies are tight. In what concerns the impact of energy prices on retailers and wholesalers, again this will lower the SMEs negotiating leverage with energy suppliers and in most Member States there is still no State support for energy bills. The increase in interest rates and inflation will affect consumers which, as a consequence, will directly affect commerce. The small commerce will for sure feel the effects of lower availability of money within the internal market.

In the *short-term* there is **the need for initiatives of the Member States that will specifically help the sector to recover and prepare for future challenges**, along with reducing red tape, particularly as nearly a quarter of the total Recovery & Resilience Facility expenditure/budget will indirectly hold measures relevant to SMEs. In the *long-term* support should **focus on investing in the triple transformation** (digital, sustainability, skills/talent) and help in addressing the new challenge of skyrocketing energy prices and inflation. In this sense**, SMEs need direct help with energy costs** and in access to alternative energy sources and increasing energy efficiency of their premises.

3. For what concerns the **workforce**, overall measures for the labour market were adopted to help the employed and the sub-employed. So, the sector took advantage of the job retention policy and was able to support around 68 million jobs across Europe.

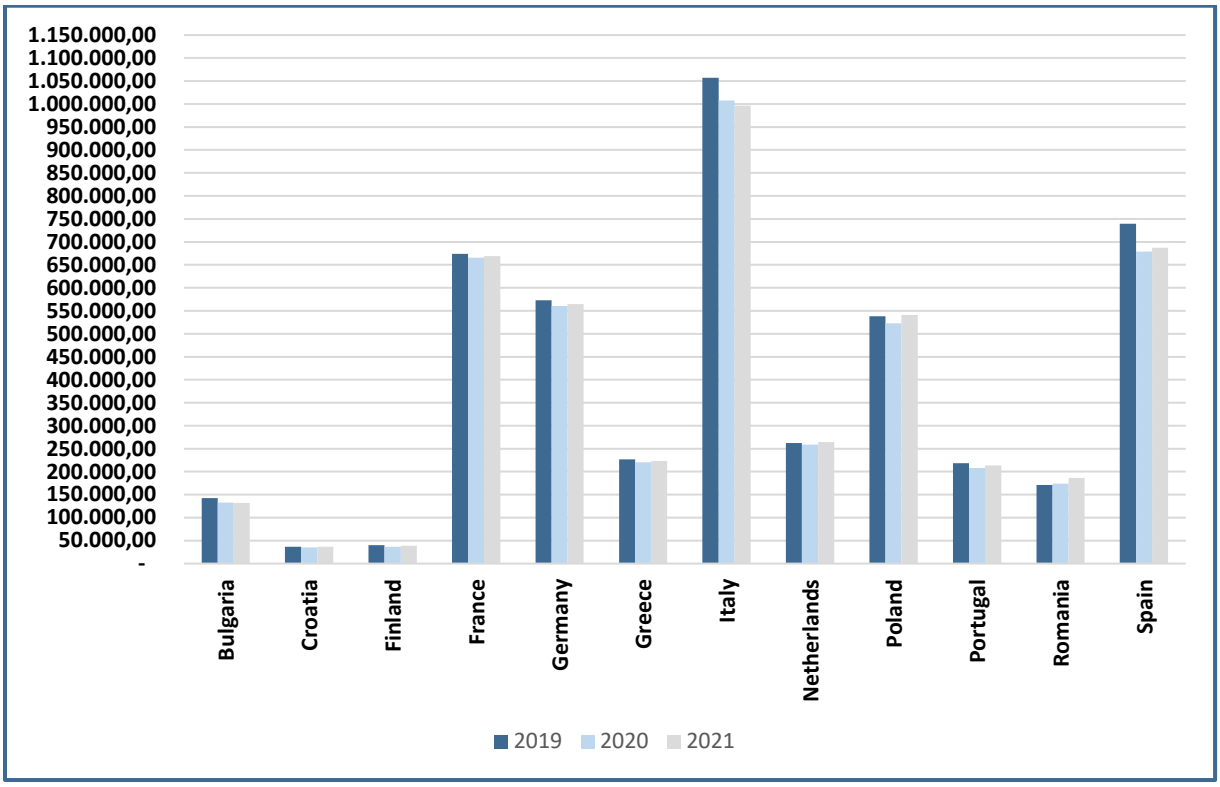
According to EuroCommerce-provided examples, "in BG, up to 200 million levs were used for non-interest consumer loans up to 4500 levs for employees on unpaid leave with a maximum repayment term of 5 years. In DE, temporary unemployment measures were extended until the end of 2021. IT was extended the wage subsidies for 18 weeks in combination with a continued ban on layoffs for companies benefitting from the subsidies. PL granted SMEs employment subsidies for jobs in the form of standstill and reduced working time". (EuroCommerce, 2021).

4. While this is very positive, to keep competitive and adapted to the habits and behaviours of consumers, the **SMEs had and still have to adjust their practices to this new reality**, starting with the adoption of digital solutions. The e-commerce was an area where a huge difference was brought by the pandemic. FR and the NL were some of the countries that followed these trends the most, compared to the rest of Europe. The evolution of consumer behaviour followed the following main steps: *a.* a decline in consumer confidence, leading to an increase in savings and projections of important purchases remaining low (remains around -15 points); *b.* Consumers looking to buy more sustainable and local

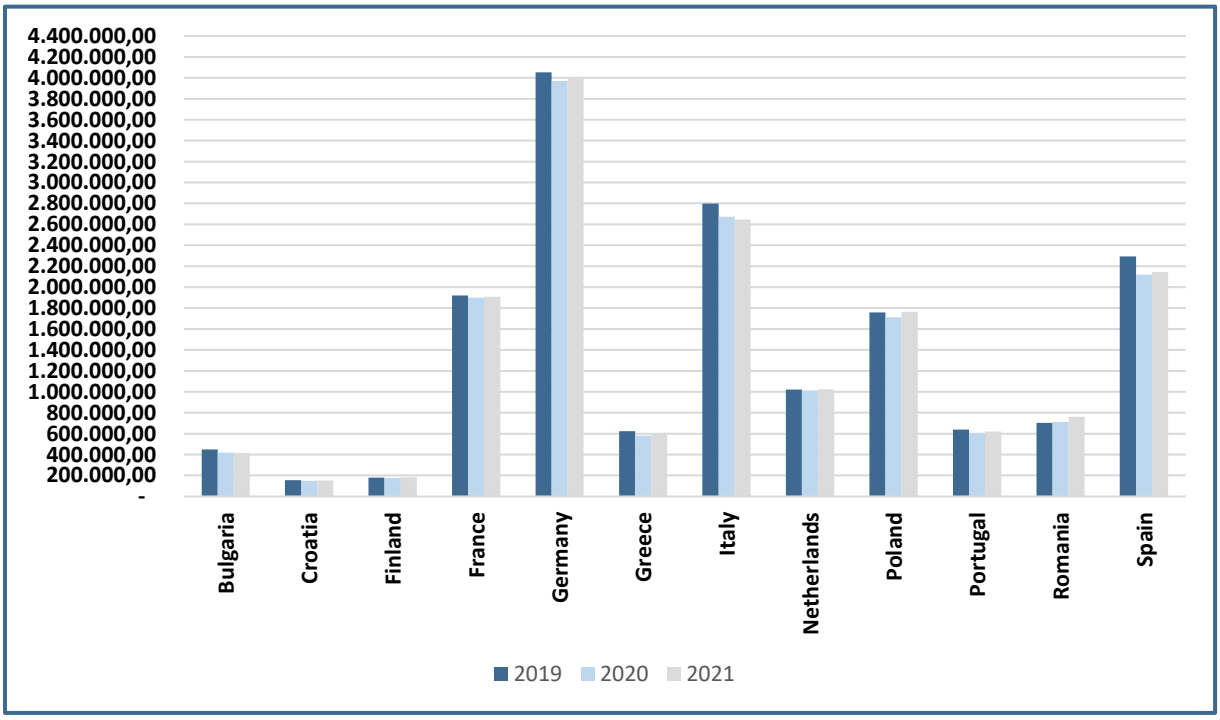
products; *c.* the share of consumers shopping online increased to 64%, with more than 80% amongst that group being less than 35 years old.

However, **80% of SMEs still have no online presence**. In the *short-term*, **it is necessary to establish a Europe-wide dedicated fund for the digitalisation of SMEs and micro companies**. For example. one of the consulted stakeholders (EuroCommerce) proposes a dedicated budget to support awareness raising, advisory services in establishing an online presence to reach their customer base and support to entrepreneurs. On the *long-term*, SMEs in this sector also need skills that make them capable to implement and accompany the twin transition. The **Pact for Skills Retail Ecosystem** that is being developed by EuroCommerce is a good example of the measures that need to be taken, by **highlighting the key role played by retailers and wholesalers in skilling, upskilling and re-skilling Europe's workforce** and communicate their policy priorities to EU, national and regional/local authorities. At the EU-level, the social partners in retail and wholesale – EuroCommerce and UNI Europa – signed a joint statement calling upon the EC to help co-fund the up- and reskilling of the workforce of retail and wholesale SMEs. Unfortunately, few funds have been disbursed through the ESF and the RRF to this sector so far.

5. In terms of European diversity**, the quantitative analyses performed in this study also show for this industry sector a mixed scenario for SMEs and their employees**. In terms of total numbers of companies, the variation between 2019-2020 (Graph 23) holds 11 MS registering losses of small and medium businesses (range from -1,20% in FI down to -8,11% in ES, only positive exception is RO at +1,47%). Despite this, the following year the estimated variation for 2020-2021 shows some rebounding, with reduced losses for 2 MS (BG, IT) and new businesses adding up for all other countries (ranging from +0,53% for FR up to +7,25,77% for RO). An equal scenario is present in job position estimations (Graph 24). For 2019-2020, estimated variations still indicate 11 MS losing jobs in retail (from as little as -0,61% in FL down to -7,66% in ES, positive exception is still RO at +1,38%). However, the following year (2020-2021) registers stronger rebounding in acquired jobs for the sector. Excluding the negative exceptions of BU (-0,95%) and IT (-1,01%), all other countries register varying degree of retail jobs recovery (ranging from +0,52% in FR up to a sound +6,77% in RO).



Graph 23. Variations in total numbers of Retail SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)



Graph 24. Variations in total numbers of jobs in Retail SMEs between 2019-2021
(Sources: 2019 real data from EUROSTAT; 2020-2021 estimates from EC SME Performance Review, 2021)

SME Testimonial: **Manteigaria Silva, Lda. (PT)**

Website: **www.manteigariasilva.pt**

Manteigaria Silva is an SME located in Lisbon. As a local delicacies retailer it is visited daily by both local residents and tourists through its marketing strategy of being recommended by several travel guides. The *Containment measures* caused a tangible reduction in sales totals, but the bigger impact was felt due to the reduction in tourism volume. With respect to *Workforce,* since their activity involves public attendance, they never implemented remote work. This SME reduced working hours, but still managed to retain the entire staff.

In terms of *Finance*, in 2020 Manteigaria Silva had a 40% decrease in sales compared to 2019. This was a direct consequence of the sharp decrease in tourism. Nevertheless, the company has a very solid financial situation, so they were able to support the economic shock derived from the pandemic and maintain fixed costs. The bigger consequence was the significant reduction of liquidity. The Ukrainian conflict brought a constant rise in raw materials and fuel prices that is nowadays also affecting their commercial activity.

To combat pandemic restrictions to mobility and physical contact, the SME has implemented *Digitalisation* solutions as the creation of an e-commerce platform and the intensification of digital marketing (i.e. use of social networks). To further adapt their business model to the digital transition, the SME is also planning to create a more effective stock management system.

Regarding *Public assistance*, Manteigaria Silva fully took advantage of all the employment benefits and even other rescue support lines for COVID-19. The easing of mobility restriction and the consequential re-establishment of live trade activity and tourism has returned the capacity to move forward with recovery. When evaluating the public assistance, the interviewees generally indicated that the measures should be more transparent and accessible.

Inquired about their national and territorial context in *European diversity*, they think that being in the Portuguese capital is an added value because their store and their products can be known by a large number of national and foreign customers.

SME Testimonial: **Mecanocamp (ES)**

Website: **http://www.mecanocamp.es/**

Mecanocamp is a specialised retail SME with more than 50 years of experience in the field of agricultural & gardening equipment/machinery. It is located in the Lleida rural province of Catalonia, ES. The variety of sold products spans through gardening & agro-forest tools/machines, garden furniture and equipment, cleaning products and even big special machinery such as golf carts or tractors. It also holds maintenance, repairing and renting services for its customers.

The SME was mostly affected by the *Containment Measures* in terms of customer affluence to its shop. Nonetheless, this has affected the continuity of remote business sales through phone or e-commerce orders. While customers' profile has not greatly changed, the company has noticed a shifting in consumer behaviour with the sale increase of certain products (mostly gardening equipment, which could also be due to stay-at-home policies) and the reduction of others when compared to 2019.

The main solutions when dealing with the SME *Workforce* have included recurrence to public employment support for a majority of workers and to remote work for back-office and remote sales.

Meanwhile, at *Finance* level, the company employed a series of good practices for ensuring cost reductions while also renegotiating both contracts and credit conditions, thus allowing to maintain solvency and to facilitate, extend or fraction required payments. The company thus did not make any further use of rescue packages at *Public assistance* level. Meanwhile, for the recovery package and the Spanish NRRP the SME considered at least some of the public investment measures (and the procedures to access the funds) as sufficiently adequate for its target. However, it has instead expressed concern towards the Ukrainian crisis as a worsening factor for price variations in raw materials (already began during the second year of the pandemic) and as a clear disruptor for chain supply and stock of inventory.

As a consequence to social distancing, beyond already existing remote sales Mecanocamp decided to adopt basic *Digitalisation* and to reinforce its presence on social media (mostly on Instagram and Facebook). It used these channels to keep customers informed of restrictions and to partially manage affluence to the shop. The company now wants to maintain such level of direct communication due to positive feedback relationship with customers.

Mecanocamp did not perceive any particular hardship related to territorial context in *European Diversity*, most likely due to ideal location in an acknowledged rural and agricultural area of the country.

4. Discussion and Policy Recommendations

4.1 "Winning" and "Losing" pandemic adaptation factors: a comparative view across sectors

The new international challenges of the 21st century have showed that **our globalised world is headed towards new potential crises requesting bold management and innovative solutions**. Both the pandemic and the Ukrainian crisis have suggested that their nature may well be shifting **from a traditional financial or industry-sector focus to new productivity-related disruptions**. This matter becomes all the more important when considering future evolutions in climate change, demography and digital transition in Europe. As a result, it is becoming increasingly difficult to isolate and intervene on a well-defined industry sector. Rather, there is **a strong urgency in elaborating new methodologies and recommendations for an insightful policymaking capable of assisting businesses truly in need**. As shown from the above discussion on financial conditions and public assistance (see 2.4.3 and 2.4.5), it will simply become unsustainable for governments to keep injecting equity into all industry sectors alike.

So far, this study has been able to produce two fundamental outcomes. **First, it has generated a framework of analysis for identifying impacts** of the prolonged crisis on SMEs and corresponding "winning" and "losing" adaptation factors that make companies more or less likely to endure the challenges (Chapter 2). Next, it has exploited the framework to perform **impact analyses of SMEs across six industries** (Chapter 3). As a final contribution to the needs of policymaking, the study now seeks to apply the insights obtained from the research **to understand "winning" and "losing" adaptation factors of specific companies in a variety of industry sectors and against prolonged productivity crises** (Chapter section 4.1)**.** In addition, the reignition of the economic crisis through the **Russian invasion of Ukraine** (and the corresponding rise in international tensions in Europe) **has compelled the research to at least identify continuity in impact factors between the two crises** (Chapter section 4.2). For the sake of the discussion, it is important to immediately acknowledge the research limitations before illustrating the benefits of the enquiry. In-depth exploration of the six sectors has revealed that **it is highly difficult to pinpoint all "winning" and "losing" SMEs in a specific industry sector**.

Since the beginning of the pandemic, it has become clear that **the advent of COVID-19 has changed the playing field for European SMEs in remarkable ways**. Derived from the **disruptions brought by the containment measures and the already surging increases in economic business costs** (i.e. rise of inflation, energy, utilities, interest rates, adaptation to virus restriction measures), at the global level SMEs have faced drops in customer demand an revenue, negative impacts on cash flow and capital availability, supply chain alterations (availability and price of raw materials) and even challenges relative to workforce stability (i.e. job contracts) and suitability (i.e. job skills for digital business adaptation). As a result, **financial hardships** - associated to liquidity shortages, payment delays, increased demand for finance and even a risk for increased debt - have become tangible realities for a majority of SMEs.

Notwithstanding, the specialised literature has been capable of detecting **diversified trends in productivity factors and customers' demand.** For example, changing consuming behaviour induced by the pandemic stimulated innovation in on-line retail, audio/video/ICT/household equipment, online

cultural and entertainment services. Despite potential disruptions in the supply chain of complex technologies manufacturing (i.e., computer, electronic and optical products), strong uptake in demand would make the sub-sector recovery faster in medium-long term during the acute stage of the pandemic (Benedetti Fasil et al., 2021).

A broader variety of factors thus come into play when understanding the success or failure of an SME's crisis-adaptation strategy. In the specific case of the pandemic, strong determinants for company performance were: ***a.*** **the typology of production process / services provided** (whether physical or digital/intangible in nature), **b. the typology of business sale model** (e.g. reliance on physical store vs. e-commerce), **c. the "essential" nature of the product/service provided** (i.e., agro-food production vs. live leisure activities) and **d. the reliance on the supply chain** of broader industries (i.e., whether a standalone business vs. a specialist supplier/end-receiver). **All of these make it likely that important SME exceptions can exist inside broader sectors following a specific tendency**.

Beyond the already mentioned experience of knowledge-based manufacturing, other examples include the disastrous records of flower industries (heavily reliant on the decoration of physical events) – a sub-sector of the overall better performing agro-food industry - or the exceptional success of certain startups (for instance, in the digital health industry) amidst financial uncertainty for smaller companies.

Furthermore, **other context-based factors can also intervene in assessing ultimate SME performance** (i.e., workforce skills and availability, pre-crisis levels of financial stability, awareness /capacity /resources to digitalise, fiscal capacity and public assistance availability in the national context, European structural differences at international and regional level. See 2.4 for the full list and Table 9 below for a summary of argument).

Table 9. Pandemic-related and complementary individual factors for assessing SME performance (Source: authors' elaboration)

Pandemic-related factors for SME performance (*For all SMEs*):	**Complementary performance factors relative to challenge areas (*For individual SMEs. Selection of Examples*)**
• **Typology of production process / services provided** (whether physical or digital/intangible in nature) • **Typology of business sale model** (e.g., reliance on physical store vs. e-commerce) • **"Essential" nature of the product/service provided** (i.e., agro-food production vs. live leisure activities) • **Reliance on the supply chain of broader industries** (i.e., whether a standalone business vs. a specialist supplier/end-receiver).	• **Workforce:** SME workforce skills and availability • **Financial:** pre-crisis levels of SME liquidity • **Digitalisation:** awareness/capacity/resources to digitalise in the SME • **Level of Public Assistance:** fiscal capacity of the national context to support SMEs / SME capacity in exploitation • **European Diversity:** structural differences at international and regional level (i.e. levels of digitalisation, infrastructure, economy structure surrounding SME, etc.)

The accuracy of the study results is reinforced by qualitative and quantitative arguments based on the scientific findings of a systematic literature review (SLR) alongside an in-depth fieldwork carried upon an EU-12 sample of countries (BG, HR, FI, FR, DE, GR, IT, NL, PL, PT, RO, ES). Furthermore, **evidence of consistent outcomes is also detected in similar research identified during the final study development**. In fact, a research conducted in parallel to this study has identified similar determinants for SME success in surviving the crisis (*innovative capacities, financial constraint, institutional connectedness, country governance, European diversity in terms of old vs. new MS*. See Chit et al., 2022).

To provide further rationale to these arguments, throughout the rest of this section we develop **a tentative ranking of the six SME sectors selected for the research, which is hereby presented in terms of specific impacts of the COVID-19 crisis. The ranking order goes from most to least affected industries (1. Tourism, 2. Retail, 3. Manufacturing, 4. Construction, 5. Agro-Food, 6. R&I)**.

Ranking justification is completed by **a selection of the main "winning" and "losing" adaptation factors that marked the crisis management experience of companies in each of the sectors**[9]. Following this, for each sector we provide **a narrative of the main drivers and obstacles to SME performance during the acute stage of the pandemic** encountered throughout our framework analysis[10].

As a final disclaimer, it is important to stress that **a conceptual classification of "winners" and "losers" does not come to the detriment of those who best adapted to the scenario**. One quick look at the general tendencies in SME data performances for the six sectors (see 3.1 to 3.6) is enough to notice the overall landscape of economic crisis experienced at European and global level, though subject to different degrees of gravity. However, **the study attempts a qualitative interpretation based on relative impact severity** and upheld through weighted observations from the SLR, SME performance data and contributions from stakeholders[11].

[9] Each adaptation factor in the following table is associated to one or more (interconnected) pandemic challenge areas*: (1) Containment measures, (2) Workforce, (3) Finance, (4) Digitalisation, (5) Public Assistance, (6) European Diversity*

[10] These include broad trends/causes/opportunities/threats affecting the industry at the time of pandemic outbreak. For extended reference to the impacts onto SMEs and the arguments listed below, check each individual sector analysis (3.1 to 3.6) and the sources therein referenced.

[11] It is worth noting that during the interviewing process while some organisations fully agreed with our ranking (i.e. OECD interview) some other EU-level and national SME associations depicted slightly different scenarios in their own context. For example, CONFAPI (IT) claimed the manufacturing and construction SMEs to have been potentially more affected. SMEUnited believed in the primacy ranking of Tourism and Retail but considered the latter to have been even more affected than the former. Thus, the ranking proposed by the authors constitutes a balanced average across results from the scientific literature and interview with the stakeholders.

Table 10. Selection of "Winning" and "Losing" Adaptation Factors generally experienced across the SME sectors in the ranking (Source: authors' elaboration).

Selection of main SMEs "Winning" Adaptation Factors	Selection of main SME "Losing" Adaptation Factors
1. Tourism	
• **Adaptation of tourism offer to national/local destinations** still accessible during restrictions (although only available as a temporary and incomplete recovery solution) (1) • **Most of SME sector survival granted by public relief measures** (i.e., employment costs, liquidity support) (2/3/5) • Some leaps forwards in terms of **basic and intermediate digitalisation** for virtual and contact-free solutions (i.e., ticketing/payment for transport services, virtual tours) (4)	• Tourism classified as a **"Non-essential" sector** greatly influenced by containment measures, thus very limited in adaptation responses. **Strongly dependent on physical-presence business model and people's mobility,** particularly at the international level (1) • Later, **national attitudes** towards mobility restrictions, high **public health requirements** and even the **pacing of vaccination campaigns** have further hindered adaptation responses of companies in the sector (1/5/6) • **Non-leisure and business hospitality activities** inside the broader sector **are still suffering from a change in travellers' behaviour** (i.e., drop of business traveling in favour of videoconferencing) • Overall, **inability to large-scale adapt services / feed alternatives into the business model**. SMEs were left with very little liquidity and financial strategies (1/3) • **Unable to fully adapt workers' productivity to smart-working** and **generalised lack of specific digital skills** (1/2) • **Unable to attract new investments due to low confidence indicators** in the sector (3/5) • In later stages, **unable to refill workforces due to disruptions in the seasonal workers' flow** (i.e., mobility restrictions, changing worker preferences) (2) • **European Diversity** had a strong effect for countries with higher dependence on services and international tourism (i.e. ES) and on Urban/Rural or Island areas (i.e. Mainland vs. Islands in GR) (6)
2. Retail	
• **Classification of sold products as "essential"** helped to ease restrictions for certain SMEs (1) • Disruptions in international trade and supply chains, coupled with modern/creative/digital	• **Generally affected by containment measures at all levels**, from extreme (closures and supply chain disruption) to intermediate (business guidelines) and individual (hygiene/distancing measures) (1)

marketing, may have rekindled **a consumer interest in local retail** (1/4)

- In later pandemic stages, **SMEs were mostly capable of adapting businesses to containment measures** (intermediate, individual) (1/2)
- **Public relief measures have been a fundamental help in managing many SMEs survival** (i.e., employment costs, liquidity support) (3/5)
- **Much progress in** intermediate digitalisation, **particularly for e-commerce platforms.** Push forward to business change and customer centric mindset (4)
- **Many SMEs in the sector also classified as non-essential** (i.e. clothes, home appliances, etc.) and suffering even more restrictions/demand drops (1/3)
- General retail SME **Workforces shortages for "essential" retail and lack of demand for "non-essential" ones** (2)
- Many SMEs **lacked human/capital/marketing resources to fully develop digital business models** (2/3/4) In addition, the **rush to digitalisation may have led to amateur experiences of e-commerce** preventing full potential of online sales (4)
- Retail SMEs in **Southern Europe** suffered a larger confidence shock for the sector, while **Northern Europe** showed more of a shift in consumer preferences (6)
- Countries with **bigger health consequences** (i.e. infections, hospitalisations) **also experienced larger drop in retail consumption** (6)

3. Manufacturing

- Often classified as **"essential" sector,** thus escaping some extreme and intermediate restrictions (1)
- **Successful adaptation of production spaces** to intermediate and individual containment measures (1). This also **allowed to maintain a high share of workforce contracts** (mostly temporary layoffs or reduction of hours) (2)
- SME sector with **highest reliance on intermediate and advanced levels of digitalisation** (4)
- **Efficient support of public relief measures** (i.e., employment costs, liquidity support) (2/3/5)
- In multiple cases, **capacity to adapt /innovate in business model** (i.e. digitalisation of processes) (1/3)
- SME sector with a **high display of alternative strategies** for cost reduction and renegotiation of terms (3)
- Manufacturing establishments are **close-production environments vulnerable to social distancing** (1)
- **Strong disruptions in the supply chain** (both at the receiving and sending end) **hindering productivity and sales** (especially for intermediate components SMEs) (1/3)
- **Liability of smallness prevented manufacturing SMEs from seeking some heavy-investment strategies** (i.e. increase in stock inventory capacity) (3)
- The **typology of manufactured products** also influenced differentiated demand and revenues for manufacturing SMEs (1/3)
- Tangible **additional costs for business model/facility adaptation to hygiene measures** (1/3)
- **Business models with limited reliance on smart-working** capabilities (admin/office/sales jobs only) (2)
- **New digitalisation techs are set against a tangible lack of digital & green skills/available talent** for manufacturing companies (2)
- For SME-sized manufacturing, **digitalisation investments can be hindered by additional**

concerns (i.e., competitiveness, sustainability, cybersecurity)

- **In terms of European Diversity** (both inter- and intra-national), geographical location of a manufacturing establishment **affects the capacity to renegotiate the supply chain and seek alternative business solutions** (3/6)

4. Construction

- Limited closures**,** as Construction was **soon considered an "essential" activity already in first lockdown** (1)
- Construction SMEs often consolidated **cooperative networks** in order to regulate the supply chain of materials (i.e. joint purchases) (1)
- **Efficient support of public relief measures** (i.e., employment costs, liquidity support) (2/3/5)
- **Some leaps forward in terms of digitalisation.** Mostly basic and intermediate solutions (i.e., data information, acquisition and analysis). Some attempts at advanced digitalisation (i.e., AR and VR) (4)
- Sector **dependent on physical activity and presence of workers on site**. It requires **physical proximity and teamwork** from employees (1)
- **Restrictions to workforce mobility and activity** due to containment measures have slowed down all construction activities (design, planning, building, inspection and maintenance) (1/2)
- **Very connected business ecosystem** (especially large-scale companies reliant on SMEs for the supply chain and as subcontractors for building operations) with disruptive crisis implications for activity and finance (i.e. cash flow delays, liquidity squeeze) (1/3)
- **Tangible disruptions to supply chain** in terms of raw and pre-assembled materials (1/3)
- **Limited reliance on smart-working** (office/planning jobs only) (2)
- Slowdown of activities also led to **much-reduced hiring opportunities** (2)
- Digitalisation processes are hindered by **high costs for equipment, software and relative training**. Additional obstacles **are also found in a basic-skilled workforce for the sector** (at least for some MS) (2/4)
- **European diversity** affected **high geographical variation in liquidity and insolvency** issues across countries (EU-12 sample). Regional development level in geographical location also considered as an important determinant for recovery (3/6)

5. Agro-Food

- Immediate recognition as **"essential" integrated sector to society** and, for most sub-sectors, successful **adaptation of productive spaces to containment measures**. (1)
- **Efficient support of public relief measures** (i.e., employment costs, liquidity support)**. In most**
- Multiple Agro-Food **disruptions to the supply chain** at receiver and supplier end (i.e., HORECA closures) (1)
- **AGRO SMEs suffered more mobility restrictions of seasonal workers** (2)

MS, national extra funding for agriculture and food production (2/3/5)

- **Successful** reinvigoration and re-adaptation of business models and supply chain **shortly after first lockdown** (1/3)
- Need for **increased food & health security standards and to contrast containment measures** has influenced both **greater mechanisation and digitalisation for many companies** at all levels (basic, intermediate, advanced) (1/4)
- **AGRO SMEs** often exploited **cooperatives networks** in order to regulate the supply chain and act as gatekeepers to prices. However, limited "coping" capacity rather than transformative attitude (1/3)
- F**&D SMEs are also manufacturing close proximity environments**, and they often required damp, refrigerated environments akin to virus spread (1)
- **Intra-sector diversity in financial performance**, as some **production connected to physical presence** (i.e., flowers, high-quality meat-cuts in catering and HORECA) has suffered a lot more than those products apt for domestic consumption (1/3)
- **Higher-than-normal business** costs (i.e., food safety standards, logistics, packaging) and **search for alternative financial strategies** (i.e., local supply chain) (3)
- **AGRO** shows strong **cultural barriers to digitalisation** due to ageing workforce and conservative attitudes **(2/4).**
- **Agro-Food is a highly regulated sector** where innovation can be easily hampered by **strong legislation/standards (4)**

  European Diversity is relevant for AGRO, as it conditions **workforce categories**, **diversity in management, business structure and environmental conditions** (i.e., dependence upon seasonal workers) (6)

6. Innovation & Research

- **Limited effect of containment measures for KI(BS) and Startups at all levels** (extreme, intermediate) (1)
- Greater reliance on industry 4.0 solutions for advanced digitalisation **(Innovative Manufacturing SMEs).** Overall, all innovative SME sub-typologies are highly digitalised when compared to the average EU enterprises **(4)**
- **Relative** easiness in switching to remote working **[KI(BS) & Startup]** (2/4). **Safeguarding most job contracts** (despite work hour reduction and additional workforce effort) (2)
- **Increased consumer tendencies towards technology-based products and services** conditioning profits (i.e., online retail, audio/video/ICT/household equipment, online cultural and entertainment services) (1)
- **Overall moderate reliance on public relief measures** (i.e., employment costs, liquidity support) (3/5)
- However, **Innovative Manufacturing SMEs more akin to factors described in Rank 3 for containment measures** (i.e., supply chain disruptions) (1).
- **KI(B)S were initially excluded from Public Assistance due to apparent lack of disruptions**, but later experienced financial stress through their own customers' uncertainty and market instability (5)
- **Startups structurally suffer from limited access to traditional debt and guarantees** (i.e., public relief measures, banking) (5)
- In terms of **European diversity** (6), **EU innovation ecosystem** has been often considered as **structurally weaker than global competitors**, and **MS differences are well noticeable both at inter-national and intra-national level**.

- **Limited disruptions to supply chain** and capacity of **business terms renegotiation** (mostly for KI(B)S and Startups) (1/3)
- Beyond financial threats (derived by smallness and newness fragility), **Startups hold additional advantages** (agility in business model, provision of solutions through digital-based products and services) **for prospering during the crisis** (1/3)
- Extreme success **if product/service belongs to an essential/useful industry under health emergency** (i.e., contact-free solutions, digital technologies) (1/3)

1. Tourism

In terms of ***Containment Measures***, tourism activities have been **extremely vulnerable to social distancing** and tourism SMEs revealed a generally **high dependency on international travel** (even more so for certain MS). During the acute stage of the pandemic, in contrast to sharp mobility restriction there has been **increased domestic demand for national and local tourism** (i.e., rural and less-known destinations**), but adapting the tourist offer has only been a partial recovery solution** to a strongly hindered sector. There is also a very **important distinction between leisure hospitality** (projected to recover in line with the easing of restrictions) **and the non-leisure and business hospitality** which is not recovering due to the changes in consumer and user behaviours (i.e. reduction of business traveling in favour of videoconferencing). For SME ***Workforce***, income reduction has been extremely high for workers in the sector and there has **been a need for public relief measures to vitally support employment** in the Tourism industry. Young workers were also the most affected category in Tourism SMEs, since many employees in the hospitality sector are aged below 35. At ***Finance*** level, **the decrease of tourism contribution to national GDPs has been tangibly felt in Europe and globally**. Extreme reliance on people's mobility for the delivery of production/services has meant that **SMEs in the field had very low financial resources to recur to during severe restrictions**. The recovery challenge of ***Digitalisation*** has led to some acceleration in the **development of contactless solutions** and a more sustainable and environmentally friendly approach (i.e. ticketing/payment for transport services, virtual tourism). The main objective of technological advancement in practices has been **to promote destinations while reassuring travellers on health safety** solutions. Meanwhile, despite acknowledging the fundamental importance of ***Public Assistance*** and government intervention for rescuing companies in the sector, **heavy recovery investment was discouraged by low confidence indicators for the future of the business category and the disruption to seasonal workers' flows**. In addition, **attitudes towards** national and international **travel restriction**, high **public health requirements and even the availability and administration rate of vaccinations were critical** for facilitating the release of the repressed demand. Finally, ***European diversity*** **magnified the effects of** the crisis on **EU countries more reliant upon tourism and with different cultural attitudes towards containment measures**.

2. Retail

The ***Containment Measures*** have revealed **the fragilities of the "brick-and-mortar" (small) firms when compared to large companies** that could more easily invest in e-commerce and PPE. At the same time, **new consumer tendencies** have shown that social distancing may ultimately accelerate the **ongoing shift to online retailing**. **However**, there exists certain evidence that **increasing supply chain disruptions and creative use of social media might also make the consumer reconsider the purchase of local products**. In addition, during the most acute stage of the pandemic many consumers seem to have chosen **purchase in small proximity retail as a sign of solidarity** and a way to maintain some degree of social contacts. However, **limitations in mobility also conditioned a lowered intensity of shopping activity**. It is nonetheless reminded that the broad variety of retailing products for the sector marked **a strong differentiation in performance between companies selling "essential" products** (i.e., food & beverage, domestic products) **and the "non-essential" retail activities** (i.e., clothes, sporting and other accessories). In terms of SME ***Workforce***, **while the former experienced a spike in product demand and a drop in much-required labour supply through mobility restrictions and quarantine/isolation, the latter faced unprecedented drops in demand (and labour need)** due to lockdowns. Moreover, "essential" retail workforces have also been subject to considerable change in their tasks since more employees would be needed for cleaning, disinfection of spaces or IT services but much less for direct worker-to-customer sales. The key role played by retailers and wholesalers in the future skilling, upskilling and re-skilling Europe's workforce must be reinforced and implemented at scale. At ***Finance*** level, the broad heterogeneity in the retail SME category leads to **the coexistence of businesses with strikingly different abilities to weather the crisis, linked to different liquidity positions and access to outside finance**. Examples of dividing factors included the nature of goods provided or affiliation to a wider franchise. On its account, the **Digitalisation** process of retail SMEs **has been strongly focused on diversifying ways to reach customers despite the containment measures**, thus conditioning the overtaking of mail orders and the internet over traditional sales. It should still be underlined **that urgency in adopting e-commerce has often pushed companies to establish platforms in a rushed and rather unprofessional way**, thus conditioning the possibility of SMEs to retain a future share of the expanded online market. Nonetheless, it has also pushed traditional "brick-and-mortar" companies to be more open to change and to operate their business through a customer centric mindset. In terms of ***Public Assistance*** to retail SMEs, **governments have needed to help otherwise healthy firms to survive the pandemic crisis and safeguard the corresponding jobs**. This has been done no matter the shocks they have been exposed to (a. demand shock, b. supply shock, and c. productivity shock). Up to four types of measures were followed to ensure that households could have access to essential goods: *a*. increasing financial incentives for retail workers; *b*. temporarily easing labour market or retail regulations for essential activities; *c*. smoothing demand-supply matching for retail jobs; *d*. providing guidance for health and safety in retail stores to address employee concerns. However, the specialised literature has also advanced **the theory that public relief measures may have not been enough to prevent bankruptcy of many physical and small businesses**. Lastly, ***European diversity*** across the sector showed a **large confidence shock in the Southern European countries and a shift in consumer preferences in the Northern European countries**, particularly among high-income earners. As a further correlation link, **countries that suffered more the health consequences of the pandemic had bigger consumption drops in retailed products**.

3. Manufacturing

Due to **the fundamental need to keep production for human consumption, manufacturing SMEs were very often classified as "essential" sector** and managed to escape most extreme ***Containment Measures***. Notwithstanding, the pandemic has unveiled **the fragilities of globalised value chains** and the disruptions in provisions of certain intermediate components have generated some **ripple effects still impacting production in a late pandemic phase** (i.e., semiconductors shortages in the high-tech and automotive industries). Furthermore, **manufacturing establishments are close-production environments vulnerable to social distancing**. Traditional processes involve workers' physical proximity and fast-paced teamworking attending production lines, machinery or laboratories. Thus, the application of hygiene measures and the adaptation of production spaces has been mostly successful due to imperative necessity for productivity of these businesses. Manufacturing SME ***Workforce*** **has managed to maintain most contracts despite temporary cases of work hours reduction and constraints relative either to mobility restrictions or public health requirements** (i.e., quarantine). However, **as it is likely that the pandemic will condition further digitalisation of manufacturing SMEs, workers will require multiple new abilities and a new mindset (cultural & organisational) to preserve job stability**. It also does not help that such jobs are increasingly seen as less attractive due to a supposed "automatisation danger". Manufacturing personnel is becoming an ageing workforce which does not get replenished since the higher-educated, younger generation will not see it as a lucrative career choice. As a result, future lacks in both traditional foundational skills and advanced digital ones are expected for the sector. At ***Finance*** level, **it has been strongly ascertained by the literature that manufacturing SME performance during the pandemic was diversely affected by *a.* liability of smallness** (i.e., inability to increase inventory stock)**; *b.* typology of produced products** (i.e., durables vs. daily necessities)**; *c.* connections in value chains and markets** (i.e., stand-alone or supplier). The manufacturing sector is perhaps the most relying industry on ***Digitalisation*** solutions, since this is driven by production process improvement, improved response to customer demands, quality assurance of products and workplace improvement for workers. Thus, the SMEs from this category are the main ones considering advanced digitalisation through industry 4.0 solutions. Notwithstanding, manufacturing SMEs are currently worried about the balance between tech-enhancements and a. remaining competitive; b. market volatility; c. poor implementation; d. cybersecurity; e. compatibility with sustainability. For ***Public Assistance***, **while liquidity and employment support have been judged as efficient for sustaining manufacturing activity** during the worst of the crisis, some evidence in the literature suggested that **resources may have been more focused on short-term support rather than providing comprehensive long-term solutions** for the evolution of manufacturing industry. Lastly, for territorial variation in terms of ***European diversity*****, the sector (and its companies) already showed a segmentation across a West vs. East divide before the pandemic**. While Eastern Europe showed less tech. development, it also displayed more flexibility and investment rates leading to improved performance. In terms of pandemic disruptions, it has been confirmed that due to its interconnected nature in supply chains and accompanying services (i.e. cleaning, logistics) **geographical location of a manufacturing establishment affects the capacity to renegotiate the supply chain and seek alternative business solutions**.

4. Construction

Much like manufacturing, construction is **a sector dependent on physical activity and presence of workers on site**. It requires **physical proximity and teamwork** from employees. Although companies in this sector also **managed to obtain an "essential" status already during the first lockdown**, the ***Containment Measures*** have still provoked **a series of slowdowns for most construction activities**. **Material delays** were experienced due to the social distancing and quarantining requirements that resulted in a smaller workforce within supply chain companies. **Design and planning practices have generally slowed down** due to financial uncertainty**. Staff shortages have disrupted inspections and maintenance operations**. This has been **even more so for sub-contractor SMEs**, which are often involved in several projects simultaneously at different site locations. Consequentially, this held the potential to increase spread of the virus across building sites**. SME Workforces in the construction sector have been able to retain a greater majority of contracts** thanks to public support, **but fewer employment opportunities** have been signalled by work disruptions and standby periods on new contracts due to pandemic activity slowdown. At ***Finance*** level, construction is an industry sector **particularly sensitive to economic cycles**. It is **a very connected business ecosystem** often reliant on large-scale companies which employ SMEs for the supply chain and as subcontractors for building operations. As such, **cash flow delays and liquidity squeezes particularly reverberated across the entire chain** in the sector (from contract owners to contractors and relative suppliers). As a partial solution to this, **SMEs in the construction sector have been observed to consolidate ad hoc cooperative networks in order to regulate the supply of materials** (i.e., joint purchases). Overall, the industry sector was expected to rebound after the easing of containment restrictions. In terms of ***Digitalisation***, the main digital technologies adopted have been dedicated to **data acquisition, automating processes and digital information and analysis**. However, **some companies have also attempted more advanced technology solutions** such as AR and VR for conducting virtual inspections. All of this is still set against the context of a generally basic-skilled sector in need of further digital/green/managerial training skills. Meanwhile, a broader number of SME is still wary of digitalisation due to expensive costs for equipment and software, and a lack of awareness and understanding of more advanced technologies. These companies **have also been reported to effectively use *Public Assistance* measures for enduring the worst of the crisis**, and a good portion have also been involved in the development of emergency facilities typically employed in health crises/outbreaks. ***European diversity*** **has clearly conditioned variation in national construction business ecosystems**, where structural issues have more strongly impacted certain EU countries (examples from the EU-12 sample are ES, FR, NL and IT). **Levels of regional development are also likely to affect recovery** of business volumes for these SMEs. As for the future, public procurement foreseen through the resilience plans will most likely benefit large companies. Thus, **measures to ensure SMEs are not left behind** are essential and can a make a difference in ensuring their sustainability.

5. Agro-Food

The integrated sector born out of the combination of Agriculture (AGRI) and Food & Drink manufacturing (F&D) presented both **common and differentiated drivers of practice change when facing *Containment Measures*. AGRO production is developed in large spaces/open environments**, lowering risks for contagion. **However, it is dependent on mobility restrictions** of workers to reach harvesting fields. **F&D suffers from the same physical limitations as other manufacturing establishments**, but it is also often **conditioned by refrigerated, damp environments stimulating virus spread**. At joint level, **both experienced frequent disruptions to supply chains** during first waves (i.e., purchase of intermediate goods, interrupted demand from HORECA sector; interrelated transport and logistics obstacles to services), **but later showed resilience and adaptive capacity**. **Agro-Food is quite naturally considered as an "essential" sector for human activity** since food demand is naturally stable across time and increases with raise in population. **However, the pandemic clearly conditioned consumption behaviours** (i.e., prevented out-of-home food consuming and increased stay-at-home tendencies; increased consumer interest in home cooking, ready-made products and deliveries; concerns for healthier and immunity-boosting nutrition) and even **an increased sensitivity to food diseases' risks**. Additionally, for Agro-Food *Workforces*, **SMEs in the AGRO sector suffered more the restrictions in workers mobility (i.e., seasonal worker system) whereas F&D followed the same manufacturing issues** in lower labour supply and/or lower productivity of labour. Nonetheless, **Agro-Food workforce (especially the one from SMEs) is generally older and reluctant in upscaling digital skills and innovation practices. They are also not seen as attractive by younger generations** due to automatisation danger and the lack of strong career progression opportunities. At ***Finance*** level, while the joint sector has experienced a period of loss and rebound, it is important to point out that **Agro-Food performance is also conditioned by seasonality in production output** (both crop production and livestock), and that it is sensitive to climate change-induced phenomena (i.e. increased drought). For **AGRO SMEs, smaller farms often relied on the mobilisation of AGRI cooperatives** supporting farms in multiple fields (i.e., gatekeeper for product prices; recruitment of temporary workers). However, these have been observed to develop "coping" rather than "transformative" capacities in joint action. Meanwhile, there also exists evidence of **diversified profit on different product categories for AGRO markets** (i.e., dairy and fresh fruit and vegetables performing better than savoury snacks or meat). At the same time, **production connected to physical presence** (i.e., flowers, high-quality meat-cuts in catering and HORECA) **has suffered a lot more than the one for domestic consumption**. The double need for increased food & health security standards *and* to remedy containment measures has influenced both **greater mechanisation and *Digitalisation* for many companies at different levels** (basic, intermediate, advanced). Notwithstanding, in **AGRO SMEs there are still strong cultural barriers to digitalisation due to ageing workforce and conservative attitudes**. The **Agro-Food sector is also highly regulated, and innovation is at times hampered by strong regulatory frameworks** (i.e., health-safety; cross-national legislative barriers). In matters of ***Public Assistance***, it is indeed true that **the regulatory framework holds a higher number of shared competences between the EU and national level** (i.e., *Common Agricultural Policy*, *CAP*). However, while certain competences are easier to address (i.e., free circulation of workers), others had too many negotiation hindrances in application. Thus, **all MS were individually burdened with extra assistance to agro-food companies** (with DE and ES being the only exceptions to deployment of targeted aid schemes for Agro-Food). Lastly, ***European Diversity* has evidenced a series of structural differences across MS**

in AGRO practices, such as dependency upon migrant and seasonal workers (i.e. in the EU-12 sample: DE, FR, IT, ES), heterogeneity in rates of Agro-Food Innovation, different timings in lockdowns which impacted agricultural phases of seeding, planting or harvesting and even different business farm models (i.e. Southern and Western Europe employ more family farm-based models, whereas Eastern Europe is influenced by socialist cooperatives and previous large state farms structures). AGRO production is also strongly connected to intra-national core-periphery structures and to differentiation between rural/urban areas.

6. Innovation & Research

This study has previously offered **a triple classification of R&I SMEs** based on *Innovative Manufacturing SMEs*, *Knowledge-Innovation (Business) Services* [KI(B)S] and *Startups* (see 3.6). It has been ascertained that **the product nature of innovative companies** (physical manufacturing of complex tech. vs. knowledge-based or digital services), **the financial consolidation of the business model** (established company vs. startup) **and the typology of product/service provided greatly conditioned the impact of the pandemic crisis on SMEs**. For the ***Containment Measures***, **Innovative Manufacturing SMEs suffered disruptions to productivity akin to results for the manufacturing sector**. Although **KI(B)S and Startups** could claim the loss of face-to-face formal/informal knowledge-exchange and networking, agile adaptation to remote working and minimal disruptions to supply chain volumes **were much easier to solve** for these last two categories of R&I SMEs. Furthermore, **changing consuming behaviour stimulated innovation in on-line retail, audio/video/ICT/household equipment, online cultural and entertainment services**. Manufacturing of innovative products (i.e., computer, electronic and optical products) may have been more affected by supply chain disruptions, but could rely on increased demand for sector rebound in the medium-to-long term. SME ***Workforce*** **in this industry have suffered smaller losses of contracts among all sectors analysed**. However, **while innovative manufacturing experienced an increased demand/shortage of specialised high-tech expertise in employees, KI(BS) often recurred to reduction of working hours and temporary freezes in new recruitment. Meanwhile, startups often placed higher-than-average dedication on their workers for business survival**. At ***Finance*** level, it has been considered that **innovative activities of high-growth enterprises (including young, tech-based SMEs) are generally more resilient**, have positive effects over businesses cycles and for stimulating recovery stages in the economy. While the three sub-categories experienced financial issues differently, **they were still on average on a better track than all other sectors in this study**. **Startups were the most critical sub-category**, as they could both be easy victims of the disruptive market effects of the pandemic crisis but also agile exploiters of opportunities if their production/necessity belongs to an essential/useful industry under health emergency (i.e. contact-free solutions, digital health). It is unquestionable that in terms of ***Digitalisation***, **all innovative SME sub-typologies are highly digitalised when compared to the average EU enterprises** (especially so for Startups) and the reliance on technology preceded the outbreak of the pandemic. Innovative SMEs generally experienced **a moderate use of *Public Assistance*, but KI(BS) and startups were presented with additional obstacles in their adoption**. As a matter of fact, in many cases the former were initially excluded from national relief measures due to apparent financial stability, but later experience financial stress through their own customers' uncertainty and market instability. For the latter, their "liability of newness" (i.e., small staff and economic resources) and the high-risk nature of startup business conditioned limited access to traditional debt and debt guarantees coming from either

public relief or banking. Last, ***European diversity*** **is most noticeable in the field of innovative SMEs**. The **EU innovation ecosystem has been often considered as structurally weaker than global competitors**, **and differences are well noticeable both at inter-national and intra-national level.** For MS, it is possible to identify different geographical areas of innovation at continent-level: Eastern Europe at lowest ("Emerging"), average for Southern Europe ("Moderate"), consolidated for Central Europe ("Strong"), and advanced for Scandinavia and Belgium ("Leader"). At regional level, core/periphery location affects resilience levels of all typologies of Innovative SMEs. Cluster proximity is also particular important for innovation-activity thriving.

4.2 SME impacts of the Ukrainian conflict: a continuity between two crises

There exist important considerations attached to the development of this study which have brought it **to include ongoing trends derived from the rise of tensions in the world of international relations**. **The invasion of Ukraine from the Russian Federation in February 2022**, far from being a simple matter of territorial dispute, **has turned into yet another disruptive event with far-reaching consequences at multiple scales of European and global activity**. In diplomatic terms, the recent polarisation of intergovernmental relations alongside a new western-NATO axis vs. Russia scenario represent a new turn in history. While it remains to be seen to what extent this will consolidate a Sino-Russian alliance (as well as the allegiance of other developed and developing countries), the ghost of a second iron curtain in Ukraine is already translating in **ground-breaking impacts to the European economic scenario**. Geo-political rivalry and the pursuing of mutual sanctions has stricken business relations between Europe and many Western Asian countries at the core, alongside exposing the energy-dependency vulnerability of the old continent to Russian energy provision. Thus, **all of the stakeholders involved in this study production have confirmed and detailed the fundamental continuity between the two crises (COVID-19 and conflict-related), where the latter imposes over the former by curtailing expected recovery and re-sparkling business costs already influenced by pre- and acute pandemic circumstances.**

By expanding the original focus of the study, preliminary data (i.e., EC Report, 2022 and qualitative arguments mainly gathered through the fieldwork interviews from EU and national-level associations) clearly support the idea that all European SMEs are currently suffering **the disruptive impacts of the new economic crisis**. These include: ***a.*** **a spike in inflation rates;** ***b.*** **tangible increase of energy and fuel prices,** ***c.*** **higher cost and barriers for access to raw materials,** ***d.*** **increased labour costs as well as** ***e.*** **further disruptions in certain supply chains, both at production and logistics level**[12]. Most importantly, all stakeholders (whether of general or sectoral interest) concurred about **the simultaneous nature (conditioning piling business costs) and the cross-sector transversality of the impacts,**

[12] The only positive business impact registered by the situation was signalled in the fieldwork by the HR stakeholder and the BG SME Testimonial, as the influx of Ukrainian refugees (mostly women) has provided a fresh supply of workers for Tourism SMEs in the Balkans. At the time of reception, these businesses were already undergoing workers' shortages and were in need of staff with specialised knowledge of Slavic languages.

rendering the general business environment for all SMEs in Europe prone to liquidity squeezes among increased expenditure and cost-of-life reduced demand and investments.

The new economic conditions infer over the previous ranking (see 4.1) and highlight potential shifts in business environments for SMEs in the six industry sectors:

1. While ***Tourism*** **and** ***Retail*** SMEs have recently taken advantage of the effects of massive vaccination and the lifting of containment measures promoting back-to-normal trends in travels and consumptions (OECD Interview), the need to increase own products and services' prices could soon provoke counter-effects on recovery rebounding. As quoted by the Dutch stakeholder, many SMEs can no longer pass the rising energy costs to their products' price and are being forced to cannibalise their profit margins (MKB Netherlands interview).

2. On their account, energy-consuming and supply-dependent ***Manufacturing*** **and** ***Construction*** SMEs are quickly seen to be escalating the ranking due to unsustainable business costs and the shortage of certain raw materials affecting previously successful branches of production (i.e., shortages of material for knowledge-based technologies such as nickel).

3. The worrying news of a food security crisis at the global scale due to the disruption of the grain market (of which Ukraine is a key-player), coupled with the energy and supply-related increased costs for "essential" food and drinks (i.e., packaging, logistics) may soon lead to very different perspectives on ***Agro-Food*** **SMEs** (OECD Interview).

4. Even the relatively stable ***Innovation & Research*** sector could soon see innovative and digital SMEs endangered by business costs (i.e., price rises in utilities such as electricity, rent and related machinery), as well as further suffering in all their sub-typologies: innovative manufacturing could be endangered by raw material shortage, knowledge-intensive business service could be affected by chained economic recession of customers and startups could suffer additional fragility in a further disrupted financial environment.

This brings **additional complexity to policy making, in-so-far as equity and development support may soon need to be split among industry sectors (and their SMEs) previously most affected by the pandemic crisis (and now crippled in their recovery) and new ones which were previously capable of adaptation but are now perceiving the additional weight of prolonged and new disruptions**. While further studies may soon be required in order to systematically classify and assess the impacts of the new international scenario, there is also an urgent need to consider *short-term* interventions while progressively charting a medium to long-term adaptation strategy for all SMEs through large-scale interventions. The study's contribution to this process is illustrated in the next final section.

4.3 Towards a Strategic Plan of Public and Economic Policies for SME Recovery and Growth

Faced against such an uncertain business landscape, **policymakers at all levels** (whether EU, national or even regional) **are urgently called not to lose sight of the myriad of SMEs at the heart of the European and global economy**. To support such call, the EESC has already adopted various opinions related to this topic, including opinion INT/979 "*SMEs, social economy enterprises, crafts and liberal professions Fit for 55*"[13], INT/947 "*Next Generation SME Strategy – Enhancing Effective and Swift Delivery*[14]" and ECO/582 "*Recapitalising EU companies – An innovative way towards sustained and inclusive recovery*"[15].

On their account, the results of this study confirm that **small and medium businesses are widely diverse and heterogenous across the different industry sectors** in which they operate. As multiple evidence in this study has confirmed, a broad variety of factors can determine an SME capacity to either recover and develop or succumb in its quest to crisis adaptation (see 4.1 for a summary discussion). However, while it has been acknowledged that there is no simplified one-size-fits-all solution, **the general and sectoral analyses have identified structural interventions which can be of productive use to all SMEs**. These are illustrated below **by classifying the policy recommendations in this section at urgency level** (whether they are needed for immediate relief of the prolonged crisis-scenario or require medium-to-long term regulatory, financial and capacity planning, see repartition between 4.3.1 and 4.3.2) **and through further thematic grouping** (whether ***a.*** *emergency support*, ***b***. institutional action for *SME regulation and governance*, ***c.*** *training and skills* or ***d.*** *innovation, sustainability and cohesion* in support of the twin transition). Whenever possible, the recommendations indicate the appropriate governance level of action (whether EU, MS or even regional/local level) while showing appropriate links to the findings of this study.

4.3.1 Short-Term

a. Emergency Structural Support

The most urgent objective is **to restore the disrupted business environment** whose destabilisation roots are in the pandemic and now increased by the Ukrainian crisis. These include the new uncertain economic scenario of 2022 engulfed by rising inflation and price increases strongly tied to energy and fuel dependency issues. Along the desk search and stakeholders' consultation, we devise this pathway as progressive along the following three steps:

[13] https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/smes-social-economy-enterprises-crafts-and-liberal-professions-fit-55

[14] https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/next-generation-sme-strategy-enhancing-effective-and-swift-delivery

[15] https://www.eesc.europa.eu/nl/our-work/opinions-information-reports/opinions/recapitalising-eu-companies-innovative-way-towards-sustained-and-inclusive-recovery

1. Although this study is being published around the initial phase of implementation of NextGenEU through the NRRPs, virtually all of the consulted stakeholders have singled out the **lack of SME knowledge, focus or very difficult access to recovery funding and reporting expenditure**.

In this context, it is recommended to Member States to **exploit and implement all possible flexibility into introducing thematic focus and procedure simplification** to extend the participation of European small and medium businesses in their domestic context. Additionally, MS are recommended to address regulatory national frameworks to ease the orderly exit of losing SME businesses from the market **through simplified procedures and light administrative costs**.

Additionally, EU institutions are recommended to consider **a significative slimming of administrative burden**, following a "one-sheet application process" for SMEs to all future EU and NRRPs funds.

2. The strategic prioritisation of industry areas and of streams of investment to be supported need to consider the **lessons learned on business viability and industry sectors** truly in need for further equity and investment.

Thus, it is recommended to the European Commission and Member States to include in **policy-support design further factors acknowledged in this study** such as the *nature, extent and cause of losses experienced during the acute stage of the pandemic* (as shown, these are most often sector-specific); the *company's position in markets, value chains and business ecosystem*; the *pre-existing capacity of the SME to achieve digital (and even green) transitions* to their business model; the *financial, physical and human resources*; lastly, *the operating environment in the MS* at the international and even regional level.

At the Member States level, public sectors are recommended to **stimulate the promotion of further associationism, networking and cooperative partnerships for SMEs** across various industry sectors. Associationism and Networking are meant as participatory instruments for closing the gap between policymaking at EU and national level and business realities. Cooperative partnerships (particularly in times of crisis) can act as gatekeepers for prices and value chain efficiency and availability (see 2.4.5).

3. The EU (and its MS) are both in dire need of **a clear strategy to restore a sustainable post-crisis economy based on innovation, skills and competition** rather than prolonged use of state aid and/or protectionism.

Targeted recommendations to the European Commission in this context include a **strategic action plan towards energy independency,** namely from Russian markets, as well as **further strategic advice to SMEs on how to address this and other kinds of conflict-derived trade disruptions**, especially on operational limitations in Russian markets (i.e., luxury goods, high-quality exports). Specific action to be implemented include policy measures to control the current crisis, such as the **implementation of methods to control speculation** and demand **transparency on prices**, namely on energy and raw materials.

In what concerns the Member States, it is recommended to maintain **direct support to SMEs** regarding the fixed costs they endure on **energy, fuel and raw materials increasing prices, through tax**

reduction or direct subsidies. A **broader support to re-structuring the supply chain** for many typologies of businesses (linking to partnership initiatives, such as the ones for semi-conductors, Farm2Fork, Built4People, etc.), is also proposed.

4.3.2 Medium to Long-term

b. Regulation and governance for SMEs

The study reveals that many sectoral interest stakeholders have concerns about the political aspects of EU-level and national decision-making which end up running against the best interests of businesses and European markets (i.e., anti-dumping policies in EU steel industry). Even if EU and national-level institutions have consulted with relevant stakeholders (including SMEs) to better align industrial needs to policymaking, the implementation of such discussions was not sufficiently developed.

1. In regard to the overall SME strategy context, at the EU level, there is the need to **align the current framework to the emerging challenges and needs of the present period**.

In this context, for example, the European Commission and MS should re-open discussion around a more accurate **definition for European SMEs** (including diversification by typology) tailored by different industrial strategies and ecosystems as shown by these new productive crises. Potential suggestions include a revised category with differentiated criteria based upon productivity type and services. A clear example would be **the differentiation of traditional/family-owned businesses**. Their unwillingness to lose control of the business and a tendency to reinvest in the business could make for additional access to structural support and guarantees.

Further tuning to contemporary challenges should be accompanied by alignment to ambitious initiative programmes. Currently, there exist **different institutional and regulatory proposals which could provide a framework for policy-making and implementation more akin to SME needs**. The very recent speech of the 2022 State of the Union of President Von der Leyen provided some relevant examples towards this subject with the launch of measures such as the SME Relief Package, the single set of tax rules for doing business in Europe (BEFIT) and the need for revision of the Late Payment Directive[16].

For example, the EU institutions (particularly the EC) could consider **reinforcing the current role of the EU SME Envoys network, increasing its participatory capacity in EU-level decision-making** beyond a merely consultative role. At the time of writing, **there is even greater urgency in the need to appoint an official EU SME Envoy** capable of strengthening SMEs' interests in EU institutions. Similarly, the EU policy-making process could greatly benefit from **reinforcing the existing SME test on EU legislative proposals** and **an encompassing "Competitiveness Check" for testing the impact**

[16] For more info, see https://ec.europa.eu/commission/presscorner/detail/ov/speech_22_5493

of new EU policy initiatives on small and large companies and their business environment[17] **(**e.g. cost of doing business, capacity to innovate, international competitiveness, level playing field, etc**)** .

In addition, it is recommended to the European Commission to consider re-opening discussions on the **proposal of a "second-chance" framework for European entrepreneurs.** Given adequate guarantees of social protection, this would enable business owners to have a full discharge from previously owned companies in no more than 3 years after insolvency, thus allowing the return to business. At present, much of the original EC legislative package communicated in 2016 (COM(2016) 723 final - 2016/0359(COD)) was largely cut out of the above-mentioned directive (EU 2019/1023) due to previous EU interinstitutional negotiations (see section 2.4.3).

One further recommendation for EU-level institutions reinforces a specific proposal from EESC (EESC, 2021) to **create a network of "financial and funding ombudsmen"** to monitor implementation of the measures for improving short-term liquidity of SMEs at EU and national levels (i.e., NRRPs). Decentralised but coordinated action could help bring concrete evidence to the efficiency and effectiveness of financial assistance.

In light of **the need to sustain both the European economy and SME businesses against a future insolvency crisis**, both the EU institutions and the national governments are requested **to take specific action to ensure an orderly exit of unviable businesses from the European market**. Beyond current provision, it is recommended to Member States that they take under careful consideration an efficient implementation of the existing *EU Restructuring and Insolvency Directive* (EU 2019/1023) planned even before the advent of the pandemic.

Similarly, for what concerns Member States, it is recommended to undergo a **revision of obsolete national regulatory legislation for SME activity** (i.e., ES, GR) which runs against high growth by combining business expansion with stricter administrative and fiscal requirements. This can include multiple initiatives such as *the easing of conditions for finance access* or *the development of regulations in favour of wider employment dynamism for SMEs*. This should be done as to stimulate the development and competitiveness of existing businesses while encouraging new business registrations to flourish.

On a complementary perspective, for the resilience of SMEs in the medium- and long-term investments and steady work are needed and, in this context, the NGEU measures are of key importance. Policy stimulus such as public works, health infrastructure and large-scale contracts will most likely benefit large companies.

2. Thus, it is key to promote **an inclusive public procurement system suitable for the small and medium business ecosystem.**

[17] In line with the recent Conference on the Future of Europe final report 2022, see measure 21 at page 56. For more info, access https://cor.europa.eu/en/Documents/CoFE_Report_with_annexes_EN.pdf

Towards this scope, the European Commission and Member States are recommended to **increase chances for public value procurement and business with the public sector for SMEs**. This includes increased opportunities for public contracts, the speed up of public investments and ultimately regulatory reform linked to effective application of the Late Payments Directive. Moreover, due to the rapidly changing economic context, flexibility in contracts and exceptionality clausulae for product/service delivery should also be considered.

c. Training & Skills

At the end of 2020, the European Commission has launched the Pact for Skills (EC Website, 2022), a flagship and transversal initiative to support a fair and resilient recovery and deliver on the ambitions of the green and digital transitions and of the EU Industrial and SME Strategies.

1. The Pact for Skills is being implemented at local, regional and national level through several funding mechanisms and the **SMEs in different industry sectors are priority beneficiaries of such training and capacity-building initiatives**.

In this context, it is recommended to Member States that they reinforce the twin transition by enhancing SME workforces' competences and skills (both digital and green), namely by including an **increased revision of Vocational Education and Training (VET) practices in terms of upskilling and reskilling in national education and training systems**.

Public institutions at the national (and even regional) level are recommended to consider **offering specialised training for Employers** in digitalisation and their sectoral application (e.g., in the traditional/rural agro-food sector) for raising awareness of potential benefits in modernisation. Also, promote specific training dedicated to the **specialisation of mentors and intermediaries for innovation** capable of developing practical grassroots-level support, specific campaigns, tools and advice for SMEs, particularly in the case micro and small/family-owned/traditional businesses and social economy enterprises (in line with the conclusions of EESC study dedicated to CSO).

2. Training should also be aimed at **promoting diversity and creativity in entrepreneurship.**

It is recommended to Member States that guidelines for funding under the training framework fosters the **presence of women, third-country nationals or even social economy models** such as worker-owned cooperatives. And to contrast the ageing of EU entrepreneurs in certain sectors, EU and national level institutions should create and facilitate business transfers in order to avoid disappearance (either by absorption or dismantling) of more traditional production or family-owned SMEs and **connect this to new entrepreneurial training to pick-up SME businesses**.

d. Innovation, Sustainability & Cohesion

This final set of recommendations looks at **interconnections across processes of (digital) innovation, sustainability and European cohesion for SMEs**. These are presented through two main focus areas.

1. While funding availability may represent a first important step in this process, **the SME ecosystem will also require a greater deal of technical and logistical support for awareness-raising, application and implementation of EU funding and regulations**.

Although there has been some progress in the involvement of the private sector in Cohesion policy and other indirect EU programmes, **there is still a huge gap in clear and effective communication, as well as many administrative and financial hindrances in the participation of SMEs to EU-funded projects**.

Furthermore, following the suggestions indicated in 4.1**, funding instruments should also include provisions specifically addressed to complying with the new climate and environmental policies**. Many SMEs face uncertainty and lack of knowledge and understanding of the main implications behind the New Green Deal and the Fit for 55 package and **will require further assistance in understanding how to balance digitalisation and sustainability** in order to truly obtain cost savings, improved efficiency for energy and product sustainability as well as satisfying customer expectations

2. The EU institutions should therefore further consider **addressing requirements of access and fast-lane procedures for SME companies** access to direct/indirect European programmes and initiatives in the specific field of digitalisation, such as in the Digital Europe programme and the Connecting Europe Facility (CEF).

The European Commission and Member States are recommended to **focus efforts on** closing national gaps among levels of digitalisation, increasing further the levels of physical infrastructure and digital services available.

Besides the existing funding streams (e.g., Digital Europe programme), it is recommended that both the European Commission and Member States consider **developing a specific EU fund for broad SME digitalisation capacity** in order to provide a marked increase to employability for small and medium business ecosystem. This should **include "one-sheet" application procedures** and **employ different criteria according to the level of desired upscale in digitalisation** starting from the conceptual classification offered by this study (basic, intermediate, advanced. See 2.4.4 for more details).

At MS level, governments are recommended to consider the **creation of a new generation of Innovation Hubs** not only **dedicated** to digital and startup services, but rather **to practical implementation of innovation in traditional SME settings**. These could also implement either triple or even quadruple helix processes (public-private-academia-citizens).

List of References

Following the results and classification process of the SLR, the list of reference is provided according to the different chapters of the study. Each section is individually listed in alphabetical order.

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4. Discussion and Policy Recommendations

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Annexes

I. Extended Description of the Methodology followed in the study

a. Systematic Literature Review (SLR)

The execution of the adapted SLR concerned the 6 pandemic challenge areas in the classification applied to the 6 sectors and the EU- 12 country sample requested by the analysis. In practical terms, this has involved:

- **a systematic literature identification throughout institutional, academic and stakeholders' sources** (N. of databases: 7. *Academic*: Science Direct (Elsevier); Taylor & Francis; Web of Science; Scopus. *Institutional:* EU Publications Office; *Others*: Google Scholar; sector-specific contributions from stakeholders involved in the study; additional websites/online datasets/newspaper articles/publications providing data for the study). The technique employed in the research used **listing of keywords and their combination** (see Annex II for a full list) and **inclusion for each entry into the search engines of the top-20 headline references**.
- **the storage and refining of the list of sources through the auxilium of the Zotero referencing software**, which allowed for smooth classification, automated totals and the purging of duplicates through the creation of a group library and relevant item collections. Beyond the six sectors (*1. Manufacturing, 2. Construction, 3. R&I, 4. Tourism, 5. Agro-Food, 6. Retail*), collection *0. General Framework* included all theoretical arguments necessary for constructing our explanatory framework on the six challenge area categories (*containment measures; workforce; finance; digitalisation, public assistance and European diversity)*, alongside gathering insights on policy recommendations. Likewise, collection *7. EU Countries* sought to identify additional data and argumentations relative to all sectors and contextual SME impacts for the EU-12 in the sample. See also Table 2 (page 7 of study) and Annex III for clarification.
- the construction of a **database in Excel spreadsheet format** for the screening and further classification of the publications, including the references, URLs, abstract, a series of control questions for eligibility (i.e., presence of elements associated to the framework, which typology of impact, presence of focus on EU territory) and available space for key-arguments and notes.

Imported literature from the Zotero accumulation process was thus filtered through categories akin to the explanatory framework (see Section 2.4 of the study).

- A **multiple process of screening** involving: 1. an initial eligibility check through abstract consideration; 2. a second screening of the document's main argument and results (thus filling the control questions and signalling possibility of inclusion); 3. a decision process involving the most relevant arguments for the study elaboration; 4. due to space limitations and achievement of research objectives, one final filtering process of most relevant sources. See all results from the screening process in Section 1.2 of the main study document.

Whenever available and appropriate, quantitative results and arguments from the SLR are included in several parts of the study for backing empirical findings.

b. Quantitative data collection process

The heterogeneity of the European context, the lack of a truly federal structure holding frequently updated registers/census (as in the case of the US) and the challenges in aggregating and classifying data from MS all constitute sound obstacles to depicting a quantitative scenario for European SMEs. At the time of writing, several European dimension studies and statistical data collection processes have suffered strong delays due to pandemic disruptions to research and businesses alike. In contrast to the abundance of qualitative argumentation, the quantitative data collection process has requested the development of a more integrated solution based upon multiple sources (i.e. statistical information, estimations, survey data). The main references have been:

- The **SME Performance Review study for 2020/2021 and for 2021/2022**[18], produced in conjunction with the *Annual Report on European SMEs* of the EC. The different editions of the study contained individual country sheets with estimations data by sector and company size for 2019, 2020 and 2021. They thus held estimations on total numbers of SMEs and employment figures produced by DIW Econ[19], based on 2008-2018 figures from EUROSTAT. Allegedly, **the most recent edition also included SME estimations data for 2022, but the authors admitted in the publication that these had been produced prior to the Russian invasion of Ukraine and were thus considered perhaps "too optimistic" with regards to the current status of European SMEs** when facing the prolonged period of crisis (EC Report, 2022, p. 10, 71). Thus, **the research team has willingly decided not to include 2022 estimations for this study**. The main items used for the data collection have been the **"EU Country Factsheets"** and the **"Country SME Key-figures 2022"** annexed to the main report. A first version of the data was elaborate through the Annual Report edition 2021. It was later updated in August 2022 through the Annual Report edition 2022.

[18] https://single-market-economy.ec.europa.eu/smes/sme-strategy/sme-performance-review_en

[19] All of the study 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; LE Europe

- The **PORDATA** national statistics website[20] for Portugal, where data were already compiled by sector, first in the EU and then by country.
- Several entries in the **EUROSTAT** database, including the Recovery Dashboard from the Coronavirus crisis and specific data on agriculture[21].

Data from the main sources was **compiled in a comprehensive Excel dataset** including several spreadsheets: *a.* data for SMEs by sector and country; *b.* estimations on total numbers, economic and employment rates for SMEs in 2020; *c.* specific data on agricultural outputs; *d.* economic indicators by EU and countries (e.g., GDP, business registrations, bankruptcy declarations, general employment rates); *e.* codification of survey data (e.g., SAFE survey). The study dataset thus became a core reference for the development of graphs supporting analyses throughout the research. **The added value of this study is provided by the comparison between real EUROSTAT data in 2019** (collected by the original authors at their time of writing) **and EC-published estimates for 2020 and 2021** whenever possible.

Some further considerations for the elaboration of **the data collection process in SME sectors** include:

- For **Research & Innovation**, the data was further elaborated from the original excels providing individual estimates on country SMEs[22]. The research team extracted and summed data from the "Knowledge-Intensity" section of the sheet for 2 sub-typologies (Manufacturing Industries and Knowledge-based Services). Thus, for Innovative Manufacturing SMEs, only companies from the "High-technology" and "Medium-High-Technology" listings were incorporated and summed for our own analysis. For Innovative KI(BS), all companies belonging to "Knowledge-intensive services" (of which: market services, high-tech and other) were included in the recount. As shown by the Annual Report on SMEs 2022, there are no comparison data on startup, so the research exploits the data elaborated from the EC from the Crunchbase platform.
- For **Agro-Food**, the research acknowledges previous statements regarding the absence of comparison/identification data for Agro SMEs in Europe (also mentioned by EP Report on Agriculture 2021, see sector analysis in 3.5). Thus, the total number of Agriculture SMEs has been replaced by Agricultural Output variations between 2019-2021 (production value at basic price. It included both crop and animal outputs). This comes from EUROSTAT-based data through a combination of real data and estimations.

[20] https://www.pordata.pt/

[21] https://ec.europa.eu/eurostat/web/structural-business-statistics/data/database; https://ec.europa.eu/eurostat/cache/recovery-dashboard/; https://ec.europa.eu/eurostat/databrowser/view/AEI_PS_INP__custom_2127322/default/table?lang=en – Agriculture

[22] See the folder containing the Excels "Country SME Key-figures 2022" at https://single-market-economy.ec.europa.eu/document/download/b4001a77-f905-4b24-a496-7c8e54265b2b_en?filename=SME%20key%20figures%20related%20to%20the%20fact%20sheets%202022.zip

In addition, **complementary quantitative information for the general analysis (Chapter 2)** was collected from:

- Quantitative data encountered in academic and institutional publications **from the SLR**.
- The **Response Measures Database** on the **ECDC** Website[23]
- **EU reports** containing quantitative indicators for SMEs (i.e., Annual Report on European SMEs[24], the SURE follow-up report[25]; the Digital Economy and Society Index Report, DESI[26], EC Community Innovation Survey, CIS[27])
- **grey literature data** (i.e., reports from sectoral associations and networks, internal statistics) provided by stakeholders participating in the study.

c. Qualitative fieldwork on Stakeholders and SMEs

The analysis of secondary sources and the quantitative mapping have been accompanied by **an interview fieldwork** (36 in total) composed by two modalities of semi-structured interviews.

a. In-depth Interviews (24 in total): their main objective has been to reinforce the quali-quantitative findings of the theoretical study and to integrate information on both the sectoral and country performance of SMEs. This typology of interviews was directed at

1. SME-oriented EU & International Organisations (while maintaining a balance in-between general and sectoral networks).

2. National SME associations from the EU-12 sample of countries

The EU-level questionnaire stimulated in-depth discussion of the COVID-19 impacts, providing a variety of insights on the sectors, geographies, and national backgrounds of SMEs. Meanwhile, the national-level questionnaire concretely asked about the national experience of the impacts described in the framework. Both of them also helped investigating policy responses and mitigation actions which have been enacted in the corresponding territorial context. These interviews have been employed for reinforcing arguments throughout the entire study.

b. Testimonials (12 in total): The target of these interviews have been individual SMEs, which were asked in a simplified form to provide a testimony of the challenges faced during the acute stage of the

[23] https://covid-statistics.jrc.ec.europa.eu/RMeasures

[24] https://ec.europa.eu/growth/smes/sme-strategy/sme-performance-review_it#annual-report

[25] https://ec.europa.eu/info/files/second-report-implementation-sure_en

[26] https://digital-strategy.ec.europa.eu/en/policies/desi

[27] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210115-2

pandemic and how they adapted to them. These contributions have been shaped in the form of narratives in info-boxes throughout the sector analysis (Chapter 3)

All questionnaires were drafted and sent for approval to the contracting authority. At the same time, an extensive stakeholder engagement strategy foresaw the reach out and participation of all typologies of actors (EU/National level SMEs representations at general and sectoral level of interest; a smaller sample of SMEs from the selected EU countries). The interviews were then processed (through operational summaries) and manually coded (Excel spreadsheet) as to verify, complement and enrich the results of the theory-based study.

II. Combination of Keywords employed in the SLR

SLR Category	Main Keywords
0. General Framework & Policy Recommendations	* SMEs, *COVID(-19), *Impacts, *Effects + *Digitalisation, Challenges, *Performance, *Insolvency, *European Union (EU)
1. Manufacturing Sector	* SMEs, COVID(-19), *Impacts, *Effects + *Manufacturing, *Supply Chain, *Industry 4.0, *Automation
2. Construction Sector	* SMEs, COVID(-19), *Impacts, *Effects + *Construction, *Supply Materials, *AEC (Architecture, Engineering, Construction), *Construction Technology
3. Innovation & Research Sector	* SMEs, COVID(-19), *Impacts, *Effects + *Innovation & Research, *Research-intensive (R&D-intensive), *Knowledge-Intensive Enterprises (KIEs), *Intellectual Property Rights (IPR-intensive), *Research-Dedicated (R&D-dedicated), *Innovative firms, *EU Innovation Champion, *Key-Enabling Technologies (KETs), *High-Growth Firms, * (Technology) Creative Industries
4. Tourism Sector	* SMEs, COVID(-19), *Impacts, *Effects + *Tourism, *Tourism Industry, *Tourism Recovery (solutions), *Small Tourism Business
5. Agro-Food Sector	* SMEs, COVID(-19), *Impacts, *Effects + * Agro-Food, *Agri-Food, *Agro-Food Clusters, *Food Supply-Chain, *Food System, *Circular Economy
6. Retail Sector	* SMEs, COVID(-19), *Impacts, *Effects + *Retail, *Small Retailers, *Retail Digitalisation, *E-Commerce, *Retailing, *Territorial Supply Disruptions

7. EU Countries & Geographies	* SMEs, COVID(-19), *Impacts, *Effects + *Twelve-Country sample:* *Italy, *Bulgaria, *Greece, *Spain, *Germany, *Croatia, *Poland, *Finland, *Portugal, *Romania, *France, *The Netherlands OR European Context: *European Union (EU), *Europe, *European, *Mediterranean, *Southern Europe, *Northern Europe, *Eastern Europe, *Western Europe, *Central Europe

III. Methodological process of refinement through the Zotero referencing software

Prior to the construction of an excel database for the SLR, the research team has decided to employ the Zotero referencing software (https://www.zotero.org/) as an additional tool helping to smooth reference data acquisition, classification and purging from duplicates. In order to achieve such purpose, the following methodological steps have been implemented:

a. The research team created a group library space (*EESC SMEs: https://www.zotero.org/groups/4535943/eesc_smes*) based on the Zotero Cloud. In such a way, it can be both consulted by external observers or edited online and in the desktop version of synced computers by authorised researchers.

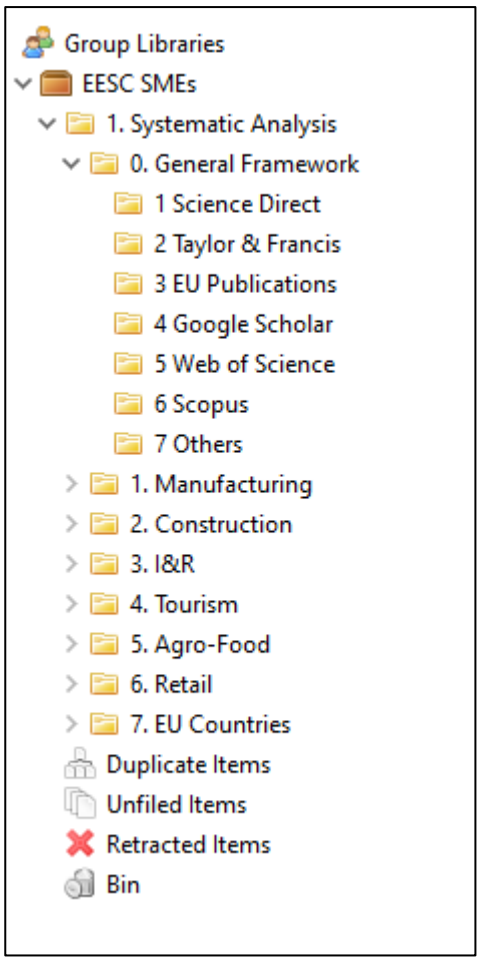
b. Seven macro-container collections were generated in the group library, reflecting the Excel Spreadsheet (*0. General Framework, 1. Manufacturing; 2. Construction; 3. R&I; 4. Tourism; 5. Agro-Food; 6. Retail; 7. EU Countries*) (see Figure 3 for reference)

c. Inside each of the folders, eight sub-collections were constructed. Seven of these constituted the source of origins of collected publications. Folder 1 to 6 represent the core of the academic/institutional/professional literature databases (*1. Science Direct; 2. Taylor & Francis; 3. EU Publications; 4. Google Scholar; 5. Web of Science; 6. Scopus*). Folder 7 (*Others*) is understood as the container of literature contributions from the original research proposal *and* grey literature documentation provided by contributing stakeholders. It was further needed as a backdoor in the SLR to introduce updated sources providing fresh updates on multiple topics of the study closer to its completion date (i.e. additional websites/online datasets/newspaper articles/publications providing updated data for the study). Furthermore, each folder provides **a quick recount of the total sources included** (see table below) constituting hard evidence of the research work developed.

d. Once developed the skeleton of the group-library collections, the researchers employed **the Zotero Connector plugin** available for their navigation browser in order to speed up the data-collection process. In fact, the navigation tools is capable of detecting multiple document references on a webpage and importing them into the software through a single action. In most cases, it collects reference metadata and direct URL source to each document.

e. The **final objective** of the collection was to select the top 20-headline references in each database. The **timeline reference** for the researchers was obviously dictated by the recent nature of the pandemic and affected the selection of articles published during the years 2020 and 2021.
The **research questions** leading the literature identification have been: *"What are the main impacts/effects of COVID-19 on SMEs/the specific sector?" "What are the main impacts/effects of COVID-19 on SMEs for each pandemic challenge area?", "What are the main impacts/effects of COVID-19 on SMEs in the specific country?"*.

f. After completing the references collections, the researchers further made use of the **Duplicate Items** feature of the software. This allows to scan throughout the entire group library for duplicate documents and permits a systematic merging of their sources. In our case, we decided to always merge all duplicates and exclusively maintain the oldest entry. This was considerate appropriate, because in a non-automated process, a researcher would naturally skip a previously identified document.



Structure of the Literature Collections on the Zotero Group Library

g. At the end of the process, the total collection of articles included in each folder was exported in APA reference list format to the Excel spreadsheet to allow researchers to continue with the screening process.

The estimated totals of the collection have been systemised and presented in the table below for further reference.

Sources of Collections	0. General Framework	1. Manufacturing	2. Construction	3. I&R	4. Tourism	5. Agro-Food	6. Retail	7. EU Countries	OVERALL TOTALS
1. Science Direct	77	109	85	173	86	90	81	150	
2. Taylor & Francis	100	57	21	125	20	68	20	20	
3. EU Publications	82	74	25	127	22	79	18	21	
4. Google Scholar	94	56	29	126	21	68	20	21	
5. Web of science	64	46	74	52	11	7	1	18	
6. Scopus	68	47	6	33	7	7	7	13	
7. Others	86	21	41	20	25	22	18	41	
Cross-Dataset TOTALS	**571**	**410**	**281**	**656**	**192**	**341**	**165**	**284**	**2900**

List of identified literature through keywords combination in relation to their database sources (on Zotero)

IV. Methodological approach to the interview fieldwork

This annex presents the methodological approach performed in this part of the qualitative research by indicating the preliminary criteria for stakeholders' selection, the categories of the main questions and the methods proposed to gather results from the analysis.

a. Methodological Approach

Qualitative research is used to understand how people experience the world. While there are many approaches to qualitative research, they tend to be flexible and focus on retaining rich meaning when interpreting data. Common approaches include grounded theory, ethnography, action research, phenomenological research, and narrative research. The study fieldwork mainly focuses on:

Phenomenological research	Researchers investigate a phenomenon or event by describing and interpreting participants' experiences.
Narrative research	Researchers examine how stories are told to understand how participants perceive and make sense of their experiences.

The main method used in the qualitative research activities in this study are interviews, thus personally (but via online enquiry) asking selected participants a set of relevant questions in one-to-one conversations.

Although keeping a fully professional and objective attitude, in these interviews, the researchers were themselves "instruments" in research because all observations, interpretations and analyses were filtered through their understanding of the study purposes, and this is what allowed to make the continuum between the desk search results, the definition of stakeholders and the extraction of the summary of each interview. Further on, it also allowed them to process the main outcomes into policy recommendations.

b. Stakeholder Selection

The clustering of relevant stakeholders consulted for this study is provided in **Annex IV**. The type of stakeholders proposed constitute a solid matrix representing different European regions/countries, sectors, networks, roles and intervention areas, thus delivering different points of view to compare ideas and allowing the production of an objective study. The stakeholders have thus been identified according to the representativeness principle and geographic coverage as per the tender specifications.

c. Interview guideline structure, main themes and execution

The results of the initial desk search were used to detail the interview design, aiming to tackle all of the needed areas of intervention and to tailor the questions to the expertise and the contribution of the different targeted groups of stakeholders.

The questionnaires are presented in **Annex V** and were drafted considering the following main considerations:

1. For the 12 EU level stakeholders - structured section with pre-defined selection options or short fields for open reply, plus open text for arguments
2. For the 12 National SME associations and/or business development agencies (one per country) - open questions, mainly with the country-specific challenges and ways forward from a policy perspective
3. For 12 SME owners (one per country) – open questions, mainly aimed at their individual experience of the crisis.

In terms of procedures, after confirmation of availability to participate, a full interview pack was provided containing the template with the interview questions, the consent form and a factsheet with the relevant context regarding the study. The possibility to answer to the interview in writing and by email was facilitated, if preferable to the interviewee and mainly due to the constraints of the current COVID-19 measures, although the online interview was considered as the preferred option by default. This was facilitated by an online video call system, such as Zoom, Teams or equivalent.

Compliance with the GDPR was fully assured in the recruitment of interviewees and for collection/storage/processing of any personal information. An informed consent letter preceded each interview; the interviewees were asked to complete and sign a consent form in order to give their permission for the usage of the findings of the interviews for the final publication.

d. Methods for interview analysis and presentation of results

The presence of several open-text answers conditioned the elaboration of a structured method employed to ensure sufficient objectivity. Within *Inductive qualitative analysis* there are 2 sub-types: *thematic content analysis* and *narrative analysis*, both of which call for an unstructured approach to research. The *thematic content analysis* begins with weeding out biases and establishing overarching impressions of the data. Rather than approaching data with a predetermined framework, it identifies common themes as the materials are organically searched. The goal is to find common patterns across the data set.

A *narrative analysis* involves making sense of the interview respondents' individual stories. This type of qualitative data analysis is used to highlight important aspects of the stories and can also highlight critical points not found yet in other areas of the research.

As for *deductive analysis*, on the other hand, a structured or predetermined approach is required. In this case, the researchers have built categories in advance of the analysis and then mapped connections in the data to those specific categories.

Each of these qualitative analysis methods lends its own benefits to the research effort. Inductive analyses generally produce more nuanced findings. Meanwhile, deductive analyses allow to point to key themes essential to the research.

To the purpose of this analysis a deductive method is the main one applied to the semi-structured interviews to the **12 EU-level stakeholders** and the results can thus be mapped in connection to the main themes identified, while narrative analysis is mainly used for **the interviews gathered from 12 national associations and the testimonials from 12 individual SME owners**.

In addition to these pre-determined questions, some additional inputs or references provided by the interviewees that are considered relevant for the overall analysis were integrated in other sections or considered for the purpose of the recommendations drafting.

Overall, the qualitative analysis of interviews was developed based on the following structure:

1. Summary reading: It starts with reading through the summaries and taking notes of the first impressions. The main aim of this step is to identify common themes. Afterwards, a second careful reading will bring to evidence the main themes and the most important insights. According to SAGE Publishing[28], researchers should "acknowledge preconceived notions and actively work to neutralize them" at this early step, thus identifying and avoiding any biased conclusions.

2. Note taking: Annotation aims to label the most important sentences, expressions or words attributing qualitative data types and patterns. The main opinions, differences and agreements and relevant concepts are identified at this stage.

3. Conceptualizing: During this step the qualitative data must be aligned to the most critical themes by creating categories and subcategories that are to be connected to the main areas and themes created during annotation. Combining and eliminating certain codes at this stage is possible and often necessary. In the interview analysis, the categories are created based on the interview questions and aligned if necessary.

4. Segmentation: To segment the data an Excel sheet is created and shared amongst the researchers analysing the results, to develop the first data subdivisions.

5. Analysis: The hierarchy between the different conclusions is established towards the summary of the results, namely by going from the more general to the more specific themes.

6. Writing the results: When all the content is analysed, it is thus possible to answer key questions and return back to the main objectives of the interviews, in a neutral and objective voice.

The following limitations have been considered and preventive measures have been taken to minimise their impact and maximise the neutrality of the study outcomes:

- *Bounded Rationality*: the respondents might not have all the elements to know what they state or might not be able to state what they really think on the subject. To prevent this, the researchers must

[28] https://study.sagepub.com/oleary3e/student-resources/analysing-data/steps-in-qualitative-analysis

distinguish appropriate strategies in dealing with answers and stimulate additional questions and suggestions towards acquiring a clear picture of the argumentation provided.

- *Unreliability* - The real-world setting often makes qualitative research unreliable because of uncontrolled factors that affect the data. To prevent this, there was an effort to provide similar settings for all interviews and a reduced timeframe.

- *Subjectivity* - The individual researcher decides what is important and what is irrelevant in data analysis, so interpretations of the same data can vary greatly. To prevent this, more than one researcher analysed the summaries through a critical analysis.

- *Limited generalizability* - Despite rigorous analysis procedures, it is difficult to draw generalizable conclusions because the data may be biased and unrepresentative of the wider population. Although this is unavoidable, a solid method has been applied to select the participants, crossing sectors and countries as illustrated in the previous sub-section.

The interview results were clustered by main themes, associated with the different sections of the interview script, in addition to a general analysis of the sociodemographic data of participants and organisations, including descriptive parts and graphs.

V. Full list of stakeholders contributing to the study

Stakeholder Typology	Name of Entity	Website
EU-level: SMEs General Interest Associations **(6 x General)**	CEA-PME European Entrepreneurs	https://www.european-entrepreneurs.org/
	SME-united	https://www.smeunited.eu/
	EU-level interest association for SMEs	Anonymous
	Eurochambres	https://www.eurochambres.eu/
	OECD SMEs and Entrepreneurship	https://www.oecd.org/cfe/smes/
EU-level: SMEs Sectoral Interest Associations **(6x Sector specific)**	(Manufacturing) CEEMET	https://www.ceemet.org/
	(Construction) European Builders Confederation	https://www.ebc-construction.eu/
	(Innovation & Research) ORGALIM	https://orgalim.eu/
	(Tourism) HOTREC	https://www.hotrec.eu/
	(Agro-Food) Food&Drink Europe	https://www.fooddrinkeurope.eu/
	(Agro-Food) COPA-COGECA	https://copa-cogeca.eu/
	(Retail) EuroCommerce	https://www.eurocommerce.eu/

Stakeholder Typology	Name of Entity	Website
National level: SMEs General Interest Association **(1x each country in sample)**	(IT) CONFAPI	https://www.confapi.org/it/
	(BG) Anonymous national association for Industrial interest	Anonymous
	(GR) ESEE - Hellenic Confederation of Commerce and Entrepreneurship	https://esee.gr/en/
	(ES) CEPYME	https://www.cepyme.es/
	(DE) BVMW	https://www.bvmw.de/
	(HR) Croatian Chamber for Trades and Crafts (HOK)	https://www.hok.hr/en/about-hok
	(PL) Family Business Foundation (Fundacja Firmy Rodzinne)	https://ffr.pl/en/
	(FI) Suomen Yrittäjät;	https://www.yrittajat.fi/en/yrittajat-organization/information-about-yrittajat/
	(PT) Portuguese Commerce and Services Confederation	https://ccp.pt/
	(RO) National Council of Private Small and Medium Enterprises in Romania (CNIPMMR)	http://cnipmmr.ro/
	(FR) Confédération des PME	https://www.cpme.fr/
	(NL) Royal Association MKB-Nederland	https://www.mkb.nl/over-mkb-nederland/english
Stakeholder Typology	Name of Entity	Website
Testimonial SMEs **(12x distributed across country [1 each] and sector [2 each])**	(IT) Manufacturing – VEBI Biochemical Institute	https://www.vebi.it/
	(BG) Tourism – Bulgarian Tourist Resort	Anonymous
	(GR) Construction – K-constructions	https://www.k-constructions.com/
	(ES) Retail – Mecanocamp	http://www.mecanocamp.es/
	(DE) Tourism – Anonymous Restaurant	Anonymous
	(CR) Manufacturing – VUK Leather	https://www.vuk.com.hr/
	(PL) Construction – MajsterPol	https://majsterpol.eu/
	(FI) Agro-Food – Goodio	https://goodiochocolate.com/

	(PT) Agro-Food – Manteigaria Silva	https://loja.manteigariasilva.pt/
	(RO) R&I – Registrul Miorita	http://www.registrulactionarilor.ro/
	(FR) R&I – R2M Solution (FR Headquarters)	https://www.r2msolution.com/
	(NL) Agro-Food – Anonymous pot plant sales	Anonymous

VI. Questionnaires

a. In-depth Questionnaire for SME-oriented EU & International Organisations

A. Containment Measures

1. In your opinion, which of the following social distancing measures affected the most SMEs in your network during the acute phase of the pandemic? Please select the most important categories:

- *Extreme (i.e., national border closures, territorial "lockdowns", physical mobility restrictions)*
- *Intermediate (i.e., directives/guidelines on all businesses; temporary closure of certain sectors)*
- *Individual (i.e., safety distance; protective equipment; hygiene)*
- *Others: Please, specify*

2a. *If you belong to a sector-specific SME organisation:* Please argument your previous selection for SMEs in your industry.

2b. *If you belong to a general-interest SME organisation*: Based upon your expertise, could you please rank the industrial sectors (and thus, their SMEs ecosystems) most affected by the social distancing measures? (1 is the most affected and 6 is the least affected)

- *Manufacturing*
- *Construction*
- *Innovation & Research*
- *Tourism*
- *Agro-Food*
- *Retail*

3. Have the social distancing measures affected purchasing habits of SME customers in your network? (Examples include increase in e-commerce and/or online orders, reductions in purchases, etc.).

B. Workforce

4. In what concerns the workforce, what have been the main measures taken to mitigate business disruptions among SMEs in your network? Please select the most important categories:

- *Switch to remote working*
- *Reduction of hours and/or temporary layoffs*
- *Redundancy-related terminations*
- *Other typologies of staff reduction*
- *Hiring freezes*
- *Others: Please, specify*

5. Please argument your previous selection.

C. Finance

6. What has been the main immediate impact of the pandemic on the sales of SMEs in your network? Has there been any significant change from sales records of 2019? Has there been a change in clients' profiles?

7. Did the SMEs in your network experience economic hardship due to the pandemic? If so, what have been the main financial issues for them?

- *Liquidity squeeze (significant falling revenues while covering fixed costs)*
- *Delay in payments*
- *Deferment of investments*
- *Reduction of salaries*
- *Renegotiation of business contracts and credit conditions*
- *Others: Please, specify*

8. Has the leverage (debt/equity) of SMEs in your network been affected?

9. What has been the main source of finance for SMEs in your network during the pandemic? (e.g. bank finance, market finance, equity injections)

10. What kind of business solutions did the SMEs pursue in trying to survive/adjust to the situation?

- *Costs reduction*
- *Changing nature of products and services (Business model)*
- *Renegotiation of business contracts (with customers, providers)*
- *Renegotiation of credit conditions (i.e. with banking sector)*
- *Outsourcing of products or services*
- *Others: Please, specify*

11. Do you believe that state aids could have worsened the financial conditions of SMEs that you represent/in your industry sector? (i.e. increased high debt) Y/N. Please argument your answer.

12. In addition to the effects of the pandemic, have any of the following economic effects of the current Ukrainian conflict affected (further) the SMEs that you represent and/or belong to your network?

- *Spike in inflation*
- *Higher costs for raw materials*
- *Impact of energy prices*
- *Disruptions in supply chain*
- *Others: Please, specify*

13. Please argument your previous selection and provide your perspective on how these may have affected the continuity of economic hardship for the SMEs that belong to your network.

D. Digitalisation

14. What kind of digital solutions did the SMEs you represent employ in order to tackle the disruptions from the pandemic?

- *E-commerce solutions (local or corporate shopping platforms, online bookings, etc.)*
- *Virtual meetings (teams, VoIP, remote management)*
- *Social media marketing*
- *Mobile Technologies (i.e. apps or home deliveries)*
- *Industry 4.0 solutions (i.e., big data analysis, use of sensors and IoT integration, Artificial Intelligence)*
- *Others: Please, specify*

15. Do you think that advanced technological solutions (Industry 4.0) can be useful to the SMEs you represent? Why? Why not?

E. Public Assistance

16. Did European social partners have a relevant role and took positions that influenced public assistance measures in your sector or other relevant impacts you think should be mentioned?

17. What were the most requested public assistance measures from the SMEs you represent?

- *Employment support (wages, social security)*
- *Fiscal relief (tax moratoria, deadlines extension etc.)*
- *Public support to private loans (banking)*
- *Public loans/grants*
- *Helicopter Money*
- *Others: Please, specify*

18. In your opinion, were they effective?

19. Do you think that the current recovery measures enlisted by NextGeneration EU (Recovery and Resilience Facility and the relative National Recovery and Resilience Plans) sufficiently tackle the needs of SMEs? What do you think that is missing? Also, are SMEs currently perceiving the direct/indirect benefits of NGEU investments in Member States?

20. Do SMEs in your network find clear and easy ways to apply for NGEU/NRRP funds? If any, what problems do they encounter?

21. In light of the NGEU plans, what kind of public support measures would be most relevant for reducing the gender gap worsened by the pandemic? Will these have an impact over SMES for female employers?

F. European Diversity

22. Do you believe that *international or structural differences* across countries (health crisis severity, management and public support) have had a rebound effect on SMEs? Y/N. Please argument.

23. Do you think that *intra-national or regional differences* (i.e., the historical North vs. Southern Italy gap) have conditioned the gravity of the pandemic for SMEs in their countries? Y/N. Please argument.

24. What are the most urgent policy measures that should be put in place to support SME recovery and sustainability after COVID-19 and in light of the current Ukrainian crisis?

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b. Testimonial Questionnaire for National SME-oriented organisations

A. Containment measures

1. In your opinion, what were the social distancing measures that most affected the SMEs that you represent/in your country/region/network? Please argument on your selection.

2. Based upon your expertise, could you please rank the industrial sectors (and thus, their SMEs ecosystems) most affected by the acute stage of the pandemic in your country? (1 is the most affected and 6 is the least affected)

- *Manufacturing*
- *Construction*
- *Innovation & Research*
- *Tourism*
- *Agro-Food*
- *Retail*

B. Workforce

3. In what concerns the workforce, what have been the main measures taken by SMEs in your network? Please, argument your answer.

C. Finance

4. Did the SMEs that you represent experience economic hardship due to the pandemic? If so, what have been the main financial issues for them?

5. What kind of solutions did the SMEs pursue in trying to survive/adjust to the situation?

6. In addition to the effects of the pandemic, have any of the economic effects of the current Ukrainian conflict affected the SMEs that you represent? (e.g., spike in inflation, higher utility prices)

D. Digitalisation

7. What kind of digital solutions did the SMEs you represent employ in order to tackle the disruptions from the pandemic?

E. Public Assistance

8. Did national social partners have a relevant role and took positions that influenced public assistance measures in your sector or other relevant impacts you think should be mentioned?

9. What were the most requested public assistance measures from the SMEs you represent? In your opinion, were they effective?

10. Do you think that the current recovery measures enlisted by your own National Recovery and Resilience Plan sufficiently tackle the needs of SMEs? What do you think that is missing? Also, are SMEs in your country currently perceiving the direct/indirect benefits of NGEU investments in Member States?

11. Do SMEs find clear and easy ways to apply for NGEU funds in your national context? If any, what problems do they encounter?

F. European Diversity

12. Do you consider that *regional differences* in your country have contributed to worsen the effects of the pandemic on economy and employment?

13. What are the biggest assistance needs your country has?

14. What are the most urgent policy measures that should be put in place to support SME recovery and sustainability after COVID-19 in your country?

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c. Testimonial Questionnaire for Individual SMEs (Real-Life Practices)

A. Containment Measures

1. How did the pandemic restrictions affect your company?

2. Did you notice a change in your customers' behaviour throughout the pandemic?
(e.g. more online purchases, reduced consumption of a specific product, etc.)

B. Workforce

3. How did you deal with changes in your employees environment? (e.g. switch to remote working. reduction of hours and/or temporary layoffs, redundancies and firing procedures)

C. Finance

4. What was the impact of the pandemic on your average sales with respect to 2019? Did the profile of your customers change?

5. What kind of financial difficulties has your company experienced through the pandemic?

6. What kind of financial solutions did you pursue to adjust to the situation?

7. In addition to the effects of the pandemic, are you currently being affected by any of the economic consequences of the Ukrainian conflict?

D. Digitalisation

8. What kind of digital solutions did your business employ to tackle pandemic restrictions? Are you planning further actions to adapt to the digital transition in the coming period?

E. Public Assistance

9. Did you request public assistance from your government during the various stages of the pandemic? If so, what kind of help did you apply for?

10. What kind of help would you need to sustain or expand your business during post-pandemic recovery?

11. Do you consider the current public investment measures funded by national and European programmes to be useful to your SME?

12. Does your SME find the procedure to access NGEU/NRRP clear and accessible in your country?

13. Do you believe that your SME is currently receiving the direct/indirect benefits of NGEU/NRPP investments in your country?

F. European diversity

14. Do you think that your company's level of business is affected by its geographical location? Do regional differences matter significatively in doing business in your country? What about your SME positioning in national and international markets and supply chains?

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