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Advanced Technologies for Industry – Policy brief

Scaling up technology startups

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Table of contents

Section

Background

This report has been developed in the framework of the Advanced Technologies for Industry (ATI) project, initiated by the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship, and SMEs and the European Innovation Council and SMEs Executive Agency.

The objective of this Policy Brief is to analyse European, national and regional policy measures focused on the challenge of helping technology startups to scale up and explore any policy gaps.

Scaleups are described as high-growth enterprises that have an ambition to grow beyond the national market. An established definition is provided by Eurostat and the OECD: "*All enterprises with average annualised growth greater than 20% per annum, over a three-year period, whereby growth can be measured by the number of employees or by turnover.*"

Scaleups have been found to drive innovation and investment activities and are also key to foster the digital and green transitions of our times. Over half of the high-growth startups implement digital technologies such as Artificial Intelligence or Big Data[1]. Yet in the EU, scaleups in general face a number of constraints, which are hindering their development.

Scaleup growth is also influenced by the type of technology or sector they operate in. The following characteristics can be distinguished:

- *Fast paced technology fields with limited capital needs*: software, apps, games, other ICT with typically short return on investment and high interest among investors.
- *Deep tech sectors with long time-to-market*: such as biotechnology, pharmaceutical, with potential for very high return on investment, but also high risk. In the medtech and life sciences sector, tight regulations restrict the development of some devices or technologies, due to, for instance, ethical considerations. These uncertainties make investors' interest in these types of scaleups fluctuate. Companies in the cleantech sector also face a diversity of incentive schemes. The harmonisation of legislation in the environmental field in the EU is still ongoing, while Member States take very different policy approaches. In the industrial biotech sector, product margins are lower, while the need for capital investments in large-scale production plans is high. Moreover, scaling bio-based processes is an unpredictable process that makes the companies' products riskier in the eyes of investors.
- *Deep tech sector with high capital needs*: especially relying on high volume manufacturing with high capital demand such as in the fields of advanced manufacturing or electronics. These investments require a combination of equity and non-equity funding, often from very large later stage funds.

Not all deep tech ventures require investments in large scale production facilities. Some companies can start without major production investment or grow slower and can rely on funding (at least partially) from their own revenues.

In this context, the specific objectives of this analysis have been to:

- Map the different challenges that technology scaleups face
- Identify policy approaches and measures that have been deployed in support of (tech) scaleups in the EU
- Discover and analyse any policy gaps in support of technology (tech) scaleups and provide recommendation for future policy.

The report is structured into a first section identifying the key policy challenges, a second section analysing policy responses, strategies and policy initiatives at EU, national and regional level and a third section including a summary of the findings and recommendations.

This study is based on a comprehensive literature review and expert assessment and has been discussed with a broader group of stakeholders in the context of the ATI policy webinar on technology scaleups organised on 6 May 2021. The report of the webinar is available here: https://ati.ec.europa.eu/events/scaling-european-advanced-tech-fixing-demand-side .

[1] EIB and Nesta, 2020

Section 1

1. Challenges of technology startups scaling up

Key messages

Market demand is considered as one of the most important barriers to investment. Tech startups need to build up a new market around their innovative products and services, where a whole existing ecosystem needs to be changed to ensure a wide uptake.

The financing needs of tech scaleups vary in terms of the type of technologies they use or develop. When it comes to financing constraints, a key difficulty is that **the right type of finance is not always available.** Scaleups need larger ticket sizes and often it takes longer to achieve return on investment for certain sectors. In particular, some deep tech companies (building on scientific discoveries, R&D, engineering, etc.) need larger amount of funding in particular to finance investments in large production facilities.

A crucial barrier identified is the **access to talent and skills** and most specifically the mobility of talent. Regulatory barriers to employees owning stock options in companies make it difficult for scaleup companies to attract and retain talent.

Behavioural factors like the lack of ambition to grow, attitudes to entrepreneurship, motivation and personality of business leaders also play a role in the kind of growth path that the companies take. The lack of ambition often becomes a barrier to scaling up in the EU.

In the pursuit of technological strategic autonomy, the European Union requires an entrepreneurial ecosystem where tech companies can scale up fast and compete successfully at a global level. Scaling up is critical to ensure that Europe can stay ahead of technological developments and accelerate its economic recovery.

Scaleups face a range of common challenges that hinder them to grow internationally, which we define in more detail in the following subsections:

- Market demand and barriers to market access
- Financing constraints, due to the availability of finance and regulatory barriers
- Access to skills and human capital
- Lack of ambition or readiness to grow.

1.1. Demand, market access and internationalisation challenges

In a survey about European high-growth firms[2], the EIB found that market demand is considered a barrier to investment by 50% of companies. In practice, one of the first challenges that companies encounter when growing is to clearly identify where the demand is. Companies that go international need **knowledge of the market demand** and of customers' preferences that characterise the targeted foreign countries. This entails finding the first customers which can act as credible and convincing references. Tech startups need to build up a market around their new offerings that can become particularly challenging for innovative products and services where a whole existing ecosystem needs to be changed for a wider uptake.

Companies in their growth stage interested to access foreign markets outside the EU face specific barriers revolving around the **lack of information on the targeted foreign market**. Once companies learn which markets are the most promising in terms of demand, it is important to understand the market conditions in order to decide on the best strategy to enter that market. Key further considerations include competition in the targeted market, how easy it is to access these markets and operate in them, security, access to skilled workforce, key partners materials, etc.[3].

Building sufficient **capacity to meet the market demand** represents one of the further challenges. Companies need to understand the conditions for production, product delivery and service provision. They need to find those markets where the demand is optimal: on the one hand it is high enough to convince investors and allows scaling up the business, on the other hand it is not too high because otherwise it may lead to failure (e.g. not being able to supply that will lead clients to turn elsewhere or rushing production and scaling up that can cause quality problems).

Understanding the regulatory barriers in the specific market is also crucial for the assessment of the best market-access strategy. When going abroad, companies lack information on differences

[2] EIB, 2019.

[3] OECD, 2021.

in regulation, other framework conditions and IPR protection[4].

Companies that want to scale up in the EU, be they startups or SMEs, face issues related to **the absence of a truly integrated EU-wide market[5]**. Product and service markets are fragmented, which means that scaleups must deal with different regulations and practices in their wider European home markets, whereas their Chinese or US competitors can operate under a single rule within their large single domestic market. This is particularly challenging to companies operating in sectors where sectoral policies are being formulated for the first time or rules keep changing with the shifts in policy priorities. For example, companies developing environmental and clean energy solutions have to face different national regulations and incentives dictated by local policy priorities.

EU Member States represent smaller markets than what the continental and global scale can offer, and yet companies are finding it difficult to expand beyond their local markets. A number of barriers are at stake, including barriers due to linguistic, administrative or legal differences between EU Member States, hampering the setting up of subsidiaries abroad[6].

In the same above mentioned survey, the EIB found that the most significant barriers to investment include **business regulations and labour market regulations** (60% of companies). Barriers in the general business environment are different across the EU, depending on the Member States' legislation. They include inflexible bankruptcy laws and the efficiency of the law and legal system, which matter for companies' assessment of risk and expansion to new markets. In addition, the taxation of stock options can create disincentives for company owners and employees to explore this path[7].

Moreover, counterproductive incentives may be built into existing policies targeting SMEs or different types of companies, which may distort their incentives to grow. In particular, providing specific facilities or simplification measures only to SMEs may discourage companies from growing (since they want to avoid additional regulatory barriers prevalent for larger firms)[8]. For instance, according to the 2020 Flash Eurobarometer, almost one in ten SMEs that do not plan to grow mention that this is because they would lose their status as an SME[9].

While local competition can provide the necessary training to develop skills and experience needed in international markets, a fragmented product and service market hinders rather than enables competition. In practice, rather than competing by developing better products and services, efforts are spent on managing regulatory requirements, approvals and certifications, little of which can be re-used in accessing non-European markets.

1.2. Financing constraints

At the macro-level, funding trends seem to be encouraging despite the uncertainty brought by the recent COVID-19 pandemic. While the long-term effects of the pandemic on the scaleup landscape still need to be understood, a shock decline of 36% of the capital invested in European tech was observed at the start of the crisis (Q2 2020) versus Q2 2019. In spite of the rough start of 2020, the year ended with an even better financing landscape than 2019. Venture capital deal values in fact achieved new records by the end of 2020[10]. Governments have also intervened, with an approximately $11 bn (cca. €9 bn) in funding allocated through relief funds[11]. Nevertheless, in comparison to the US, the level of venture capital investment is still lower in the EU27, especially for later stage firm development[12].

Looking at the distribution of funding, it is clear that it is concentrated in some major European hubs, making it an uneven playing field for companies born elsewhere that struggle to reach their potential. According to the European Scaleup Monitor 2020, **80% of European scaleups are located in top 10 European scaleup countries**[13]. The top four EU27 countries with the largest numbers of scaleups in 2020 are, in descending order France, Germany, Sweden and Spain[14]. The European and associated countries that are attracting the largest late-stage funding were Germany, UK, Israel, Sweden and France in 2019[15]. The top five sectors (or 'verticals') attracting the largest amounts of late-stage funding were fintech (€6.8 bn), transportation (€3.2 bn), software (€3.1 bn), foodtech (€3.1 bn) and medtech (€2 bn) in 2019[16].

One of the inherent characteristics of scaleups is their ambition to grow, which needs to be matched by larger-size investments to accomplish the companies' expansion goals. The financing needs of scaleups are further differentiated by the type of technologies used or developed. In particular, companies relying on deep tech (building on scientific discoveries, R&D, engineering, etc.) need larger amounts of funding up-front, or need longer time to achieve return on investment, or have to deal with regulatory uncertainties, as explained in the previous chapter. Scaleups

[4] Ibid.
[5] EIB, 2019.
[6] Business Europe, 2020.
[7] Tech.eu & Stripe, 2019.
[8] OECD, 2018.
[9] European Commission, 2020d.
[10] ATI Crunchbase/Dealroom data analysis, 2021.
[11] https://2020.stateofeuropeantech.com/
[12] EIB and Nesta, 2020; Tech.eu & Stripe, 2019.
[13] Erasmus Centre for Entrepreneurship, 2020.
[14] Ibid.
[15] Tech.eu & Stripe, 2019.
[16] Ibid.

therefore have to cross a 'second valley of death'[17], which represents a clear finance gap limiting their ambitions.

The traditional sources of funds for startups and scaleups can range from business angels and early stage venture capital funds, growth stage venture capital (VC) funds and investors, later stage funds and investors, crowdfunding, commercial banks and lenders or public funding (equity, loans, grants). However, while providing investments to startups may be affordable to the majority of them, the ambitious growth goals of scaleups might be a different type of gamble: **The size of the funding that is typical for such technology scaleups starts with funding rounds of at least €100 m**[18].

Availability of the right kind of finance

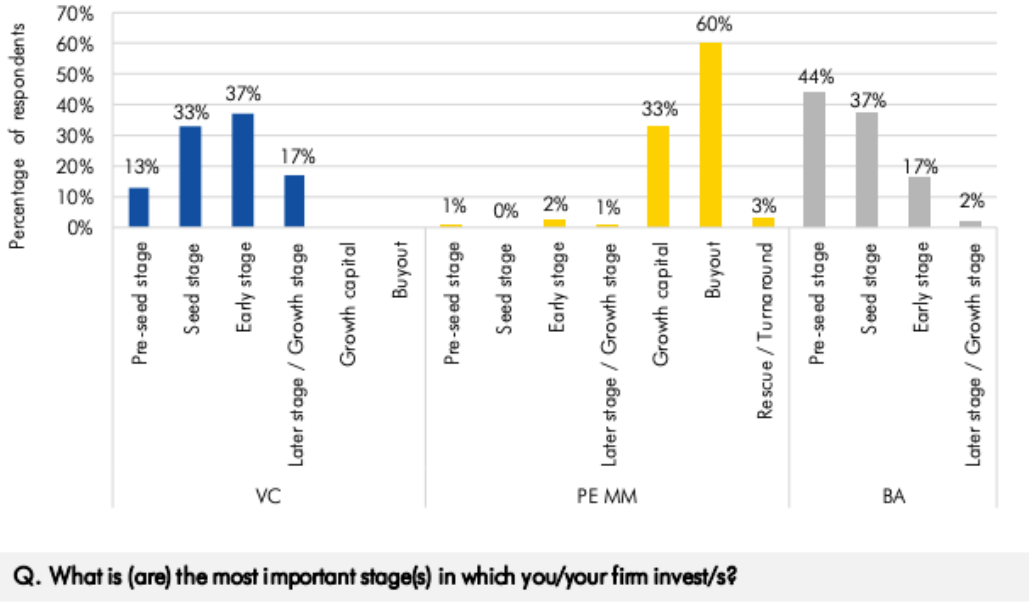
It is thus no surprise that **one of the major constraints of high-growth companies is the availability of finance**, especially in the EU. A survey performed by the European Investment Bank among startups and scaleups shows that access to finance is a major challenge to one in three startups (both at the early-stage and at the growth stage)[19]. The State of European Tech survey[20] also confirms that securing access to capital has been a challenge for 46% of the founders in 2020, followed by pivoting the product and the decline in new sales.

While late-stage funding has started to become more available to European startups since 2016, the majority (73%) of the investors willing or able to back companies with these amounts of funding are non-European, generally originating from the US and Asia[21]. This also shows that there has been a lack of European late-stage funding, with Europe-based investors covering only 27% of late-stage investments in the EU[22]. Interestingly, China and Israel have overtaken the EU in terms of availability of late-stage funding, even if they had similar starting positions[23].

Another difficulty when it comes to financing constraints in the European technology scaleup scene is the **limited availability of the right type of finance**. There is evidence that a significant share of European scaleups have first received public funding especially for the early stage through R&D, startup or innovation support programmes in various EU Member States. For instance, while 72% of US high growth companies have not used public funding, this can only be said about 51% of EU-based ones[24]. However, once the company reaches the growth stage, the larger ticket sizes that scaleups need are rare to find outside the above-mentioned countries.

Surveys with investors and financial experts performed by the European Investment Fund in 2020 also shows that, overall, there is a low focus on scaleup funding among the private finance providers across three different groups: venture capital (VC), private equity mid-market (PE MM) and business angels (BA)[25] (see Figure 1).

Figure 1: Focus of investment firms in Europe

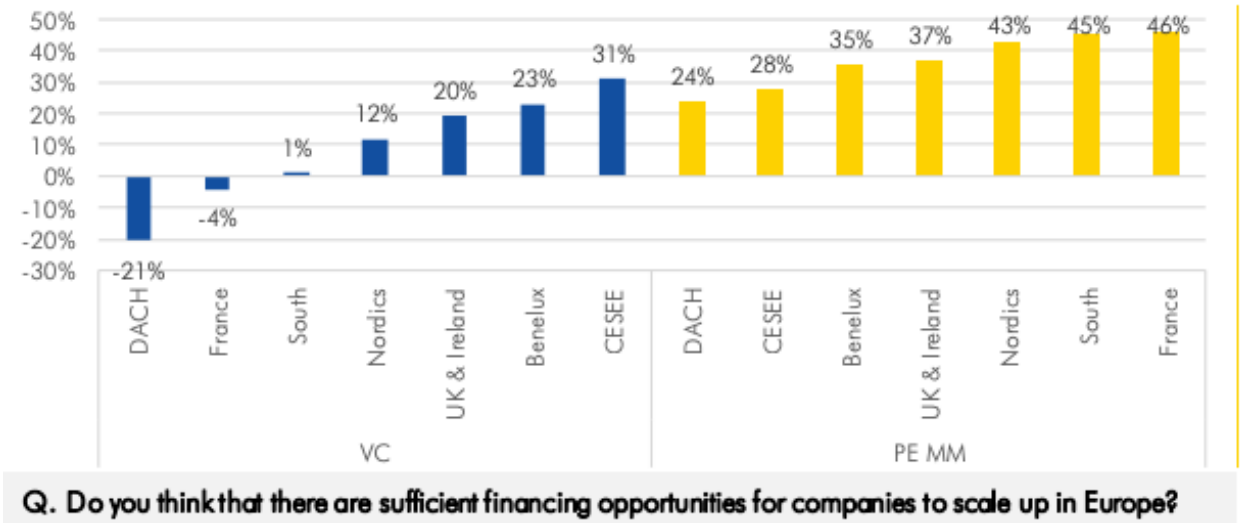


Q. What is (are) the most important stage(s) in which you/your firm invest/s?

Source: EIF, 2021

[17] https://scaleupnation.com/scaleup/
[18] Tech.eu & Stripe, 2019.
[19] EIB and Nesta, 2020.
[20] https://2020.stateofeuropeantech.com/
[21] Tech.eu & Stripe, 2019; WEF, 2020.
[22] Ibid.
[23] Ibid.
[24] EIB and Nesta, 2020.
[25] EIF, 2021.

Figure 2: Scaleup financing opportunities by European regions – net balance



Source: EIF, 2021

Note: DACH Countries: Germany, Austria, Sqitzerland; CE SEE Countries: countries in Central, Eastern and South-Eastern Europe; Nordics: Denmark, Finland, Norway, Sweden; South: Italy, Portugal, Spain

However, there are some considerable differences across countries and regions, confirming the above findings: VC and business angels do not provide sufficient financing for scaleups, while a majority of private equity respondents consider they provide sufficient opportunities. In addition, opportunities are more frequent in France, South and Nordic countries, versus the rest of the EU (Figure 2). Surprisingly, VCs in countries such as Germany, Austria, Switzerland (DACH countries) and France perceive scaleup opportunities more negatively than in the rest of the countries.

There are several types of financial sources that have been observed as entering the market to cover the late-stage funding rounds in the EU27 since 2016, including: growth equity investors, private equity firms, hedge funds, corporates and event sovereign wealth funds, the majority of which are American, followed by German and Swedish investors[26]. Blended finance is a type of financial instrument that can leverage both public and private investment and thus offer larger amounts of funding to scaleups. However, this type of instrument is rather rare in the EU27, as there is a lack of expertise and a perceived risk-aversion to develop such instruments[27].

Initial Public Offerings (IPOs) are another typical mechanism of accessing late-stage funding. However, there has been a **marked drop in the number of IPOs and mergers and acquisitions (M&As) in Europe** in recent years, in congruence with global trends, as high-growth companies choose to stay private and independent[28]. The majority (90%) of exits in the EU were acquisitions in 2015-Q3 2019[29]. This puts pressure on European stock exchange markets, as it creates a vicious circle of low liquidity that, in turn, makes them unattractive to companies[30]. A recent survey of investor firms based in the EU investigated the barriers to the use of IPOs and found that a large percentage of respondents do not have IPOs as part of their funding strategy (44% of VC funds and 35% of private equity middle market funds PP MM). Further barriers to the use of IPOs include insufficient liquidity (32% of VC funds and 28% of PP MM) and the perception that IPOs are too expensive and burdensome (27% and 22% respectively)[31]. Diminishing IPOs is a real concern. IPOs are, after all, one further mechanism of accessing the necessary funding. Staying private is an option, but only to those who can afford it, i.e. ones which can grow using their own revenues and receiving follow-up investments from their existing owners. For others, IPOs may provide means of accessing funds necessary for scaling up the business and growing fast.

Regulatory challenges related to accessing private finance in the EU

There are several **regulatory barriers for accessing private funding in the EU.** First of all, the EU does not have a common regulatory framework for venture capital, although this has been addressed in the European Commission's new action plan on the Capital Markets Union, published on 24 September 2020[32]. The fragmentation of the venture capital market in the EU and the uneven development of the venture capital markets in various Member States make it difficult for companies across all European countries to scale up. While there are large VC hubs like Germany or Sweden, ambitious companies who start in other countries like Estonia

[26] Tech.eu & Stripe, 2019.
[27] WEF, 2020.
[28] Tech.eu & Stripe, 2019.
[29] Ibid.
[30] TechCapMarkets, 2020.
[31] EIF, 2021.
[32] https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1677

and Romania and want to scale up need to re-locate to other hubs[33]. In comparison, the US is a single VC market.

A number of regulatory challenges have been identified, which explain the **difficult access to European stock exchanges** experienced by tech scaleups and SMEs[34]. There are differences in the level of development of stock exchanges across EU Member States, with major innovative regions coinciding with the location of prominent stock markets (e.g. Paris, Stockholm considered as some of the larger stock exchanges, as well as highly innovative cities)[35]. Remarkably, innovative SMEs seem not to be interested in listing on the stock market, or have found it difficult to access it, particularly due to high compliance costs and insufficient liquidity offered by those markets, which reinforces a negative loop. However, the stock markets can be an alternative to late-stage funding for technology startups and scaleups.

Cross-border Mergers and Acquisitions (M&A) activities in the EU are also hampered by several regulatory challenges again due to the fragmentation of the EU market. For instance, many scaleup SMEs rely on public funds, which may have particular conditions and/or reimbursement requirements. Depending on where the merged business activities are located (potentially closing activities in one country and expanding in another) there may be repercussions concerning the earlier public support received by one or more of the companies prior to the merger. Regional aid and also other aids may need to be returned causing extra financial burden to the owners, thus preventing necessary reforms of business activities. Different fiscal regimes exist for the owners of the companies depending on where the new company after the merger is registered. For these reasons, cross-border mergers and acquisitions in Europe are fairly complex.

1.3 Availability of human capital and skills

The availability of talent and staff is one of the most important barriers to 34% of high-growth companies in the EU. This is more of a barrier for scaleups than for young startups just entering the market[36]. Finding staff with the right skillset is a major challenge, especially for employees with **technological skills**. However, **SMEs seem to be the most challenged** by the insufficient skills available among their staff, with 52% of surveyed SMEs in EU27+UK admitting this as a major barrier to their business. There is a need to address this difficulty with skills development policies targeted at SMEs.

The scaleups' ability to attract, hire and retain talent in the EU has been highlighted as a priority that should be crucial for EU policies[37]. Knowledge circulation, education, investments in digital skills and technology transfer are key elements and are considered important ingredients helping startups grow into scaleups. For instance, looking at the European continent as a whole, highly skilled engineers are available. However, the most significant issue that may hamper scaleup growth is the **mobility of talent** in the EU.

Regulations framing the extent or the means through which companies are able to reward employees have been considered another challenge. According to tech scaleup entrepreneurs, national regulations related to employee ownership or providing stock options to company members have been posing a barrier to **the companies' ability to retain their staff,** as they do not allow sufficient flexibility[38].

1.4 The lack of ambition to grow

Behavioural factors like the lack of ambition to grow, attitudes to entrepreneurship, motivation and personality of business leaders also play a role in the kind of growth path that the companies take. While entrepreneurial education has started to grow as a practice in universities in the EU, more is needed to infuse the young generation and existing business owners with the confidence, driven attitude and skills to take on larger ambitions.

There are different findings related to whether the prior experience of the founders is one of the key defining factors of success. It is understood that if the company survives the early years of development, scaling up requires company leadership to further inspire, empower, manage and lead others. Based on earlier research on company leadership, 78% of the founding teams of scaleups have at least one experienced team member and generally older founders, typically in their forties[39]. However, more recent research shows that there is little influence of the existence of entrepreneurial experience on the likelihood of a company to scale[40]. In fact, it is more challenging for founders to drive the growth of companies on their own, as opposed to founder teams, who matter in influencing the companies' chances of growth[41]. The lack of past success stories in different ecosystems can translate itself into path-dependency. The fewer companies grow in different ecosystem, the lower the likelihood and ambition of companies to take the high-growth path in those ecosystems – geographical and structural deficits between European firms matter as factors of success[42].

[33] WEF, 2020.
[34] TechCapMarkets, 2020.
[35] Ibid.
[36] EIB and Nesta, 2020.
[37] Tech.eu & Stripe, 2019.
[38] Tech.eu & Stripe, 2019.
[39] Deloitte, THNK, 2015.
[40] Erasmus Centre for Entrepreneurship, 2020.
[41] Ibid.
[42] EIB, 2020.

Section 2

2. Policy strategies and policy measures

Key messages

Looking at the policy measures against the challenges scaleups are facing in Europe, **the emphasis in recent years has been rather strongly on access to funding**. Significant volumes of public funds and related policy measures have been targeted to increase the availability of funding for companies, especially those with ambition to grow in international markets.

Europe should strive to be globally attractive by having **stronger demand for innovation**. Policies launched to develop Europe into global lead markets have not gained sufficient traction or made any significant advances so far. The mechanisms to enhance the demand for innovation are known, but measures to capture the vast potential of demand-side measures such as public procurement, demonstrators and smart regulations are insufficient.

National programmes target mostly the **access to finance and internationalisation** challenge of scaleups. Recent measures strengthen support to scaleups especially in the light of achieving technological strategic autonomy. Specific initiatives have been also launched with a focus on digital ventures.

2.1 European policy framework

European startups face several obstacles to survive beyond the first years of their development due to the incapability to scale up and evolve into global businesses as described in section one. As part of one of its priorities[43] - *Priority 1 - A new boost for jobs, growth and investment* - the Juncker Commission (2014 – 2019) initiated the development of policies targeting startups and scaleups. Since then, European Commission policies have been developed and implemented with the objective of supporting European scaleups to successfully grow and develop their activities in Europe and abroad.

The initiatives launched at EU level target in particular the financing constraints, access to market, regulatory barriers and the availability of human capital and skills. In general, European measures have a horizontal approach and do not address scaling up in specific sectors, except for areas such as fintech, digital market, cleantech, where regulatory measures have been sector-specific.

The **New Industrial Policy Strategy** of the European Commission presented in March 2020 and its **update** published in May 2021[44] aspires to trigger investments in green and digital technologies along the various stages of the startup development process and progress. The Communication highlights the importance of **the single market for capital** and the work on expanding support for scaleup capital, strategic investments and for Initial Public Offerings (IPO).

One of the main policies that aims at creating favourable framework conditions for the scaling up of companies is the **Capital Markets Union (CMU)**[45], the creation of a single market for capital. The creation of a capital union has been part of the European project since the very start, and the initiative took new impulses with the 2015 CMU Action Plan[46]. In spite of the efforts done in the last years, the European Capital Market remains fragmented. The 2020 CMU Action Plan[47] has recently been published and continues the work started. The objective is to ease and promote the movement of money (i.e. investments and savings) across Europe, in order to benefit European consumers, investors and companies, regardless of their nationality and/or location.

There has been progress in the harmonisation of VC-related regulations with the introduction of the 2019 EuVECA (European venture capital funds) regulation[48] facilitating cross-border investment flows in the EU. A pending initiative is the Common Consolidated Corporate Tax Base (CCCTB) regulation, which aims to address the more favourable treatment of some tax systems of equity versus debt financing.

The completion of the CMU will help to overcome financial constraints that hinder the scaling up of startups by allowing businesses to access funding opportunities from any Member State. The CMU

[43] Juncker, J.C., 2014.
[44] https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1884
[45] European Commision, 2021b.
[46] European Commission, 2015b.
[47] European Commission 2020a.
[48] European Commission, 2013.

will also allow companies to choose the funding mode that has the lower costs and provides them with the financial support they need. Despite the fact that the European economy is similar in size to the American one, the European equity market is less than half in size and the debt market less than a third. There is a bigger gap between EU Member States than between Europe and the US[49]. Furthermore, a strong and complete CMU will be pivotal in the economic recovery after the COVID-19 pandemic and to finance the twin digital and green transition.

Opportunities in the digital economy can also support the expansion of markets, promote better services and more choice at better prices and create new employment opportunities. Therefore, a complete and functioning **Digital Single Market** (DSM) can bring opportunities to startups and allow established companies to scale up and profit from the volume of a market of more than 500 million clients[50]. The European Commission put forward a **target for 2030 of doubling the amount of unicorns in the EU** in its Communication on the Digital Compass published in March 2021[51].

The **Digital Single Market Strategy**[52] was built on three main pillars notably improved access for consumers and businesses to online goods and services across Europe; create the appropriate conditions for digital network and services to flourish; and optimise the growth potential of the European Digital Economy. Additionally, the completion of the Digital Single Market will also bring additional growth for Europe, as well as the creation of news jobs. Out of the 30 legislative initiatives proposed in the context of the DSM, 28 were successfully agreed/finalised by the European Parliament and the Council at the time of writing this report. The completion of the Digital Single Market will require the harmonisation of laws in order to foster the free movement of digital products and services across Europe, as well as the creation of the appropriate conditions to allow digital networks and services to thrive. Likewise, the strategy also identifies the need to increase the investment in ICT infrastructures and technologies that will boost industrial competitiveness. The completion of the Digital Single Market is a key milestone influencing the growth of software companies that build online solutions meant to operate cross-border, including the facilitation of e-commerce and data flows across borders.

The communication on **Shaping Europe's Digital Future**[53] highlights the importance that a completed single market and the uptake of digital technologies will enable and support the scaling up of companies. The communication also makes provisions for the upcoming EU policies and strategies in the digital area. One of the opportunities identified in the strategy that can foster the scaling up of companies is the construction of a data economy. The notion of a data economy has been addressed in the recent **European Data Strategy**[54], which foresees the creation of an European Data Space, a real single market for data. This data space would allow European tech scaleups to profit from economies of scale, to access non-personal data and to enter new markets.

Table 1: Overview of EU-level policy strategies that are relevant for scaling up

Challenge	EU policy strategy	Focus
Regulatory barriers **Financing constraints**	Capital Markets Union	Regulatory alignment of national regulations, standards, norms allowing companies / funds to operate across border
Regulatory Barriers **Market barriers**	Digital Single Market Strategy	Harmonised legislation and funding opportunities
Financing constraints **Regulatory barriers**	SME Strategy for a sustainable and digital Europe	Harmonised legislation and regulatory alignment
Market barriers	New Industrial Policy Strategy	Gaining leadership in areas where the EU still lags behind, such as on cloud and data applications

Source: Authors

The **SME Strategy for a sustainable and digital Europe**[55] published in March 2020 recognises the needs of SMEs to grow and scale up and at the same time to be more competitive, resilient and

[49] Ibid.
[50] European Commission 2015.a
[51] https://ec.europa.eu/info/sites/info/files/communication-digital-compass-2030_en.pdf
[52] Ibid
[53] European Commission, 2020d.
[54] European Commission, 2020b.
[55] European Commission, 2020c.

sustainable. It sets out an approach, based on horizontal measures helping all kinds of SMEs as well as actions targeting specific needs. The strategy is built on three main pillars: capacity-building and support for the transition to sustainability and digitalisation, reducing regulatory burden and improving market access, and improving access to financing.

2.2. EU policy measures

Access to growth funding

Looking at the different policy measures against the challenges that scaleups are facing in Europe, it is quite clear that the **emphasis in recent years has been rather strongly on access to funding**. Significant volumes of public funds and related policy measures have been targeted to increase the availability of funding for companies, especially those with ambition to grow in international markets.

While the funding volumes have been increasing, most of the policy initiatives seem to favour startups rather than scaleups. This is natural because startups are more likely to engage largely in pre-commercial activities whereas the majority of the funds needed by scaleups go into operational business activities such as production investment or marketing. Hence, public funds can easily be targeted at startups, while supporting scaleups is more complex, needs more resources and effort in terms of their programme design.

The European Investment Fund (EIF) invests in European VC funds, provides venture debt directly to startups and connects investors with startups. The EIF and the European Commission have launched **ESCALAR**[56] in April 2020, a new investment approach that supports venture capital and growth financing for promising companies, enabling them to scale up in Europe and help reinforce Europe's economy and technological strategic autonomy. Through this initiative up to €300 m will be made available with the objective to increasing the investment capacity of venture capital and private equity funds, triggering investments of up to €1.2 bn, four times the original investment and supporting promising companies.

Policies to improve access to growth funding must comply with private market principles. **Policy measures are therefore typically indirect and based on co-funding with private financial institutions** and/or investors. Public funds may be invested on slightly higher risk profiles compared to private funds, but otherwise the investment principles follow those of the private investors.

Significant effort has been and is being made to address **the fragmented financial market structures** that prevail in the EU. Despite these efforts and largely because many of the relevant regulatory regimes are under the mandate of Member States, clearly not enough has been achieved in terms of harmonisation or consolidation within the European financial markets. Fragmentation means that cross-border investments and funding arrangements are difficult, costly and may contain additional uncertainties, all of which causes a significant handicap for Europe compared to the US.

The measures of the above presented **Capital Market Union Action Plan set out 16 legislative and non-legislative actions** that are recognised as a means to support European SMEs willing to scale up and compete globally and in Europe. They are addressing several of the financial barriers and integrate national capital markets under a common European single market. The actions aim at fostering a green, inclusive and resilient economic recovery.

Market access and demand

The scalingup phase is supported by measures that aim at sparking new demand for advanced products and services. Part of Horizon Europe, the **European Innovation Council (EIC)**[57] has the objective of supporting high risk and impact ideas that could become new business opportunities and accelerate the scaleup phase of ground-breaking innovators. The initiative has been operating as a pilot from 2017 and will be fully operational under Horizon Europe. Within EIC there are three activities focused on the scaling up of companies:

- **EIC Pathfinder**[58]*:* It offers grants with the objective of promoting collaborative and inter-disciplinary R&I on new and radically new technologies inspired by science. The goal is to turn into reality the most promising and creative technological ideas and help Europe to compete worldwide.
- **Fast Track to Innovation** (FTI)[59]*:* It is a bottom-up innovation support programme that promotes close-to-market innovation activities. It can be used to co-create and test breakthrough products, services and process that could revolutionise existing markets or create new ones. The funding can be granted to close-to-market innovation activities in targeting any technology or application. The main objectives of the FTI are to reduce

[56] https://ec.europa.eu/commission/presscorner/detail/en/IP_20_628
[57] European Commission, 2019.
[58] European Commission, 2021a.
[59] Fast Track to Innovation. Availabale at: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/fast-track-innovation-pilot

commercialisation time; to foster first-time applicants to participate to EU R&I funding, and to increase private sector investment in R&I.

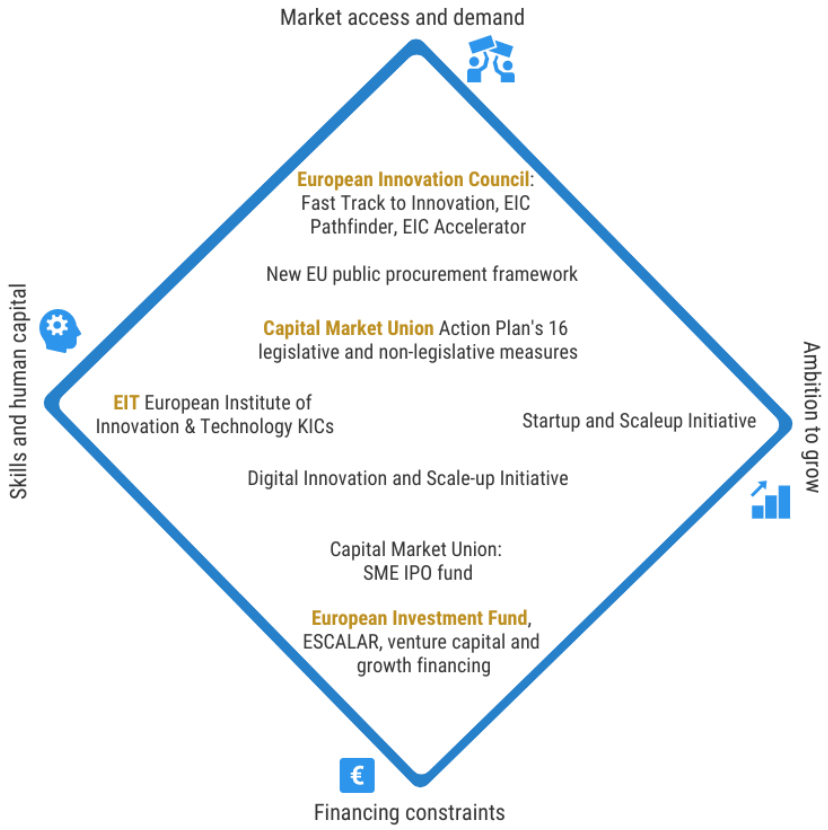
- **EIC Accelerator**[60]: It targets SMEs and innovators with high-risk and high-potential ideas and helps them develop and bring to market new innovative products, services and business models that have the potential for economic growth. The companies involved can access funding and optional equity, as well as coaching and mentoring services to scaleup their ideas and acceleration services. EIC Accelerator was known as the SME instrument in the past.

Market access can be also improved indirectly by better networking opportunities.

The **Startup Europe initiative**[61] has the goal of boosting networking opportunities of tech scaleups and other ecosystem actors in order to accelerate the growth of European startups. It brings together high-tech startups, scaleups, investors, accelerators, corporate networks, universities and the media. A broader portfolio of EU funded projects and policy actions such as the **EU Startup Nation Standard**[62], the **EU Innovation Radar Platform**[63] and the **Digital Innovation and Scaleup Initiative** (DISC)[64] have been launched. The EU Start-up Nations Standard will focus (beyond dedicated startup support) to ensure access to finance for scaling up and to cross-border digital tools[65].

The **Your Europe platform**[66] provides information on how to do business in Europe. It covers topics such as intellectual property law; taxation including excise duties, VAT and company tax; public contracts and public tendering rules; human resources including information on employment contracts, working hours and holidays or social security; product requirements, standards, product compliance and labels and markings; and finance and funding opportunities in Europe.

Figure 3: Overview of EU level policy measures in support of scaleups



Source: Authors

[60] EIC Accelerator. Available at: https://ec.europa.eu/easme/en/eic-accelerator
[61] European Commission, 2016 and https://ec.europa.eu/digital-single-market/en/startup-europe
[62] https://ec.europa.eu/digital-single-market/en/startup-europe
[63] https://www.innoradar.eu
[64] https://ec.europa.eu/digital-single-market/en/news/launch-digital-innovation-and-scale-initiative-disc
[65] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1593507563224&uri=CELEX:52020DC0103
[66] https://europa.eu/youreurope/business/index_en.htm

Digital scaleups

The **Digital Innovation and Scaleup Initiative**[67] is the first regional investment facility targeting digital innovation and scaling up of digital startups in Central, Eastern and South-eastern Europe (CESEE). Its financing tools are specifically tailored to the needs of the early stage and scaleup phase of digital startups. They usually require riskier financing which is not always available in more traditional banking institutions. On top of that a technical assistance programme is also offered with the objective to support the institutional capacity of public agencies to design, develop and implement digital innovation programmes. Last but not least, DISC aims at boosting investment and develop an environment for innovation and entrepreneurship, focusing mostly on cross border digital infrastructure and projects on digital skills.

Another sector-specific initiative has been the **EU's Revised Payment Services Directive**[68], a piece of legislation that is claimed to have boosted the fintech sector by nudging banks to share data with third parties, and thus allowing fintech scaleups involved in digital technologies to work with the banks' infrastructure for transactions[69].

Skills and networks

The **European Institute of Innovation & Technology (EIT)**[70] accelerates not just the seed-stage startups but also offers support to the scaling up phase via its knowledge and innovation communities (KICs). In 2020, the EIT Community plans to power 1 000 startups and scaleups and launch more than 360 new products and services to contribute to Europe's efforts of tackling global challenges.

The **Venture Centre of Excellence**[71] is an initiative driven by the EIF and EITHealth and fosters networking between corporates and startups in the life sciences sector. Corporates that want to participate in the programme need to participate in a life sciences VC fund managed by the EIF and get the opportunity to work directly with promising startups. Startups, on the other hand, receive access to the value chains of corporates and benefit from their experience in navigating the regulatory requirements in life sciences.

The European Commission has launched further initiatives and support programmes targeting companies that have the potential to scale up. There are several initiatives to connect local ecosystems and foster open innovation, such as the **Startup Europe Week**[72], **Startup Europe Awards**[73]**,** the **European Maker Week**[74], the **Startup Europe Partnership**[75] or the **Startup Europe Map**[76]. Several events have been organised to facilitate strategic one-to-one matchmaking between corporates and startups, such as the Scaleup Summits organised at European stock exchanges as part of the Startup Europe Partnership or the European Innovation Council Corporate Days.

Procurement

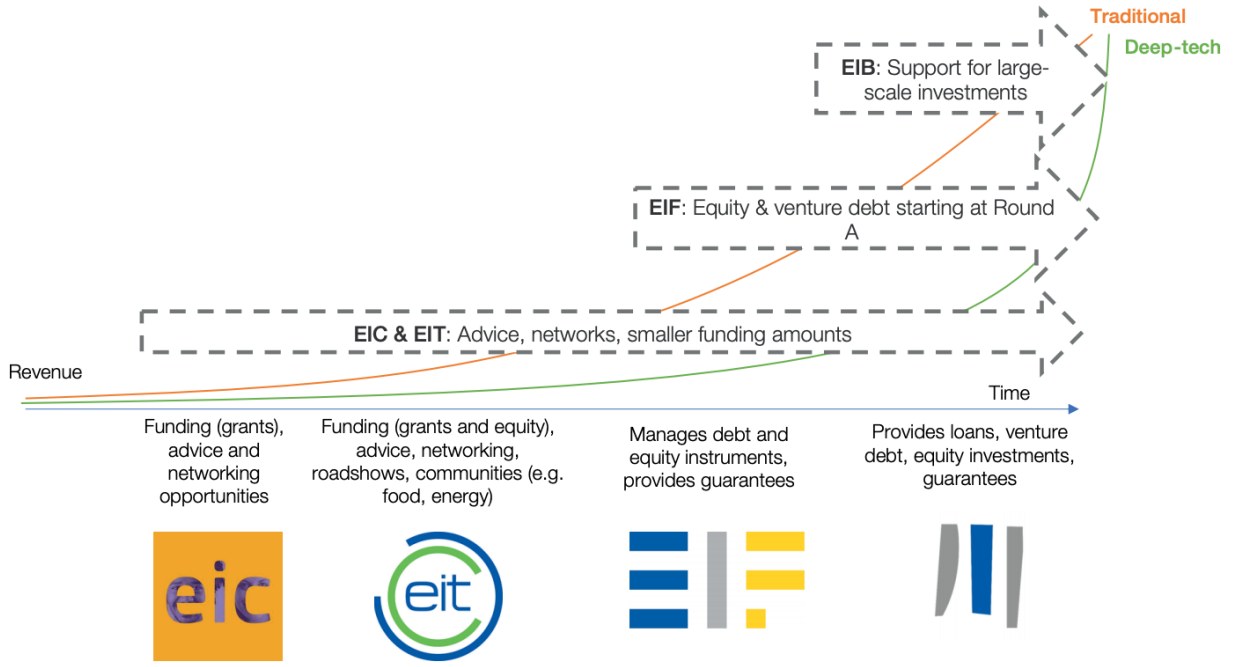
The European Commission has put forward a new **framework for public procurement in its recent SME strategy** (presented above). Governments are expected to divide larger contracts into smaller lots, expand strategic procurement, leave intellectual property rights with SMEs so they can commercialise it, and digitise procurement processes. The Commission is also launching new initiatives to facilitate private procurement for sustainable products as part of the new SME strategy: The Big Buyers and Networks Initiative will collaborate with the private sector to stimulate private procurement[77].

There are several public funding support programmes for scaleups, each of them focusing on different types of support (e.g. smaller funding needs, venture capital, equity or larger financing needs) as well as other transversal services (e.g. networking opportunities or advice).

Figure 4 presents European public funding schemes across the startup lifecycle.

[67] https://ec.europa.eu/digital-single-market/en/news/launch-digital-innovation-and-scale-initiative-disc
[68] European Commission, 2015c and https://ec.europa.eu/info/law/payment-services-psd-2-directive-eu-2015-2366_en
[69] TechEU & Stripe, 2020
[70] https://eit.europa.eu/news-events/news/eit-scales-support-innovators-europe-2020
[71] https://eithealth.eu/project/venture-centre-of-excellence/
[72] http://startupeuropeweek.eu
[73] http://seua.finnovaregio.org
[74] https://europeanmakerweek.eu
[75] https://startupeuropepartnership.eu
[76] https://startupeuropemap.eu
[77] https://ec.europa.eu/info/sites/info/files/communication-sme-strategy-march-2020_en.pdf and http://www3.weforum.org/docs/WEF_Bridging_the_Gap_in_European_Scale_up_Funding_2020.pdf

Figure 4: European public funding supporting scaleups



Source: WEF, 2020

2.3. National and regional policies

This section provides examples of existing policy measures at national and regional level that address the challenges that scaleups face and that could potentially make it more interesting for private investors to invest in technological scaleups.

National programmes target mostly the access to finance and internationalisation challenge of scaleups. Specific initiatives have been also launched with a focus on digital ventures.

Most recent policy developments concern the following:

- Increased support is provided to ventures active in advanced technologies and in particular fields such as robotics, the Internet of Things or life sciences. The scaleup challenge has been often embedded into recent discussions about technological strategic autonomy (see German Futur fund, FrenchTech initiatives, Polish Scaleup support)
- Specific digital scaleup support has been also put in place recently in some Member States (for example the French Digital Fund of Funds)
- Internationalisation is an aspect targeted by various national measures that support links of EU scaleups especially with the US and China.
- Human resources and skills have been also in the focus.

The characteristics of public and private funding are largely the same at EU, national and regional levels, with the exception that the ticket size at the EU level and in larger Member States is typically bigger than in smaller Member States and regions. In fact, most regions and smaller Member States focus more on startups as their resources are not sufficient to make a significant contribution to the funding needs of scaleups.

While there are several measures at the EU level targeted also at scaleups, the **majority of the relevant measures that address the lack of ambition to grow are national or regional**. The reason behind is that these policy measures often need longer-term interaction with companies and require to expose them to success stories of other firms with more market and technology intelligence. This work is often done in interaction between support agencies and companies over time, or during a targeted measure focusing on capitalising on a specific market opportunity. There are also national awareness-raising initiatives, which are usually targeted at entrepreneurship and startups instead of scaleups.

Scaleup funds to underpin technological strategic autonomy

With regard to financial constraints that startups face, there are several schemes at national and regional level that provide funding opportunities for startups to scaleup. Most of them focus on innovative startups with high potential to grow. Policymakers can intervene in the venture capital market by investing directly in startups, co-investing in venture capital funds or setting up fund of funds to invest in multiple VCs.

The **Zukunftsfonds (Future fund)**[78] has recently been adopted in Germany, in te framework of which €10 m have been made available for an investment fund for future technologies by the Federal Budget for 2021. The fund will invest resources in the more capital intensive phase of scaling up of startups with the ultimate goal of boosting the number of German innovative companies. The initiative is coordinated by the Federal Ministry of Economic Affairs and Energy but is expected to mobilise also at least another €30 bn together with other private and public partners. The first investments are expected to start in spring, 2021. On top of this new initiative, the Federal Ministry will continue with its existing programmes supporting and investing in startups.

In France the government released an additional €1.2 bn to **support French Tech** in September 2020[79]. This aid plan is notably composed of a €500 m fund to avoid that American or Chinese giants buy out startups. It demonstrates the importance the government attaches to the critical issue of technological strategic autonomy. The new funds address the 'late stage' that support startups before the stock market that have been the fastest to attract capital. To invest in tech companies on the stock exchange, the national market is much less mature. The programme called 'FrenchTech Next40/120'[80] supports French scaleups to become world-class technological leaders. 120 French startups are selected each year to be part of this scheme. Besides funding scaleups, calls for tenders are also being launched to finance private incubators and accelerators.

There are also 'fund of funds' type of initiatives such as the **Digital Fund of Funds**[81] in France, a €140 m fund investing in digital VC funds in Europe and abroad with the objective to generate open innovation benefits as well as financial performance. Bpifrance, the public investment bank of France, has several venture capital programmes in place. The **venture capital fund FAN**[82] is focused on early-stage startups. It focuses on digital technology startups that have a high growth potential and aim to become global market leaders. FAN would invest between €1 m and €10 m alongside VCs in Series A and B rounds ranging from €2 m to €25 m, focused mostly on companies working on Deep Tech, software as a service (SaaS) and Consumer Digital Services. Bpifrance offers several equity and investing programmes[83] targeting different sectors and growth stages.

The Italian National Innovation Fund[84] is a €1 bn government-sponsored programme to boost the Italian startup ecosystem. The so-called Accelerators Fund is a fund aimed at supporting the growth of accelerators, through direct and indirect investments. A €100 m '**Late-Stage Fund'** will be launched in early 2021 with the objective to support technologies emerging from research institutions and scaleups focused on the digital, biotech, medical and high-tech sectors.

AWS, the Austrian Public Bank, developed the **Founders Fund**[85] with the objective of offering VC to startups with high potential to grow and to facilitate a rapid access to market. The fund has €68.5 m and the ticket size can range between €100 000 to €3 m. The AWS has several requirements before providing the investment: the company needs to show high growth potential in the next two years; the company needs to have a scalable business model and the target market needs to show a considerable volume.

Focus on advanced technologies

Specialisation of financial market actors is very important especially for advanced technology based scaleups. First of all, it is important that the investors and financial partners understand the business and can provide non-financial support, e.g. access to potential commercial partners and clients, access to market intelligence and expertise. Secondly, sector specialisation is vital for strengthening market consolidation through mergers and acquisitions. Market consolidation can be a vital step in the development of an emerging business ecosystem, ensuring the necessary creation of dominant

[78] BMWi, 2020.
[79] https://www.bpifrance.fr/A-la-une/Actualites/French-Tech-le-gouvernement-annonce-un-plan-de-soutien-d-1-2-milliard-d-euros-49873
[80] https://lafrenchtech.com/fr/la-france-aide-les-startups/french-tech-120-2/?cn-reloaded=1
[81] Digital Fund of Funds, available at: https://www.bpifrance.com/private-equity/fund-of-funds/international-funds/digital-funds-of-funds
[82] https://www.bpifrance.com/private-equity/direct-investment/venture-capital/fan-fund
[83] https://www.bpifrance.com/private-equity
[84] https://www.mise.gov.it/index.php/it/incentivi/impresa/fondo-nazionale-innovazione
[85] AWS, 2020.

designs or shared platforms, which eventually allow expansion and global growth. If the emerging sector does not have larger leading companies, mergers and acquisitions may be used to create these leading companies, thus speeding up the ecosystem development considerably. Without sufficient specialisation and market volumes, it is not likely that such developments in mergers and acquisitions can develop in Europe. This is another handicap that Europe has compared to the US, China and Japan, where large commercial and financial corporations and agglomerates have experience and resources to use mergers and acquisitions to create leading market actors.

The **Polish Scaleup Programme**[86] is managed by the Polish Agency for Enterprise Development and is run by 10 programme operators. Their task is to accelerate the development of Polish startups through e.g. leading to the stage of testing their solutions in large companies, and at the same time increasing the scale of their operations. Several of the sub-programmes have a specific sectoral focus. For instance the KPT Scale Up is a programme that aims at accelerating young companies in the area of Industry 4.0, industrial Internet of Things, AI and augmented reality.

Poland Prize[87] is another programme encouraging international collaboration. The programme enables the soft-landing of foreign startups in Poland by preparing them to operate in Poland and support their further development.

Another acceleration programme called Space3ac is operating in Gdansk. It focuses on downstream space technologies using Earth observation, telecommunication and satellite navigation data. The accelerator originated in 2016, following an agreement between the Commune of the City of Gdańsk, Pomeranian Special Economic Zone, Black Pearls VC capital fund and Blue Dot Solutions.

Similarly, the Scaleup Denmark programme offers support to a wide variety of business fields, which all have the potential to foster accelerated growth among businesses. These fields include cleantech, bioeconomy, healthcare, ICT and robotics.

Taxation that fosters scaleups

Several countries have also implemented taxation schemes that facilitate investment. In Germany the BMWi launched a programme in 2013 called **INVEST – Grant for Venture Capital**[88]. The programme rewards private investors with an upfront relief of 20% of their investment. The distinguishing characteristic of the scheme is that the relief it provides is not a tax credit, but a grant. This approach also helps cross-border investors who often cannot benefit from a tax relief. The goal of the programme is to increase the access of startups to venture capital, as well as to mobilise more private VC investments in the country. Since its launch, it has provided funding for a volume of approximately €160 m. Evaluations of the programme[89] have confirmed the success of the initiative.

Tax incentives may also be used to support hiring foreign specialists to support scaleups. Lower taxes may allow companies hire high quality professionals, which they could otherwise not afford. What is less used is hiring professionals for shared use between several companies.

Corporate and startup cooperation

Cooperation between large firms/corporates and startups can be an alternative means of providing both finance and help scaling up and create demand for the products of the companies with high growth ambitions. There are challenges to corporate-startup cooperation in EU. The difficulties can be found on both sides, with corporates having internal barriers, sometimes related to risk aversion and lack of intrapreneurial culture; while startups may experience difficulties aligning themselves to the corporates' procedures[90]. Government schemes could intervene to support the bridging of interest between corporates and startups, whenever public policy goals and impact are met.

Market access and internationalisation

Policy schemes supporting access to international markets are common at national level. Export promotion often covers both other Member States and various non-European regions and countries. There are cases where Member States collaborate with each other in variable geometries, but the vast majority of export promotion and international market access initiatives are national or regional. Similarly, efforts to facilitate R&I collaboration between Europe and the rest of the world are made at the EU level, but other bi- and multilateral collaborative initiatives are at least equally important. The challenge in increasing coordination in these activities is that Member States are often in competition with each other

[86] https://en.parp.gov.pl/
[87] https://www.parp.gov.pl/component/site/site/en-poland-prize
[88] https://www.bmwi.de/Redaktion/EN/Pressemitteilungen/2020/20200702-altmaie-invest-gives-boost-to-venture-capital-market.html
[89] https://www.bmwi.de/Redaktion/DE/Downloads/I/invest-evaluation-short-version.pdf?__blob=publicationFile&v=4
[90] EIB and Nesta, 2020.

when promoting exports and even more in attracting inward investments.

For example, the **German Accelerator**[91] programme has the objective of empowering German startups to scale up to global markets. Startups with high grow potential are embarked into fast-track learning programmes in some of the leading innovation hubs in the world. At the moment they are represented in Silicon Valley/San Francisco, New York, Boston (with a focus on life sciences) and Southeast Asia/Singapore. They offer two types of programmes: for mid and later-stage startups it is focused on access to new markets and for startups at any stage of development the focus is on discovery of new markets.

The **Global Incubator Network – Austria**[92] connects Austria and international startups, investors, incubators and accelerators with a focus on some concrete hotspots in Asia (Hong Kong, Israel, Japan, China, Singapore and South Korea) to create mutually beneficial partnerships. For foreign investors and startups it also offers access to the Austrian market.

Business Finland offers **International Accelerator Programmes**[93] and lets companies to enroll in an accelerator programme at their target market, with the objective of validating their product and connecting with potential investors, partners and customers. The target markets can be North America, East Asia, Latin America, Eastern Europe, Western Europe and India Asia Pacific (APAC). There are different acceletaros programme in each country.

Generating demand through public procurement of innovation and corporate-startup cooperation

If the demand for innovation is strong in Europe, European companies can scale up their innovative products and services in their local markets and then go global after they have developed a strong offer and established business operations and production facilities. This emphasises **demand side policy and related measures.** Two types of demand side measures can be highlighted here: on the one hand smart regulations, standards and norms, and on the other hand public procurement. The former has been instrumental in the development of specific sectors, and the best example is the use of regularly and step-by-step lowering emission limits. These have had a significant impact on the development of the automotive sector. Similar approaches of using smart regulations should also be explored in other sectors.

Public procurement, related incentives and other mechanisms that encourage large companies and organisations to favour innovative solutions in their procurement can significantly increase the demand for innovation. There are two main problems as a result of using procurement to drive innovation in Europe. The first one is fragmented product and service markets combined with fragmented legal regimes. This means that true cross-border collaborative procurements are difficult if not impossible in practice. However, there is ample room for benefitting from collaboration within defining specifications, functionalities, procurement criteria, and much has been and is being done at EU and also national level in some Member States. The other problem related to procurement is the incentive structure of most public procurers. They are typically working on fixed budgets with limited access to additional resources.

Public and **corporate procurement processes** are lengthy and can take up to 18 months, which poses barriers to companies like startups who are cash-strapped[94]. Moreover, the requirements of procurers include company profitability or several years of historical statements, which deter startups to participate in public tenders. However, having a large corporate or the public sector as clients can open opportunities for the longer-term.

For instance, the **Small Business Innovation Research (SBIR)**[95] initiative of the Dutch Government, has the objective of challenging entrepreneurs to design and propose innovative products and services to solve social issues. This scheme allows the companies to develop R&D capacities, which makes it a very interesting scheme for innovative startups wanting to scale up. The SBIR is open to small and large companies from all EU.

Skills and human resources

Entrepreneurial skills and competences have been targeted by several policy initiatives over recent years, both at EU, at national and regional levels. Initiatives have been launched to cover all levels of education, but the focus has clearly been on higher education. Practice has shown that while entrepreneurial skills can be learned also from books, the most valuable education comes from practice. This is evident in the very central role serial entrepreneurs, business angels and early stage investors play in entrepreneurial and startup ecosystems. What this

[91] https://www.germanaccelerator.com
[92] Global Incubator Network – Austria. Available at: https://www.gin-austria.com/incubators
[93] International Accelerator Programmes. Available at: https://www.businessfinland.fi/en/for-finnish-customers/services/international-growth/international-accelerators#stored
[94] WEF, 2020
[95] Small Business Innovation Research. Available at: https://www.rvo.nl/subsidie-en-financieringswijzer/sbir

means in practice is that when entrepreneurial and startup ecosystems reach a certain level of maturity, they become self-reinforcing. Entrepreneurial talent returns into the ecosystem and thereby fills the gap and strengthens the startup and especially scaleup skills and competences. To reach this level of maturity and the virtuous circle, scaleup skills and competences need to be introduced from outside the ecosystem.

Scaleups are concerned about access to skilled workforce in general and specific expertise needed in accessing and growing in selected international markets. They can find the necessary specialised knowledge in the ecosystem if it is mature enough, or they can find it from the client or other multinational companies active in the respective markets. Policy measures to support this in particular are rare, but may include various company networks and platforms as well as market intelligence services and activities.

Some countries may offer specific support for scaleups for hiring the necessary expertise or buying it, either as a separate support scheme or more commonly integrated into some suitable R&I financial or non-financial support scheme.

Access to skilled workforce is targeted by specific policy measures only in cases where this is a specific concern. Typically these kinds of arrangements are linked to large and/or greenfield investments into new business activities. Often these investments are foreign direct investments, but they may also be by a local company. The main issue is that lack of skilled workforce is identified and as a result some arrangements are made in collaboration with local educational institutions to organise and provide education and training to address the skills and competence gaps in the local workforce. Mobility may also be part of the arrangement, for instance by offering training to the unemployed within a larger region, nationally, or even cross-border.

Scaleup Denmark[96] is a training concept for entrepreneurs. It focuses on 12 different business fields such as cleantech, ICT, robotics or health and welfare technology among others. The programme has the objective of attracting high performance enterprises from Denmark and abroad, involving universities, research institutions and science parks. It provides access to services by the Danish business support system, access to seed and venture capital and it engages with market leading firms.

Regional measures complementing the EU and national framework

In addition to the support provided at national level, several European regions have also developed and implemented their own funding services and instruments to support scaleups. Below we bring some examples to highlight some of the key challenges that regions address.

The **Brabant Startup Fonds**[97] offers startup loans between €50 000 and €350 000. The fund enables access to financing in the earliest phase of the financing chain. The province of North Brabant set up the fund with €10 m. The fund offers funding also for next phase startups and scaleups. The Brabant agency coordinating this measure invests in those companies with growth potential and a strong link with the region and are active in the top sectors. The conditions of the fund depend on each case, but some criteria apply to all investments. They will make an investment up to €5 m (share capital or a subordinated loan / loans) with an investment horizon of 3 to 7 years, but they will not exceed a 49% share in the company. The fund fosters innovation with the aim of solving societal challenges, strengthens the technological growth in the region, fills in a gap in the early stage of the financing and also attracts other investors.

The **SME growth subsidy**[98] is a subsidy tool from the Flemish government to support SMEs in achieving their own growth trajectory. Their support consists of strategic advice from an external service provider or the gross salary cost for the recruitment of a strategic profile. The maximum amount is a €50 000 subsidy per year per growth trajectory.

There are measures designed to tackle the access barriers that startups face when they want to access new markets and scale up into a global business. The Catalonia **'Road to Success' Programme**[99] offers support to entry to the Boston, Silicon Valley and North Europe ecosystems and aims to become the reference point in scaling up of startups in Catalonia. Each of the programmes is targeted to specific sectors and offers different levels of support.

- *Road to North Europe:* The Road to North Europe service targets startups that have a validated business model and are ready to grow. They are expected to have solutions in some of the following areas: e-health, mobility, smart cities, industry 4.0, Internet of

[96] Scaleup Denmark. Available at: https://scaleupdenmark.com
[97] Brabant Startup Fonds. Available at: https://www.brabant.nl/subsites/brabantstartupfonds
[98] SME Growth Subsidy. Available at: https://www.vlaio.be/nl/andere-doelgroepen/flanders-innovation-entrepreneurship/subsidies-entrepreneurs/subsidies
[99] Road to success, Acció. Available at: https://www.accio.gencat.cat/en/serveis/innovacio/catalonia-exponential/road-to-success/

Things, telecommunications, ICT, e-commerce and fintech.

- *Road to Boston:* The Road to Boston service specifically targets innovative startups of the e-health, biotech, pharma and bioinformatics sectors.
- *Road to Silicon Valley:* The Road to Silicon Valley service targets technological and digital startups with a product on the market, especially companies in the Enterprise, Digital Health, Big Data, Advanced Applied Technology and B2B sectors.

In Belgium the **imec.scaleups programme**[100] targets ambitious tech scaleups that have already gained sufficient traction in their home market and are ready to tackle the European market. Europe is an attractive market for tech scaleups interested in expanding abroad, but the internationalisation process can prove to be quite a challenge. When entering a new market, many scaleups struggle because they do not have access to a local network, lack market knowledge or are unfamiliar with EU business culture and legal requirements. Imec.scaleups offers an intensive 8-week programme – including mentoring, coaching, workshops, networking opportunities, practical support, etc. – to address these typical pitfalls. The imec.scaleups programme is organised in close collaboration with Scaleups.eu and with the support of Flanders Investment & Trade (FIT).

The table below (Table 2) presents an overview of the different national and regional policy measures.

Table 2: Examples of policy measures at national (in black) and regional (in blue) level

Challenge	National/regional policy measures supporting scaling up	Description
Financial constraints		
Type of finance (e.g. size of investment needed to scaleup)	Zukunftsfonds, Germany	The fund will invest resources in the more capital intensive phase of scaling up of a startup, to boost the number of German innovative companies.
	TechFunds, France	The new funds address the 'late stage' that support startups before the stock market that have been the fastest to attract capital.
	Scaleup Programme, Poland	Their objective is to accelerate the development of Polish startups through leading to the stage of testing their solutions in large companies, and at the same time increasing the scale of their operations.
	Founders Fund, Austria	It offers VC to startups with high potential to grow and to facilitate a rapid access to market.
	Digital Fund of Funds, France	€140 m fund investing in digital VC funds in Europe and abroad with the objective to generating open innovation benefits.
Market access and demand		
Internationalisation	German Accelerator	Startups with high growth potential are embarked into fast-track learning programmes in some of the leading innovation hubs in the world.
	Global Incubator Network, Austria	It connects Austria and international startups, investors, incubators and accelerators with a focus on some concrete hotspots in Asia (Hong Kong,

[100] Imec.scaleups programme. Available at: https://www.imec-int.com/en/scaleups

Challenge	National/regional policy measures supporting scaling up	Description
		Israel, Japan, China, Singapore and South Korea) to create mutually beneficial partnerships.
	International Accelerator Programmes, Finland	It lets companies to enroll in an accelerator programme at their target market, with the objective of validating their product and connecting with potential investors, partners and customers.
	Catalonia 'Road to Success' Programme, Spain	It offers support to entry to the Boston, Silicon Valley and North Europe ecosystems and aims to become the reference point in scaling up of startups in Catalonia.
Skills		
Training and mentoring	Scaleup Denmark	It offers a training concept for entrepreneurs. It focuses on 12 different business fields such as cleantech, ICT, robotics or health and welfare technology among others.
	imec.scaleups programme, Belgium	The programme offers an intensive 8-week training – including mentoring, coaching, workshops, networking opportunities, practical support.

Source: Authors

Coordination at European, national and regional levels

The widespread realisation of limited access to funding has resulted in a vast number of policy initiatives at European, national and regional levels. While there have been some efforts to coordinate between these, the outcome is still a very fragmented landscape of partly complementary and partly overlapping measures that many scaleups might find challenging to navigate.

Lack of coordination and consolidation of policy measures and especially funding schemes at different levels is likely to result in inefficiency and lack of effectiveness. What typically happens in these kinds of situations is that part of the funds tend to overflow the 'better' part of the deal-flow, i.e. seek to compete with private investments, whereas at the other end of the spectrum, funds are allocated to companies, which may represent the best locally, but not sufficient potential to attract sufficient private investor interest.

Single financial market would allow private market mechanisms to ensure competition and subsequently also specialisation among financial market actors, allowing Europe to develop a much more supportive financial market for scaleups. This would also help position regional and national initiatives better into the wider funding landscape of startups and scaleups.

Coordinating activities addressing availability of talent, expertise and skilled workforce between EU and national levels is challenging as EU Member States are competing for these human resources. The only viable areas of coordination are educational measures and common principles to facilitate administratively easy mobility. Member States could of course consider some forms of collaboration and coordination in their efforts to attract non-European talents, possibly linked to common arrangements in studying in European higher education institutes.

Section 3

3. Policy conclusions and recommendations

The challenges of scaleups have been and are known rather well, which means numerous policy measures have been launched to address them. While some measures have a longer history, many of the relevant current policy measures are rather recent. The resulting landscape of scaleup-specific policy measures is rather fragmented and complex with partly overlapping European, national and regional initiatives.

The main conclusions, based on the analysis of the policy measures against challenges that scaleups face in the previous chapter, are the following:

1. European scaleups are forced to operate in a much more fragmented home market compared to their international competition. Managing the fragmentation of product and service markets causes extra cost without much benefits.
2. To compensate for the fragmentation, Europe should strive to be globally attractive by having stronger demand for innovation. However, policies launched to develop Europe into global lead markets have not gained sufficient traction to make any significant advances. The mechanisms to enhance the demand for innovation are known, but measures to capture the vast potential of demand-side measures such as public procurement and smart regulations are insufficient.
3. European financial markets are not optimal for scaleups because of several reasons. Main problems are related to financial market structures, which are geographically and institutionally fragmented. Furthermore, there are gaps in the financial markets especially with respect to larger scale later stage investments and mergers and acquisitions. The public sector also plays a more significant role in financial markets, especially in early stage finance. These factors limit the scaleups access to growth finance and also the necessary specialisation of financial market actors as well as their role in market consolidation.
4. There may be an opportunity to develop new hybrid funding instruments for scaleups, possibly loan-based but with an upside to compensate for higher risks at portfolio level.
5. Decreasing number of IPOs and mergers and acquisitions should be a cause for concern. Schemes to make IPOs more attractive and special trading lists for tech companies have been introduced in some countries. However, the impact of these on IPO volumes have remained limited.
6. Equity crowdfunding is an opportunity, but its development is seriously hindered by the lack of transparent real-time valuation and trading mechanism.
7. Vast number of financial measures have been launched at EU as well as national and regional levels to address access to finance problems. However, most of these focus on startups and early stage finance. The resulting landscape of support measures is overly complex and fragmented, which is likely to result in inefficiencies due to overlaps and isolations.
8. The fragmentation and complexity of the European scaleup landscape is likely the reason for not being able to develop European level resources, e.g. platforms, networks and services for identifying and accessing specialised expertise in relation to targeted international markets, sectors, technologies and potential clients. However, to what extent these should be European and publicly organised must be carefully considered.
9. Access to entrepreneurial talent, scaleup expertise and skilled workforce has been and is subject to policy measures mostly at national and regional levels. EU level initiatives offer common principles and platforms supporting e.g. mobility. However, access to these human resources is a competition between Member States, which is why they are not likely to promote EU-level coordination of promotional activities.
10. Identifying potential new scaleups is most effective locally, which means that the efforts

to increase awareness of the potential of new technologies, market developments and market opportunities among these companies is most effective when implemented locally. National and EU levels could support this at sectoral levels by sharing market and technology intelligence information.

The obvious recommendation is to continue and strengthen the efforts at European level to develop **single European markets** for product and services as well as financial operations. Serious steps into this direction are likely to have high positive impact on the ability of European companies to scale up their businesses.

However, there are measures that can be taken while waiting for the single European market. One of these is the **stronger support for and use of demand side policy measures**. Use of European level smart regulations, standards and norms should be systematically explored keeping in mind how they could be used to strengthen European efforts to facilitate the growth of emerging business ecosystems and to facilitate the development of solutions to address important societal challenges. Similarly, more extensive use of public procurement can significantly increase the demand for innovation in Europe. It is important that sufficient political commitment is achieved and also translated into practical activities, e.g. through mandatory or required quotas.

The possibility and rationale for developing **European wide trading platforms for scaleups** could be explored. One possible starting point could be collaborative networks of local stock markets, and/or European equity crowdfunding platforms. This work should also explore the possibility to reduce requirements for scaleups and/or automatise them.

The possibility and rationale for developing **new hybrid growth funding instruments for scaleups** could be foreseen. One possible starting point could be a portfolio of loans with an upside to compensate for the portfolio level risks.

The fragmented landscape of startup and scaleup related **policy measures should be better coordinated** across European, national and regional levels. Companies need to be able to identify which support measures are most relevant to them, and which can be used in what kinds of combinations. Coordination should also make it clearer what the added value of each policy measure is and what the respective exit plan is. The latter should be directly linked to the maturity of the scaleup ecosystem and especially how, when and to what extent its key functions can be and are managed by private actors.

Further joint efforts among EU Member States with the help of the European Commission could be considered in **developing common principles** for the attraction of entrepreneurial talent, scaleup expertise and skilled workforce from non-European regions and countries. More initiatives of this kind could allow for an easier mobility of talent once these skilled professionals have entered the EU labour market.

Awareness raising activities to address the lack of ambition to grow are likely to be less effective when organised at EU level. These should be left to the national and regional levels, encouraging them to design and implement these activities in collaboration with the local scaleup ecosystem private actors.

A vast number of various startup and scaleup resources have been developed in Europe. Most of these are either national, regional and/or sectoral and many focus on angel and venture capital investments. Since this is an area where commercial services can and are being developed, establishing public registers cannot be recommended. However, a **common virtual platform** with limited publicly available European information and access points to relevant commercial, sectoral, national and regional networks, virtual platforms and resources could be considered at European level.

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About the 'Advanced Technologies for Industry' project

The EU's industrial policy strategy promotes the creation of a competitive European industry. In order to properly support the implementation of policies and initiatives, a systematic monitoring of technological trends and reliable, up-to-date data on advanced technologies is needed. To this end, the Advanced Technologies for Industry (ATI) project has been set up. The project provides policymakers, industry representatives and academia with:

- Statistical data on the production and use of advanced technologies including enabling conditions such as skills, investment or entrepreneurship;
- Analytical reports such as on technological trends, sectoral insights and products;
- Analyses of policy measures and policy tools related to the uptake of advanced technologies;
- Analysis of technological trends in competing economies such as in the US, China or Japan;
- Access to technology centres and innovation hubs across EU countries.

You may find more information about the 16 technologies here: https://ati.ec.europa.eu.

The project is undertaken on behalf of the European Commission, Directorate General for Internal Market, Industry, Entrepreneurship and SMEs and the European Innovation Council and SMEs Executive Agency (EISMEA) by IDC, Technopolis Group, Capgemini, Fraunhofer, IDEA Consult and NESTA.

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