Feasibility Study
European Startup Scoreboard

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European Startup Scoreboard - Feasibility Study

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European Startup Scoreboard

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Table of contents

Table of figures

Table of Tables

Acronyms

AI: Artificial Intelligence

CEE: Central and Eastern Europe

CEO: Chief Executive Officer

CFO: Chief Financial Officer

CTO: Chief Technology Officer

DG RTD: Directorate General of the European Commission for Research and Innovation

EC: European Commission

ECB: European Central Bank

EIB: European Investment Bank

EIC: European Innovation Council

EIS: European Innovation Scoreboard

EP: European Parliament

EPO: European Patent Office

EPRS: European Parliamentary Research Service

ERA: European Research Area

ESG: Environmental, Social and Governance

EU: European Union

EUR: euro

FTE: full-time equivalent

GALI: Global Accelerator Learning Initiative

GBER: General Block Exemption Regulation

GDP: Gross Domestic Product

HFU: Hungarian Forint

IDE: Innovation-driven Enterprise

IFC: International Finance Corporation

IoT: Internet of Things

IPO: Initial Public Offering

JRC: Joint Research Centre

NOK: Norwegian Krone

OECD: Organisation for Economic Cooperation and Development

R&D: Research and Development

R&I: Research and Innovation

SDG: Sustainable Development Goal

SME: Small and Medium-sized Enterprise

UK: United Kingdom

UN: United Nations

US: United States

USD: United States Dollar

VC: Venture Capital

YIC: Young Innovative Company

EXECUTIVE SUMMARY

Within the context of the European Innovation Scoreboard (EIS), this feasibility study focuses on the current analysis of the startup ecosystem performance in Europe. It provides an overview of how different categories of sources, such as laws and reports produced by distinct stakeholders define and measure key concepts of the startup ecosystem in Europe and worldwide. These stakeholders include institutions of the European Union (EU) and its Member States, startup organisations, and international organisations. The concepts analysed centre on startup ecosystem, innovative companies, stages of growth, early stage startups, startups, scale-ups, deep-tech startups, spin-offs, unicorns, and women-led ventures. The study contributes to the design of a possible future European Startup Scoreboard, intended as a scoreboard of EU Member States' performances in the startup ecosystem. This study provides a basis for one of the tasks when setting up such a Scoreboard, namely defining concepts and identifying indicators.

This study presents the background behind the startup ecosystem concept and provides a benchmarking exercise, where the European startup ecosystem is measured against some key competing countries in the rest of the world. The overview presents, for each concept mentioned above, the most relevant definitions collected by the study team through desk research and survey consultation with all EU Member States. The definitions gathered are analysed, and both the key common aspects, as well as the main divergences, are highlighted. This allowed the detection of those concepts that are currently defined in a more consistent way by the different stakeholders, while also identifying those which currently have heterogeneous definitions being applied. A similar exercise was carried out to identify which indicators are currently being used to measure EU startup performance. The analysis followed a two-step approach: first, identified the indicators recurrently used in the reports analysed; second, grouped the most recurrent indicators according to the same categories used by the EIS (i.e. Framework Conditions, Innovation Activities, Investments and Impacts).

The main conclusion of this feasibility study point to the fact that the key concepts analysed lack, to different degrees, definitional coherence, and some are not even defined in most sources. In fact, the only concepts present in all categories of sources are startups and scale-ups. Moreover, definitions of the same concept differ, at times, significantly. This is the case for the concepts of startups, early-stage startups, scale-ups, stages of growth, women-led ventures. Among these, startups and scale-ups present the most significant definitional variety in two different aspects. First, there is no consensus on which elements to include in the definition, such as age, revenue, number of employees, innovative character, or willingness to grow. While some definitions opt for a simpler definition, with fewer elements (which englobe a broader number of companies), others define the concepts with most of the mentioned elements, considering a more limited number of companies. Secondly, there is also no agreement on how to scope each element, creating and imbalance and inconsistency when comparing different reports.

On the other hand, concepts such as startup ecosystem, innovative companies, deep-tech startups, unicorns, and spin-offs, are found to vary less from a definitional point of view. Definitional differences are found regarding these concepts as well, however these are not substantial. With regard to indicators, the feasibility study identifies considerable variation in how the performance of a startup ecosystem and related concepts are measured across different reports.

The study also concludes that a European Startup Scoreboard could benefit from a widely accepted and consistent set of definitions and indicators for effective evidence-based policymaking. The findings of this study can guide the process of selecting fit-for-purpose, operational concept definitions and indicators for a possible future European Startup Scoreboard. In fact, depending on how many elements are included and how these are defined, the final definition of concepts can be broader or leaner: the former would include a high number of companies, the latter a smaller number of companies, while making data collection more challenging.

1. INTRODUCTION

It is challenging to find clear and widely acceptable definitions for the concepts around the startup ecosystem. This is particularly true of the terms “startup” and “scale-up” as currently, there is no harmonised set of definitions that can be used throughout Europe for analysing and studying this ecosystem.

In the context of the New European Innovation Agenda, the European Commission (EC) is particularly interested in understanding the extent to which the same concepts within the EU startup ecosystem are defined and measured differently across the EU. As Member States may not currently be defining and measuring these concepts the same way, it is important to map these differences to achieve balanced and accurate debate at the EU level.

This study provides an extensive overview of how the different stakeholders are defining and measuring concepts associated with the startup ecosystem, which indicators are being used to assess startup performance, and which types of data and data sources are used for this purpose. The overview encompasses not only the information available from the Member States, but also third countries and international organisations. This extensive overview will feed into the overall discussion on the feasibility of the startup scoreboard creation, by highlighting the most relevant common elements while also clearly identifying the bottlenecks.

The study was conducted under the umbrella of the EIS, which measures and compares innovation across the EU. It draws inspiration from the EIS framework to better describe and structure how different Member States, third countries and international organisations are collecting data and defining indicators to assess startup performance across Europe (European Commission, 2022). As the EIS raises awareness that some countries may be underperforming on some indicators, calling for policy actions to correct that trend, similar detailed measurements of the startup ecosystem could identify strengths and weakness, and lead to significant policy improvements across the EU and its Member States.

This document describes the study’s objectives, the methodological framework, the background and context of the startup ecosystem and the triangulation of the data collected, followed by the key findings. It concludes with an analysis of the indicators most used for each concept and the identification of possible synergies with the current EIS framework.

2. OBJECTIVES AND METHODOLOGY

2.1. Objectives

The study has two objectives:

1) develop a comprehensive list of existing definitions, highlighting the most relevant agreements and disagreements on how to define the different elements;
2) identify the most common indicators to assess startup ecosystem performance.

Both these objectives will feed into future discussions on whether to establish a set of common definitions and indicators at the EU level, which could form the foundations for the creation of a European Startup Scoreboard.

To achieve the objectives of the study, an analysis was carried out of definitions and indicators of key concepts around a startup ecosystem. The following concepts are analysed in detail in the study:

Table 1: Startup ecosystem concepts

Startup ecosystem concepts covered by this study	
• Startup ecosystem	• Scale-ups
• Innovative companies	• Deep-tech startups
• Stages of growth	• Spin-offs
• Early stage startups	• Unicorns
• Startups	• Women-led ventures

In particular, the analysis in this study provides an overview of how relevant stakeholders define these concepts and measure performance against them. These stakeholders are active at European, national, and international levels. They include international organisations, EU institutions, national ministries, statistical offices, and European and national startup organisations.

Taking this overview as a starting point, it was possible to identify which definitions and indicators recur most among the existing sources analysed. The elements integrated the different definitions were identified, both those that are widely agreed and those that are quite controversial. Identifying the most common indicators deployed to measure the performance of startups indicated which dimensions the stakeholders consider crucial.

2.2. Methodology applied

The study team combined **desk research, interviews, surveys and workshops** as data collection methodologies.

First, thorough desk research was conducted reviewing the following documents:

1) **Reports** produced to measure startup, scale-up and startup ecosystem performance at European, international, EU Member State and third country level. Third countries were selected due to geographical proximity to the EU (for example Iceland, Norway, Serbia, and Switzerland) or global relevance as startup ecosystems (for example China, Japan, South Korea, UK, and US). Reports produced or commissioned by EU institutions were also included;

2) **Official documentation**, such as primary or secondary legal sources from institutional players at EU and national level, and official documentation from international organisations. The sources included EU primary and secondary law, primary and secondary legal sources from EU Member States, as well as all definitions identified as part of Member States' legal systems by a survey described in more detail subsequently;
3) **Publications from statistical offices** at European or Member States level;
4) **Funding opportunities** for startups.

During the **desk research** period the study team collected existing definitions of the key concepts presented in **Table 1** (and the different elements used in each definition), as well as the indicators most used to measure startup performance, and analysed how, and from which source, these reports collect the necessary data. The desk research was concluded in December 2022. Therefore, this report does not take into consideration sources published after this period.

Simultaneously, **interviews** were conducted with EC officials and relevant stakeholders. During these interviews:

- existing definitions were presented, and their relevance and significance were discussed;
- interviewees were asked how they would define certain concepts;
- interviewees were asked to identify the most significant data sources; and
- interviewees were asked to give their opinion on:
    - indicators used to measure startup performance;
    - the consistency between reports used by different Member States; and
    - which of the reports at EU level are the most significant for assessing startup performance.

In total, 10 interviews were conducted: nine EC officials, of which eight were from policy DGs and one from the Joint Research Centre (JRC), and one from the European Startup Network. Inputs from interviewees were incorporated in an interview matrix.

In addition, a **survey** was circulated to obtain the views of the members of two Working Parties of the Council of the EU. Recipients of the survey were asked:

- whether there was a specific definition of the concepts mentioned above in their country's legal system;
- whether there were other non-legal definitions (such as eligibility criteria to claim funding) in their country;
- which reports (if any) had assessed their country's startup ecosystem;
- which indicators (if any) were being used in their country, with data sources; and
- which information/indicators they thought it would be useful to use within a possible European Startup Scoreboard.

In total, 21 EU Member States provided answers.

In addition to the interviews and survey, inputs from two **workshops** were included in this study. In particular, a validation workshop took place on 28 March 2023 with 74 participants from EC services and representatives from EU Member States. The scope of the feasibility study and its main findings were presented, discussed and validated. Moreover, participants were asked their opinions on the feasibility of a future European Startup Scoreboard; the next steps necessary for its development were discussed as well.

Data from all the sources mentioned above were aggregated in a data collection matrix and triangulated to find the most common elements addressed in the definitions. The same process was used for the most common indicators, i.e. those that reports had found to be most useful to measure. For these indicators, the data sources used to feed the indicators were identified.

The results of this data collection are presented in Chapter 5, which focuses on definitions, grouping them by concept and on indicators; in Annex II: Country ProfilesAnnex I: EU startup definitions and indicators, which gives an EU overview; and in Annex II: Country Profiles, which includes country profiles providing country-based overviews. The two Annexes contain definitions and indicators grouped by source (EU or EU Member State), both governmental and non-governmental.

Although an effort was made to include input directly from startup business associations and the startup community, no survey replies were received. Nonetheless, the study provides enough information to continue the research thanks to a clearer overall knowledge of how Member States and international organisations are dealing with the issue.

3. BACKGROUND AND CONTEXT

This chapter aims to introduce the **definitional background** to this study by giving an overview of what the startup ecosystem entails.

In section 3.1, the background to the concept of startup is explored, followed by a presentation of the startup ecosystem in section 3.2, and a brief international benchmarking exercise in section 3.3. The chapter concludes with section 3.4, which delves into the lack of definitional coherence around key concepts of startup ecosystem.

Historical background

As highlighted by academic literature, the term 'startup' to define a **specific kind of enterprise** – and not simply the first phase of any newly born company, innovative or not – was first used in 1976 by *Forbes* (Serio et al. 2020). However, the history of startups precedes this mention in 1976 and is closely linked with what is known as **Silicon Valley** in the Bay Area, south of San Francisco. Silicon Valley was the world's first and one of the most innovative startup ecosystems, i.e., a system of interconnected private and public stakeholders around young and innovative enterprises. It still scores highly in terms of **innovative entrepreneurship**.

The flourishing Bay Area startup scene owed much to **semiconductor companies**, which transformed the area into a prominent **technology hub** and attracted venture capital (VC) while operating in tandem with the University of Stanford. This early example highlights the importance of **knowledge exchange** within a network of **well-connected actors**, as well as the relevance of **universities** and **research**.

Another pivotal moment shaping the history of startups was the so-called **dotcom era**, with the creation – and subsequent bursting – of the dotcom bubble, an era related to the development of a very large number of startups offering products and services related to the internet between the 1990s and the early 2000s (Goldfarb et al., 2005). It is estimated that between 1998 and 2002 up to 50 000 dot.com startups were established in the US to exploit the numerous business opportunities offered by the internet (Goldfarb et al. 2005).

A startup is seen as something different from a regular enterprise starting up its first development phase. Instead, startups are characterised by a **higher degree of risk** surrounding their activities compared with normal small and medium-sized enterprises (SMEs). The reason is that startups aim to develop and introduce to the market **innovations** in business models, products, or services, whose success is uncertain at the moment of funding the company. This is usually not the case for companies offering well-established, non-innovative products or services.

3.1. Concept background

Ever since the startup concept was first developed, there has been a strong connection with two other concepts: **innovation** and **SMEs**. These two elements are common to most startup definitions, which describe them as **innovative small/medium-sized companies** in their first stages of growth.

The reason for linking **innovation and startups** lies in the potential startups have to develop new, disruptive ideas, products, services, or business models, that lead to significant **breakthroughs** (Schneider and Veugelers, 2010). Moreover, the OECD *Oslo Manual* defines as 'innovation-active' those firms which develop or implement new or improved products or business processes (OECD/Eurostat, 2018). Academic literature has investigated the high innovation potential of startups

at length. Evidence shows that **Young Innovative Companies** (YICs)[a] achieve a higher innovative performance[b] than other innovation-active firms, and this is especially true in the case of radical innovations (Schneider and Veugelers, 2010). Some examples of such innovation are, for instance, companies such as Spotify, Amazon, Apple, and Facebook, which revolutionised their respective markets with their innovative ideas while they were startups.

According to another study, incumbent firms – older and well-established – innovate through R&D expenditures, building upon the knowledge available in-house, while startups take the entire stock of knowledge and use it in a **new approach** (Acs et al., 2009). Incumbents **innovate incrementally**, while startups do so **radically**, building upon entrepreneurial talent, as well as intra-temporal knowledge spill-overs (ibid.). Startups have also been defined as engines of innovations (Serio et al. 2020), and their activities as the means through which technological breakthroughs can be transformed into economic development (Van Roy and Nepelski, 2017).

In addition to the link between innovation and startups, it is also relevant to mention that these companies are significantly linked to the **concept of SMEs**, which is clearly defined in EU law[c]. In fact, all startups are SMEs, as they find themselves within the first stages of growth and are therefore small in size. However, not all SMEs are startups: as **innovation-driven SMEs**, startups are a sub-category of SMEs. When these companies start to grow exponentially in a shorter period of time, and are not necessarily recognisable as SMEs anymore, they are also often labelled as **scale-ups.**

One highly relevant innovation area of the startup ecosystem is **deep-tech**. Deep-tech innovations are those capable of critically transforming the way people live (European Investment Bank, 2018). In fact, they tackle **highly complex global challenges** by delivering **disruptive innovation** based on **cutting-edge technology**. The concept of deep-tech has been placed at the core of the **New European Innovation Agenda**, a Communication issued in 2022 to position the EU at the forefront of deep-tech innovation (European Commission, 2022).

3.2. Startup ecosystem

As an innovative idea might not be enough, startups usually operate within an **ecosystem** consisting of a number of elements directly linked to the formation of startups. These elements can be seen as **stakeholders** capable of supporting startups throughout their stages of growth, or infrastructure that allows these newly created companies to thrive. According to a report by the Joint Research Centre (JRC) (Basso et al. 2018), a startup innovation ecosystem consists of the following actors and stakeholders:

- **Research organisations and universities**, which can transfer technology and offer support to startups;
- **Support organisations**, such as **accelerators** and **incubators**, or **corporations**, which can mentor startups and support them financially;
- **Funding organisations**, which can provide financial means for startups. These organisations include banks, the Alternative Finance sector (offering solutions such as crowdfunding or peer-to-

[a] Following state aid rules by the EU, the authors consider YICs companies younger than six years, employing less than 250 people and having R&D spending which amounts to at least 15% of their revenues (Schneider and Veugelers, 2010).
[b] The authors measure innovative performance by three alternative dependent variables. These are: % of sales generated by the new or substantially improved products or services produced by the company; % of sales with products new to the firm; % of sales generated by products new to the market (Schneider and Veugelers, 2010).
[c] According to the Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, an SME is defined as an enterprise employing fewer than 250 persons and whose annual turnover is below EUR 50 million and whose annual balance sheet total is below €43 million. See Chapter 4 for further discussion on the way EU sources define different concepts related to startups.

peer lending), incubators and accelerators, clusters of innovations, angel investors and venture capital (VC)[d] funds;

- **Governments (i.e. their policies)** that aim to foster the long-term development of a startup ecosystem.

An ecosystem, therefore, can be considered as a "nurturing environment" where stakeholders interact to develop new startups (Novotny et al., 2020).

Finally, while Silicon Valley can be considered the first startup ecosystem, today there are distinct examples of these ecosystems worldwide. In fact, global startup activity has increased substantially, in terms of VC activity, and new startup city hubs have arisen in every major continent[1]. Cities play a relevant role in a **trend to the urbanisation of VC investments**: globally, a small number of cities have been driving the majority of investments in startups[2].

3.2.1. Startup ecosystem in Europe

Some facts and figures on European startups can illustrate the importance of the European startup ecosystem and introduce the impact these have on the European economy.

Currently, Europe is considered a startup ecosystem hotspot with successful startup hubs in a number of countries[e]. The EU startup ecosystem has benefited greatly from the EU single market and the consequent freedom of movement that enables entrepreneurs to move easily in search of the best research and funding opportunities. The single market also allows goods and services to be sold beyond the borders of the origin Member State with very limited bureaucracy involved. This characteristic was highlighted in the *New European Innovation Agenda* (European Commission, 2022C).

Some investment facts and figures:

- The UK, Sweden, Germany, and France are in the top 10 globally in terms of startup ecosystem[3];
- The top cities in terms of seed investments[f] are London, Paris, Stockholm, Berlin, and Barcelona[4];
- Taking into consideration scale-ups[g] alone, according to the European Scaleup Monitor 2021, the top three scale-up countries are the UK, France, and Germany (with the top two countries hosting half of all identified European scale-ups): both the UK and France host about 300 scale-ups, while Germany around 86;
- The top scale-up cities are London, which has 145 scale-ups (representing 15% of UK scale-ups), Paris, with 50 scale-ups (representing 17% the French scale-ups), and Stockholm, with 26 scale-ups (representing 47% of Swedish scale-ups)[5];
- The number of European cities holding a unicorn[h] is on the rise: while only seven cities were home to a unicorn in 2010, this figure increased to 65 in 2021[6];
- Looking at deep-tech companies, the highest VC investment values between 2015 and 2020 can be found in the UK, Germany, France, and Sweden, as shown below. On the other hand, the highest share of VC invested in deep-tech can be found in Norway, Finland, Belgium, Austria and Poland[7].

[d] A widely used definition of VC is that of private equity which entails investing in a business with a disruptive character and a high growth potential. See: corporatefinanceinstitute.com
[e] Unless otherwise specified, the scope of this section is Europe. The reason lies with the fact that most reports dealing with international start-up benchmarking do not make a distinction between Europe and the EU.
[f] Seed investment is widely defined as the first, earliest capital-raising stage of a start-up. See: corporatefinanceinstitute.com
[g] For the purpose of the report mentioned, scale-ups are defined as "*young fast-growing companies that are, at maximum, ten years old at the moment they collect investment. Second, the minimum value of investment received is set at €1 million over a ten-year period*". See: European ScaleUp Monitor 2021 ece.nl
[h] A widely used definition of unicorn is that of a start-up which reaches a valuation of $1 billion.

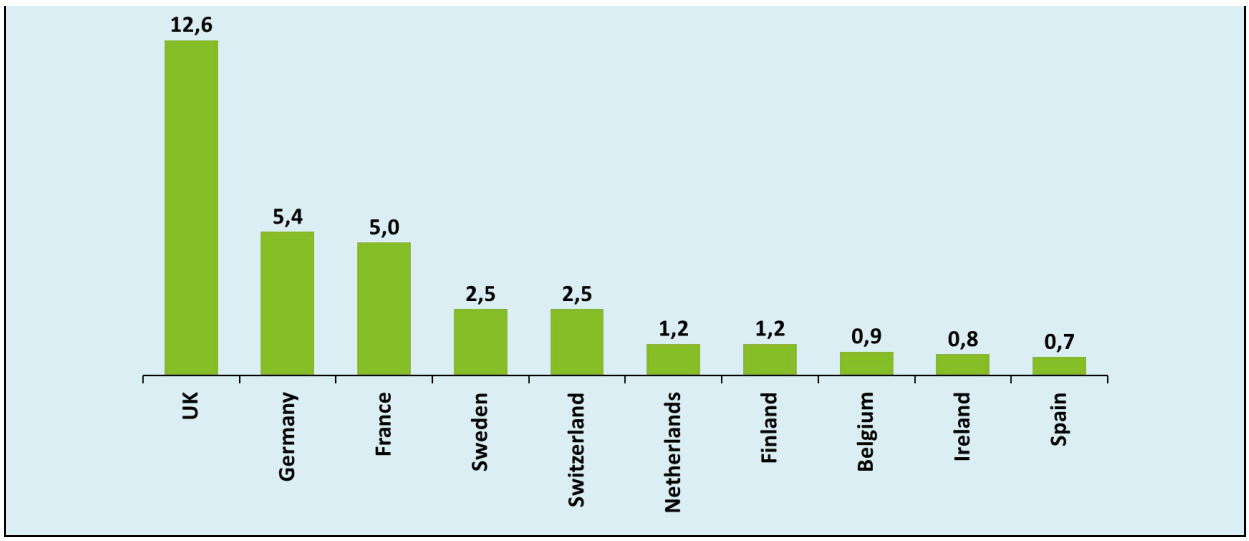


Figure 1 Deep-tech VC Investment absolute value (€ billion, 2015-2020). Source: **European Startups**

The number of startups in Europe can be extracted from the European Startup Dashboard, an initiative created within the scope of the European Startup Project, which was supported by the EC and the European Parliament (EP)[8]. The dashboard lists approximately 117 000 verified startups in Europe[i]. Another figure is found in the ***Flash Eurobarometer 486***[9], which found that of all enterprises included in the Flash Eurobarometer, 6% of EU enterprises were startups and 18% of EU enterprises were scale-ups, according to the definitions[j] given in the report[k].

There are two indicators which give an idea of the impact startups have on the European economy. One is **patent creation**. The OECD has found that the countries with the highest number of patents per billion dollars of VC in Europe in 2017 were France and the Netherlands (Breschi et al., 2018). Another contribution to the European economy is **job creation**. For instance, according to data from European Startups, around 1% of European jobs are at **startups**, while this figure is as high as 10% for the US[10]. According to OECD[l], **scale-ups** make a significant contribution to the creation of new jobs (OECD 2021). For example, while the scale-ups analysed represented 15% of SMEs with more than 10 employees, they created more than 50% of the new jobs in SMEs in the five countries of the study, Finland, Italy, Portugal, Slovak Republic and Spain (OECD 2021).

3.2.2. Startups as a field of policy intervention

Policymakers have increasingly been paying attention to startup ecosystems as these fosters both entrepreneurship and innovation (Audretsch et al. 2020). Startups are impacted and influenced by **innovation** and **entrepreneurship policies**, as well as **industrial** and **social policies**.

Academia has widely explored policy support to startups and its value added in startup ecosystem growth. For example, Kösters (2010) identified three channels through which entrepreneurial activity flows: entrepreneurship i) generates knowledge spillovers; ii) increases competition in the market and

[i] This figure does not include the UK.
[j] These are: "*start-ups are considered to be young enterprises, founded in 2015 or later, that have introduced any kind of innovation in the last 12 months, and plan to grow in terms of turnover and/or employment*" and "*scale-ups are considered as enterprises founded prior to 2015, that have achieved significant growth since 2016 (thus in the last three years) in employment and/or turnover. Growth in turnover must have been at least 30% to qualify on a turnover basis. To qualify as a scale-up on the basis of employment, there must have been a growth of at least 30% in the case of firms with ten or more employees, or, in the case of micro firms, an increase of at least three employees*". Flash Eurobarometer 486 on SMEs, start-ups, scale-ups and entrepreneurship. See: (europa.eu).
[k] The two figures given on the number of start-ups from the *European Startup Dashboard* and the *Flash Eurobarometer* are difficult to compare, as the former is based on microdata including information submitted by users, while the latter on survey results.
[l] Scaling up, within the scope of the study, achieve an annual average rate of 10% growth of the number of employees over a period of three years (OECD 2021).

iii) increases heterogeneity among enterprises. These are positive effects, which policies can foster and enable. On the other hand, innovative startups can experience difficulties accessing capital. This negative effect can also be tackled through policy intervention. In addition, given that startups operate within an ecosystem, policies can not only affect individual targeted firms, but can also aim to improve the functioning of the ecosystem in its entirety (Audretsch et al. 2020).

The positive impacts policy intervention can generate on the three channels identified above is summarised in the figure below:

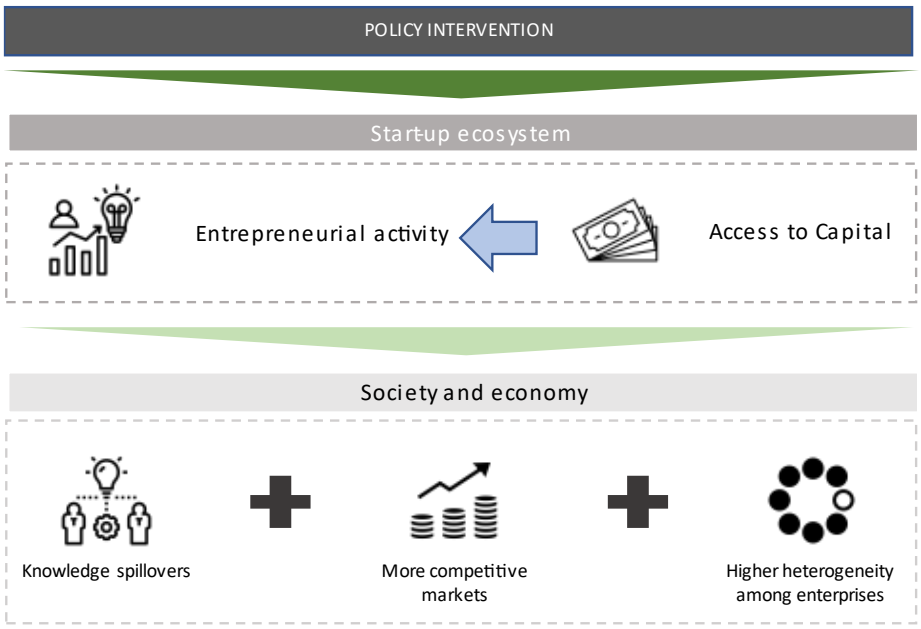


Figure 2 From policy intervention to effects on society and economy (based on Kösters 2010).

Developing policies aimed at innovative startups has been recognised as a demanding task, which needs to consider startups' needs at their different stages of development (Audretsch et al. 2020). A technical report by the JRC has highlighted the crucial role policies can play when it comes to **supporting startups by fostering the right ecosystem for their development** (European Commission, 2018). Stam and Spigel (2016) have indicated that such policies target the entrepreneurial ecosystem as a whole, including both the framework (human capital, finance, institutions, and infrastructure) and systemic conditions (entrepreneurial culture, fostering ecosystem networks).

Policymakers need to pay a special degree of attention to the framework conditions that will assist young and small yet innovative companies to **overcome initial financial hurdles** (Giraudo et al., 2019). In particular, they experience additional difficulties when attracting funding compared to established companies, which can lead to sub-optimal investment levels for startups. Furthermore, there is evidence that startups operating in sectors defined as **volatile** (those sectors where employment growth at firm level varies over time) are more exposed than incumbents to policy choices made at national level and to overall framework conditions (Calvino et al., 2016). The authors highlight that if policies fail to live up to startups' expectations (for instance due to burdensome bureaucracy), these sectors might experience **lower levels of investments than policymakers' targets**. These examples highlight how public policy can nevertheless help startups thrive in order to unlock their potential for job creation and innovation. Therefore, **national governments**, as well as **supranational institutions**, have deployed different public policy options (such as grants and subsidised loans) to give startups additional liquidity (Hottenrott and Richstein, 2019).

The following box lists some of the latest EU policy interventions on the field of startups.

Relevant Initiatives – EU

- ***Startup and Scale-up Initiative*** (European Commission, 2016), aimed at:
  - clearing away the most significant barriers which startups might experience in their journey to scaling up;
  - creating new opportunities, such as connections and clusters within the startup ecosystem; assisting startups with procurement opportunities;
  - helping create the right skills for future employees; boosting innovation opportunities;
  - helping startups access finance.
- ***New European Innovation Agenda*** (European Commission 2022C), aimed at:
  - fostering deep-tech innovation and startups capable of helping Europe tackle pressing societal issues, such as the green and digital transitions;
  - focusing on a number of flagship actions aimed at funding scale-ups, fostering innovation thanks to public procurement and regulatory sandboxes, and accelerating innovation;
  - addressing the innovation divide across the EU through the creation of regional innovation valleys, developing a solid talent base and improving policymaking tools (by, among others, developing common definitions and datasets).
- ***European Research Area (ERA)*** aims to develop a single market for research and innovation throughout the EU.
- ***European Innovation Council (EIC),*** whose 2023 work programme includes over 1 billion dedicated to assisting startups and SMEs developing high impact innovations.
- ***European Institute of Innovation & Technology (EIT),*** an EU initiative to foster innovation through the creation of communities bringing together companies, labs, and universities.
- ***EU Startup Nations Standard of Excellence:*** In 2021, 24 EU Member States signed a Declaration that aims to support startups by identifying a series of best practices and actions capable of fostering startup and scale-up development across Europe.

In conclusion, the startup ecosystem can be seen as a **relevant field for policy intervention**, which can foster entrepreneurship and innovation by helping startups and scale-ups to thrive. This, in turn, can foster job and patent creation, which can create economic benefit. Moreover, policy measures can help startups overcome barriers such as financial and bureaucracy hurdles.

3.3. International benchmarking

A benchmarking exercise of the EU (and its Member States) and some of its most relevant economic competitors, such as **China, Japan, South Korea, the UK, and the US** is here used as an indicator of the different market dynamics of startup ecosystems. Startups and scale-ups do not develop in isolation from those of other countries. European startups have gone through the same trends that have characterised startups' development elsewhere (e.g., globalisation and urbanisation of VC, seed financing etc.) and have expanded their operations and presence in all markets (i.e., within the Single Market and outside the EU). The funding streams also know (almost) no borders, as European startups

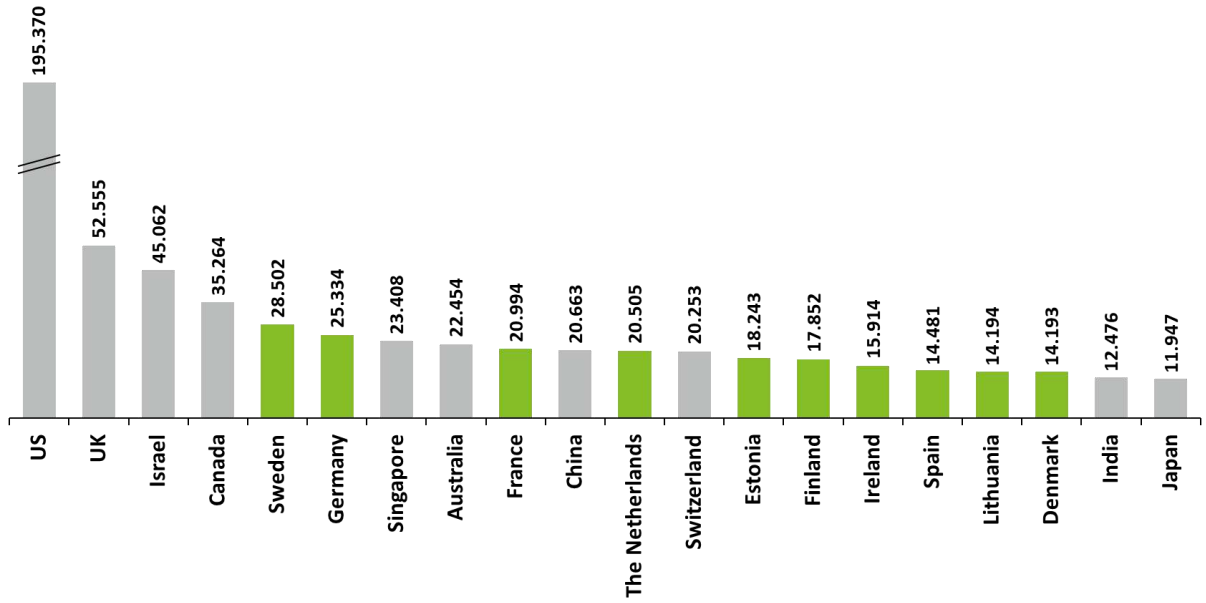
usually look into other markets when searching for higher investment rounds, especially in the US market.

It should be noted that comparing facts and figures from different reports, as presented below, might be challenging because **definitions of key concepts and indicators relating to a startup ecosystem vary across the different reports**. This is the case for most international publications, as there is no set of agreed definitions used amongst the different stakeholders. Moreover, data sources of these reports vary as well, including, for example, the use of private databases or ad hoc survey results. In addition, some reports present data at the national level, while others at the aggregated continent level. Finally, some reports present data and findings referring to the EU, while others more broadly to Europe or a couple of EU Member States. Having this in mind, the explanation presented in the following paragraphs aims to present Member States' performances in the startup arena.

As the 2022 edition of the *EIS* dedicated a section to benchmarking EU performance against global competitors on the field of innovation, a similar exercise on startups seems relevant[m]. A number of points can be highlighted when looking at a broad comparison between startups in the EU and those in its main economic competitors. While some of the sources analysed below are focussed on comparisons between countries, a clear distinction is made in the analysis below between EU Member States and third countries.

The *Startup Ecosystem Report 2022* by StartupBlink ranked the **top 100 countries** and **top 1000 cities** across the world based on their startup[n] performance, in terms of quantity, quality and business environment[o]. It should be noted that StartupBlink's definition of a startup is not quantitative, and is rather based on innovation and the potential to scale up. The report is based on StartupBlink's own Global Map, where StartupBlink samples startup ecosystem data, estimating that the dataset covers around 10-15% of entities in global startup ecosystems[p].

The **top 20 startup countries** (by total score) are shown in the next Figure.



[m] In this sense, developing an international benchmarking exercise would contribute to aligning the EIS with a European Startup Scoreboard in the future.

[n] Start-ups are defined as "*any business that applies an innovative technology-enabled solution that has the potential to achieve scalability*" throughout the report. See: Startup Ecosystem Report 2022

[o] Startup Ecosystem Report 2022. Each score in the ranking is made up by three components: quantity (number of startups, coworking spaces, accelerators and meetups in a given city or country), quality (including data on employees, unicorns, events, accelerators) and business environment (including diversity, interned freedom, R&D investment, patents per capita, presence of top universities).

[p] See methodological considerations by StartupBlink: Startup Ecosystem Report 2022

Figure 3 Top 20 startup countries according to Startup Ecosystem Report 2022. Value represents Total Score. Source: **Startup Blink**

While half of the top 20 countries is located in the EU, the top four positions are still occupied by third countries including the UK, which is located in Europe.

The following figure shows the top 20 startup cities:

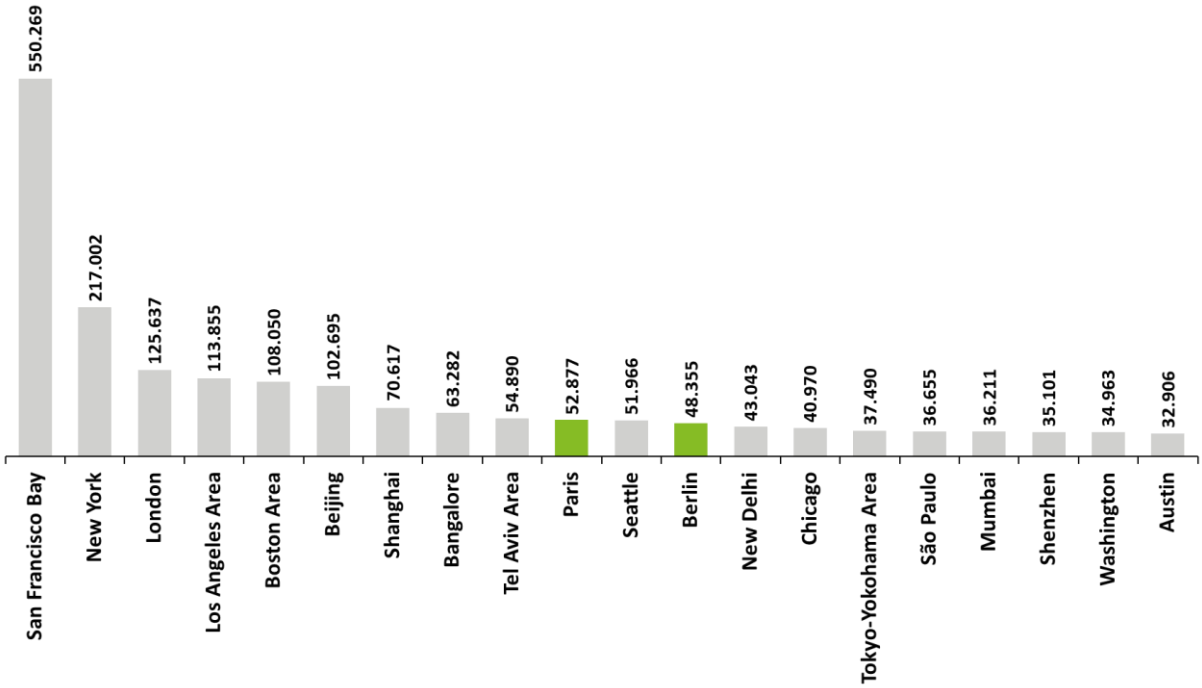


Figure 4 Top 20 startup cities according to the Startup Ecosystem Report 2022. Value represents Total Score. Source: **Startup Blink**

Here, only two EU cities are listed, **Paris** and **Berlin**. **London** is, on the other hand, the best-ranking European city.

This report also provides a **regional ranking**, with insights into how Europe, with the inclusion of non-EU European countries, compares to other regions in terms of geographic distribution of the top 1000 cities and the geographic distribution of funding as shown in the figures below. On the one hand, the share of European cities included in the top 1000 cities is higher than the share of North American and Asian & Pacific cities[11]. However, most global startup funding goes to North American companies[12].

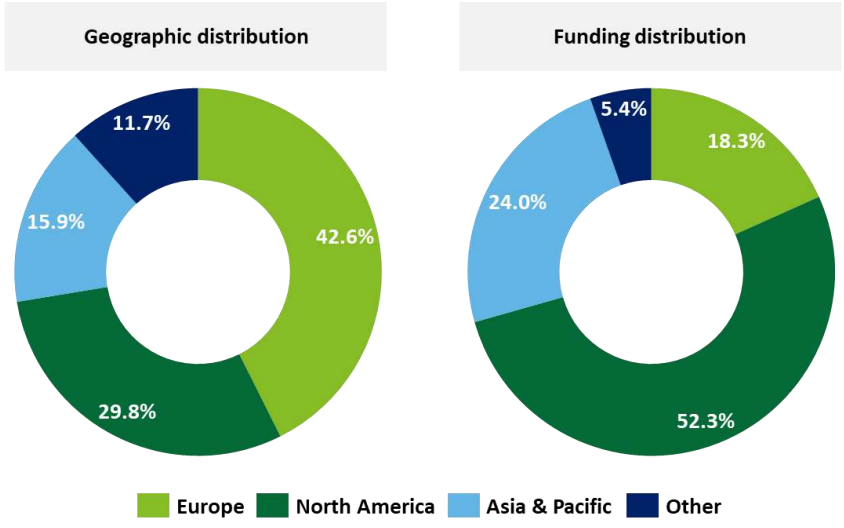


Figure 5 Geographic distribution of top 1000 cities and geographic distribution of startup funding. Source: **Startup Ecosystem Report 2022**

The usefulness of international benchmarking has led the **EIB** to carry out a comparison of startup performance in the EU with some of its main competitors (European Investment Bank, 2019). The study concluded that Europe falls short in the number of young, innovative firms compared to the US and that the EU seems less able to foster scale-ups compared to the US and China (ibid.)[q].

A report drafted in the context of the European Startups project, centred on deep-tech, quantifies the amount of money spent by **big corporate on R&D** by economic sector and serves to show which R&D sectors are prevalent in which geographical area of the benchmarking exercise[r]. As depicted below, sectors such as pharma and automotive spend more on R&D in the EU than in the US, while in the field of the internet, software and hardware, and biotech, the US spends far more than its competitors[13].

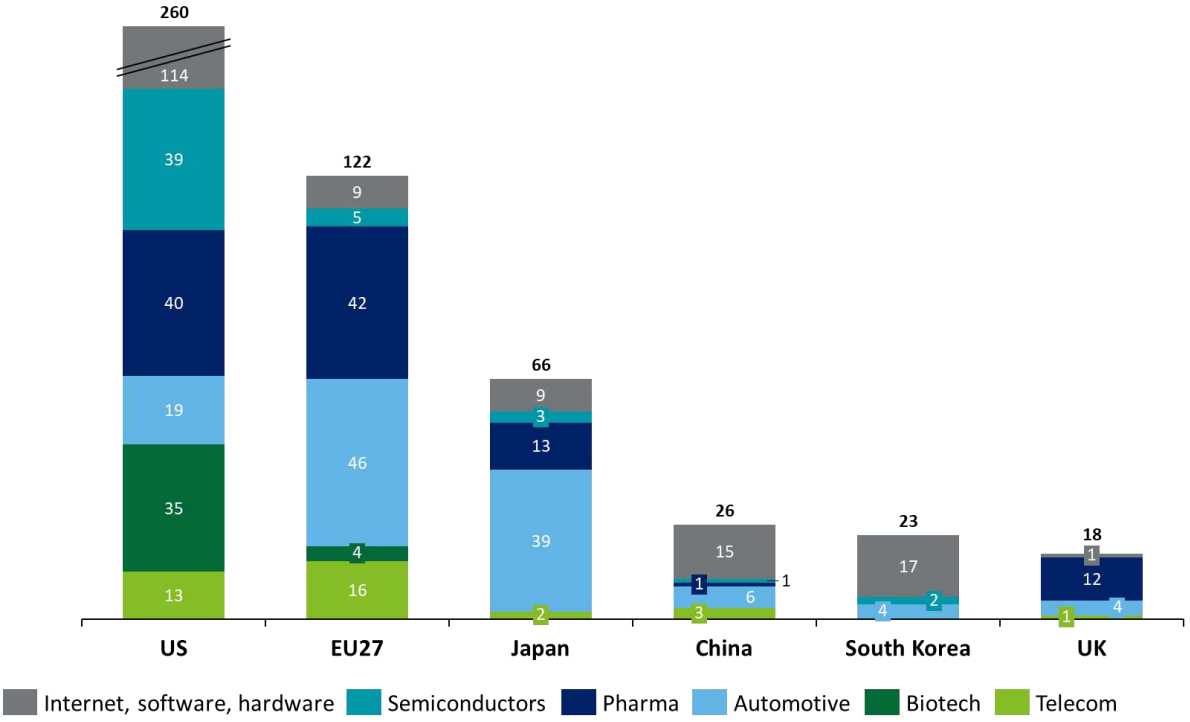


Figure 6 Corporate R&D spending (2018, US$ billion) international comparison. Source: European Startups using data from PwC's 2018 Global Innovation 1000.

Another report from the European Startups project focuses on data in relation to **VC**[14], with data from Dealroom.co highlighting the gap between Europe, North America, and Asia: the bigger the VC round, the less likely it is to take place in Europe[15]. For example, using Dealroom.co labels, the report mentions that 38% of seed investments globally (those between €1 million and €4 million) took place in Europe, while the same is true for only 12% of Megarounds plus investments (those higher than €250 million). The opposite is true for Asia and North America: their global share of seed investments is smaller than that of Megarounds plus investments: 16% and 39% respectively for Asia and 36% and 47% for North America. However, according to the Center for American Entrepreneurship findings based on data from

[q] The following definitions are used within the report: start-up (a young firm with high growth ambitions); scale-up (start-ups in a later stage of development, growth phase); young (firm less than ten years old); innovative firms (leading innovators. Firms that have substantial R&D (R&D-to-sales ratio equal to or higher than 0.1%) and have introduced or developed products, processes or services that are new to the country or to the global market). See European Investment Bank, 2019.

[r] The figure reports a comparison between EU27 big corporate R&D budgets (corporate R&D spent in 2018, in $) and those of third countries, namely China, Japan, South Korea, US, UK. The figure is based on data gathered by PwC for its Global Innovation 1000 study, published in 2018.

PitchBook Data, Inc, the absolute share of global VC investments taking place in the US has declined from 97% in 1992 to 50% in 2017 due to the **global expansion of startup activities** (see section 3.2)[16].

The EC *Science, Research and Innovation Performance of the EU 2022*, based on data from Startup Genome, highlighted the fact the EU lags behind its main international competitors in terms of startup ecosystems[s] (European Commission 2023). However, the EU was found to perform well in terms of new, emerging ecosystems.

3.4. Explanation of the lack of definitional coherence

This section aims to give an overview of the **lack of definitional coherence** regarding the key elements of the startup ecosystem listed in section 2.1.

Policymakers, statistical officers, academics face **two main challenges,** as did the study team. First, several elements can be taken into consideration when defining concepts such as 'startups' and 'scale-ups', like the number of years they have been in operation (age), number of employees, revenue and the relevance innovation has within their overall operations. The first concrete challenge consists of **choosing which elements to include in the definition**. Second, these elements **need to be defined**. For instance, if the **age** criterion is identified as relevant in a startup definition, the following step consists of defining a maximum age up until which companies can be considered a startup (5 or 10 years for example). The same applies to the **number of employees**: if this is recognised as a key element defining startups, a precise number of employees then needs to be fixed (up to 200 for example). Moreover, startup and scale-up definitions are also found in the eligibility criteria description of **funding opportunities**: where startups and scale-ups are defined differently, the same company might be eligible for some funding, but not for other[t].

Without a common harmonised set of definitions, it is unsurprising that the analysis of sources describing startups reveal differences in the way these concepts are defined, in terms of which elements are included and how these are defined. This results in a **lack of definitional coherence**. This was recognised by the EC in the *Annual Report on European SMEs 2021/2022* which clarified that comparable data on the EU SME startup population is not currently produced by national and international statistical organisations (European Commission 2022B). This lack of coherence was also noticed by the study team when analysing the results of both the interviews and the survey. While in the interviews it was clear that there was no common approach to definitions at the EU level, the survey results showed that even at the national level there is a difficulty in defining the concepts and collecting official data accordingly.

Different definitions of the same concept can impact the way startups are measured in the EU, as the same indicator will be measured differently depending on the set of concept definitions used. As stated in the Flash Eurobarometer 486, different definitions, approaches, and methodologies related to startups and scale-ups are used in different contexts, complementing each other[17]. As a result, it is very challenging to assess EU startup performance, as there is no common set of definitions or indicators to offer a scientific data collection method across the EU. Thereafter, the absence of harmonised definitions hampers comparability between different reports and data sources, while it is understandable that different approaches coexist due to practical data collection reasons.

Sources of data used to measure startup performance indicators vary in the reports analysed for this study. For instance, data might be collected through a survey conducted by a business association, by a national statistical office on a country basis, or by websites such as dealroom.com. Therefore, data on startups might refer to **official statistical sources**, **microdata,** or **survey results**. **Comparability** of data is assured, as long as definitions are the same and data collection processes follow same rules

[s] The EC report uses the definition of start-up ecosystem given by Startup Genome: a start-up ecosystem is a cluster of start-ups (and related entities) which pool together resources and reside within a 100-kilometre radius from a central point (Startup Genome, 2021).
[t] For a description of the requirements foreseen by a number of funding opportunities, see Chapter .

and principles. However, this is not the case for the startups, for definitions or for data collection methods, as both are inconsistent between countries and stakeholders. A certain degree of comparability is achieved by national statistics, as definitions and data collection methods are consistent through time, allowing for cross-time comparisons at national level.

In terms of assessing the feasibility of a European Startup Scoreboard, this study is able to highlight points of divergence and convergence among definitions and indicators currently used by the sources analysed.

4. STATE OF THE ART – DEFINITIONS

This section provides an **overview of the existing definitions** of the key concepts listed in section 2.1. The definitions are organised by data source as described in section 2.2. The table below lists the sources where the study team found each key concept. As shown, while certain concepts are defined by all source categories, as in the case of startups and scale-ups, others, such as spin-offs, early stage startups and stages of growth, are mentioned by only three source categories.

Table 2 Key concepts by sources overview

Concept	EU legal	EU reports	EU national	Non-EU national	International organisations
Startup ecosystem	×	✓	✓	✓	✓
Innovative companies	✓	✓	✓	×	✓
Stages of growth	×	✓	✓	×	✓
Early stage startups	×	×	✓	×	✓
Startups	✓	✓	✓	✓	✓
Scale-ups	✓	✓	✓	✓	✓
Deep-tech startups	✓	✓	✓	×	×
Spin-offs	×	×	✓	✓	✓
Unicorns	×	✓	✓	✓	✓
Women-led ventures	×	✓	✓	✓	✓

As mentioned in section 3.4, definitions are composed of different **elements** (i.e. age, revenue, number of employees or innovative character). These elements are then themselves further refined: for example, if age is deemed relevant for the definition of startups, a maximum age needs to be chosen up until which companies can be defined as a startup. In the analysis below, attention will be given, wherever possible, to all the elements used to make up the different definitions. For example, an overview will be provided of all the age requirements used across all the definitions analysed to define the startup concept to identify synergies between different sources. It should be noted that the naming of the concept listed in the table above is not consistent across the sources, for instance, some sources used innovative enterprises instead of innovative companies or women-led companies instead of women-led ventures. To be consistent sub-titles within each subsection will refer to the naming in **Table 2**.

4.1. EU sources

The table below lists the main elements used to define each concept among the EU sources analysed. In the following sub-sections each of these elements is further developed and contextualised. Please, note that under EU national, both legal and non-legal sources are included.

Table 3 Main elements by concept definitions and sources

Concept	EU legal	EU reports	EU national
Startup ecosystem	×	• Type of stakeholder involved • Type of contribution to startups	• Type of stakeholder involved • Type of market contribution

Innovative companies	• Type of innovative development • Min. rate of operating cost devoted to R&D (10%)	• Innovation firms' categories • Min. cost rates devoted to R&D (10%)	• Type of business model • Age (max. 8 years) • Limit to the observation period (max. 3 years) • Money spent in innovation over a year (min. 10% financial year expenditure on R&D or 15% of total expenditure costs devoted to R&D) • Number of patents and trademarks generated • Number of employees (up to 50)
Stages of growth	×	• Startup vs scale-up • Min. numbers of employees (10) • Min. employee annual growth rate (10-20%) • Min. turnover growth rate (60% over three years) • Age (5 years)	• Startup vs scale-up • Business size in terms of annual turnover (small, medium, large, very large) • Amount of funding raised
Early stage startups	×	×	• Go-to-market product • Customer volume • Age (not older than three years)
Startups	• Age (up to 5 years)	• Age (5 to 10 years) • Min. number of employees (fewer than 250) • Business model	• Age (3 to 12 years) • Revenues (max EUR 50 million) • Number of employees (up to 250) • Economic sector where they are active • Internal composition
Scale-ups	• Min. number of employees (10) • Employee annual growth over a year (10% over three years)	• Number of employees (over 51)	• Employees and/or revenue growth • Number of employees • Age
Deep-tech startups	• Cutting-edge science • Specific sector/topics	• Disruptive innovation • Cutting-edge discoveries • Patents	• Presence of high barriers to entry (i.e. technological barriers need to be removed) • Specific sector/topics • Ground-breaking innovation • Technological breakthrough • Business model • Financial requirements
Spin-offs	×	×	• Incubator entities (universities and companies) • Developments brought to society • Intellectual property
Unicorns	×	• Min. economic value (at least $1 billion)	• Min. economic value (at least $1 billion)
Women-led ventures	×	• Positions held by women	• Owned or managed by women

		• Share of women in the work force (50%)	• Founded by women

4.1.1. EU official legal documents

A general analysis of **EU official documents** offers some key concept definitions of the startup ecosystem.

Given the close relationship between the concepts of startups and SMEs – mentioned in section 3.1 – the **EU definition of an SME** is a relevant starting point in terms of elements such as **size** and **revenue**. This is included in the Commission Recommendation of 6 May 2003 concerning the definition of **micro, small and medium-sized enterprises**. According to this definition, an SME is an enterprise employing fewer than 250 people, with an annual turnover of no more than €50 million and/or with an annual balance sheet total no more than €43 million (European Commission, 2003). **Regulation (EU) 2021/695** mentions startups as SMEs in their early lifecycle stage, which are aiming to find innovative solutions, as well as scalable business models[u].

- Innovative Companies

Within the scope of the **General Block Exemption Regulation (GBER)**, Regulation (EU) No 651/2014, an **innovative enterprise** is defined as one which fulfils one of the following two requirements: either it demonstrates that it will develop innovative products, services or processes which carry the risk of technological failure; or, 10% of its total operating costs are devoted to R&D (European Union, 2014).

- Startups and Scale-ups

The EC Communication on ***Europe's next leaders: the Start-up and Scale-up Initiative*** pointed out that startups combine high growth, innovation, technological developments and innovative business models (European Commission, 2016). Furthermore, startups are defined in the **GBER**, Regulation (EU) No 651/2014. In particular, Art. 22 mentions certain cases in which state aid for startups is deemed compatible with the internal market rules (European Union, 2014). Eligible undertakings are defined by the Regulation as unlisted, small enterprises up to five years of age which, among other requirements, have not distributed profits.

On the other hand, **Commission Implementing Regulation (EU) 2020/1197 of 30 July 2020** defines **high growth enterprises** – a concept closely linked to **scale-ups** – as enterprises with at least 10 employees and an average annualised growth in the number of employees greater than 10% per annum, for a period of three years (European Commission, 2020B). As explained by Eurostat, data collection based on this employment-based definition is mandatory in all EU Member States. Eurostat also collects indicators which refer to a turnover-based definition of high-growth enterprise, where growth it measured in terms of turnover, instead of number of employees (this definition is not included in the Regulation mentioned before, data collection is not mandatory and does not cover all EU Member States)[18]. In addition, in case high growth enterprises are 4 or 5 years old, they can be defined as **gazelles**, according to the same Regulation.

- Deep-tech startups

The EC Communication on *A New European Innovation Agenda* defines deep-tech as innovation rooted in cutting-edge science, technology and engineering, which often combines advances in the physical, biological and digital spheres with the potential to deliver transformative solutions to global challenges[19].

[u] This regulation is aimed at the establishment of Horizon Europe. See: eur-lex

4.1.2. EU Institutions and commissioned reports

This section analyses reports from EU institutions, including the EC, the European Parliament, the European Investment Bank (EIB), the European Central Bank (ECB), as well as reports from the European Patent Office (EPO) and reports commissioned by these institutions.

Example of commissioned reports are those from the two-year project European Startups, supported by both the EC and the European Parliament with the goal of facilitating and feeding into conversations taking place among key startup ecosystem stakeholders[20]. Reports produced by this project included *The past, present and future of European Tech*[21], *Startup cities in the entrepreneurial age*[22] and *2021: the year of deep tech*[23]. A relevant output of this project is the European Startups Dashboard, which includes figures such as total number of startups, number of VC investors and startup employees[24].

- Startup ecosystem

Among the sources analysed in this section, a **startup ecosystem** is referred to as the structure of stakeholders (such as, among others, universities, institutions, associations, investment firms) to support startups' foundation and growth at national level[25]. This definition resonates with that of startup innovation ecosystem from the Joint Research Centre (JRC), which emphasises interaction among stakeholders that aim to produce knowledge, technologies, and business opportunities (Basso et al., 2018). Finally, the European Innovation Council, in its 2022 Work Programme, noted that a startup ecosystem accelerates growth by creating an innovation-friendly legal framework and an environment capable of stimulating growth and investments, as well as resources and talent[26].

- Innovative companies

The **OECD *Oslo Manual*** (OECD/Eurostat, 2018), which focuses on guidelines for collecting, reporting, and using data on innovation, includes the following definitions:

- **Innovation-active firm**: firm is engaged at some time during the observation period in one or more activities to develop or implement new or improved products or business processes for an intended use. Both innovative and non-innovative firms can be innovation-active during an observation period.
- **Innovation firm**: firm reports one or more innovations within the observation period.
- **Innovation status**: defined on the basis of the firm's engagement in innovation activities and its introduction of one or more innovations.

The Oslo Manual is already a relevant and reliable source used at EU level. The EIS uses the Manual's definition to define its innovation-related indicators. The EIS has defined an **innovative enterprise** as one introducing innovations or having innovation activities (European Commission, 2022). Eurostat defines an innovation-active firm as one which is either developing products, services and processes which are new and carry a risk of failure, or one where at least 10% of costs are represented by R&D[27]. The EIB has defined **innovative firms** as leading innovators: these firms have a substantial R&D programme[v], have introduced or developed products, processes or services which are new to the country or global market (European Investment Bank, 2019).

- Stages of growth

With regard to **stages of growth**, the EIB (European Investment Bank, 2019) has divided enterprises into startups (which correspond to the early stage and the launch/early revenue phase of a business lifecycle) and scale-ups (which correspond to firms in the growing revenue/scale-up and maturity/consolidation phases of a business lifecycle).

The EC in its *Annual Report on European SMEs 2020/2021* defined **high-growth enterprises** as those enterprises, with at least 10 employees, with a number of employees growing at least 10% every year

[v] The R&D-to-sales ratio needs to be equal to or higher than 0.1% for a firm to have a substantial R&D. See: eib.org

for a period of three years (European Commission, 2022B). This report also defined **gazelles** as high-growth enterprises younger than five years growing in turnover or employment by 10% a year, for a period of three years (European Commission, 2019).

The EIB used turnover growth higher than 60% over a period of three years for startups to be classified as **high-growth startups** (European Investment Bank, 2020). The European Parliamentary Research Service (EPRS) has considered an enterprise with an annual growth rate higher than 10% or 20% as a **high-growth enterprise** (European Parliamentary Research Service, 2017).

Finally, a scale-up has been defined within the scope of the *European Startup Dashboard* as having a growing revenue and over 51 employees[28].

- Startups and Scale-ups

The EIB defines a **startup** as a business aiming to grow its market access, revenues, and employees, even though it is still looking for a scalable business model (European Investment Bank, 2020). A definition of startup used by the European Startups Dashboard highlights its innovative character (often in the sense that it is tech-enabled) and its capacity to scale[29].

The 2018/2019 edition of the *Annual Report on European SMEs*, while mentioning the lack of a precise **definition of startups**, pointed out that the concept of startup generally refers to enterprises which are younger than 10 or five years (depending on the sector), innovative, and aiming to scale up rapidly (European Commission, 2019). The 2021/2022 report, which in terms of its section on startups was based more narrowly upon the Crunchbase company database, identified startups from that database which were active for-profit companies with fewer than 250 employees and younger than five years (European Commission, 2022B).

The EPRS study *Helping European SMEs to grow* made no mention of innovation or willingness to grow: for this study, a startup is a venture with at least one employee, not resulting from a merger, restructuring or break-up (European Parliamentary Research Service, 2017). With regard to **scale-ups**, the same source defines these as companies which expand and grow rapidly with regard to market access, revenue or employee number.

- Deep-tech startups

Regarding the concept of **deep-tech**, the EIB has described it as **disruptive innovation** transforming the way people live (European Investment Bank, 2018). The high level of innovation and the disruptive character of deep-tech relate to the core feature of startups as innovators. More specifically, according to the European Innovation Council, deep-tech consists of **cutting-edge discoveries**, which must be constantly updated in order to bring about the newest developments[30]. In fact, deep-tech has to keep up with innovation at a high pace, and is, in this sense, different from high-tech, which refers to R&D-intensity only[31].

In the European Startups report *2021: The year of Deep Tech*, startups are classified as **deep-tech startups** if they experience high risks in producing the product or service in relation to the intensive R&D process involved. In fact, in most cases, there is no guarantee that the product or service can even enter the market to be commercialised. For the authors of this report, if a startup experiences both R&D process risks and market risks, it can be considered a deep-tech startup[32]. The report also mentions that deep-tech startups are subject to a lengthy R&D phase, have a higher share of highly educated and technical oriented staff compared to non-deep-tech startups, and are likely to involve hardware and/or intellectual property requests[33].

A publication by the EIB and the EPO used the term **deep-tech SME** or **4IR SME**, where 4IR stands for Fourth Industrial Revolution. These SMEs hold in their portfolio a 4IR patent touching upon industries such as Internet of Things (IoT), artificial intelligence (AI), or 5G (European Investment Bank and European Patent Office, 2022).

The EC has listed some of the **main challenges faced by deep-tech startups in Europe** in the New European Innovation Agenda (European Commission, 2022C). Analysing these contributes to a better definition of the deep-tech concept. First, securing funding is recognised as challenging for deep-tech scale-ups. Second, a regulatory framework needs to be developed which is capable of enabling experimentation. Third, regional differences need to be tackled. Fourth, Europe seems less capable of retaining local talent and attracting new talent from outside. Finally, the policymaking framework shaping innovation policies at the EU and national levels needs to be improved to ensure policies are informed by data based on the same definitions of innovation concepts.

As highlighted by these definitions, however crucial for societal development, deep-tech is likely to be **high-risk business**. In fact, deep-tech requires substantial funding for a significant amount of time, and results are not guaranteed (European Investment Bank, 2018). Because of a **lengthy R&D phase**, going to market and growth might come later than for non-deep-tech startups (ibid.). As is the case of all kinds of startups, being backed-up by a functioning ecosystem is crucial for deep-tech innovation as well. According to the *European Startups Report*, several deep-tech companies in Europe stem from the academic world and have received funding from governments, which has contributed to bringing their value to almost €700 billion[34].

- Unicorns

With regard to **unicorns**, the category of sources analysed in this section consistently defines these as companies reaching a valuation of at least $1 billion (European Commission, 2022B). In addition, the term **SME unicorn** has been put forward by the EC to identify a unicorn with fewer than 250 employees (ibid.).

- Women-led ventures

Regarding the concept of **women-led ventures or firms**, the sources analysed in this section identify different possibilities. Women-led SMEs or startups are those where a woman holds a top-level position (CEO, CTO or CFO)[35], an executive position[36], or is the owner[37]. Finally, in European Innovation Council funding opportunities, a women-led consortium is defined as one where more than 50% of the Work Package leaders are women[38].

4.1.3. Reports from EU Member States

This section analyses a series of primary and secondary legal sources and other governmental and non-governmental reports focused specifically on one or more EU Member States. The data collected is filtered by its significance and grouped by Member State in Annex II: Country Profiles, which presents the most relevant definitions and indicators in use to describe the national startup ecosystem of that Member State.

To summarise this information, this section is organised by key concept, as this structure seems the most helpful for feeding further discussions around each concept. Due to the importance of a legal definition, whenever a definition is part of a Member State's jurisdiction, that is indicated clearly.

- Startup ecosystem

The **survey results** enabled the study team to gather valid answers[w] identifying a total of 5 definitions of startup ecosystem from 4 Member States, of which 1 as part of Member States' legal systems and 4 additional non-legal, operational definitions.

For example, a **startup ecosystem** is defined by Startup Estonia as field and network of participants which have an impact on the performance of startups and startup entrepreneurship[39]. The Polish Development Fund includes within a startup ecosystem startups and spin-offs at various stages of development, as well as a team of business environment institutions and public institutions regulating

[w] A valid answer is a survey answer which included a full, pertinent definition from a Member State. In alternative, in case no written definition was given and only a source was mentioned, a valid answer is one where the study team was able to track the source through desk research and could find the correspondent definition.

or supporting the construction of enterprises and education in the field of entrepreneurship[40]. More specifically, the *Portuguese Startup & Entrepreneurial Ecosystem Report* has stated that the actors within a startup ecosystem are entrepreneurial actors, organisations (such as firms, venture capitalists, banks...), institutions (such as universities, incubators, accelerators…), and processes[41]. Similarly, survey results have identified the following entities as part of an ecosystem: startups, entrepreneurs, investors, corporations, policy, regulations and incentives public Institutions, enablers, knowledge and talent creators, governments[42].

According to the National Centre for Research and Development of Poland, a startup ecosystem is a system of entities striving to produce new products and services under conditions of high uncertainty, using available resources operating in a specific regulatory environment[43]. *Netherlands Startup Employment* has put forward the concept of a **tech-ecosystem** referring to an ecosystem of startups, scale-ups and grown-ups (startups growing to include more than 500 employees, following the taxonomy developed by Dealroom.co)[44].

The table below includes a definition collected through the survey as part of a Member State's legal system.

Table 4 EU Member State legal definitions

Startup ecosystem	
Definition	**Country**
A set of State aid measures that promote the development and research of innovative product.	Latvia[45]

- Innovative companies

The **survey results** enabled the study team to gather valid answers identifying a total of 16 definitions of innovative companies from 10 Member States, of which 6 as part of Member States' legal systems and 10 additional non-legal, operational definitions[x].

An **innovative company** has been defined by the Polish Development Fund as an enterprise, which creates a new or significantly improved product (good or service) or process thanks to new marketing or organizational methods in business practice, workplace organization or relations with the environment[46]. More generally, innovative companies are those whose business model is based on R&D[47]. Innovative companies, therefore, create, absorb and sell new products and services, have the ability to constantly adapt to changes in their environment and, out of concern for development, aim to achieve high creativity and gain technological leadership[48]. This resonates with the definition included in Estonia's *Innovation Survey of Enterprises*, where an enterprise is innovative when it introduces to the market a new or improved product (goods or services, significantly different from the previous products by the same enterprise) or processes (among others, core process, logistics, work organisation[y], etc.) or when it engages with (in-house or outsourced) R&D during the reference period (or started to, but abandoned or suspended before the end of the period, or innovation is still ongoing after the reference period)[49]. Finally, Statistics Denmark mentions, in line with the OECD Oslo Manual described above, that innovative products and processes are new or significantly changed (at least, from the point of view of the enterprise)[50]. More specifically, innovative products are implemented when they are introduced to the market, and processes when they are brought into use[51].

The French report *L'emploi dans les startup françaises* defined an age limit for innovative companies when these are considered part of the population of startups, namely eight years[52]. Some definitions

[x] Please, note that definitions of start-ups by Slovenian funding programmes, mentioned below when presenting start-ups, also apply to innovative enterprises, according to survey results.

[y] Please, refer to Estonia's definitions overview in Annex II: Country Profiles for the complete list of examples.

limit the observation period for companies to be classified as innovative. For instance, the Leibniz Centre for European Economic Research (ZEW) defines innovation-active companies as those carrying out innovation activities (launch of new product or implementation of new processes) in the past three years[53]. The same source identifies another group of companies, namely **companies with innovation expenditures**, as companies spending money in the last year on innovation activities[54]. Similarly, Statistics Sweden defines innovativeness as selling new or significantly improved products in the previous three years[55]. The component of **risk** associated with innovation – discussed in depth in section 3.1 – is highlighted by survey results as well. Innovative companies can carry risk of technological or industrial failure[56]. Moreover, one of the conditions – other than those listed in the table below – that needs to be fulfilled in order to become a certified Innovative Enterprise in Cyprus is an initial finance investment risk higher than the innovative company's average turnover in the previous five years[57].

Similarly, different criteria have been put forward to assess the extent to which a company has an innovative character:

- a company must be allocating at least 10% of the previous financial year's expenses on R&D spending or earn the Bpifrance innovative company qualification, according to Bpifrance[z]. Moreover, the company must have an in-house R&D team (although some research work may be subcontracted) whose R&D activity is strategic for the company and generates significant turnover[58];
- enterprise can prove (evaluation is carried out by an external expert) it will develop new or substantially improved products, services and processes, in relation to the state-of-the-art of their industries, experiences risk of technological or industrial failure, allocates at least 10% of its total operating expenses to R&D in, at least, one of the previous three years[59]. An enterprise implementing non-technological business innovation can also be an innovative enterprise[60];
- a company's innovation level can be assessed by: R&D activities, number of registered patents and trademarks, development cooperation, and expenditure and duration of training[61].

Moreover, as well as creating new products, an innovative company is defined as one able to adapt to changes in the environment in which it operates[62]. In addition, innovation by companies might need to be recognised by a national authority[63]. Moreover, survey results identify a subset of innovative companies through the label of **young innovative company**, defined as SMEs, younger than eight years old, allocating 15% of its costs to R&D expenses[64]. Similarly, in order to be eligible for Bpifrance French Tech Seed funding for companies delivering innovations with high technological intensity, companies need to have no more than 50 employees and be younger than three years[65].

The table below highlights the definitions identified by survey results as part of Member States' **legislation.**

Table 5 EU Member State legal definitions

Innovative Company	
Definition	**Country**
An innovative company is one that bases its activity on innovation technologies or produces innovative products or services for the **Bulgarian legal system**.	Bulgaria[66]
In order to receive a **Certificate of Innovative Enterprise in Cyprus**, an innovative enterprise is defined as an SME active in Cyprus, with a	Cyprus[67]

[z] As mentioned by survey results, the company must, in addition, justify the creation of products, processes or techniques whose innovative nature, as well as economic development prospects, are recognised, as well as the corresponding financing needs.

business plan for its risk finance investment and which either does not operate in any market or has not been operating in any market for seven years, or which requires an initial risk finance investment higher than 50% of its average annual turnover in the preceding five years.	
Within the scope of **Elevate Greece**, the Green National Startup Registry, underpinned by legislation, a company is innovative when there is technological innovation in the product/service, and/or an innovative business model based on recent (new) technology. In addition, enterprises producing intellectual property for commercial exploitation ("knowledge-intensive" enterprises) are also defined as innovative.	Greece[68]
The Italian Decree-Law n. 179/2012 identifies innovative startups (while no definition of non-innovative startup is given), according to one of three criteria: ○ at least 15% of the company's expenditure goes on R&D activities; ○ at least 1/3 of the total workforce are PhD students, the holders of a PhD or researchers or, alternatively, 2/3 of the total workforce holds a master's degree; ○ the enterprise is the holder, depositary**,** or licensee of a registered patent (industrial property), or the owner and author of registered software.	Italy[69]
The **Latvian Law on Aid for the Activities of Startup Companies** defines innovative companies as companies with high added, inter alia technological, value, which ensures development of a specific new product or service, or a significant improvement to the existing product or service.	Latvia[70]
Within the **Luxembourg legal system**, the innovative character of a company can be identified by R&D representing at least 10% of a company's operating costs with reference to the last of the three years preceding the granting of a state aid measure.	Luxembourg[71]

- Stages of growth

Stages of growth of an innovative company can be analysed using the distinction between *early stage startup*, *startup*, and *scale-up*, three concepts already analysed at length in this section. In addition, a *pre-seed stage* was identified by the *Startup & Entrepreneurial Ecosystem Report, Portugal 2021*, which predates the early stage, and refers to companies, which, while formally established, are in the process of researching an initial idea and are starting to create a minimum viable product[72]. Once this is achieved, startups in the *early stage* of development can further refine the product, while not yet having reached breakeven[73].

Similarly, Bulgaria's Fund of Funds has identified a startup stage as one where the company has not sold its product yet and is looking for funding for product development[74]. The category of **gazelle** has also been considered by *France Stratégie* as a stage of growth, applying in particular to a young company experiencing high growth[75]. Another way to look at stages of growth is to divide companies by their business size in terms of annual turnover. For instance, the National Bank of Greece has divided companies into *small* (€0-1 million), *medium* (€1-10 million), *large* (€10-50 million), and *very large* (more than €50 million)[76].

It is also possible to categorise companies' growth by funding raised. For instance, according to the methodology used in reports by Mind the Bridge to measure startup performance in, among other countries, Italy[77] and Finland[78], *startups* are companies that raise up to $1 million in funding, *scale-ups* between $1 million and $100 million, *scalers* more than $100 million, and *super scalers* more than $1 billion. Finally, Equifund – a Greek Fund of Funds – has defined three stages of growth through which entrepreneurs progress: the *innovation window* (entrepreneurs only have a concept or idea); the *early-stage window* (entrepreneurs found a startup for which they foresee high growth); the *growth stage window* (entrepreneurs aim to scale up their business)[79].

- Early stage startups

The **survey results** enabled the study team to gather valid answers identifying a total of 9 definitions of early stage startups from 8 Member States, of which 3 as part of Member States' legal systems and 6 additional non-legal, operational definitions.

One way to identify an **early stage startup** is to analyse the current stage of growth of a specific company. If the company is still at a (pre)foundation phase, i.e., product is not market-ready yet, it is possible to identify it as an early stage startup, according to the Austrian Economic Service[80].

Therefore, the early stage of a startup corresponds to its early growth phase, product-market fit, and it is a phase where the startup develops a solution which corresponds to future customers' needs, working closely with users to understand how the product can be improved[81]. By doing so, the startup creates a minimum viable product, a product which meets the most pressing needs of customers but is not yet a final solution[82]. During this phase, a startup already has a team, defines a business model, seeks VC funding or crowdfunding[83]. During this phase, a startup is backed by VC to develop an idea and prove its value proposition[84].

An early stage startup can also, according to the Polish Development Fund, be considered as a startup before round A, which is still validating the value of its product and either has not launched it yet, or only has the first customers[85]. Similarly, the beneficiaries of the Pre-Seed Programme active in Cyprus (under the National Framework Programme for R&I) are early stage startups defined as newly formed small enterprises[86] with international orientation and significant prospects for rapid development, which are still in the idea stage and their product or service is not yet fully developed[87].

With regards to age, an early stage startup active in the field of high-tech (for example, digital tech, industrial tech, life sciences, chemicals) is defined as being not older than three years, according to the Investment Guidelines of the *High Tech Gründerfonds* in Germany[88].

The table below highlights the definitions found in Member States' **legislation.**

Table 6 EU Member State legal definitions

Early stage Startup	
Definition	**Country**
The **Bulgarian legal system** defines early stage startups as startup enterprises in the initial stage of their lifecycle up to three years old, aiming at attracting initial external financing to develop their pilot product or service.	Bulgaria[89]
The **Danish legal system** considers early stage startups to be new enterprises.	Denmark[90]
The **Latvian legal system** defines early stage VC investment as an investment made during the first five years since a company's registration in the Latvian Commercial Register (see note for full description of the investment)[91]. This definition was identified by the survey result as a definition of an early stage startup.	Latvia[92]

- Startups

The **survey results** enabled the study team to gather valid answers identifying a total of 25 definitions of startups from 16 Member States, of which 11 as part of Member States' legal systems and 14 additional non-legal, operational definitions.

The concept of **startups** was defined as a young company creating an innovative product and business model under conditions of uncertainty and risk in the *Startup & Entrepreneurial Ecosystem Report, Portugal 2021*[93], and is defined as an innovative and scalable business with high economic potential by the *Latvian Startup Database*[94]*.* However, many definitions also contain specific elements, such as a maximum age for companies, a maximum number of employees, and even a certain percentage of growth. Consequently, building on the definitions of startups presented in the sections above, the elements of **age**, **innovation nature**, **growth** and **size** will be looked at separately.

In the case of the **age element,** the concept itself is not used in a harmonised way. For example, age is defined differently:

- Number of operating years according to the Greek National Registry of New Business[95];
- Years with salaried employees according to the Dutch R&D tax credit scheme[96];
- Years issuing R&D declarations according to the Dutch R&D tax credit scheme[97];
- Years since registration, a definition in use in Bulgaria[98];
- Years since being listed according to *France Digitale*[99] and survey results.

Conversely, there are different approaches to the age limit for a company not to be considered as a startup.

The table below summarises the age requirements in the startup definitions used in EU Member States, as mentioned in reports and the survey results (see bullet list above). Given the high relevance of legal sources (as these are part of these countries' legislation), these are highlighted.

Table 7 Definitions of the age element of startups

Age		
Age limit	**Nº of mentions**	**Sources**
12 years	1	Non-legislative source: France[100]
10 years	7	Non-legislative sources: Austria[101], Belgium[102], Estonia[103], Germany[104], Luxembourg[105], Poland[106] *Legislative source*: Portugal[107]
8 years	3	Non-legislative sources : France[108], France[109] *Legislative source*: Greece[110]
7 years	3	Non-legislative sources : Austria[111], Cyprus[112] *Legislative source*: Spain (selected sectors)[113]
5 years	11	Non-legislative sources: Austria[114], Cyprus[115], Denmark[116], France[117], Germany[118], Slovenia[119] *Legislative sources*: Bulgaria[120], Italy[121], Lithuania[122], Slovenia[123], Spain[124]
3 years	2	Non-legislative sources*:* Slovak Republic[125] *Legislative source*: Hungary[126]

Startup definitions often mention the **innovative nature** of startups in order to set them apart from other non-innovative SMEs. For example, the Polish Development Fund defines startups as newly created enterprises or temporary organisations looking for a business model capable of ensuring profitable development, proposing an innovative solution, or one in the field of modern technologies, capable of achieving rapid development, potentially at international level[127]. More specifically, a definition from the *Austrian Startup Monitor* is that startups should be innovative in their products, services, technologies, or business models[128]; *Digital Wallonia Startups* has categorised them as being active in the digital or tech sector[129]; the *Czech Startups Report* has defined startups as developing unique products or services and solving problems in a unique way[130]. *Bpifrance* describes startups as new, innovative companies with high growth potential and speculation on their future value[131]. The *Startup Strategy of the German Federal Government* defines startups as young, innovative companies with growth ambitions, characterised by innovative business model, product, or service, with a scaling potential (in the sense of a potential to grow and develop)[132]. Moreover, a specific set of startups has been identified in the Belgian context as tech startups, meaning young tech companies active in the fields of, among others, cloud tech, software, and big data[133]. In addition, in Cyprus, startups have been defined as dynamic and innovative small enterprises[134] intending to develop internationally competitive products or services and mobilize private investment funds[135]. Finally, according to the National Centre for Research and Development of Poland, a startup is a young company (including technology), an entrepreneur and/or business venture, with a short history of activity and high risk, which aims at optimising its business model through ongoing implementations, excluding long-term research and prototyping phases[136].

In terms of the **growth ambitions** underpinning a startups' activity, startups are often defined as companies with potential to grow revenues, customers, and investments[137], and to scale[138]. In this sense, startups aim to achieve growth[139] thanks to a digital-based idea that can be escalated[140]. Furthermore, according to the Estonian White Paper, mentioned by survey results, a startup is a business entity (belonging to a company registered in Estonia), starting its activity to develop and launch an innovative and replicable business model or technological component with high global growth potential, capable of helping the country's business environment[141]. Similarly, a startup is defined as innovative in its technology or business model and expected to have employee and turnover growth[142].

When it comes to the **size**, **revenue** and **number of employees**, the table below summarises the requirements identified by startup definitions in use in EU Member States as mentioned in reports and survey results. Legislative sources are highlighted.

Table 8 Definitions of the revenue element of startups

Revenue		
Definition	**Nº of mentions**	**Sources**
Turnover less than 100 million HFU (€260 000)	1	*Legislative source*: Hungary[143]
Less than €1 million fund raised	1	Non legislative sources: Finland[144] (Mind the Bridge reports)
Annual turnover no more than €5 million	2	*Legislative sources*: Italy[145], Spain[146]
Annual turnover no more than €50 million	2	*Legislative source*: Greece[147], Portugal[148]

Table 9 Definitions of the number of employees of startups

Number of Employees		
Definition	**Nº of mentions**	**Sources**
Between 2 and 20	1	*Legislative source*: Hungary[149]
Fewer than 50	1	Non-legislative source: Dealroom reports[150]
Between 25 and 250	1	*Legislative source*: Portugal[151]
Up to 250	3	Non-legislative source: France[152] *Legislative source*: Greece[153], Portugal[154]

With regard to size on a general level, a definition in use in the Slovak Republic identifies startups as innovative companies (as identified by Regulation (EU) No. 651/2014 described in the previous section), or a micro, small or medium enterprise[155]. The Austrian Economic Service mentions startups are small enterprises, according to the EU definition[156]. Slovenian funding programmes[157] for startups are aimed at micro and small enterprises, or those having at least one employee or shareholder. Moreover, these funding programmes also include other criteria, such as being newly established enterprises, organised as limited liability company, sole proprietor or cooperative, having completed the development of product/service, tested on customers or having acquired investment by an independent private investor, having generated revenues from activities (for the complete list, please refer to Slovenia's country-page in Annex II: Country Profiles).

Finally, more broadly, the National Centre for Research and Development in Poland mentions that a startup may take the form of a team of people planning to establish a capital company, other than the capital company itself[158].

Startup Hungary divides startups into two categories: **champions** are those startups with more than €80 000 monthly revenue, growing at 5% per month on average; **pretenders** are those startups which, despite being three years old or more, have not developed a market-fit product and have less than €10 000 monthly revenues on average[159].

Moreover, some definitions further refine the concept of startups with requirements such as:

- Founders play the main role in operations[160];
- Mobilise private investment funds for this purpose[161];
- Having a scalable business model[162];
- Short history of activity, high risks[163];
- Having raised at least one fund[164];
- Commercial companies compulsorily creating share capital, controlled by natural persons who are their founders[165];
- Looking for capital for business development[166];
- Not having distributed benefits[167] or profits[168];
- Having a VC-backable business model[169];
- Not being listed on a stock exchange[170];
- Not having received VC investment, not having equity in other companies, operating as an innovative company according to the Hungarian Innovation Law[171];

- Company active in the modern technology industry, in the early stages of development, looking to raise capital for business development[172];
- Not being the result of a merger and not having taken over the activity of another company[173];
- A specific **geographic location of the startup** within the boundaries of the relevant country[174].

The definition of startups is also distinguished in some sources by the **economic sector** they are active in or by internal composition. For example:

- **Impact startups:** those addressing UN Sustainable Development Goals (SDGs)[175];
- **Green growth startups** aim to improve environmental conditions[176];
- Sector specific startup definitions have been put forward, such as **techno startup**, **creative startup** (in the fields of fashion, film...), **e-Health startup**...[177];
- **Young people-led innovative startup**: enterprises where at least half the company's governance or shareholders are younger than 35[178];
- **Innovative startup with young people**: startups where there is at least one young person in the governance or with a shareholding in the company[179];
- **Foreign-led innovative startup**: startups where at least half the governance and shareholders are foreigners[180];
- **Innovative startup with a foreigner**: at least one foreigner in the governance or with a share of the society[181];

Finally, and bearing in mind the high relevance of existing legal definitions for future discussions, the following definitions have been identified as part of **Member States' legislation** from the results of the survey or through the desk research by the study team:

Table 10 EU Member State legal definitions

Startup	
Definition	**Country**
Within the **Bulgarian legal system**, a startup is considered a microenterprise or small enterprise registered in the last five years whose activity is based on innovation technology or innovative products.	Bulgaria[182]
The **Danish legal system** considers new enterprises as startups.	Denmark[183]
Estonia's Aliens Act defines startups as business entities belonging to a company registered in Estonia, which is starting activity with the purpose of developing and launching such a business model with high global growth, innovative and replicable potential that will contribute significantly to the development of the Estonian business environment.	Estonia[184]
Elevate Greece, a Greek Government Initiative, includes the National Register of New Businesses, the official register of startup businesses in Greece. To be part of the register, a company may not be older than eight years, have more than 250 employees or have more than EUR 50 million turnover. Moreover, the startup should be headquartered in Greece (in case it is not, a subsidiary company or branch should, given that it has a Greek VAT number and is registered in the Greek General Commercial Register).	Greece[185]

Startup: company not older than 3 years, with net turnover of less than 100 million HUF (€260 000), with a minimum of two and a maximum of 20 employees, which has not received VC investment, has no equity in other companies, and operates as an innovative company according to the Innovation Law.	Hungary[186]
Italian Decree-Law 179/2012 defines innovative startups as companies[aa] complying with the following requirements: being newly incorporated or operational for less than 5 years; headquartered in Italy (or another EU country, given a production site branch is present in Italy); having a yearly turnover of less than €5 million; not distributing profits; produces goods or services of high technological value; is not the result of merger, split-up or selling-off; presents an innovative character[bb].	Italy[187]
The **Latvian Law on Aid for the Activities of Startup Companies** defines startups capital companies with high growth potential, whose basic activity is related to the development, production or improvement of scalable business models and innovative products.	Latvia[188]
Lithuania's legal system considers that startups are a micro or small enterprise with a high and innovation-based business development potential, and registered in the Register of Legal Entities for a maximum of five years.	Lithuania[189]
The **Portuguese startup law** (which had been put forward but had not been approved at the time this report was drafted) will consider a company to be a startup if it has less than 10 years of activity, fewer than 250 employees and a turnover of less than EUR 50 million, and is headquartered in Portugal or has at least 25 employees and has concluded a round of risk capital with success.	Portugal[190]
Slovenia's Investment Promotion Act defines an innovative startup company as an independent economic company that develops or markets an innovative product, service or business model with high potential. In addition, a number of conditions must be met for startup companies to be included in the Slovenian Register of Innovative Start-up Companies. For example, less than 5 years can pass since the moment the company was registered into the Business Registry of Slovenia.	Slovenia[191]
The **Spanish Startup Law** considers as startups companies of no more than five years of age (seven years for biotechnology, energy, industry, or others that have developed technology produced exclusively in Spain), independent of other companies that are not present on any stock market. They need to be innovative companies, and never have distributed profits, and have an annual turnover below €5 million.	Spain[192]

[aa] More precisely the law refers to: companies with shared capital (limited companies), including cooperatives, whose capital shares, or equivalent, are neither listed on a regulated market nor on a multilateral negotiation system. See: mise.gov.it
[bb] For the eligibility criteria identifying the innovative character of enterprises, see above the description of innovative companies.

Startups do not remain such forever. For instance, mergers, acquisitions, as well as going public, are reasons for companies to cease being startups[193]. In this case, it is considered that these companies have **"exited**" the ecosystem.

- Scale-ups

The **survey results** enabled the study team to gather valid answers identifying a total of 10 definitions of startups from 8 Member States, of which 4 as part of Member States' legal systems and 6 additional non-legal, operational definitions.

The definition of scale-ups usually entails an element related to the **type of growth** achieved by a company, usually in terms of **employees** and/or **revenue**. While certain scale-up definitions clearly mention scale-ups as former startups, others use a more general term, such as company or enterprise, as reflected in the collection of definitions below. For example, survey results have identified a scale-up as a high growth enterprise[194].

The following table offers an overview of the different ways the growth element is defined in relation to scale-ups. Legislative sources in EU Member States are highlighted.

Table 11 Definitions of the growth element of scale-ups

Growth	
Definition	**Sources**
Medium-sized enterprise growing assets, sales, and profits by over 30% per year	*Legislative source*: Bulgaria[195]
Startup growing by 20% for three consecutive years	Non-legislative source: Latvia[196]
High growth enterprise with an average annual growth higher than 10% over a three year period (excluding enterprises whise number of employees increased due to merger). Growth is measured by number of employees. Year of observation is the last year of monitoring of the three year growth period.	Non-legislative source: Slovenia[197]
Company whose labour taxes paid increased by 20% in three years	*Legislative source*: Estonia[198]
Startup with annual employee and revenue growth of 20% minimum for three years	Non-legislative source: Estonia[199]
Enterprises with average annualised growth in number of employees (FTE) (startup by employment growth), turnover in current prices (scale-ups by turnover growth), or both (scale-ups by turnover and employment) greater than 20% over a three-year period	Non-legislative source: Denmark/Finland/Sweden[200]
Company achieving 20% employment growth in three years	Non-legislative source: Ireland[201]
Companies with an annual revenue growth rate of more than 20% over three years	Non-legislative source: France[202]
Gazelles are enterprises that are up till 5 years old, that have had an average annual growth of at least 20 % over three years, with five or more employees in the beginning of the growth period. The indicator of growth is the number of FTEs.	*Legislative source*: Denmark[203]

In addition to growth, scale-ups are also defined by **size** by the sources identified by the study team. Legislative sources are highlighted.

Table 12 Definitions of the size element of scale-ups

Size	
Definition	**Sources**
Startup achieving more than 50 employees	Non-legislative source: Dealroom reports
Being a medium-sized enterprise	*Legislative source*: Bulgaria[204]
Enterprise with 10 or more FTEs and an annual turnover of at least €2 million in the start year of observation	Non-legislative source: Sweden/Denmark/Finland[205]
Enterprises with at least 10 employees in the first year of monitoring of the three year growth period of employees	Non-legislative source: Slovenia[206]
Tech company raising $1 million, with one funding event in the last eight years	Non-legislative source: Finland[207]
Company operating for at least 10 years, with at least 50 employees, paying at least €1 million labour taxes the preceding year	*Legislative sources*: Estonia[208]
Startup raising at least €1 million in investments, with at least 10 registred employees	Non-legislative source: Estonia[209]
Companies younger than eight years with at least 10 employees	Non-legislative source: France[210]
Gazelles have at least five employees	*Legislative source*: Denmark[211]

However, some other definitions, such as that provided by Bpifrance, do not identify a fixed growth target for startups to be classified as scale-ups, and identify the scale-up status as one in between a startup and a unicorn, reached through a strategy of accelerated growth, especially internationally[212]. Similarly, a scale-up has been described by one definition collected through the survey as a startup with validated value proposition, which is VC-funded and finds itself on a path of exponential growth[213].

Following the same approach used above, the following legal definitions define the Scale-up concept in different Member States' legislation.

Table 13 EU Member State legal definitions

Scale-up	
Definition	**Country**
The **Bulgarian legal system** includes a definition of a scale-up as a fast growing medium-sized enterprise which increases its assets, sales and profits by more than 30% per year.	Bulgaria[214]

Within the **Danish legal system**, a scale-up can be considered a new high growth enterprise/gazelle. A gazelle is defined by Statistics Denmark as an enterprise younger than five years old that has had average annual growth in number of employees of at least 20% over a three-year period, and which had five or more employees at the beginning of the growth period.	Denmark[215]
Estonia's Aliens Act defines a scale-up as a company registered in Estonia that is growing its activities, the purpose of which is the further development of such a technology-based, innovative and repeatable business model with high global growth potential, which significantly contributes to the development of the Estonian business environment and which meets the following conditions: has been operating for more than 10 years, has at least 50 employees, has paid labour tax in Estonia in the last year of at least €1 million and whose cumulative increase in labour taxes in the last three years is 20%.	Estonia[216]
For the **Greek National Startup Registry**, scalability is a selection criterion: for a Greek company to be able to be part of the Greek National Register of New Businesses, evaluators are called upon to examine whether the business model and/or technology allows for rapid scalability of sales volumes in the global market. Consulting services are excluded as they are not considered scalable[217]. This selection criteria of scalability was identified in the survey results as constituting a definition of scale-ups.	Greece[218]

- Deep-tech

The **survey results** enabled the study team to gather valid answers identifying a total of 9 definitions of startups from 8 Member States, all of which are non-legal, operational definitions.

Taking stock of the analysis in section 3.1 describing the meaning and the scope of **deep-tech**, national sources are a help in diving further into this concept. Deep-tech solutions have the objective of providing technology solutions, based on substantial scientific or engineering challenges[219]. Some deep-tech industries are, for example, smart materials, optics, lasers, chemicals, and metallurgy, according to the Latvian Startup Support Programme[220]. Deep-tech technology has been defined as one stemming from the world of research, presenting high barriers to entry, where technological locks need to be removed, which is capable of delivering a differentiating advantage, and which is defined by a challenging go-to-market process and often capital-intensive character[221]. Alternatively, deep-tech has been defined as an enterprise that: solves a complex technological, engineering or scientific challenge, difficult to replicate, with a new, previously non-existing solution which require a high amount of capital; has the potential to make a significant difference; is characterised by high risk; can be characterised by a long developing of time passing period before going to market[222]. Similarly, an Estonian source defines deep-tech as a technology which, while difficult to develop today, in the near future has the potential to become a scalable, pervasive and easy-to-implement basic need[223].

The National Centre for Research and Development of Poland has noted that deep-tech solutions are breakthrough solutions, difficult to reproduce, require significant time and resources to solve complex technological or scientific challenges, or systemic problems such as climate change[224]. Similarly, **deep-tech startups** have been defined by *Austrian Economic Service* as startups, with deep engagement with newly created technologies to develop or further develop the technology itself, for instance in the fields of life sciences or other technologies[225].

Deep-tech startups are, therefore, technology startups which deploy disruptive, R&D-intensive technologies[226], that make them true vectors of ground-breaking innovation[227]. Bpifrance's deep-tech

definition mentions specifically that these companies are based on a technological breakthrough which is protected by IP assets[228]. Finally, deep-tech companies have been described by the German *DeepTech & Climate Fonds* as having a business model characterised by a long development cycle, as well as high financial requirements, in order to deliver innovation with disruptive potential[229].

A startup category proposed by a Leibniz Centre for European Economic Research (ZEW), which can be assimilated to deep-tech startups, is that of **technology-oriented startups**: this category of startups was defined as part of research into the knowledge economy and relates to those startups active in research-intensive industries and knowledge-intensive sectors[230].

As noted above, no definition of deep-tech was identified as part of EU Member States' legal systems during the data collection for this study.

- Spin-offs

The **survey results** enabled the study team to gather valid answers identifying a total of 15 definitions of startups from 8 Member States, of which 4 as part of Member States' legal systems and 11 additional non-legal, operational definitions.

Spin-offs are defined as companies established from previous R&D and know-how from another entity[231], either a university or company[232]. In fact, a department is spun off from a company or institution to establish a separate company and, in the case of a spin-off from a university, this is a startup where scientific know-how is part of the business model and the spin-off's business idea derives directly from studies and research[233]. Alternatively, they have been defined as outgrowth, usually technological or innovative, of a large company[234]. In a way, such entities play the role of incubators: by the end of the process by which a spin-off is created, the spin-off has legal, technical, and commercial independence and the process leads a new company to arise from another existing entity[235].

In the case of university spin-offs more specifically, spin-offs have been defined as business legal entities established to use and develop the university's intellectual property toward the creation of a product or service to launch to the market[236]. Two definitions of spin-offs given by Belgian universities also highlight how spin-offs bring development to society[237]. In the case of academic spin-offs, a product or business idea is connected to a university by causal or thematic connection[238].

The Polish Development Fund defines **scientific spin-offs** (as opposed to a corporate spin-off) as companies separated from a scientific unit to commercialize a technology or solution created thanks to scientific research and transfer knowledge to the market[239]. Similarly, the National Centre for Research and Development of Poland defines spin-offs companies as new entrepreneurs, usually in the form of capital companies (limited liability company or joint-stock company), established by at least one employee of a scientific unit or a student/graduate of a university, to commercialize scientific research or development work[240]. Moreover, the spin-off is usually not related to the scientific unit it stems from, financially nor personally, and cooperation between the two is usually established on market terms[241].

Some definitions specify the relationship between the mother company or university and spin-offs. For example, in the case of University of Tartu spin-offs, the University itself, or its staff and students, are founders and/or partners of the spin-off[242]. Spin-off companies and the scientific/commercial unit from which the new company was created often cooperate on go-to-market terms[243]. Another example of relationship is described by the National Technology Transfer Centre at the Slovak Centre of Scientific and Technical Information, as reported by survey results: intellectual property (usually the result of research) is provided to the company through a license agreement or sale; the university may own a property share of the spin-off or not; the spin-off may agree with the university on the use of its laboratories or the provision of services; the originators of the relevant intellectual property usually also participate in the company's activities[244].

Some definitions require proof of the link between a research institute and creation of a spin-off. In the case of Austria, for instance, in addition to the definition of the Intellectual Capital Statement Ordinance,

which is applicable to universities, a licence or purchase agreement for IP of the originating institutions must exist, to prove the spin-off's foundation rests on property rights (such as patents), stemming from research results[245]. Moreover, spin-offs are defined by Bpifrance as companies which are led to become independent in return for an equity stake[246].

Finally, the survey conducted identified the following definitions as part of Member States' legal systems.

Table 14 EU Member State legal definitions

Spin-off	
Definition	**Country**
Commercialisation spin-offs at public universities are defined as newly founded enterprises: ○ of the university itself; ○ newly founded enterprises in which the university holds a direct or indirect stake; ○ newly founded enterprises for which the use of new research results or results based on the development and exploitation of the arts, new scientific procedures or methods from public research were indispensable for the foundation, i.e. the foundation would not have taken place without the use of these research results or results based on the development and exploitation of the arts or a resulting property right (e.g. patents, licences, etc.).	Austria[247]
The **Brussels Capital region** defines spin-offs as new technology businesses developed out of a larger organisation, university or company. These companies are key to research development. In addition, they can benefit from advanced technologies and experienced management teams. Moreover, spin-offs can meet in certain cases the definition of startup.	Belgium[248]
While there is no specific definition of spin-offs in Cyprus's legal system, one source refer to spin-offs: ○ The University of Cyprus Law of 1989 (144/1989) mentions that universities can participate in the creation of companies (namely, spin-offs), if these are fully independent, promote R&D, and healthy competition[249]. ○ The internal regulation of the University of Cyprus refers to the participation of academic personnel to the creation of companies (namely, spin-offs)[250].	Cyprus
Under **Greek law**, spin-offs are defined as having as their primary object the commercial exploitation of research results and knowledge. These companies are established, in the case of university institutions, by university professors, or by the members of the research staff who produced the research results or knowledge, with potential involvement of the same university institution or third-party legal or natural	Greece[251]

persons. In the case of Research Centres, they are established by the researchers or research staff members who produced the research results or knowledge, with the potential participation of the Research Centre or third parties legal or natural persons.	

- Unicorns

The **survey results** enabled the study team to gather valid answers identifying a total of 9 definitions of startups from 7 Member States, of which 1 as part of Member States' legal systems and the remaining are additional non-legal, operational definitions.

The definition of a **unicorn** does not differ significantly across the sources analysed. Unicorns are consistently defined as startups able to achieve a $1 billion valuation[252] or exit[253]. In addition, survey results have identified that the term unicorn is also colloquially used to refer to innovative startups which are successful on the local market[254]. While usually unicorns are defined as successful startups, one definition identified by survey results refer to unicorns as companies[255], and another as privately held company[256].

While the figure of 1 billion (which usually refers to dollars, with some definitions using euros instead) is mentioned consistently by all definitions of unicorns, the term valuation is sometimes defined more specifically. Different possibilities exist:

- Company valued at more than €1 billion[257];
- €1 billion market capitalisation[258];
- Startup achieving $1 billion valuation in less than 10 years, due to external funding[259];
- Tech-driven company $1 billion valuation, due to a funding round, acquisition, or IPO[260];
- Rapidly scaling, tech-enabled company, $1 billion valuation, due to a funding round, acquisition, or IPO[261];
- In addition, the definition of a **future unicorn** has been put forward to include companies valued at between $250 million and $1 billion[262].

The following definition in a Member State's legal system was mentioned in the survey results.

Table 15 EU Member State legal definition

Definitions within EU Member States' legal systems	
Definition	**Country**
A unicorn is defined in **Bulgaria** as a scale-up enterprise, which has **reached** €1 billion market capitalisation after an initial public offering	Bulgaria[263]

- Women-led ventures

The **survey results** enabled the study team to gather valid answers identifying a total of 5 definitions of startups from 4 Member States, of which none was part of Member States' legal systems and all of them additional non-legal, operational definitions.

Several different options have been put forward to define **women-led ventures**, **VC funds or companies** in general. A company can be women-led simply if a woman is in the leadership[264]. A VC company has been defined in Poland as a company which is owned (minimum 51%) by at least one woman and controlled and managed (minimum 51%) at the strategic and operational level by at least one woman[265]. Another Polish source has defined women-led ventures as companies whose founders are women, and where at least 50% of the top management positions are occupied by women[266]. The

figure of 50% is in line with the definition of women-led startups in use in **Italy**, where enterprises are defined as women-led if at least half the governance and shareholders are women[267].

Alternatively, the *Italian Statistical Indicators* define **startups with women** as startups when at least one woman is present in the governance and holds shares in the company[268]. Different Austrian State aid programmes include a bonus for women-led ventures, which are defined as those ventures where a woman owns – or will own – at least 25% of that venture business's shares[269]. Similarly, one woman in the leadership of a company can also be enough for a venture to be considered women-led[270]. Finally, an operational definition in use in Germany for women-led venture is that of a venture where at least one third of the management team is female or non-binary, or when at least 40% of the senior investment team or the investment committee is female or non-binary[271].

Table 16 Share of women to qualify as women-led

Women-led		
Definition	**Nº of mentions**	**Sources**
– **50%**	2	
○ of top management (in case of ventures) or ownership/management (in case of VC companies)		Non-legislative source: Poland[272]
○ of the board of the governance		Non-legislative source: Italy[273]
– **40% of partners**	1	Non-legislative source: Germany (adapting EU definition)[274]
– **33% of investment team or investment committee**	1	Non-legislative source: Germany (adapting EU definition)[275]
– **25% of shares owned by women**	1	Non-legislative source: Austria[276]

However, as shown by the table, it is difficult to compare these figures, as they refer to the share of women in different contexts, such as the management team, shareholders, or the leadership team.

No definition of women-led venture was identified by the survey results as part of Member States' legal systems.

4.2. International sources

The table below lists the main elements used to define each concept among international sources. In the following sub-sections each of these elements is developed further and contextualised.

Table 17 Overview of key concept definitions from international sources

Concept	Non-EU national reports	International organisations
Startup ecosystem	• Type of stakeholder • Type of contribution to startups	• Type of stakeholder • Specific components (building blocks)
Innovative companies	×	• Categories of innovation enterprise by innovation ambition
Stages of growth	×	• Startup lifecycles • Enterprise lifecycles

Early stage startups	×	• Amount of VC investment received ($ 15 million)
Startups	• Age (2 to 5 years) • Internal composition	• Age (younger than 10 years)
Scale-ups	• Min. number of employees (10) • Employment and/or revenue growth (min. 20%)	• Amount of money raised/collected (€1 million) • Min. number of employees (10) • Employment and/or revenue growth (min. 10%)
Deep-tech startups	×	×
Spin-offs	• Established by a legal entity	• New legal entities established by existing entities
Unicorns	• Min. economic value (at least $1 billion)	• Min. economic value (at least $1 billion)
Women-led ventures	• Number of woman founders	• Min. number of woman partners • Owned/managed/controlled by women

4.2.1. Reports from non-EU Member States

Reports from **non-EU Member States** covering key concepts are a useful source of information. These countries can be analysed for a benchmarking exercise, as explained in section 3.3, but can also contribute to mapping definitions and indicators by seeing how startup ecosystem performances are defined in these countries. As a sector with considerable international dynamics, it is useful to understand how EU's economic competitors are defining and measuring the startup ecosystem.

- Startup ecosystem

Regarding the **startup ecosystem**, the *Startup Scanner 2022* from Serbia defined this concept as an environment within which startups are able to develop more quickly. The environment is constituted by people, teams, startups, organisations, and institutions, which interact as a system and aim to either create new startups or accelerate their development[277].

- Startups

There are a number of non-EU national sources of definitions of **startups.** A Serbian startup company has been described as a new, innovative company, experiencing risk of technological or market failure, which has the potential to achieve high growth or to develop new products and services[278]. Japanese startups have been defined as private companies which are growth-oriented, in possession of unique technologies, products or services, and which aim to develop new changes (in terms of lifestyle, society, economic models or technology)[279].

Startups based in the Oslo region with growth potential have been defined as young companies (2-5 years old) fulfilling one of the following conditions[280]:

- knowledge-intensive (at least 33% of employees with a higher university degree than a Bachelor);
- innovative (in terms of R&D tax credits);
- running initial losses due to investments to produce growth;
- capital-intensive.

Swiss young businesses have been defined as startups if they fulfilled the following six criteria[281] and are:

- technology-based;

- focus on innovation;
- scalable business model;
- ambitious plan for growth;
- international sales markets;
- investors focused on investment returns.

- Scale-ups

Oslo-based innovative **scale-ups** have been described as companies with at least 10 employees, with an annualised growth of at least 20% in employment, revenues, or both, over a period of three years[282]. Moreover, scale-ups are, similarly to startups, either knowledge-intensive, innovative, or capital-intensive companies. UK scale-ups have been categorised as companies achieving employee growth, revenue growth or both of more than 20% in a year[283]. According to the same source, if the company's growth is between 15% and 20%, this is defined as a **company in the scaling pipeline**.

- Spin-offs

In Serbia, companies have been defined **spin-offs** if established by an already existing legal entity to commercially exploit innovations. For instance, the innovation might have been developed within the scope of scientific research[284].

- Unicorns

Unicorns have been defined in Serbia as startups with an estimated value of $1 billion[285].

- Women-led ventures

Finally, **women-founded companies** have been identified in the US as companies with at least one female founder[286].

4.2.2. Reports from international sources

Beyond the sources analysed in the previous sections, reports from **international sources** can be used to underpin the study findings. In particular, this section deals with sources from international organisations, such as the OECD, think tanks, research institutes, such as the Global Entrepreneurship Monitor and the Erasmus Centre for Entrepreneurship, as well as specialised websites, and material produced by startup organisations. Where academic work mentions specific definitions, these are mentioned in this section as well.

- Startup ecosystem

The **startup ecosystem** concept is said to have a number of building blocks, and the *European ScaleUp Monitor*[287] from the Erasmus Centre for Entrepreneurship has identified the following:

- access to finance;
- access to markets;
- access to talent and knowledge;
- access to related and supporting industries;
- institutional and cultural context.

- Innovative companies

One way to look at **innovation at companies** is by using the four categories of enterprises identified by a working paper for the MIT Lab for Innovation Science and Policy. The authors identify a *continuum* of enterprises alongside four categories (Budden, et al. 2021):

- **SME-like startup enterprises**, which have lower growth ambitions;
- **digitally-enabled SME-like startups**, which have greater growth aspirations;

- **digitally-focused innovation-driven enterprise (IDE) startups**, which have significant plans for growth, creating new products and services through innovation;
- **deep-tech IDE startups**, which, due to their deep-tech focus, need high amounts of external capital, as highlighted in section 3.1.

- Stages of growth

According to the European Startup Network, one way to classify **stages of growth** across a startups' lifecycle is by dividing it into a pre-seed stage (the concept is being developed, but no revenues are collected yet); startup stage (a product is ready to go to market); steady stage (no substantial growth yet); growth stage (sales and/or users are growing strongly)[288]. The *Global Entrepreneurship Monitor* has proposed distinguishing between early stage entrepreneurship and established entrepreneurship, setting the barrier at 3.5 years[289]. Alternatively, within the **small enterprise framework** proposed by the MIT Lab for Innovation Science and Policy the lifecycle of enterprises is divided into three main phases: early aspiration, prior to founding the enterprise; early founding action, referring to early stage startups covering the first three years of activity; later acceleration of scale, after the first three years of age, when some businesses can scale up (Budden et al., 2021).

- Early stage startups

An **early stage startup** is understood as a startup in the product development phase[290]. Another way to define early stage startups is by looking at VC investments: for instance, early stage investment identifies companies which have received up to $15 million in VC investment[291].

- Startups

Related to the **startup** concept, the *Southeast Europe Startup Report 2018*, while not defining a specific age limit, notes that the majority of startups are younger than 10 years old[292]. The *European Startup Monitor 2020/2021*[293] defines startups as companies that are younger than 10 years old, innovative in their products, services, business model, and intend to scale up. Instead of including elements such as age or size, the term startup is used as synonym for newly starting firm in an OECD report (Calvino et al., 2015). Finally, sub-categories of startups can be identified based on the startups' area of activity. For instance, the concept of **impact startups** has been used by Dealroom.co reports to identify a startup addressing one or more UN Sustainable Development Goals (SDG) in its business[294].

- Scale-ups

Among the international sources analysed, **scale-ups** are generally defined as companies with a fast growth rate. The *European Scaleup Monitor* defines scale-ups as having a maximum of 10 years of age from the moment they start collecting investments and a minimum investment value of €1 million over a period of 10 years[295].

According to an OECD study, scalers are non-micro firms with a minimum of 10 employees, growing in employment (employment scaler) and turnover (turnover scaler) at a minimum rate of 10% yearly over a period of three consecutive years (OECD, 2021). In addition, if the growth rate reaches 20%, scalers can be defined as "**high-growth scalers**" according to the same source. Moreover, a useful distinction is made by the OECD study between **young** and **mature scalers**: the former are firms entering the market no longer than six years preceding the three-year scaling period while the latter are older firms present in the market for longer than six years before the scaling period begins (ibid.). Finally, in line with the EC definition identified at the beginning of section 4.1, the OECD also considered a high-growth enterprise younger than five years old as a **gazelle**[296].

- Unicorns

Unicorns are defined as companies valued at over $1 billion by virtually all the sources consulted. This is the case for the international sources analysed as well.

- Women-led ventures

There are various definitions of **women-led** companies among the sources analysed.

- Women-led funds have been defined as those where at **least one General Partner** (or, as an alternative, an equivalent title) identifies as a female[297].
- A female-led or co-led VC corresponds to one where women represent **at least 30% of the General Partners**[298].
- A study by the International Finance Corporation defines a spectrum of firms, from male-dominated teams (fewer than 30% of senior investment professionals are women) to gender-balanced ones (where the percentage varies between 30 and 70), to female-dominated teams (where the **share of women is greater than 70%**)[299].
- Women-led venture has also been used as synonym for an **all-women team** to identify a team where all founders were women[300].
- Firms where **at least 25% of firm ownership** is in the hands of women or minorities have been defined as women-owned or minority-owned [301].
- Female-owned or female-managed enterprises are those where **at least 65% of owners or top managers** are women (OECD, 2017).
- A UN Women report defined a legal entity as women-owned where **more than 51%** of management or control is in the hands of women[302].
- Finally, women-led firms have been identified as those where at least **half the ownership and management** is made up of women[303].

5. FINDINGS

5.1. Concepts

With the data triangulation method, the study team was able to gather and organise information on how the startup ecosystem concepts have been defined. *A posteriori* data triangulation analysis allowed the study team to deduce a considerable number of findings. These findings focus on the recurring elements that most definitions **have in common**, and on those aspects that **differ**.

- Startup ecosystem

The concept of a **startup ecosystem** is consistently defined by the different sources as a delimited infrastructure and stakeholder network whose goal is to support startups' development. Various stakeholders are identified by the different definitions of a startup ecosystem. These stakeholders can be universities, institutions, associations, entrepreneurial actors, and other organisations that are supported by a favourable legal network (policies, regulations, fiscal incentives) to produce knowledge, technologies, and business development opportunities. An ecosystem, in addition, has been described as helping to attract talent, and create opportunities and new startups.

An open point of discussion amongst the different sources analysed relates to the actors to **include as part of an ecosystem**. The most common recurring actors within the definitions analysed are startups themselves, universities, public institutions, startup associations, banks, and investors.

Other elements, such as , policies, State aid measures, business and entrepreneurial cultures and the wider regulatory environment are also included in some, but not all, definitions of a startup ecosystem.

The concept is rarely defined in any EU Member State national law, as the survey results and desk research conducted by the study team only identified one legal definition, as presented in section 4.1. The startup ecosystem seems a difficult concept to assess and quantify/delineate in law.

- Innovative companies

There were usually two main rationales used in the definitions of **innovative companies** that were analysed:

- Some definitions describe the concept in **general terms** as companies which are developing innovation activities. An example of this is the OECD *Oslo Manual* definition, which is used by both the EC and some Member States. Bulgaria, Greece and Latvia have similar definitions embedded in their national legal systems.
- Some definitions identify **specific conditions** for companies to meet to be considered innovative, providing minimum thresholds for some elements during a specified time period. The elements vary per definition and may be one or several of the following: level of expenditure on R&D, investment relative to annual turnover, patents and trademark generation, or employing a certain percentage of highly educated employees (those holding a master's degree, PhD etc.). I would expect to see economic sector Depending on the reports, different timeframes are applied as observation periods to detect these specific innovation trends. These vary from three to five years.

At EU level, the GBER Regulation provides an alternative definition of an innovative enterprise, allowing companies that demonstrate that they devote 10% of their total operating costs to R&D to be considered innovative.

In conclusion, several common elements have been found among the definitions analysed. The most relevant is the innovative character of the services or products offered by a company for it to be defined as innovative. However, where definitions required proof of innovative activities (such as a specific share of R&D spending), and fell within the second rationale identified above, there were differences in the definitions analysed.

- Stages of growth

In relation to the concept of **stages of growth**, significant variation was identified among the sources analysed. This concept is mainly used to divide companies into different maturity levels. Two approaches were identified.

One approach defined by the EIB and used in some Member States (Bulgaria, France, Greece, Portugal) and some international reports focuses on separating the innovative companies in general terms (startups and scale-ups). However, in some cases the terms used vary amongst these sources (pre-seed, and/or gazelles) and the delimitation of the different stages also diverges.

The different elements present in the analysed sources are: age, size, turnover, growth rate and product/service viability. As per the different categories identified, the terms also vary per source. They can, however, be divided into the following three categories:

1) Recently born companies: early stage startup / small enterprise framework.
2) Established companies: startup.
3) High growth companies: scale-up / gazelles / high-growth startups / high-growth enterprises.

Another possible classification looks at size in terms of revenues or amount of funds raised. For example, the *Mind the Bridge*[304] report defined the different stages of growth by the levels of funding acquired by the companies.

- Early stage startup

The concept of an **early stage startup** is not as widely used as those of startup or scale-up. There is no mention of a definition in EU official legal documents, and it is also absent from the most relevant international organisations' reports. Nonetheless, the concept is still defined in some reports dealing with EU Member States.

Most definitions consider an early stage startup as an innovative company still in the early phases of product development, characterised by not having a product/service ready to go to market. Other reports define the concept as those innovative companies that have received up to a specific amount of VC funding or as those that have not reached round A of funding.

The three Member State legal sources listed in Chapter 4 identify early stage startups as those in the first stage of their lives.

Summing up, the common elements among most definitions are the innovative character and the young age of these types of companies. The main difference between an early stage startup and a startup lies in the funding element.

- Startups

Regarding the concept of **startups**, the most recurrent elements within EU Member States' laws and national and international reports are **age**, **innovative character**, **size** (in terms of **number of employees** or **revenue**) and willingness to **grow**. Each of these elements is summarised below:

- As far as **age** is concerned, being a young company seems to be intuitively inherent in the concept of a startup. However, the survey and desk research found several possibilities. On the one hand, some definitions do not define age precisely, leaving the actual limitation of the word 'young' open[305]. On the other, when age is included in startup definitions, its value varies, as shown in Annex III. Finally, even the way age is calculated varies, with definitions referring to, among others, operating years[306] or years since registration[307]. Taking stock of the desk research and survey results, the ages of 5 and 10 recurred most in defining startups, with 14 and 8 mentions, respectively (out of 30). Five years was found to be the value chosen most frequently in legal definitions. It was found in four Member States' legal systems and one EU Regulation. However, three legal definitions in

use by Member States do not mention any age requirement for startups. This is the case in Denmark[cc], Estonia[308], Latvia[309].

- The **innovative nature** of a company's activity is also often listed as a fundamental element of startups. Sometimes, this is defined as a specific minimum share of a company's revenue invested in R&D, or a patent portfolio. However, the innovation character is sometimes referred to in vaguer terms relating to the innovativeness of products, services, or business models
- In addition to being young and innovative, there are other elements that may be used to distinguish startups from other companies. In particular, the **intention to grow fast** and to scale up is often listed as a condition characterising startups[dd].
- Some definitions identify a number of **employees**, **revenue,** or **both**, after which a startup should not be considered as such. Seemingly, this is linked to the fact that startups are intuitively small companies, at least in their first stages of growth. However, other definitions do not identify any boundaries.
    - **Revenue** as a definitional element of startups across the different categories of sources analysed: Two revenue thresholds were found to be used more than once: €50 million and 5 million as revenue levels after which startups cease to be considered as such. Both figures are used twice in by Member States' legislative sources: the former by Greece[310] and Portugal[311], the latter by Italy[312] and Spain[313]. Annex III: Summary tables summarises the mentions of revenue limits described in the sources analysed.
    - **Employee numbers** as a definitional element of startups across the different categories of sources analysed: The figure of **250 employees** is the most frequently used. It was found four times, including two legislative sources from EU Member States, namely Greece[314] and Portugal[315].

To illustrate the different approaches the possible future definitional exercise will endeavour, the figure bellow indicates three hypothetical scenarios of a startup definition. The main differences between the scenarios are the elements that constitute each definition, and the scope of each of the scenarios (either making the definition broader or narrower). This exercise will have to be further developed bearing in mind the strategic objectives of the potential Startup Scoreboard, and the wide availability of data.

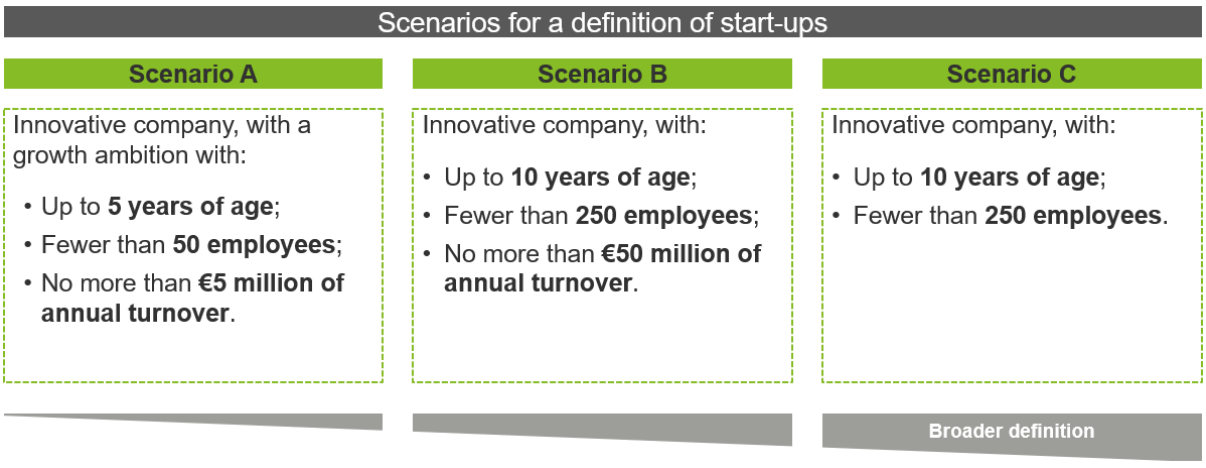


Figure 7: Scenarios for a definition of startup

In conclusion, the definition of startups is not the same across the sources analysed by the study team. The main differences were in whether they included elements such as age, size, etc. and the degree of precision relating to those. While age, innovative character, and willingness to grow were found in most startup definitions, precise requirements were found in only a few. Moreover, even definitions including the same elements might define them differently, as the examples above on revenue and employee

[cc] In particular, a new enterprise is defined in line with Eurostat as enterprise active on a given period, but not in the preceding one. See: Europa.eu. See also statistics on new Danish enterprises here

[dd] For instance, the French Digital Agency defines start-ups in its activity report as "*young, innovative enterprise, looking for a business model which allows it a high degree of growth, with international development*". See: entreprises.gouv.fr

numbers indicate. Therefore, the study team found a significant degree of lack of definitional coherence, which is consistent with the data in section 3.4.

- Scale-ups

The lack of definitional coherence found in relation to startups was also true of the concept of **scale-ups**. A widely accepted definition of scale-ups is that of companies able to achieve high-paced growth within a short period of time. However, a certain degree of variation was found in specific elements in the definition of scale-ups:

- What exactly constitutes **high growth** and **over what period of years** does a company need to achieve this growth to qualify as scale-up? Definitions were found that mentioned different growth levels to be achieved within different timeframes, but there was a significant degree of lack of definitional coherence. The most widely recurring description of high growth was growth of 20% within a timeframe of three years. This figure referred to revenue, to number of employees, to both, to labour taxes paid, or was left unspecified by the definition. A total of 8 definitions mentioned the figure of 20% growth coupled with that of a three-year timeframe. Among these definitions, two definitions were found in EU Member States' legal systems, namely Denmark[316] and Estonia[317].

- What are the specific **size requirements** (in terms of revenue and/or employees) for a company to be classified as a scale-up? Here, a significant degree of lack of definitional coherence was also found and no consistent pattern could be identified. Some definitions only mentioned *one element* (such as number of employees, age, funding raised) and others mentioned a *combination of elements* (such as number of employees and funding raised, number of employees and annual turnover, number of employees and age). The most frequently recurring definitions of these elements were:

    - **Number of employees**: at least 10 (mentioned by 8 definitions) and at least 50 (mentioned by two definitions);
    - **Age**: older than 10 years (mentioned by two definitions);
    - **Funding raised**: $/€ 1 million (mentioned by three definitions).

Similar to the startup concept, to illustrate the different approaches a possible future definitional exercise will endeavour, the figure bellow indicated three hypothetical scenarios of a scale-up definition. The main difference between the scenarios are the elements that constitute each definition, and the scope of each of the scenarios (either making the definition broader or narrower). This exercise will have to be further developed bearing in mind the strategic objectives of the potential Startup Scoreboard, and the wide availability of data.

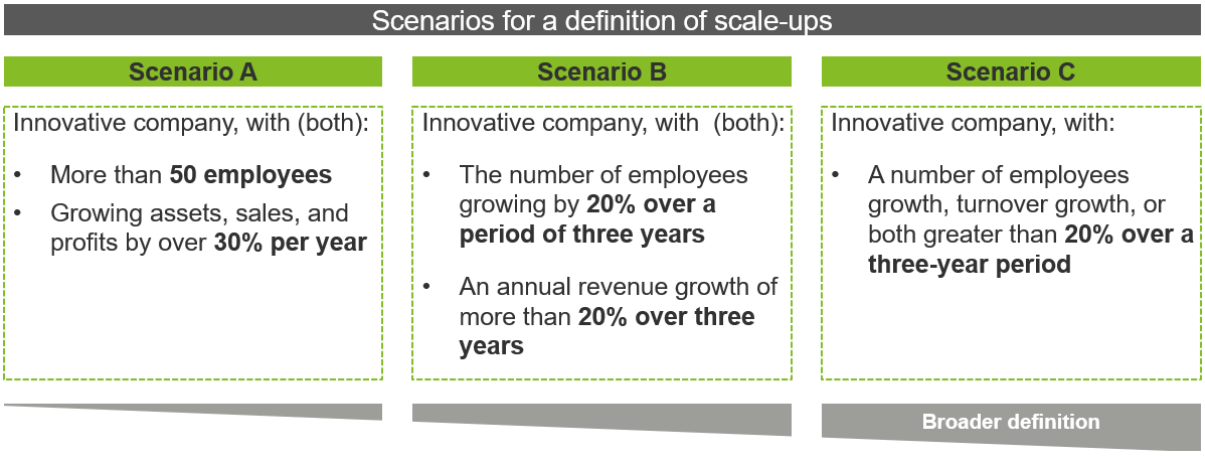


Figure 8: Scenarios for a definition of scale-ups

In conclusion, the study found a significant lack of definitional coherence with regard to scale-ups both in terms of how their growth trajectory is defined and in terms of size requirements.

- Deep-tech startups

Two possible definitional approaches to **deep-tech startups** were identified in the sources analysed.

- Some sources, such as the European Startup Network, the EIB, the EC and some Member States (Austria, Germany, Latvia, Poland) define deep-tech startups as **companies whose aim is to achieve ground-breaking technological advances with a specific product or service**. These companies usually do not improve existing technologies, but rather, through extensive R&D projects, develop new scientific advances. The development process is also categorised as being risk-intensive both in terms of R&D (considerable funding is needing and failing is possible) and in terms of product-market (demand is not guaranteed for a not yet fully developed solution).
- Alternatively, some definitions mentioned **more specific elements** that companies must comply with to be considered deep-tech: experience in R&D and market risk or holding IP assets in their portfolio relating to economic sectors such as IoT or AI.

The existence of two different approaches confirms the lack of definitional coherence highlighted for the other key concepts.

- Spin-off

All sources analysed agreed that the concept of **spin-offs** was different from that of startups in that spin-offs originate from another entity where the knowledge and know-how were developed, which will be the basis for the spin-off company. However, an important discrepancy among the definitions gathered by the study team concerned the originating entity itself. While certain definitions mentioned both universities and companies as entities from which a spin-off is created, other definitions only consider universities as breeding grounds for spin-offs.

- Unicorns

The concept of a **unicorn** was defined consistently by virtually all sources as a startup able to reach a valuation of **$**1 billion or, alternatively, **€**1 billion. However, there were differences on how to define **valuation**. This element, when described at all, was mostly described as market capitalisation.

- Women-led ventures

Another concept around which there was definitional uncertainty was that of **women-led enterprises**. While some definitions considered startups to be women-led when they were owned by women, others required the CEO to be a woman, while others required the company's leadership team to include a specific share of women.

Two main elements in particular varied across the definitions analysed:

- **Group targeted**: Definitions varied in the group of employees or leaders they looked at to find a certain share of women. These included, for example, top managers, the board of directors, shareholders, and the owners.
- **Share of women**: Once the targeted group is defined, a minimum share of women needs to be identified. The figure recurring most was 50%, which was mentioned in five definitions.

5.2. Most commonly used indicators

This final chapter provides insights on how the different stakeholders measure the performance of the a startup ecosystem. This exercise entailed the identification of the most commonly used indicators by the sources analysed throughout this study.

Having collected in a data matrix all the indicators used by the sources analysed (and to the maximum extent possible the definition of each indicator and the data source used) the study team proposed a hypothetical organisation of the most commonly used indicators (while recognising that other

categorisation would be possible to group indicators). The focus of this exercise was not to clearly define indicators to be used in a potential Startup Scoreboard, but to identify which indicators are currently being more used throughout the EU to measure startup performance. The indicators presented in this section do not represent the study team's proposal for the European Startup Scoreboard, neither was it considered if there are any available sources that could feed each indicator with relevant and comparable data.

As this was an exploratory study under the EIS umbrella, the study team collected all the indicators used in the reports analysed and grouped them using the types of activities in the current EIS Framework (see figure below). The EIS 2022 edition is built upon a framework, which includes four main types of activities, each including three dimensions and two to three indicators. Countries included in the EIS are monitored on their average performance on these indicators.

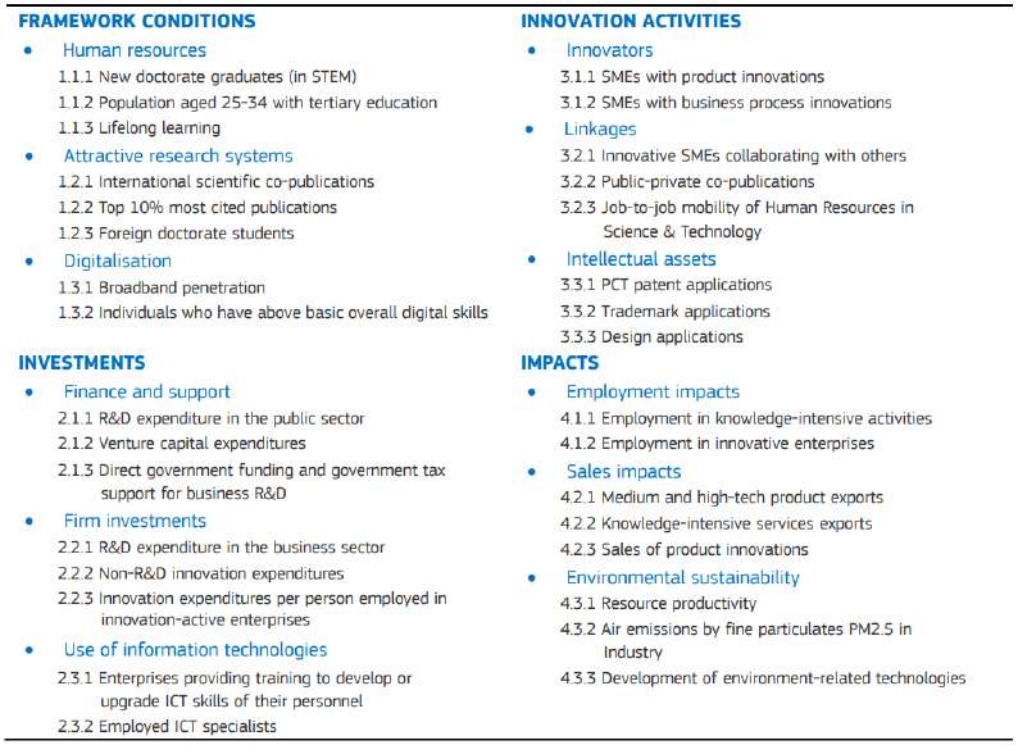


Figure 9: EIS Measurement Framework. Source: EIS

For this exercise, the study team collected and analysed indicators used by EU Member States, international organisations and EU reports measuring the performance of the EU startup ecosystem and the different concepts individually (see Chapter 4). These indicators were then screened, and the most frequently used (i.e. higher number of mentions across the different reports) were identified. Based on the different dimensions measured by these indicators, they were distributed according to the EIS Measurement Framework shown above. As with concept definitions, the indicators are not properly defined, leaving the interpretation of what is being measured open[ee].

Due to the differences in indicators definitions, and in the wording used, the study team grouped the indicators which were meant to collect data about the same specific information. An explanation of the different indicators considered is provided in the footnotes below.

[ee] To ensure consistency in the interpretation of the definitions, feedback received from workshop attendees and comments from the Directorate General of the European Commission for Research and Innovation (DG RTD) during the review process of this report were taken into account. Finally, this section has been reviewed by the authors of the EIS report.

The set of indicators most used amongst the reports analysed for this study is grouped below by the four types of activities used by the EIS.

- Framework Conditions

These are described in the EIS as the main drivers of innovation performance external to the firm. Within the context of a European Startup Scoreboard, the following indicators would be relevant:

Table 18 Startup Framework Conditions indicators

Most used	Number of mentions
Number of startups/deep-tech/spin-offs	25
Gender of founders/employees	24
Average number of employees per startup /scale-up /spin-offs	22
Number/share of scale-ups	19
Demographics and education of founders/employees	19
Age of startup/scale-ups (categories)	11

- Innovation Activities

Described in the EIS as aspects of innovation in the business sector. Within the context of a possible eventual European Startup Scoreboard, the following indicators would be relevant:

Table 19 Startup Innovation Activity indicators

Most used	Number of mentions
Startups/scale-ups/spin-offs per economic sector	16
Number of Unicorns	15
Average growth in turnover/employees per startup/scale-up	13
Nº of startups/scale-ups/spin-offs applying for patents	6
Investment in R&D and % of startups creating new product/service	6

- Investments

Described in the EIS as investments made by both the public and business sectors. Within the context of a European Startup Scoreboard, the following indicators would be relevant:

Table 20 Startup Investment indicators

Most used	Number of mentions
Share of startups financed by venture capitalists or the total/average amount financed through venture capitalists	43
Average overall funding raised by startup / scale-up / spin-off	43
Investments/value per economic sector	7
Average revenue/turnover per startup/scale-up/spin-off	7

Amount of external funding	6
Share of startups financed by public funding or the total/average amount financed through public funding	4
Revenue coming from public procurement	2

- Impacts

Described in the EIS as the effects of an enterprise's innovation activities. Within the context of a European Startup Scoreboard, the following indicators would be relevant:

Table 21 Startup Impact indicators

Most used	Number of mentions
Average valuation of the startup ecosystem	19
Percentage or number of jobs created by startups/scale-ups/spin-off	17
Number and amount of exits	15
Startups/scale-ups/spin-offs value per GDP and/or economic sector	7
% of startup with ESG impact	4

Although it was beyond the scope of this study to define a final list of indicators to be used in a potential scoreboard at this stage, this report indicates which information is collected and analysed by different stakeholders. It would be challenging and possibly counter-productive to produce a set of harmonised definitions before a decision on the guidelines of a potential Startup Scoreboard is taken (as it is understandable that different approaches coexist for good reasons, complementing each other). However, it was possible to conclude that different reports often analysed the same broad indicator but defined differently, sometimes for different purposes. This finding can also be helpful for future discussions on which indicators could be used for the specific purpose of the measurement framework of a potential European Startup Scoreboard.

Another significant area of focus for any Scoreboard pertains to the quality and accuracy of the data utilised to inform the indicators. The EIS collects most of its data from official statistical offices (national and European), making its findings robust and useful for policymaking. During this exercise, the study team concluded that, by contrast, and due to a lack of official statistical data, and of clear definitions, most reports collect the data through ad hoc surveys or using microdata services. This fact makes it very difficult to compare results from different reports and across countries, or even from different versions of the same report. It also gives rise to dependencies on companies that collect microdata from ad hoc surveys on the topic and which have control over the methodologies used to collect such data. The data collection methods differ in each report, from data collected by national statistical offices to data collected through surveys by different organisations using different methodologies (which most of the time are not comparable).

In order to pursue the development of a possible European Startup Scoreboard in the future, it is necessary to decide on whether the data sources that will feed the indicators should come from existing sources, bearing in mind the discrepancies in the definitions, or if new data collection mechanisms should be created to better align with the information needs of the topic.

6. CONCLUSION

This feasibility study provides a comprehensive analysis on the current frameworks used to define and measure startup ecosystem's performance in the EU. It notes how the lack of a universally accepted set of definitions around the EU startup ecosystem hindered the ability to compare and analyse data across different sectoral reports. The differences in how different stakeholders define concepts and indicators, and the heterogeneity of data sources and data collection methods, make the comparison between reports statistically challenging. Acknowledging this challenge, this study concludes that widely accepted operational definitions around the EU startup ecosystem would be essential for the development of a statistically valid European Startup Scoreboard. The analysis presented in this study offers a useful basis for the development of the scope and operational framework of such a Scoreboard.

Through an extensive review of national (both EU Member States and third countries), EU, and international sources, this study presents an exhaustive and comprehensive view of two different aspects. Firstly, it presents the different ways concepts surrounding the startup ecosystem (namely, startup ecosystem, innovative companies, stages of growth, early stage startups, startups, scale-ups, deep-tech startups, spin-offs, unicorns, women-led ventures) are defined by different stakeholders (such as governments, startup associations, and international institutions), and highlights similarities and differences between these definitions. Secondly, it identifies which indicators are more commonly used in the reports analysed to measure startup ecosystem performance.

As for the definition of concepts, the analysis highlights which concepts have a significant degree of definitional variation and which, on the other hand, are coherently defined by stakeholders. By underlining significant open points of discussion, as well as widely accepted elements around concept definitions, this study provides a concrete starting point toward a common, operational definition framework for a future possible European Startup Scoreboard. In particular, the study concludes that the following concepts, present significant definitional variation and therefore lack definitional coherence: startups, scale-ups, early stage startups, stages of growth, women-led ventures.

Such concepts are likely to pose definitional challenges in the development of a future European Startup Scoreboard framework as there is no consensus on which elements to include in the definition, such as age, revenue, number of employees, innovative character, or willingness to grow. While some definitions opt for a simpler definition, with fewer elements (which consider a broader number of companies), others define the concepts with most of the mentioned elements, considering a more limited number of companies. Additionally, there is also no agreement on how to scope each element, creating an imbalance when comparing different reports. To illustrate the different definitional options moving forward, the study presented, for the startup and scale-up concepts, three possible scenarios. Each scenario represents an option to make the definitions leaner (therefore with more elements present), balanced, or broader (including fewer elements in the definition). A future decision into which scenario is more suitable for the potential Scoreboard will have to bear in mind the scope and policy objectives of the scoreboard as well as data availability (the scenario with more elements included will need significantly more data).

On the other hand, the study team identified the following concepts as being more coherently defined and having significant commonalities: startup ecosystem, innovative company, deep-tech startup, spin-off, and unicorn. These concepts are likely to pose minor definitional challenges for a future European Startup Scoreboard. In fact, the mapping exercise underlines some consistent trends in the way these concepts are defined by sources analysed.

In regard to the existing measurement indicators, the study identified the most commonly used to assess the performance of the startup ecosystem. These indicators have been grouped into four types of activities currently used by the EIS: Framework Conditions, Innovation Activities, Investments, and Impacts. While this categorisation is one among other possibilities, it allows for a direct synergy between this study and the EIS. In addition, for each indicator, the study provides the number of times indicators

have been encountered throughout the sources analysed. This allowed the identification of the most used indicators for each category. These are: number of startups/deep-tech/spin-offs (Framework Conditions); startups/scale-ups/spin-offs per economic sector (Innovation Activities); share of startups financed by venture capitalists or the total/average amount financed through venture capitalists (Investments); average valuation of the startup ecosystem (Impacts). Finally, this set of indicators can be of great help in future discussions regarding which set of indicators should constitute the methodological framework for a future European Startup Scoreboard as findings also emphasised which information was relevant to the different stakeholders.

This feasibility study conclusion emphasises the importance of developing commonly accepted operational definitions, through which sound and comparable data can be gathered, to provide a sound basis for evidence-based policymaking. A key moment of this selection process will be agreeing on which elements would be included into the definition of key concepts. In fact, the more elements need to be collected, the more challenging and time consuming the data collection phase will likely be.

A future European Startup Scoreboard, based on common definitions and indicators framework, would allow the comparison of indicators that today cannot be compared due to the lack of definitional coherence. As a consequence, the Scoreboard could provide policymakers with a tool whose role is comparable to that of the EIS on the field of innovation although focused specifically on the EU startup ecosystem

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ANNEX I: EU STARTUP DEFINITIONS AND INDICATORS

EUROPEAN UNION

EU law, EC Communications and EU report definitions

Regulation (EU) 2021/695

- Startup should be understood as an SME in the early stage of its life cycle, including those that are created as spin-offs from university research activities, which aims to find innovative solutions and scalable business models, and which is autonomous within the meaning of Article 3 of the Annex to Commission Recommendation 2003/361/EC.

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– Commission Implementing Regulation (EU) 2020/1197 of 30 July 2020

- It defines high growth enterprises – a concept closely linked to scale-ups – as enterprises with at least 10 employees and an average annualised growth in the number of employees greater than 10% per annum, for a period of three years. In addition, in case high growth enterprises are 4 or 5 years old, they can be defined as gazelles, according to the same Regulation.

Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises

- The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million. Within the SME category, a small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million. Within the SME category, a microenterprise is defined as an enterprise which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million.

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Communication from the Commission on Europe's next leaders: the Start-up and Scale-up Initiative

- Startups, often tech-enabled, in general combine fast growth, high reliance on innovation of product, processes and financing, utmost attention to new technological developments and extensive use of innovative business models, and, often, collaborative platforms.

Communication from the Commission: A New European Innovation Agenda

- Deep tech innovation, which is rooted in cutting edge science, technology and engineering, often combining advances in the physical, biological and digital spheres and with the potential to deliver transformative solutions in the face of global challenges.

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Regulation (EU) 651/2014

- 'innovative enterprise' means an enterprise:
  - (a) that can demonstrate, by means of an evaluation carried out by an external expert that it will in the foreseeable future develop products, services or processes which are new or substantially improved compared to the state of the art in its industry, and which carry a risk of technological or industrial failure, or
  - (b) the research and development costs of which represent at least 10% of its total operating costs in at least one of the three years preceding the granting of the aid or, in the case of a startup enterprise without any financial history, in the audit of its current fiscal period, as certified by an external auditor.
- Startup: with regard to state aid compatible with the internal market, article 22 mentions that eligible undertakings are defined by the Regulation as unlisted, small enterprises up to five years of age which, among other requirements, have not distributed profits

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Eurostat

- Innovation: new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process). (Definition based on Oslo Manual 2018.)

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Funding women entrepreneurs

- Women-led is defined as companies having "at least one female executive," that is, at least one woman currently holding a C-level, founder/founding partner, president and/or chairman/woman position. Whenever women-driven is used, it is a direct substitute for women-led and follows this definition. Companies with at least one female founder include those companies for which the female founder(s) no longer work. Companies with at least one female founder are treated as a sub-group of women-driven companies and are characterised as such throughout the text.
- Late-stage: Rounds are generally classified as Series C, D or later (which we typically aggregate as late-stage) either by the series of stock issued in the financing or, if that information is unavailable, by a series of factors, such as the age of the company, prior financing history, company status and participating investors

Annual report on European SMEs 2018/2019

- Startups are generally understood to refer to enterprises which are: young (younger than 10 years / 5 years depending on the sector); innovative (in terms of business models and/or product/service) aiming to rapidly scale up (i.e. to grow their number of employees and/or the markets in which they operate).
- High-growth enterprises are defined as enterprises with at least 10 employees at the beginning of their high growth period and which post average annualised growth in the number of employees (or turnover) greater than 10% per annum over a three year period.

- Gazelles are defined as high-growth enterprises that are up to five years old with average annualised growth (turnover or employment) greater than 10% per annum, over a three year period. This section uses the employment-based definition of high growth as this is the only one for which data are generally available.

European Innovation Council (EIC) Work Programme 2022

- Small and Medium-sized Enterprises (SMEs) is a category of micro, small and medium-sized enterprises. It consists of enterprises that employ fewer than 250 persons and have either an annual turnover not exceeding EUR 50 million, or an annual balance sheet total not exceeding EUR 43 million. A full definition is provided in Commission Recommendation 2003/361/EC. Under the EIC, this definition includes startups.
- Startup ecosystem: ecosystem that accelerates the growth of highly innovative startups and SMEs by establishing innovation friendly legal framework, creating an environment that stimulates growth, private and public investments, resources, diversity and talents.
- Deep tech is technology that is based on cutting-edge scientific advances and discoveries and is characterised by the need to stay at the technological forefront by constant interaction with new ideas and results from the lab. Deep tech is distinct from 'high tech' which tends to refer only to R&D intensity.
- Women-led consortia means consortia where at least 50% of Work Package leaders including the consortium coordinator are women.
- Women-led SMEs (including startups) means companies where the position of either the Chief Executive Officer, Chief Technology Officer or Chief Scientific Officer is held by a woman at the time of application, interview and award of the EU financial support.

EIS 2021

- Innovative enterprise: enterprises that have either introduced an innovation or have any kind of innovation activity (including enterprises with abandoned/suspended or on-going innovation activities).

Helping European SMEs to grow

- High growth enterprise: an enterprise with an average annualised growth rate greater than 10% or 20% per year over a three-year period (Eurostat accepts both thresholds). Growth can be measured by the number of employees or by turnover.
- Scale-up company: a company that is expanding and growing rapidly in terms of market access, revenue or number of employees.
- Startup: an entrepreneurial venture set up without the involvement of other enterprises and with at least one employee. Companies created as a result of mergers, restructuring or break-ups are not considered to be startups.

Annual Report on European SMEs 2021/2022 SMEs and environmental sustainability

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

Startup Innovation Ecosystems in Southern Europe

- Innovation systems are the regional or national structures in which startups, SMEs, large sized enterprises, universities, and public organisations interact on a technological, social, legal and commercial basis in order to produce knowledge, develop new technologies and new business opportunities. These interactions aim at developing and protecting new technologies, and financing and regulating new projects (Metcalfe, 2008).

Most relevant indicators

SMEs, start-ups, scale-ups and entrepreneurship

Age of enterprise	Innovation	Growth (past and planned, either in terms of number of employees or turnover or both)	

Funding women entrepreneurs

Share of female entrepreneurs	VC deal values	Series C funding by gender	Industry

ANNEX II: COUNTRY PROFILES

The following section lists the most relevant definitions and indicators in use in EU Member States. These were collected by the study team through desk research and survey answers (see section 2.2 for an explanation of the methodology of this study). In particular, the survey allowed to gather legal and non-legal definitions in use in various Member States. Whenever possible, the study team has checked the definitions identified by survey answers in their original sources.

AUSTRIA

Definitions

Austrian Startup Monitor

- Startups are defined as enterprises with the following characteristics:
  1. Younger than 10 years
  2. Innovative in their products, services, technologies or business models
  3. They show significant growth in employees or revenue, or aim at such growth.
- Academic spin-off: startup in which the idea for the product/business model arose during and a) in causal connection with a tertiary educational relationship at a university or university of applied sciences or b) in thematic connection with an employment relationship at a university, university of applied sciences or research institution.

Austria Wirtschaftsservice (Austrian Economic Service) (source mentioned in survey results as non-legal, operational definitions in use in Austria)

- **Startups** are companies defined as follows:
  1. Whose foundation dates back a maximum of five years or which have not been commercially active for more than seven years since their first commercial sale;
  2. Which fulfil the criteria of a small enterprise according to the EU definition;
  3. Are innovative in their technology or business model and have or are expected to have significant employee or turnover growth.
- Early stage startup: (Pre)foundation phase: Development phase until the product is market ready
- Deep-tech: Deeper engagement with the newly developed technology, for example in the life sciences or other technologies, as the basis for the planned startup. In the case of deep tech startups, the focus is therefore on the development or further development of the technology itself.

Spin-off Austria Dashboard (source mentioned in survey results as non-legal, operational definitions in use in Austria)

- Spin-off: In order to be classified as a spin-off, in addition to the definition of the Intellectual Capital Statement Ordinance applicable to universities, a licence or purchase agreement for IP of the institution(s) must exist as proof that the foundation was based on a property right (patent or the like) resulting from research results

Survey results (source mentioned in survey results as definition used on a legal basis):

- Commercialisation spin-offs at public universities are defined as newly founded enterprises:
  - of the university itself;
  - newly founded enterprises in which the university holds a direct or indirect stake;
  - newly founded enterprises for which the use of new research results or results based on the development and exploitation of the arts, new scientific procedures or methods from public research were indispensable for the foundation, i.e. the foundation would not have taken place without the use of these research results or results based on the development and exploitation of the arts or a resulting property right (e.g. patents, licences, etc.).

Condition within several State aid programmes for startups (definition mentioned in survey results as non-legal, operational definitions in use in Austria)

- Women-led venture: If the venture includes at least one woman who will own or already owns more than 25% of the business shares.

Funding opportunities from the Start-up Folder of the Austrian Research Promotion Agency FFG

- Eligibility for startups is:
  - A small or medium-sized enterprise (SME)
  - Established max. 5 years prior to the application
  - New (excludes restructured companies, new locations, company mergers, etc.)

-

Most relevant indicators

Austrian Startup Monitor (Survey of more than 500 startup founders and CEOs, data from survey and Austrian Startup Monitor Databank)

New startups	Green impact startups	Economic sector	Inactive startups
Share of spin-offs	Female founders	Innovation orientation	Female leaders

Age of founders	Area of activity of spin-offs	Source of funding	Revenue by sector
Prior experience of founders	Motivation for founding	External funding	Profitability
Number of employees	COVID-19 effects	Size and gender founding team	Geographic distribution
Public funding used	New hires planned	Main clients	Largest challenges

Startup Report 2021/2022 (overview of funding deals and trends in Austria, data from startupreport.at)

Funding rounds in Austrian startups divided by size of round

Austrian Startup Landscape (Dealroom dashboard with use of Dealroom microdata)

Number of startups	VC investors	Employees	Number of rounds
Sub-industry	Business model	SDG area of activity	Startup growth
Job openings	Location	Main market	Accelerators
Growth stage	Alumni-funded startups per University	Revenue	Investor location
Geographic distribution	Industry	Startup launch date	Startup valuation
Exits	Last startup round	Round size	Funding

BELGIUM

Definitions

Size and dynamics of employment in Belgian Tech startups

- Tech startups are defined, for the purposes of the study, as all young tech companies which bring digital and technological innovation within existing or new markets by exploiting big data, software, web 2.0 and cloud technologies. The report makes use of data from Sirris, a Belgian research and innovation centre.

The State of Flanders Startup Ecosystem 2022

- Startups, scale-ups, grown-ups and tech: companies designed to grow fast. Generally, such companies are VC-investable businesses. Sometimes they can become very big (e.g. $1B+ valuation). When startups are successful, they develop into scale-ups (>50 people), grown-ups (>500 people) and big companies.

Digital and tech startup ecosystem in Wallonia

- Startups: "young companies" in the digital or tech sectors that have had a marketed product or a new business model for under 10 years (with some exceptions), aiming to achieve significant growth or offering a "scalable" business model.

Innoviris.Brussels (source mentioned as part of Belgium's legal system)

- Spin-off: a new technology business developed out of a larger organisation. Both "academic spin-offs" (universities and university colleges) and "industrial spin-offs" (companies and collective research centres) are key to research development. From the start of their activities, they have access to advanced technologies as well as experienced management teams.

ULB - spin-offs

- Spin-offs: company based on knowledge and technologies stemming from research. Through spin-offs, the university brings its high-level scientific activities to society through the industrial and economic exploitation of knowledge and technologies it has developed.

UCL Louvain

- A spin-off is a company created from a transfer of knowledge from university to civil society, which is part of its service mission to society.

Most relevant indicators

Size and dynamics of employment in Belgian Tech startups (report using official statistical data)

Number of tech startups	Total number of tech startup employees	Number of employees per startup	Size of company
Number of startups per tech sector	% of B2B and B2C startup per sector and region and historical evolution	Startups by city and historic evolution	Employees by education level, nationality and origin

The State of Flanders Startup Ecosystem 2022 (report using Dealroom microdata)

VC investment in Flanders startups	VC investment per capita (2021)	Top sectors by number of future unicorns	VC investment into Flanders' startups
New funds raised by Flanders investors	Investment by industry	Startup density[ff]	Ecosystem Growth[gg]

Digital and tech startup ecosystem in Wallonia (report using data from the Digital Wallonia Platform and survey results, 100 participants)

Number of digital and tech startups; geographic distribution	Number of startups per years of activity	Share of digital and non-digital startups	Business target (B2B, B2C, both)
Technologies deployed	Share of CEOs having founded other startups	Age of CEO at time of founding	Share of women founders
Share of women employees of startups	COVID impact on startup	Types of investors	Types of financing aid, if any

[ff] Number of start-ups per million inhabitants.
[gg] Growth in number of start-ups.

BULGARIA

Definitions

Definitions in Bulgaria's legal system (source mentioned in survey results as part of Bulgaria's legal system)

- A startup enterprise is a microenterprise or small enterprise registered in the last 5 years and its activity is based on innovation technology or an innovative product.
- Early stage startup: is a startup enterprise, which is in the initial stage of its lifecycle of up to three years and aims to attract initial external financing in order to develop its pilot product/service.
- Scale-up: a fast growing medium-sized enterprise which increases its assets, sales and profits by over 30% per year.
- Innovative company: an enterprise whose activity is based on innovation technologies or that produces innovative products or services.
- Unicorn: a scale-up enterprise which has reached €1 billion market capitalisation since its initial public offering.

Central and Eastern European Startups

- Startups are defined as companies designed to grow fast. Generally, such companies are VC-investable businesses. Sometimes they can become very big (e.g. $1B+ valuation).
- When startups are successful, they develop into scale-ups (>50 people), s (>500 people) and result in big companies.
- Unicorns are defined as (former) startups that reached US$ 1B valuation or exit at one point in time.

Fund Manager of Financial Instruments in Bulgaria SASF (Seed/Acceleration and Startup Fund)

- Startup phase: financing for product development and initial marketing. Companies have not sold their product commercially and are in the process of being set up, or are at the initial stage(s) of their development following their first commercial sale.

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)

Combined VC investment into **CEE**	Top 5 Industries by VC investment, Q1-Q3 2022	VC activity Investment volume (year-to-date)	Combined enterprise value of the CEE tech ecosystem
Emerging city hubs: number of startups, enterprise value, VC activity 2022 and VC activity growth	Share of startups with more than €1 million in funding moving abroad and where, with share of workforce based in CEE	Active startups funding status, 2022	VC funding value by country, year-to-date 2022
Early-stage VC investment in CEE-founded companies	New VC funds raised by CEE-based investor	Number of exits in CEE	Top 5 Industries in CEE by combined enterprise value, October 2022
Cumulative number of CEE unicorns	Ecosystem value, five-year growth (2017-2022)	Average round sizes	Investment in CEE-born companies by investor origin

CROATIA

Definitions

Central and Eastern European Startups
See Bulgaria

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European countries based on Dealroom.co data)
See Bulgaria

CYPRUS

Definitions

Survey results (definitions mentioned in survey results as non-legal, operational definitions in use in Cyprus)

- Startup: Startups are dynamic and innovative small enterprises* that intend to develop internationally competitive products or services, as well as to mobilise private investment funds for this purpose.
- Early stage startups: Early stage startups are newly formed small enterprises* with an international orientation with significant prospects for rapid development, which are still in the idea stage and their product or service is not yet fully developed (Beneficiaries of the Pre-Seed Programme, under the National Framework Programme for R&I).

Public Universities legislation Art. 3(3)(ε) (definition mentioned in survey results as part of Cyprus's legal system)

- Spin-offs: In the Public Universities legislation there is a reference to participation in the creation of companies, stating that Universities can participate in companies – with a stake of up to 49% – providing the company's activities remain separate from those of the University, that the company is fully independent, that the company promotes research and innovation, healthy competition and excellence from non-state resources.

Internal regulations of the University of Cyprus (definition mentioned in survey results as part of Cyprus's legal system)

- Provisions are included for the participation of University personnel in the creation of companies considered as spin-offs.

Practical guide for applying to acquire a Certificate of Innovative Enterprise (definitions mentioned in survey results as part of Cyprus's legal system)

- Innovative SME: a small and medium-sized enterprise (SME) qualifies as an 'innovative SME' if:
- its operations are carried out in the Republic of Cyprus, and
- it has a business plan for its risk finance investment and fulfils at least one of the following conditions:
- it does not operate in any market; or
- it has not been operating in any market for more than 7 years (this restriction does not, under certain conditions, apply for follow-on investments) following their first commercial sale; or
- it requires an initial risk finance investment which, based on a business plan prepared in view of entering a new product or geographical market, is higher than 50% of their average annual turnover in the preceding 5 years.

**Any small enterprise not listed on the stock exchange up to five years after its registration, which (a) has not taken over the activity of another enterprise, (b) has still not distributed profits and (c) has not been incorporated through a merger. For eligible enterprises not subject to registration, the five-year period may be deemed to start from the time that the enterprise either starts its financial activity or becomes liable to pay tax for its financial activity.*

CZECH REPUBLIC

Definitions

Czech Startup Report 2019-2020

- Startups are those companies that identify themselves as such within the scope of the survey.

Czech Startups Report 2016

- Startup: an entity from any industry branch that:
  - develops a single product or service that is unique in place and/or time
  - tries to solve a problem in a unique and innovative way
  - has the potential for rapid growth in terms of revenue and customers
  - where founders play the main role in operations
  - needs investment for further growth.

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Central and Eastern European Startups

See Bulgaria

Most relevant indicators

Czech Startup Report 2019-2020 (survey of around 150 startups, 300 respondents from general public, 100 from other targeted groups such as investors, accelerators…)

Average number of employees	Business region	Funding type	Startup experience with government support
Development stage	Development stage of product	Period since acquiring first investment	Average no of founders and investors

Czech Startups Report 2016 (Survey among 141 subjects)

Age of start-upper	Education of start-upper	Share of start-ups with at least one woman among the founders	Patents and trademarks
City	Legal form	Registration date	Research and development relationship with universities
Development stage of startup	Business model (industry branch)	Where product is created (in-house, outsourced…)	Major external and internal challenges
Target customer	What sources of financial support has the startup used?	What sources of financial support do you plan to use?	Primary market: national or global
Revenue (stable, expected, sufficient)	Share of startups interested in receiving public subsidies	Non-financial support used	What portion of your sales come from abroad? (%)
Motivation for using business incubators or accelerators	Employment increase in the last 6 months	Employment plan for the next 6 months	What is the character of the product or service you offer?

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)

See Bulgaria

DENMARK

Definitions

Scale-ups in the Nordics 2020 (Source mentioned in survey results as non-legal, operational definition in use in Denmark)

- Scale-ups: Enterprises –
  - with 10 or more full time equivalent number of employees and an annual turnover of two or more million euro in the start year of observation;
  - enterprises with average annualised growth in the number of employees (FTE) and/or in turnover in current prices greater than 20% over a three year period.
  - Three types of scale-up enterprises: Scale-ups by employment (FTE) growth only; Scale-ups by turnover and employment (FTE) growth; Scale-ups by turnover growth only.

Nordic Impact Startups 2021

- An impact startup is a company that addresses one or more UN Sustainable Development Goal (SDGs) at the core of its business and has the potential to scale.
- Deep tech startup: Deep tech includes startups working on innovative technologies that are closely linked to the frontiers of science and engineering. These companies inherently take on risk relating to the feasibility of their technologies, as well as the risk in proving market demand for the product which has likely not been seen before in the market. Deep Tech startups often start with an extended R&D phase, have a higher share of technical staff and involve hardware and/or IP.
- Deep Tech impact startup: An impact deep tech company fits the criteria for both an impact startup and a deep tech startup.
- Green Deep Tech startup: A green deep tech company qualifies as both a Green Growth startup and a Deep Tech startup.
- Startups, scale-ups, grown-ups and tech: Companies designed to grow fast. Generally, such companies are VC-investable businesses. Sometimes they can become very big (e.g. USD 1 billion+ valuation). When startups are successful, they develop into scale-ups (>50 people), grown-ups (>500 people) and result in big companies. In this report, the term "tech ecosystem" refers to startups, scale-ups grown-ups from different vintages/cohorts. Only companies founded after 1990 are included in the report.

Promoting Start-Ups and Scale-Ups in Denmark's Sector Strongholds and Emerging Industries | en | OECD

- Startups: businesses that are 0-5 years old. For example, in 2019, the population of startups comprised businesses that were established either in 2014, 2015, 2016, 2017, 2018 or 2019.
- Scale-ups: businesses that have experienced at least 10% annualised growth in either employment or turnover over a three-year period. An additional criteria for a scale-up is that the business had at least 10 employees at the start of the three-year period.

eStatistics Denmark (Source mentioned in survey results as non-legal, operational definition in use in Denmark)

- Startup ecosystem: resource areas (does not correspond directly to a definition of an ecosystem): a resource area includes all industries (both from the private and public sectors) that contribute to the production of related end products (industrial goods or services). The division into resource areas is an alternative to the traditional division of business into sectors and industries. The traditional division does not always capture the interrelationship between different types of industries, for example between manufacturers of building materials and construction itself.

Danish Business Promotion Board (Source mentioned in survey results as non-legal, operational definition in use in Denmark)

- Startup ecosystem: Sector strongholds and Emerging industries (does not correspond directly to a definition of ecosystem): Building on the resource areas definition and work done by Statistics Denmark, the Danish Business Authority and Statistics Denmark have developed an industry code delineation of Danish sector strongholds and Emerging industries.

Denmark Statistics (Source mentioned in survey results as non-legal, operational definition in use in Denmark)

- Innovative enterprises: For product innovations, to have been implemented means that they have been introduced on the market. For processes, implementation means that they have been brought into use. In order to be an innovation, the product or process needs to be new or significantly changed, at least for the enterprise itself. The definition of innovation is developed by OECD and described in the *Oslo Manual*

Denmark Statistics / Eurostat (Source mentioned in survey results as part of Denmark's legal system)

- Startups and early stages startups: new enterprises.
- Scale-ups: scale-ups are new high growth enterprises/gazelles. A gazelle is defined by Statistics Denmark as an enterprise younger than five years old that has had average annual growth in number of employees of at least 20% over a three-year period, and which had five or more employees at the beginning of the growth period.

Most relevant indicators

Scale-ups in the Nordics 2020 (report covering Denmark, Finland, Iceland, Norway and Sweden using data from national statistical offices)

Number of scale-ups	Number of jobs created	Share of increased turnover of scale-ups	Share of foreign-owned scale-ups

Share of scale-ups scaling by turnover, employment of both, by number of employees	Economic sector	Turnover growth and average turnover	Employment growth

Nordic Impact Startups 2021 (Report using Dealroom.co data)

Yearly VC investment into Nordic impact startups	Percentage of job openings by Nordic startups type (excluding internships)	Cumulative number of unicorns in the Nordics	Impact investing as a percentage of total VC investment
Investment into Green Growth according to sector	VC investment into Green Growth startups	Investment into Nordic Green Growth startups	VC investment into impact startups

Entrepreneur statistics, Statistics Denmark (data from official statistical sources)

New high growth enterprises	Turnover of new high growth enterprises	Business demography

Promoting Start-ups and Scale-Ups in Denmark's Sector Strongholds and Emerging Industries | en | OECD (data sources used for the report include Eurostat, OECD and official statistical data from Denmark)

Birth rate of employer enterprises	Business survival rates	Barriers to scale up for companies not planning to grow	Rate of high-growth enterprises as a percentage of the total population of active enterprises with at least 10 employees,
Share of scale-ups in the business population, employment and revenue	Number of businesses created between 2010 and 2019, by sector	Average employment level and annual turnover of startups and scale-ups by sector, 2019	Startups' and scale-ups' contribution to employment and turnover by sector
Startup exporting	Rate of high-growth enterprises as a percentage of the total population of active enterprises with at least 10 employees		

Entrepreneurship in Denmark (data from official statistical sources)

Trends in the number of new startups and GDP	Development in the number of new startups over time by sector	New entrepreneurs by gender, age and highest level of education	Distribution of female and male new entrepreneurs by industry

ESTONIA

Definitions

Estonian Startup Database

- Startup: running a technology-based business registered in Estonia, company is not older than 10 years, company's goal is to develop and launch an innovative and repeatable business model, company has fast global growth potential.
- General definitions used by startupestonia.ee
- Startup – is a business entity (up to and including 10 years of operational history) belonging to a company registered in Estonia, which is starting activity with the purpose of developing and launching a business model or technological component with high global growth potential, that is innovative and replicable and shall contribute significantly to the development of the Estonian business environment;
- Startup ecosystem – the field and network of all participants related to startup entrepreneurship, which in sum impacts the development performance of startups and startup entrepreneurship in Estonia;
- Scale-up – a startup that has raised investments of at least €1 million, has at least ten registered employees and has an annual growth in employees and turnover of at least 20% within three years.

Estonian Aliens Act (Source mentioned in survey results as part of Estonia's legal system)

- Startup for the purposes of this Act is a business entity belonging to a company registered in Estonia, which is starting activity with the purpose to develop and launch such a business model with high global growth potential, innovative and replicable that shall significantly contribute to the development of the Estonian business environment.
- Scale-up within the meaning of this law is a company registered in Estonia that is growing its activities, the purpose of which is the further development of such a technology-based, innovative and repeatable business model with high global growth potential, which significantly contributes to the development of the Estonian business environment and which meets the following conditions: 1) has been operating for at least ten years; 2) at least 50 employees work in Estonia; 3) has paid labour tax in Estonia in the last year of at least €1 million and 4) the cumulative increase of labour taxes in the last three years is 20%.

Startup Estonia white paper (Source mentioned in survey results as non-legal, operational definitions in use in Estonia)

- Startup ecosystem: Startup ecosystem – the field and network of all participants related to startup entrepreneurship, which in sum impact the development performance of startups and startup entrepreneurship in Estonia.
- Startup – a business entity (up to and including 10 years of operational history) belonging to a company registered in Estonia, which is starting activity with the purpose of developing and launching a business model or technological component with high global growth potential, that is innovative and replicable and shall significantly contribute to the development of the Estonian business environment.
- Scale-up – a startup that has raised investments of at least €1 million, has at least ten registered employees and has annual growth in employees and turnover of at least 20% within three years.
- Unicorn - a rapidly scaling startup with a market capitalisation of over €1 billion.

TalTech regulation for registration of spin-off companies (Source mentioned in survey results as non-legal, operational definition in use in Estonia)

- A spin-off company is a private legal entity with the founders and/or shareholders of Taltech or its member, which uses Taltech research and development results or know-how in its activities.

Deep-tech action plan (Source mentioned in survey results as non-legal, operational definition in use in Estonia)

- Deep-tech: Deep Tech is a technology that is difficult to develop today, but with the potential to become a scalable, pervasive and easy-to-implement basic need in the future

University of Tartu spin-off companies (Source mentioned in survey results as non-legal, operational definition in use in Estonia)

- Spin-off: company, which, in agreement with the university, wishes to accentuate its link with the university for the development of business, and whose founders and/or partners are the university and/or its staff/students, and which uses the university's intellectual capital and/or infrastructure in their actions. Intellectual capital includes knowledge, information, intellectual property, experience, etc.

Innovation Survey 2018 (Source mentioned in survey results as non-legal, operational definition in use in Estonia)

- Innovative enterprise: enterprise that during the reference period introduced on the market a new or improved product (good or service) that differed significantly from the enterprise's previous products, or introduced a new or improved process (core process, i.e. the production of goods or provision of services; logistics; ICT; administrative process; business process; work organisation; marketing process). An enterprise is also considered innovative if during the reference period it was engaged in in-house or outsourced R&D, started innovation but abandoned or suspended it before the end of the reference period, or whose innovation is still ongoing at the end of the reference period.

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Most relevant indicators

Estonian Startup Database (data from Estonian Tax and Customs; startups themselves; Startup Estonia's team discoveries; Dealroom).

Turnover	Age	Sector	Employees

Turnover	Investments	Startup technology	Startup stage
Founding year	Industry	Number of employees	Taxes paid

Estonian Startup Ecosystem Report (microdata used)

Value of startups	Number active tech startups	Share of female founders	Founder age
Average seed round	Female employees	Remote employees	Foreign employees

2020 report Baltic Startup Scene (report using various data sources, such as microdata and survey results)

Number of startups in Estonia, Latvia and Lithuania	Respondents' place of residence and nationality	Age of startup	Positive or negative outlook
Investment per capita	Share of hybrid work	No of employees	Focus of the startup
Funding per capita	Positive vs. negative impact on startups of COVID	% of startups with at least one woman in the founding team	Where startups seek investment
Number of rounds per stage and country	Share of rounds and capital invested by stage	What founders studied	Diverse teams (at least one woman on the founding team)
Number of pre-seed and seed rounds by country	Number of rounds by funding type	Founders with international education	Founder origin

FINLAND

Definitions

Nordic Impact Startups 2021 *See Denmark*

Scale-ups in the Nordics 2020 *See Denmark*

Tech Scaleup Finland 2018 Report

- Mind the Bridge categorises "Tech Companies" as follows: "Start-up" <$1 Million funding raised; "Scale-up" >$1 Million funding raised; "Scaler" >$ 100 Million funding raised; "Super Scaler" >$ 1 Billion funding raised;
- Dual Company: Startup founded in one country that relocated its headquarters – and with that part of its value chain – abroad, while maintaining a strong operational presence in its country of origin.

Eligibility criteria from funding opportunities:

- Research, development and piloting: the company is an SME (fewer than 250 employees, turnover up to €50 million or a balance sheet total of up to €43 million) or a midcap company (consolidated turnover up to €300 million), which is truly seeking significant international growth. The company is developing new innovative products or services, production methods or business models that gain a competitive edge in international markets. The company aims to create new competence that gives it a competitive edge in international markets.
- Young Innovative Company funding: promising startups that have been in operation for less than five year are able to rapidly scale up internationally and already have significant net sales and evidence of growing international business.

Most relevant indicators

Nordic Impact Startups 2021 *See Denmark*

Scale-ups in the Nordics 2020 *See Denmark*

Tech Scaleup Finland 2018 Report (report based on microdata gathered by Mind the Bridge)

Number of scale-ups	Capital raised	Scale-up density ratio[hh]	Scale-up investing ratio[ii]
Scale-up country index[jj]	Capital raised/GDP (%)	Number of scale-ups/population (100k)	Number of dual companies
Scale-up matrix[kk]			

[hh] Number of scaleups per 100 000 inhabitants. A measure of density of scaleups in a given ecosystem.
[ii] Capital raised by Scaleups as a percentage of GDP. A measure meant to measure the capital invested in scaleups in a given ecosystem, compared to the size of the overall economy of that country.
[jj] Country ranking built upon Scaleup Density Ratio and Scaleup Investing Ratio. A measure of the overall innovation commitment of a given ecosystem and its ability to produce significant tech players.
[kk] The matrix visually compares ecosystems by factoring the Scaleup Density Ratio and Scaleup Investing Ratios.

FRANCE

Most relevant definitions

Employment in French start-ups
This report identifies four populations of startups:

- Young enterprises: businesses under eight years of age in 2018;
- Gazelles: companies under eight years of age in 2018 with at least 10 full-time equivalents (FTEs) in 2015 and an average annual revenue growth rate of just over 20% between 2015 and 2018;
- Companies that have raised funds: companies under eight years old in 2018 whose share capital is less than €100 000 in 2015 and more than €200 000 in 2018;
- Innovative companies: companies under eight years old in 2018 that have received innovation or R&D support at least once since their creation

Activity report Digital Agency

- Startup: young, innovative enterprise, looking for a business model allowing a high degree of growth, with international development.

France Digital Barometer 2022

- Startup: 1) Based in France, 2) Listed for less than five years, 3) Industry linked to the digital sector.

Bpifrance (sources mentioned in survey results as non-legal, operational definitions in use in France)

- Startup: new, innovative company with high growth potential and speculation on its future value.
- Scale-up: change in scale of a company, through a strategy of accelerated growth, especially internationally. Generally, it applies to startups that have already graduated from startup status but have not yet reached unicorn status.
- Spin-off: an outgrowth of a large company, created as a result of a spin-off, usually technological or innovative, and which is led to become independent in return for an equity stake.
- Innovative company is a company whose innovative character is assessed either according to the level of R&D expenditure (at least 10% of expenses during the previous financial year) or by the delivery of the "innovative company" qualification by Bpifrance. The company must: justify the creation of products, processes or techniques whose innovative nature and economic development prospects are recognised, as well as the corresponding financing needs; have an in-house R&D team, even if some of the research work may be subcontracted. The R&D activity must be strategic for the company and generate a significant turnover.
    - A subset are young innovative companies: SME; created less than eight years; R&D expenses = 15% of costs.

Directorate General for Enterprises - Deeptech Study – 2022 (source mentioned in survey results as non-legal, operational definition in use in France)

- Deep-tech technology: a technology derived from the world of research, which presents high barriers to entry, with technological locks to be removed, which offers a strongly differentiating advantage, which is characterised by a long and complex go-to-market and is therefore probably capital-intensive.

Directorate General for Enterprises, internal work 2022 (source mentioned in survey results as non-legal, operational definition in use in France)

- Startup: companies less than 12 years old, with fewer than 250 employees, having raised at least one fund.

Elysée – 01/2022 (Source mentioned in survey results as non-legal, operational definition in use in France)

- Unicorn: startup that has, thanks to external funding, achieved a valuation of $1 billion in less than 10 years.

Eligibility criteria of selected funding opportunities for startups:
Aid for the development of deep-tech

- A startup is referred to as deeptech if: it is a vector of innovation: it develops close links with the research community (R&D team made up of researchers and/or partnership with a research laboratory); it drives high-value innovation; it is based on a technological breakthrough protected by an intellectual property asset.

Most relevant indicators

Employment in French start-ups (report based on official statistical data)

Number and average age	Growth in number of the populations studied	Sectoral distribution	Geographic distribution
Total number of employees	Number of total employees per startup population	Employment of startups during the health crisis	Share of women in startup jobs up in 2018

Activity report Digital Agency (data from the French Startup Observatory, carried out by EY and Mission French Tech)

Number of startups and growth in number of startups	Investments of and value of startups per region	Gender of directors	Funds raised
Average growth	Jobs created and share of new jobs created		

France Digital Barometer 2022 (report based on survey results of 583 startups)

Region and age of startup	Industry	Business model	Total revenues
Number of jobs created	% of women	Share of foreign employees	Remote working frequency

GERMANY

Definitions

Deutscher Startup Monitor 2022

- Startup: companies younger than 10 years; planning to grow in number of people or revenue and/or innovative.

Female Founders Monitor FFM

- Startups: (1) younger than 10 years old; (2) innovative in their technology and/or their business model, and (3) show or are planning significant growth in employees and/or sales. In order to be included in the study, a company must meet the first criterion, and at least one of the subsequent two.

Startup Strategy of the Federal Government (source mentioned in survey results as non-legal, operational definition in use in Germany)

- Startups: young innovative companies with growth ambitions: they are characterised by an innovative business model, an innovative product, or an innovative service. They also have scaling potential, in other words the potential to grow and develop.
- Unicorns: startups in Germany with a market valuation of at least $1 billion.

KfW-Start-up-Report 2022

- Startups: young commercial enterprises founded not more than five years ago (irrespective of their legal status) whose founders are full-time entrepreneurs, have a team of founders or employees and are innovation- or growth-driven, that is, conduct research and development in order to make a technological innovation market-ready or offer at least one new-to-market innovation for Germany.

ZEW Mannheim (source mentioned in survey results as non-legal, operational definitions in use in Germany)

- Innovation-active companies: companies that have carried out innovation activities in the past three-year period, regardless of whether these were involved in the market launch of new/improved products or the implementation of new/improved processes. Companies with innovation expenditures refer to companies that spent money on innovation activities in the current year.

InvestEU Gender Selection Criteria (adapted criteria mentioned by the survey results as non-legal, operational definition in use in Germany)

- Female-led company: the management team is composed of at least one third of female and/or non-binary partners, or the senior investment team provides for at least 40% of female and/or non-binary representation, or at least 40% of female and/or non-binary representation is provided in the investment committee.

Survey Results Council of the EU (sources mentioned as non-legal, operational definitions in use in Germany)

- Deep-tech: Technology startups, often with disruptive, R&D intense technologies
- Spin-off: In a spin-off, a department is spun off from a company or institution by establishing a separate company. A spin-off from a university is a startup in which scientific know-how flows directly into the business model and the business idea is derived directly from studies and research.
- Innovative company: Innovative companies are companies whose business model is based on research and development.
- Unicorn: Startup company with a value of more than $1 billion.

High Tech Gruenderfonds investment criteria (Source mentioned as implicit definition in survey results as non-legal, operational definitions in use in Germany)

- Early stage startup can be seen as a high-tech startup that is active in digital tech, industrial tech, the life sciences, chemicals or related fields, is no more than three years old (entry in commercial register or equivalent), is headquartered in Germany or – in the case of startups from other European countries – has a German base of operations.

DeepTech & Climate Fonds Investment Guidelines (source mentioned as implicit definition in survey results as non-legal, operational definitions in use in Germany)

- Deep-tech companies are technology companies whose business models are characterised by a longer development cycle and high financial requirements, aim at delivering a high degree of innovation and have disruptive potential.

Business dynamics in the Knowledge Economy in Germany 2020

- Technology-oriented startups are roughly defined in this paper based on the affiliation of new enterprises to one of the branches of the so-called knowledge economy (research-intensive industry, knowledge-intensive services), assuming that startups in these sectors introduce new products or services to the market at an above-average rate.

Most relevant indicators

Deutscher Startup Monitor 2022 (the report is based on survey results of around 2000 participants)

Average age	Growth stage	City of activity	Number of employees
Share of startups with external sources funding	Economic sector of activity and business model	Clients: B2B, B2C or B2G.	Share of women (founders or employees)
Presence of public sector client or not	Size of the team	Background founder: age, gender, nationality, migration background	Study background of founding team (economics, tech, mixed)

Female Founders Monitor FFM (the report is based primarily on survey results from the Deutscher Startup Monitor 2019)

Founders' gender	University degrees of founders by gender	High priority entrepreneurial goals by gender of founders	Size of the founding team
No of employees divided by female and male teams	Startup business models by female and male teams	Capital raised to date by female and male founders	Preferred sources of funding by female and male teams

GREECE

Definitions

Smart Manufacturing (source mentioned in survey results as non-legal, operational definition in use in Greece)[318]

- An enterprise is defined as innovative
  - When it can prove, through an evaluation carried out by an external expert, that in the near future it will develop products, services or processes that are new or substantially improved in relation to the state-of-the-art in the relevant industry and involve a risk of technological or industrial failure;
  - Research and development expenses represent at least 10% of its total operating expenses, in at least one of the last three years, or, in the case of an enterprise that is in the startup phase and does not have a financial constrain, in the control of the current tax year, as certified by an external auditor.
  - An enterprise that can demonstrate through an evaluation, carried out by an external expert, that it implements or may implement in the near future non-technological business innovation (see above) can be an innovative enterprise.

Law 4864, φεκ 237/A/2.12.2021 (Source mentioned in survey results as part of Greek legal system)

- Spin-offs have as their object the commercial exploitation of research results and knowledge and are established in the case of university institutions by university professors, or by members of research staff who produced the research results or knowledge, with potential involvement of the same university institution or third-party legal or natural persons; in the case of Research Centres, by the researchers or research staff members who produced the research results or knowledge, with the potential participation of the Research Centre or third parties legal or natural persons.

EquiFund eligibility criteria

- Stages of growth:
  - The innovation window: Targets entrepreneurs with a concept or idea that warrants development or researchers who believe their project will yield results.
  - The early-stage window: Targets startup founders who foresee a high growth potential for their business.
  - The growth stage window: Targets existing business owners who see potential in scaling up their companies.

Elevate Greece (Greek Law: ΦΕΚ 5587/β/18.12.2020, source mentioned in survey results as part of Greek legal system)

- The National Register of New Businesses is the official register of startup businesses in Greece.
- Registration requirements: business does not exceed eight years of operation before the date of submission of the application for inclusion in the Registry; has fewer than 250 employees; the annual turnover does not exceed €50 million; is headquartered on Greek Territory, or maintains a subsidiary company or branch in Greece.
- Scale-up: the register includes investigation of whether the business model and/or technology allows rapid scaling of sales volume in a global market. The company's main product/service must be standardised and not consulting/research services or custom manufacturing.
- Innovative company: There is technological innovation in the product/service and/or there is an innovative business model based on recent (new) technology. At the same time, there are few competitors (relevant startups or very few large ones). The term "competitors" refers to companies that propose solutions with similar advantages and not generally those that target the same market. Enterprises whose main activity is research with the aim of producing intellectual property with the aim of commercial exploitation ("knowledge-intensive" enterprises) are also characterised as innovative.

Survey of Greek SMEs: IT clusters and tech startups (National Bank of Greece NBG)

- Unicorns: startups with valuation over €1 billion.
- Business size (annual turnover): small = €0-1 million, medium = €1-10 million, large = €10-50 million, and very large = >€50 million.

Most relevant indicators

Survey of Greek SMEs: IT clusters and tech startups (National Bank of Greece NBG) (study by the National Bank of Greece based on a Survey of a total of 1160 interviews conducted)

Confidence indicator (Index between increase, stability or decrease of activity)	Private Equity Financing (VC and business angels)	No of startup enterprises pro capita	Headquarters' relocation abroad (during 6-month period after the imposition of capital controls)
Positive demand prospects	R&D expenditures as % of turnover	Startup creation: determining factors	Use of digital tools (none, individual tools, integrated digital system)
IT sector segmentation (startups and clusters as % of sales and % of enterprises)	% of startups filing a patent	Average valuation of startups	No of unicorns
Total value of startups	Innovative products evaluation (strong, moderate, weak)	Startup development: determining factors	% of SMEs planning on getting VC funding in the future

HUNGARY

Definitions

Government decree 331/2017 (source mentioned by survey results as legal definition in use in Hungary)

- Startup: company not older than 3 years, with net turnover of less than 100 million HUF (€260 000), with a minimum of two and a maximum of 20 employees, which has not received VC investment, has no equity in other companies, and operates as an innovative company according to the Innovation Law.

Hungarian Startup Report 2021

- In order to respond to the survey on startups it is necessary that a company:
  - be creating new technological solutions OR
  - be applying new technologies to create products or services that can be attributed to one of the following areas: A. IT/ICT; B. energy technologies; C. industrial technologies; D. material technologies (including nanotechnology); E. biomedical technologies OR
  - has a scalable business model.
- There was no limit on the number of years on the market that a given company needed to reach to respond. Startups in this report are divided in two categories:
  1. "champions" are startups that: have average monthly revenue over of €80 000 in the last 6 months, and have been growing at an average of 5% or more per month in the last 6 months, or have a well-known international VC backing them.
  2. "pretenders" are startups that: are over 3 years old (started in 2018 or earlier), have not yet reached product-market fit, and have no regular revenue or only an average monthly revenue of under €10 000.

Central and Eastern European Startups

- Startups are defined as companies designed to grow fast. Generally, such companies are VC-investable businesses. Sometimes they can become very big (e.g. $1 billion or more valuation).
- When startups are successful, they develop into scale-ups (>50 people), grown-ups (>500 people) and result in big companies.
- Unicorns are defined as (former) startups that reached US$ 1 billion valuation or exit at one point in time.

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Most relevant indicators

Hungarian Startup Report 2021 (Startup Hungary Survey (212 companies completed the questionnaire))

Number of startups	Legal status	Age of CEO	Female founders
Founder's study	Source of funding	Customers targeted	Foreign employees
Motivation for founding	Deep-tech success rate	Monthly revenue	Biggest barriers
Number or rounds	% sales from abroad	Number employees	Foreign employees

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

IRELAND

Definitions

Enterprise Ireland Supports for High Potential Start-Ups (HPSUs)
Enterprise Ireland supports High Potential Startup (HPSU) companies. HPSUs are startup businesses with the potential to develop an innovative product or service for sale on international markets and the potential to create 10 jobs and €1 million in sales within three years of starting up.

Access to Finance 2014
Among SMEs, there is a category identified as "high-potential startup" when the company was established between 2010 and 2014 and experienced an employment increase of at least 20% every year over that period.

ITALY

Definitions

Statistical indicators in the Report on structural data on innovative startups (first trimester 2022)

- Innovative startups are limited companies not older than five years with an annual turnover of no more than €5 million, not listed on the stock exchange, with some of the indicators related to technological innovation listed in the national legislation.
- Women-led startup or startups with women:
  - Women-led if >50% of governance and shareholders are women.
  - There is at least one woman governance on the board of directors or with a shareholding in the company.
- Young people-led startup or startup with young people:
  - Young people-led if >50% of the governance and shareholders are under 35.
  - There is at least one young person on governance or with a shareholding in the company.
- Foreign-led startup or startup with a foreigner:
  - Foreign-led if >50% of the governance and shareholders are foreigners.
  - There is at least one foreigner on the governance or with a shareholding in the company.

Tech Scaleup Italy

- Categories of Tech Companies: "Start-up" <$1 million funding raised; "Scale-up" >$1 million funding raised; "Scaler" >$100 million funding raised; "Super Scaler" >$1 billion funding raised.

Decree-Law no 179/2012 (definitions mentioned by the survey results as part of Italy's legal system)

- Startup/innovative startup company: The legislation in support of innovative startups does not apply to all newly established enterprises, but only to those that present a clear character of technological innovation. Besides this distinction, no industry-specific restriction has been made: the legislation is potentially applicable to companies operating in any economic sector, from digital to manufacturing, from trade to agriculture.
- Definition of innovative startup: any company with share capital (i.e. limited companies, "società di capitali"), including cooperatives, whose capital shares – or equivalent – are neither listed on a regulated market nor on a multilateral negotiation system. These enterprises must also comply with the following requirements:
- be newly incorporated or have been operational for less than five years (and in any case, not before 18 December 2012);
- have their headquarters in Italy or in another EU country, but with at least a production site branch in Italy;
- Have a yearly turnover lower than €5 million;
- Do not distribute profits;
- have as its exclusive or prevalent company object – as stated in the deeds of incorporation – the production, development and commercialisation of innovative goods or services of high technological value that are not the result of a merger, split or selling-off of a company or branch;
- The innovative character of the enterprises is identified by at least one of the following criteria:
  - at least 15% of the company's expenses can be attributed to R&D activities;
  - at least 1/3 of the total workforce are PhD students, the holders of a PhD or researchers; or, alternatively, 2/3 of the total workforce must hold a Master's degree;
  - the enterprise is the holder, depositary or licensee of a registered patent (industrial property), or the owner and author of a registered software.

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Most relevant indicators

Statistical indicators of the Report on structural data on innovative startups (first trimester 2022) (the report makes use of official statistical data)

Number of innovative startups	Share capital of innovative startups	Dimension of innovative startups	Share of innovative startups from new limited companies
Innovative startups per sector (such as agriculture, buildings, B2B, insurance…)	Number of innovative startups which are women-led, with women, young people-led, with young people, foreign-led, with foreigners.	Share of innovative startups in profit, with losses with total value of production	Geographic density
Number of employees	Number of partners	Value of production	Geographic distribution

LATVIA

Definitions

Law on Aid for the Activities of Startup Companies (source mentioned in survey results as part of Latvia's legal system)

- Startup ecosystem can be seen in the sense of aid programmes, a set of State aid measures that promote the development and research of an innovative product.
- Startup company – a capital company with a high growth potential the basic activity of which is related to the development, production or improvement of scalable business models and innovative products.
- Innovative company – a company with a high added, inter alia technological, value, which ensures development of a specific new product or service, or a significant improvement of the existing product or service.
- Early stage startup can be seen as early stage VC investment – an investment that is made in the equity capital of a capital company during the first five years since the registration thereof in the Commercial Register and which may also include capital share premium or can materialise in the form of a loan the terms of issue whereof are more favourable to the borrower than those according to which such loan would be issued by mutually unrelated merchants and which provides for the right of the lender to convert the non-paid part of the loan into the corresponding number of the equity capital shares (stock) of the capital company (borrower).

Ministry of Economics' Start-up Ecosystem Strategy (source mentioned in survey results as part of Latvia's legal system)

- The Strategy builds upon the startup ecosystem definition present in the Law on Aid for the Activities of Startup Companies presented above, highlighting the importance of the following elements of the Latvian startup ecosystem: startups, community and NGOs, Startin.LV, industry associations, state institutions, co-creation spaces, events such as conferences, hackathons, training courses.

Ministry of Economics Republic of Latvia – Support for start-ups and SMEs / Ministry of Economics – Startup support programmes (sources mentioned in survey results as non-legal, operational definitions in use in Latvia)

- Startup ecosystem: a set of State aid measures that promote the development and research of innovative product.
- Startup: a capital company with high growth potential, the main activity of which is related to the implementation of a scalable business model and the design, production or development of innovative products.
- Early-stage startups: an investment that is made in the equity capital of a capital company during the first five years since registration thereof in the Commercial Register and which may also include capital share premium or can materialise in the form of a loan the terms of issue whereof are more favourable to the borrower than those according to which such loan would be issued by mutually unrelated merchants and which provides for the right of the lender to convert the non-paid part of the loan into the corresponding number of the equity capital shares (stock) of the capital company (borrower).
- Scale-up: a startup becomes a 'scale-up' company if it grows by 20% for at least three consecutive years.
- Deep-tech: deep technology industries, such as materials, smart materials, optics, photonics and lasers, as well as chemicals and metallurgy.
- Spin-off: defines the process by which a company arises from another existing entity. Over time, the new company separates from the company that acted as an incubator. It thus acquires legal, technical and commercial independence.
- Unicorn is a privately held company with a valuation exceeding $1 billion.
- Innovative company: company with a high added, inter alia technological, value, which ensures development of a specific new product or service, or a significant improvement of the existing product or service

Loans for new companies and startups

- Startup support is meant for companies that are not older than five years.

Latvian Startup Database

- Startup: an innovative scalable business with high economic potential incorporated in Latvia. Another important factor taken into consideration is whether the company has received support from investors or other entities, or has participated in startup-focused programmes, such as accelerator programmes, tech sandboxes, business incubators, etc.

Central and Eastern European Startups
See Bulgaria

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

Latvian Startup Database (dataset: Startin.lv Startup Database, supported by the Latvian Ministry of Economics)

Year founded	Founders' names	Sector	Business Model

2020 report Baltic Startup Scene (report from different data sources, including survey, Crunchbase, and previous years' reports)
See Estonia

LITHUANIA

Definitions

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

Lithuanian Law of Small and Medium Enterprises (source mentioned in survey results)

- Startup: a micro or small enterprise with a high and innovation-based business development potential, registered in the Register of Legal Entities for a maximum of five years.

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

Startup Lithuania Startups database (data from Startup Lithuania)

Name	Amount of taxes paid	Salary	Employees
Investments	Revenues	Export	

2020 report Baltic Startup Scene (report using various data sources, such as microdata and survey results)

Number of startups in Estonia, Latvia and Lithuania	Respondents' place of residence and nationality	Age of startup	Positive or negative outlook
Investment per capita	Share of hybrid work	No of employees	Focus of the startup
Funding per capita	Positive vs. negative impact on startups of COVID	% of startups with at least one woman in the founding team	Where startups seek investment
Number of rounds per stage and country	Share of rounds and capital invested by stage	What founders studied	Diverse teams (at least one woman on the founding team)
Number of pre-seed and seed rounds by country	Number of rounds by funding type	Founders with international education	Founder origin

The Lithuanian startup ecosystem 2021 (report using Dealroom microdata)

Valuation of Lithuania tech companies	VC funding in Lithuania startups	Combined enterprise value of Baltic startups by launch year	Combined VC investment in Baltic startups
VC investment (2015-2021)	VC investment in Lithuanian startups	VC funding in Lithuanian startups by investor source	Total VC funding by sector (2015-2021)

LUXEMBOURG

Definitions

Luxembourg Startup Ecosystem Tracker

- Startups: young companies, less than 10 years old, which have been established in Luxembourg and have significant growth potential and international ambitions. They use new technologies to provide innovative solutions, services or business models.

State aid law 2017 (source mentioned in survey results as part of Luxembourg's legal system)

- An Innovative Enterprise shall be an undertaking that:
  - Can demonstrate, by means of an evaluation carried out by an external expert that it will in the foreseeable future develop products, services or processes which are new or substantially improved compared to the state of the art in its industry, and which carry a risk of technological or industrial failure.
  - or
  - the research and development costs of which represent at least 10 % of its total operating costs in at least one of the three years preceding the granting of the aid or, in the case of a startup enterprise without any financial history, in the audit of its current fiscal period, as certified by an external auditor.

Eligibility criteria for startup funding opportunities:

- Fit-4-start (source mentioned in survey results): the startup accelerator targets digital/data-driven ventures with innovative technologies at the core of their business: the internet of things, blockchain, big data, artificial intelligence, machine learning, robotics, cyber, telecom, open-source technology and/or emerging technologies. In particular: small enterprises (according to the European Commission's definition), not older than five years.
- Young Innovative Enterprise: Having successfully introduced a value proposition to the market, generated solid first traction and demonstrated high expansion potential.
- Financial aid for young innovative enterprises: The financial aid is intended for private enterprises and research organisations established in Luxembourg that meet all the following conditions:
  1. Being an unlisted company or private research organisation that: has not taken over the activity from another business; was registered no more than five years ago; has not yet distributed profits; was not formed through a merger.
  2. Being an innovative enterprise: capable of demonstrating, by means of an assessment conducted by an external expert, that, in the foreseeable future, it will develop new or substantially improved products, services or processes compared to the existing state of the art in the sector in question, and which represent a risk of technological or industrial failure; whose R&D expenses represent at least 10 % of the total operating costs during a period of at least one of the last 3 years or in the current fiscal year for young enterprises or private research organisations with no financial history.
- BeNeLux Catalyst (country contribution to the survey): Startup selection criteria: must have a demonstrated, scalable model; must have intentions to expand to the USA (looking to incorporate within one year); member of founding/leadership team must be able to commit to joining 80% of the programme; must have achieved traction and revenues in home market; must have a devoted and talented team, and committed founder.
- Catapult Kickstarter (country contribution to the survey): Selected companies will have, at least, a demonstrable Minimum Viable Product ("MVP") and will likely be in the pre-seed to seed stage of funding. Companies must comply with the European definition of a Small Enterprise and shall have been incorporated within the last five years at the date of granting the subsidy. Companies submit all necessary information to the Luxembourg House of Financial Technology (LHoFT) in order to assess the viability of the project, company, background of owners and key shareholders to limit the risks of non-compliance or doubtful application of the programme. Companies must agree and shall provide on-going performance metrics and business status for a period of three years post programme completion to the LHoFT for the purpose of programme evaluation. The selected companies must guarantee that a founding team member, typically the CEO, will attend the Catapult Kickstarter programme for the duration of the two weeks.

Most relevant indicators

Startup Luxembourg Directory (data from the Startup Luxembourg Directory)

Maturity stage	Targeted markets	Funding startup is looking for	Key technologies and solutions

Luxembourg Startup Ecosystem Tracker (data from Luxinnovation)

Startup by technology	Incorporation date of current startups	Main application sector

MALTA

Definitions

Survey Results Council of the EU (definitions mentioned as non-legal, operational definitions in use in Malta)

- Startup: Definition from GBER (EU law) is used
- Spin-off: An idea being commercialised that originated from an academic entity
- Innovative company: An Innovative Enterprise shall be an undertaking that:
  - can demonstrate, by means of an evaluation carried out by an external expert, that it will in the foreseeable future develop products, services or processes which are new or substantially improved compared to the state of the art in its industry, and which carry a risk of technological or industrial failure.

– or

  - the research and development costs of which represent at least 10 % of its total operating costs in at least one of the three years preceding the granting of the aid or, in the case of a startup enterprise without any financial history, in the audit of its current fiscal period, as certified by an external auditor.

Kick Start 2021 – Support for Start-up

- Startup eligible: Companies registered at Malta Enterprise for no more than 60 months, engaging with innovation.

Business Start 2021: Eligibility criteria

- A Startup Undertaking shall be any unlisted small enterprise up to five years following its registration which fulfils the following conditions:
  - it has not taken over the activity of another enterprise;
  - it has not yet distributed profits;
  - it has not been formed through a merger.

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NETHERLANDS

Definitions

Netherlands Startup Employment 2021 (Dealroom)
Three company types:

- Startups: Companies designed to grow fast. VC-backable business model. Less than 50 people.
- Scale-ups: Former startups. 50-500 people globally.
- Grown-ups: Former startups & scale-ups. More than 500 people globally.

Spin-offs in the Netherlands

- Spin-off: individuals or groups of individuals leaving 'parent' firms to startup new, independent businesses. The startup occurs on the basis of specific knowledge and competences built up within the parent firms. The parent firms support the spin-offs by allowing the transfer of knowledge, competences and/or direct means.

Netherlands Startup Employment 2022

- Tech ecosystem: In this report, the term "tech ecosystem" refers to all startups, scale-ups and grown-ups headquartered in the Netherlands.

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Eligibility criteria for startup funding opportunities:

- Innovatiekrediet (IK): requirements among others are that business must be incorporated in the Netherlands; project must be innovative and lead to a marketable product, process or service within five years; project must contribute to the Dutch economy.
- Vroegefasefinanciering (VFF): 1) Being SMEs; innovative starters (younger than five years); academic starters (economic activities coming directly from university research). 2) Having a plan to grow substantially.
- WBSO tax credit benefits for start-ups: To determine whether an enterprise should be designated as a startup, the following criteria are considered: enterprise has had salaried employees for less than five years, or the beneficiary should have been an entrepreneur for less than five years; enterprise has been issued R&D Declarations for less than three calendar years. Whether the company is continuing the activities of another company is taken into account.
- Seed Capital Regeling: being younger than seven years, being an SME, producing innovation or being part of the creative sectors. Sector-specific definitions:
- Techno startups: enterprise based on new technical discovery or application of an existing technology.
- Creative startups: enterprise based on a new creative invention or a new application of an existing creative invention (such as: fashion design, advertising, film)
- e-health techno startup: undertaking selling products, processes or services based on a new technical or creative invention or a new application of existing technology or an existing creative invention, including in the field of ICT to support or improve health and health care, and contribute to patient self-government, self-reliance or self-care.

Most relevant indicators

Netherlands Startup Employment 2021 (Dealroom data used)

Number of startups	Combined enterprise value	Employees per company type, average age and average employees per company type.	Startup density per million inhabitants
Number of jobs at startups	Startup investment per million inhabitants	Job growth by sector and average team size by sector.	Growth by province

Spin-offs in the Netherlands (study on spin-off companies in the Netherlands)

Estimated number and share of spin-offs in the population of SMEs	Sector distribution spin-offs and SMEs	Size-class distribution of spin-offs and SMEs	Age distribution of spin-offs and SMEs
Type of support received at the startup phase	Knowledge transmitted from former employer to spin-off	Type of ongoing support from the parent firm	Current relationship of the spin-off with the parent firm
Attitude of parent firm towards supporting spin-offs in the future	Motives of spin-off entrepreneurs for starting a firm	Motives of spin-off entrepreneurs to start a firm	Sales growth

Netherlands Startup Employment 2022 (Dealroom data used)

Employees by company type	Number of jobs generated	Jobs created since 2018	Foreign startups & tech companies with a presence in the Netherlands
Startup jobs at impact startups	Jobs created by foreign impact unicorns	VC investment in the Netherlands	VC investment
Startup jobs by SDG	Startup jobs by industry	Average team size per growth stage and company launch year in the Netherlands	Percentage of startup jobs at impact startups by province.

POLAND

Definitions

National Centre for Research and Development (sources mentioned in survey results as non-legal, operational definitions in use in Poland)

- Startup ecosystem: An ecosystem is considered to be a system of entities striving to produce new products and services under conditions of high uncertainty, using available resources operating in a specific regulatory environment.
- Startup: A young company (including technology), an entrepreneur and/or a business venture with a short history of activity and high risk, striving to optimise the business model through ongoing implementations, excluding long-term research and prototyping phases. A startup may, in particular, take the form of a capital company or a team of people planning to establish such a company.
- Startup: A startup company from the modern technology industry in the early stages of development looking for capital for business development.
- Deep-tech: A breakthrough solution, difficult to reproduce, requiring a lot of time and resources, addressing complex scientific-technological challenges or systemic problems (such as climate change).
- A spin-off company: A new entrepreneur, usually operating in the form of a capital company (limited liability company or joint-stock company), established by at least one employee of a scientific unit or a student or graduate of a university, in order to commercialise scientific research or development work. This entity is usually neither personally nor financially related to the scientific unit; however, cooperation between them is most often established on market terms.

Poland.Business Harbour

- From eligibility criteria for startups: this activity targets individuals who have ideas for innovative products or services in Eastern Poland. The six Startup Platforms create a product or service based on a professionally developed and verified business model.

Polish Development Fund (sources mentioned in survey results as non-legal, operational definitions in use in Poland)

- Startup ecosystem: Startup and spin-off enterprises at various stages of development and a team of business environment institutions and public institutions that regulate or support the construction of enterprises and education in the field of entrepreneurship.
- Startup: A newly created enterprise (operating up to 10 years), or a temporary organisation looking for a business model that would ensure its profitable development. The solution proposed by the startup is innovative or created in the field of modern technologies and has the potential for rapid development – potentially international. A company ceases to be a startup after a merger, acquisition or going public.
- Early stage startup: A startup before round A, which validates the value of its product and is either still before launching it on the market or has only the first customers.
- Deep-tech: Enterprise that solves a complex technological, engineering or scientific challenge that is difficult to replicate. It does not copy existing solutions. In a social and business context, deep tech has the potential to make a significant difference. Therefore, their solutions require a lot of capital, and their market launch takes time. Therefore, the introduction of a deep tech solution is characterised by high risk.
- Spin-off: A company separated from a scientific unit, which aims to commercialise a technology or solution created thanks to scientific research and transfer knowledge to the market (the definition applies to a scientific spin-off, not a corporate one).
- Innovative company: An enterprise that creates a new or significantly improved product (good or service) or process, uses new marketing methods or new organisational methods in business practice, workplace organisation or relations with the environment.
- Unicorn: A startup valued at least USD 1 billion.
- Women-led venture: A company whose founders are women and at least 50% of women occupy top management positions

Central and Eastern European Startups *See Bulgaria*

Survey Results Council of the EU (definitions mentioned as non-legal, operational definitions in use in Poland)

- Early stage startup: Early stage (early growth phase, product-market fit). In the early phase, the startup focuses on developing a solution that will respond to the needs of the target group to which the product is addressed. This is the stage where founders work closely with users to find out how they can improve the product. The main goal in this phase of development is to refine the Minimum Viable Product, i.e. a product that will satisfy the most urgent needs of customers, but will not yet be a complete solution. Typically, at this stage, startups already have a team, define a business model, and actively seek VC funding. An alternative way to obtain funding at this stage is crowdfunding.
- Innovative Company: A company that knows how to create, absorb and sell new products/services, and is also characterised by the ability to constantly adapt to changes in its environment. Out of concern for development, an innovative company cares about high creativity and gaining technological leadership. The general qualifying criteria to assess the level of innovation of the company are: research and development activities, registered and transferred patents and trademarks, development cooperation, expenditure on training and their time.
- Unicorn: Innovative startup valued at $1 billion. Colloquially a unicorn is also an innovative startup that is successful on the local market.
- Women-led VC: Women-led VC – a VC company of which at least 51% is owned by at least one woman and of which 51% of control and management (at the strategic and operational level) are in the hands of at least one woman.

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Most relevant indicators

Polish Startup Report 2021 (Survey results, sample of 229 people)

Years of activity	Geographic area	Age of founders	Gender of founder
Business model	Type of customer	Value of transactions	Sources of capital
Revenues generated	Startups with intellectual property	Number of employees	VC Investments

PORTUGAL

Definitions

Survey Results Council of the EU (definitions mentioned as non-legal, operational definitions in use in Portugal)

- Startup ecosystem: Startups, entrepreneurs, investors, corporations, policy, regulations and incentives, public institutions, enablers, knowledge and talent creators, and the government.
- Startup: Company for less than 10 years, with a digital-based idea that can be escalated.
- Early stage startup: A Startup with a VC fund to develop the idea and prove the value proposition.
- Scale-up: A startup with a validated value proposition, VC funded and on a course of exponential growth.
- Deep-tech: Solutions created with the express objective of providing technology solutions based on substantial scientific or engineering challenges.
- Spin-off: A startup firstly born from a department/area within another company or university.
- Innovative company: A company that has innovation recognised by ANI.
- Unicorn: A company valued at more than €1 billion.
- Women-led venture: A company with a woman in its leadership.

Start-up Law (***presented, not approved at the time of this research***)

- The Portuguese startup law (which had already been published but had still to be approved at the time of researching this report) will consider a company to be a startup if it has less than 10 years of activity, fewer than 250 employees, turnover lower than €50 million, is headquartered in Portugal or at least 25 employees, and has concluded a round of risk capital raising with success.

Startup & Entrepreneurial Ecosystem Report 2021

- Startup ecosystem: a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g. firms, venture capitalists, business angels and banks), institutions (incubators and accelerators, universities, public sector agencies, and financial bodies), and entrepreneurial processes which formally and informally coalesce to connect, mediate and govern the performance within the local entrepreneurial or startup community environment.
- Startup: a young company or project launched by a group of entrepreneurs to create, develop, and/or validate a scalable and repeatable economic model, typically in the form of an innovative product and business model and/or a new market segment. Given its nature and associated uncertainty and risk profile, a specific management framework is usually used to optimise an unfavourable risk-reward ratio, seeking to maximise success probabilities and attain exponential growth through the use of technology.
- Scale-up: The following stage in the life of a startup, after having achieved the elusive product-market fit and with recognisable traction. It is usually defined as a development-stage business that is growing its market access, revenue and its number of employees. As with any capital-intensive company, the financing goal for a scale-up is to reward its shareholders, by being acquired either via an M&A, via an IPO or shelling out significant dividends as it becomes profitable.
- Pre-seed: Companies that are formally set up or are in the process of doing so, but are at a very early stage in development. They typically start by researching, assessing or developing an initial idea or concept before reaching the formal startup process and launching an MVP (Minimum Viable Product). Companies at this stage typically incur cost only and do not generate revenues, though most receive and investment (from own resources or external funders). There is minimal need for interaction with the tax authority, aside from loss relief and payroll taxes. Selling equity stakes implies capital gains taxation for investors, whilst funding this high-risk, early growth.
- Early stage and seed: Companies that have developed a product or service but have not yet achieved breakeven and are still in the process of refining their product/offering and finding their market fit. Companies at this stage typically incur a higher level of cost. They usually receive investments (from their own resources or external funders). There is standard interaction with the tax authorities, including applicable indirect taxes, payroll taxes, and loss relief. Some jurisdictions offer small companies simplified tax systems based on turnover rather than profit. Selling equity stakes implies capital gains taxation for investors whilst funding this lesser-risk, more mature growth.
- Growth / Scale-up: Companies with the scope to scale up and internationalise their activities, having found significant and scalable traction. Companies at this stage may be liable for personal or corporate income taxes on profits, as well as indirect and payroll taxes. Selling equity stakes implies capital gains taxation for investors, whilst funding this much lower risk, mature growth. Additionally traditional funding methods such as loans and venture debt become available, as revenues stabilise.
- Business angel: private individuals, often with a high net-worth, and usually with business experience, who directly invest part of their assets in new and growing private businesses. Business angels can invest individually or as part of a syndicate where one angel typically takes the lead role.
- Incubators: are public and private organisations that offer structured or customised, relatively long-term, support to early-stage startups
- Accelerators: are public and private organisations that provide an intense, structured short-term programme to induce startups' rapid progression.

Scaleup Portugal 2021 (top 25 scale-ups)

- An emerging venture: Any company founded in Portugal operating for less than or equal to five years.

Most relevant indicators

Startup & Entrepreneurial Ecosystem Report 2021 (report using microdata)

Ecosystem as % of country GDP	Distribution of startups per development stage	% growth of startup per capita	People employed on average
Number of unicorns	Split by region	Startup split by industry	Scale-up business model
B2B business model	Number of incubators		

ROMANIA

Definitions

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

Start-up nation 2022
The programme supports small startups viable for at least two years after the first year when they have been funded and creating at least one job

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

EY 2020 Romanian Tech Startups Ecosystem (main sources used: Dealroom.co, crunchbase, Press Releases)

Amount of investment per startup	Number of rounds	Total funding in 2020	Average funding round
All-time total investments in the ecosystem	Sector of investment	Rounds per month and amount per month	Valuation of startups that raised funds in 2020

SLOVAK REPUBLIC

Definitions

National technology transfer portal (Source mentioned in survey results as non-legal, operational definition in use in the Slovak Republic)

- Spin-off: A business legal entity established for the purpose of using and developing the intellectual property of the university up to the form of a product or service applicable on the market. Intellectual property (mostly the result of research) is provided to the company through a licence agreement or sale. The university may or may not own a property share in the spin-off; the company, on the other hand, may agree with the university on the use of its laboratories or the provision of services. The originators of the relevant intellectual property usually also participate in the company's activities.

Slovak Ministry of Economy support schemes (definition was identified by survey results as an operational definition used in the Slovak Republic only for the purpose of the support scheme of the Ministry of Economy, otherwise not widely used in the Slovak Republic)

- Startup: Commercial companies compulsorily creating share capital, with their registered office in the Slovak Republic, where no more than 36 months have passed since their establishment and which are controlled by natural persons who are their founders and are an innovative enterprise (Art. 2 par. 80 of Regulation (EU) No. 651/2014), a micro-enterprise, a small enterprise or a medium-sized enterprise.[319]

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

Slovak Startup Report 2016 (Survey of 47 Slovak startups)

Age of startups	Share of women founders and women employees	Highest level of education attained by founders of startups	Region of registration of the company
Year of registration	Offer of the startup	Industry of operation	Target customers
Sources of financial support	Employees per gender, divided by founders, employees and interns	Primary market	Presence of registered trademarks or patents

SLOVENIA

Definitions

Article 31(3) of the Investment Promotion Act (Official Gazette of the Republic of Slovenia, No 13/18, 204/21 and 29/22) , Art. 31 (source mentioned in survey results as part of Slovenia's legal system)

- An innovative startup company is an independent economic company that develops or markets an innovative product, service or business model with high potential. Furthermore, the company needs to fulfil a series of other criteria, among which: being organised as capital company and not less than one month and no more than 5 years have passed since it was registered into the Business Registry of Slovenia.

Republic of Slovenia, Statistical office (source mentioned in survey results as non-legal, operational definition in use in Slovenia)

- Scale-up: a high-growth enterprise is an enterprise with average annual growth higher than 10% over a three-year period that has at least 10 employees in the first year of monitoring of three-year growth of employees. Growth is measured by the number of employees. The year of observation is the last year of monitoring of three-year growth. Enterprises whose number of employees increased because of a merger are set aside.

Startup programme: P2 (source mentioned in survey results as non-legal, operational definition in use in Slovenia)

Startup: newly established enterprises organised as a limited liability company (d.o.o.), sole proprietor (s.p.) or cooperative. Eligibility criteria for beneficiaries:

- micro and small enterprises
- registered in Slovenia
- registered as a limited liability company, sole proprietor (s.p.) or cooperative
- not having a registered main activity in an excluded sector
- relevant date of registration (for 2020, enterprises registered between 1 January 2020 and 15 March 2021)
- at least one employee at the time of signing the funding contract.

Startup programme: SK75 (source mentioned in survey results as non-legal, operational definition in use in Slovenia)

Startup: enterprises up to five years old organised as a limited liability company (d.o.o.). Eligibility criteria for beneficiaries:

- micro and small enterprises
- registered in Slovenia (headquarters in Slovenia)
- registered as a limited liability company
- not having a registered main activity in an excluded sector
- age of enterprise from one to five years
- at least one shareholder, employed full-time.
- completed development of a product/service that has already been tested by the first customers
- own development or innovative business model
- first revenue from sales of the product/service
- the enterprise may not be in difficulty
- the enterprise must show closed financial structure in its application

Startup programme: SI-SK (source mentioned in survey results as non-legal, operational definition in use in Slovenia)

Startup: enterprises up to five years old organised as a limited liability company (d.o.o.). Eligibility criteria for beneficiaries:

- having acquired an investment by an independent private investor (business angels, VC funds, corporations) can apply
- having an agreement between the shareholders and the Slovene Enterprise Fund as co-owner of the enterprise
- having its own development or innovative business model
- having potential for growth and development of the enterprise
- having already generated revenues from activities
- having at least one shareholder, employed full-time
- headquartered in the Republic of Slovenia
- not in difficulty
- not having a registered main activity in an excluded sector
- able to show a closed financial structure in the application.

Most relevant indicators

Central and Eastern European Startups (report analysing several Central and Eastern European Countries based on Dealroom.co data)
See Bulgaria

SPAIN

Definitions

Ley de Startups

- Startups: Companies of no more than five years of age (seven years for biotechnology, energy, industry, or others that have developed technology produced exclusively in Spain), independent of other companies, not on any stock market. They need to be innovative companies, and never have distributed profits, and have an annual turnover below €5 million.

Investment Trends in Spain Annual Report 2021

- Future unicorn: future unicorn is a company valued at €200-800 million that has raised investment in the last five years.

Young Entrepreneurs funding opportunity

- A PME (as defined in EU law) constituted up to two years before the application, live in Spain, and a project with an innovative business plan with competitive advantages.

Growth Funding opportunity

- A PME (as defined in EU law) constituted up to two years before the application, live in Spain, and a project with an innovative business plan with competitive advantages.

Neotec project funding opportunity

- Constituted a maximum of three years before the application; innovative; minimum capital of €20 000.

Rising UP in Spain funding opportunity

- Any foreign startup that wishes to establish itself in Spain and that demonstrates a high capacity for growth and is linked to disruptive technological developments that are scalable with high innovative content. Applications are accepted from foreign startups that have established themselves in Spain in the six months prior to the application, or any foreigner who wish to establish a startup in Spain. Indicators used for evaluation: Level of technological innovation proposed; project scalability; management team, experience and dedication to the project, project economic viability

Most relevant indicators

Spanish Tech Ecosystem (Dealroom report)

Year-on-year change in investment volume	Growth per stage (Seed & Pre-seed, Series A, Series B, Series C, Growth Series, Undisclosed)	Investment per funding source (VC, Corporate, Crowdunding)	Investment per Industry
Foreign investment activity	Investment per location		

Investment Trends in Spain Annual Report 2021 (report based on microdata from different sources)

Combined enterprise value of the Spanish ecosystem	Combined enterprise value by European hub	VC funding per capita in 2021	VC funding per capita in 2016-2021
USD 1 billion+ tech companies	Series A+ scale-ups	Pre-funded & seed startups	Number of potential future unicorns
VC investment in Spain	Total VC investment Spanish hub		

Sweden

Definitions

Scale-ups in the Nordics 2020
See Denmark

Nordic Impact Startups 2021
See Denmark

Innovative Impact Startups autumn 2022

- Conditions for participation of startups: small, newly started limited companies that are younger than five years, have an annual turnover of less than SEK 2 million and have not distributed profits. The company´s business idea is to contribute to solving a global societal challenge.

Sweden Tech Ecosystem: Report 2021

- A future unicorn is a company valued at €200-800 million that has raised investment in the last five years.
- A unicorn is defined as a rapidly scaling (and tech-enabled) company that has reached a $1 billion valuation, on the basis of a funding round (unrealised), acquisition or IPO (realised).

Statistics Sweden - Statistics on entrepreneurship (source mentioned in survey results as non-legal, operational definition in use in Sweden)

- Innovativeness: selling new or significantly improved products over the previous three years is a rough measure for innovativeness.

Most relevant indicators

Scale-ups in the Nordics 2020 (report covering Denmark, Finland, Iceland, Norway and Sweden using data from national statistical offices)
See Denmark

Nordic Impact Startups 2021 (Report using Dealroom.co data)
See Denmark

Statistics Sweden - Statistics on entrepreneurship (official statistical data from Statistics Sweden)

Share of SMEs developing new goods and services in the last three years	Size of SMEs developing new goods and services in the last three years	Industry of SMEs developing new goods and services in the last three years	County of SMEs developing new goods and services in the last three years
Absolute number of newly established firms	Newly established firms by industry	Newly established firms by county	

ANNEX III: SUMMARY TABLES

The following tables summarises the data collection results from the publicly available literature review and the results of the survey conducted by the study team.

Tables on startups

Table 22 Age element of startup definitions among all sources in analysis

Age		
Age limit	**No of mentions**	**Sources**
12 years	1	Non-legislative source: France[320]
10 years	8	Non-legislative sources: Austria[321], Belgium[322], Estonia[323], Germany[324], Luxembourg[325], Poland[326] *Legislative source*: Portugal[327] International sources: *European Startup Monitor 2019/2021*[328]
8 years	3	Non-legislative sources: France[329], France[330] *Legislative source*: Greece[331]
7 years	3	Non-legislative sources: Austria[332], Cyprus[333] *Legislative source*: Spain (selected sectors)[334]
5 years	**14**	Non-legislative sources: Austria[335], Cyprus[336], Denmark[337], France[338], Germany[339], Slovenia[340] *Legislative sources*: Bulgaria[341], Italy[342], Lithuania[343], Slovenia[344], Spain[345] *EU law*: General Block Exemption Regulation (GBER), Regulation (EU) no 651/2014 EU reports: Annual Report on European SMEs 2020/2021[346] Non-EU sources: Norway[347]
3 years	1	Non-legislative sources: Slovak Republic[348]

Table 23 Revenue element of startup definitions among all sources in analysis

Revenue		
Definition	**No of mentions**	**Sources**
Turnover less than 100 million HFU (€260 000)	1	*Legislative source*: Hungary[349]
Less than EUR 1 million in funds raised	1	Non-legislative sources: Finland[350] (Mind the Bridge reports)
Annual turnover no more than EUR 5 million	**2**	*Legislative sources*: Italy[351], Spain[352]
Annual turnover no more than EUR 50 million	**2**	*Legislative source*: Greece[353], Portugal[354]

Table 24 Number of employees element of startup definitions among all sources in analysis

Number of Employees		
Definition	**No of mentions**	**Sources**
Between 2 and 20	1	*Legislative source*: Hungary[355]
Fewer than 50	1	Non-legislative source: Dealroom reports[356]
Between 25 and 250	1	*Legislative source*: Portugal[357]
Up to 250	**4**	Non-legislative source: France[358] *Legislative source*: Greece[359], Portugal[360] EU reports: Annual Report on European SMEs Report 2020/2021[361]

Tables on scale-ups

Table 25 Growth element of scale-up definitions among all sources in analysis

Growth	
Definition	**Sources**
Medium-sized enterprise growing assets, sales, and profits by over 30% per year	*Legislative source*: Bulgaria[362]
Startup growing for three consecutive years by 20%	Non-legislative source: Latvia[363]
High growth enterprise with an average annual growth higher than 10% over a three year period (excluding enterprises whise number of employees increased due to merger). Growth is measured by number of employees. Year of observation is the last year of monitoring of the three year growth period.	Non-legislative source: Slovenia[364].
Company whose labour taxes paid increase by 20% in three years.	*Legislative source*: Estonia[365]
Startup with employee and revenue growth of 20% minimum for three years	Non-legislative sources: Estonia[366]
Enterprises with average annualised growth in number of employees (FTE) (startup by employment growth), turnover in current prices (scale-ups by turnover growth), or both (scale-ups by turnover and employment) greater than 20% over a three-year period	Non-legislative source: Denmark/Finland/Sweden[367]
Company achieving 20% employment growth in three years	Non-legislative source: Ireland[368]
Companies with an annual revenue growth rate of more than 20% over three years	Non-legislative source: France[369]
Gazelles are enterprises that are up till 5 years old, that have had an average annual growth of at least 20 % over three years, with five or more employees in the beginning of the growth period. The indicator of growth is the number of FTEs.	*Legislative source*: Denmark[370]

Average annualised growth in number of employees greater than 10% per annum, for a period of three years	*EU law:* Commission Implementing Regulation (EU) No 1197/2020[ll] EU reports: Annual Report on European SMEs 2021/2022[371]
Enterprise with an annual growth rate higher than 10% or 20%	European Parliamentary Research Service 2017[372]
Turnover growth higher than 60%, over a period of three years	EU sources: EIB[373]
High-growth enterprises growing in turnover or employment by 10% a year, for a period of three years	EU reports: Annual Report on European SMEs 2018/2019[374]
Annualised growth of at least 20% in employment, revenues or both, over a period of three years	Non-EU sources: Norway[375]
Companies achieving employee growth, revenue growth or both of more than 20% in a year	Non-EU sources: UK[376]
Employment and/or turnover growth of at least 10% yearly, over a period of three years consecutively. If growth reaches 20%, these are high-growth scalers[377].	International source: OECD[378]

Table 26 Other elements of scale-up definitions among all sources in analysis

Other elements	
Element	**Sources**
Startup achieving more than 50 employees	Non-legislative source: Dealroom reports covering separate Member States[379]
Being a medium sized enterprise	*Legislative source*: Bulgaria[380]
Enterprise with 10 or more FTEs and an annual turnover of at least €2 million in the start year of observation	Non-legislative source: Denmark/Finland/Sweden[381]
Enterprises with at least 10 employees in the first year of monitoring of the three year growth period of employees	Non-legislative source: Slovenia[382]
Tech company raising USD 1 million with one funding event in the last eight years	Non-legislative source: Finland[383]
Company older than 10 years, with at least 50 employees, paying at least EUR 1 million in labour taxes the preceding year	*Legislative source*: Estonia[384]
Startup raising at least EUR 1 million with at least 10 employees	Non-legislative source: Estonia[385]

[ll] As explained in section **Error! Reference source not found.**, in case these enterprises are 4 or 5 years old, they can be considered gazelles according to this source.

Companies younger than eight years with at least 10 employees	Non-legislative source: France[386]
Gazelles have at least five employees	*Legislative source*: Denmark[387]
Enterprises with at least 10 employees	*EU law:* Commission Implementing Regulation (EU) n. 1197/2020 *EU reports*: Annual SMEs Report 2018/2019[388]
At least 51 employees	EU-commissioned sources: European Startup Dashboard[389]
At least 10 employees	Non-EU sources: Norway[390] International source: OECD[391]
Up to five years old	EU reports: Annual Report on European SMEs 2018/2019[392]
Maximum age of 10 years from the moment it starts collecting investments and a minimum investment value of EUR 1 million over a period of 10 years	International source: *European Scaleup Monitor*[393]

Tables on women-led ventures

Table 27 Women-led venture definitions among all sources in analysis

Women-led		
Element	**No of mentions**	**Sources**
100% of founders are women	1	International organisation source: GALI[394]
70% of team members are women	1	International organisation source: IFC[395]
65% of owners or top managers are women	1	International organisation source: OECD 2017
50% of:	**5**	
top management (in case of ventures) or ownership/management in case of VC companies) are women		Non-legislative source: Poland[396]
the governance and share-holders are women		Non-legislative source: Italy[397]
Work Package leaders within a Consortium are women		EU source: EIC[398]
Ownership and management team are women		International source: CFA[399]
The firm is managed and controlled by women		International source: UN[400]

40% of partners are women	1	Non-legislative source: Germany[401]
33% of investment team or investment committee are women	1	Non-legislative source: Germany[402]
25% of:	2	
shares owned by women		Non-legislative source: Austria[403]
firm ownership by women		International source: Knight Foundation[404]

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[76] See: Survey of Greek SMEs
[77] See: Tech Scaleup Italy
[78] See: Tech Scaleup Finland
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[87] See: research.org.cy, mentioned by survey results
[88] Survey results, implicitly defined in the Investment Guidelines of the High Tech Gruenderfonds
[89] Survey results.
[90] Definition mentioned by survey results, with reference to Business Demography data by Statistics Denmark and Eurostat – OECD Manual on Business Demography Statistics, which defines new enterprises as those which are active within a certain period of time, but not in the previous one. Statistics on new Danish enterprises are gathered here and include the number of enterprise births, deaths, and survival up till 5 years.
[91] The precise description of this investment, reported by the definition mentioned by survey results, is the following: *"an investment that is made in the equity capital of a capital company during the first five years since the registration thereof in the Commercial Register and which may also include capital share premium or can materialise in the form of a loan the terms of issue whereof are more favourable to the borrower than those according to which such loan would be issued by mutually unrelated merchants and which provides for the right of the lender to convert the non-paid part of the loan into the corresponding number of the equity capital shares (stock) of the capital company (borrower)*". See: Law on Aid for the Activities of Start-up Companies.
[92] See: Legal Acts of the Republic of Latvia, mentioned by survey results
[93] *Startup & Entrepreneurial Ecosystem Report, Portugal 2021*. See: portugaldigital.gov.ptportugaldigital.gov.pt
[94] See: Latvian Startup Database
[95] The Greek National Registry of New Business requirements, mentioned by survey results. See: Elevate Greece. Reference within Greek Law: ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020.
[96] Rijksdienst voor Ondernemend Nederland, WBSO: Fiscale regeling voor research en development. See: rvo.nl
[97] Ibid.
[98] Definition present within the Bulgarian legal system, mentioned by survey results.
[99] EY, France Digitale, *Social and Economic Performance of French Digital Startups*, Barometer 2022. See: Barometer 2022
[100] Directorate General for Enterprises, Internal Work 2022, mentioned by survey results.
[101] See: Austrian Startup Monitor (ASM)
[102] See: L'écosystème des startups numériques et tech en Wallonie See: L'écosystème des startups numériques et tech en Wallonie
[103] See: Estonian Startup Database
[104] See: Deutscher Startup Monitor 2022
[105] See: Luxembourg Startup Ecosystem Tracker
[106] Polish Development fund, mentioned by survey results.
[107] Law proposal presented. See: Sifted

[108] See: L'emploi dans les start-up françaises: this age is referred to one specific population of start-ups, identified as such by the report, the young enterprises.
[109] Bpifrance, mentioned by survey results. This definition refers, in particular, to "*young innovative companies*".
[110] The Greek National Registry of New Business requirements, mentioned by survey results. See: Elevate Greece. Reference within Greek Law: ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020.
[111] See: Austrian Economic Service - Definition of Start-up. Please note that the figure of seven years is given as an alternative to five. In fact, the survey results mention that a start-up is either a company whose foundation dates back a maximum of five years or which has not been commercially active for more than seven years since its first commercial sale.
[112] See: Practical guide for applying to acquire a Certificate of Innovative Enterprise, mentioned by survey results. Please note that the definition refers to so-called "innovative SME".
[113] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published in: BOE núm. 306, de 22/12/2022. See: boe.es
[114] See: Austrian Economic Service - Definition of Start-up, mentioned by survey results.
[115] Survey results.
[116] See: Promoting Start-Ups and Scale-Ups in Denmark's Sector Strongholds and Emerging Industries | en | OECD
[117] See: France Digital Barometer 2022
[118] See: KfW Start-up Report 2021
[119] Eligibility criteria of Slovenian funding opportunity Startup programme: SK75 and Startup programme: SI-SK, mentioned by survey results.
[120] Survey results.
[121] See: Italian Decree-Law n. 179/2012, mentioned by survey results
[122] See: Lithuanian Law of Small and Medium Enterprises, mentioned by survey results
[123] Article 31(3) of the Investment Promotion Act (Official Gazette of the Republic of Slovenia, No 13/18, 204/21 and 29/22), mentioned by survey results. See pisrs.siSee pisrs.si
[124] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[125] Slovak Ministry of Economy support schemes, mentioned by survey results. This definition was identified by survey results as an operational definition used in the Slovak Republic only for the purpose of the support scheme of the Ministry of Economy, otherwise not widely used in the Slovak Republic.
[126] Government decree 331/2017, mentioned by survey results.
[127] Polish Development Fund, mentioned by survey results.
[128] Austrian Startup Monitor 2021. See austrianstartupmonitor.at
[129] Digital and Tech Startup Ecosystem in Wallonia, Digital Wallonia Startups Barometer 2020. See: ctfassets.net
[130] Czech Startups Report 2016. See: aspeninstitutece.org
[131] Bpifrance, , mentioned by survey results.
[132] Startup Strategy of the Federal Government, Germany, , mentioned by survey results.
[133] Tim Goesaert, Tine Vandekerkhove, Omar Mohout & Ludo Struyven, *Omvang en dynamiek van de tewerkstelling bij tech start-ups in België*, *HIVA – Onderzoeksinstituut voor arbeid en samenleving*, 2019. See: dynamstat.be
[134] The following definition is mentioned by survey results: any small enterprise not listed in the stock exchange up to five years after its registration, which (a) has not taken over the activity of another enterprise, (b) has still not distributed profits and (c) has not been incorporated through a merger. For eligible enterprises not subject to registration, the five-year period may be deemed to start from the time that the enterprise either starts its financial activity or becomes liable to pay tax for its financial activity.
[135] Survey results.
[136] National Centre for Research and Development, Poland, mentioned by survey results.
[137] Czech Startups Report 2016. See: aspeninstitutece.org
[138] Tim Goesaert, Tine Vandekerkhove, Omar Mohout & Ludo Struyven, *Omvang en dynamiek van de tewerkstelling bij tech start-ups in België, HIVA – Onderzoeksinstituut voor arbeid en samenleving*, 2019. See: dynamstat.be
[139] Digital and Tech Startup Ecosystem in Wallonia, *Digital Wallonia Startups Barometer 2020*. See: ctfassets.net
[140] Survey results.
[141] Startup Estonia White Paper 2021-2027. See: startupestonia.ee, mentioned by survey results.
[142] Austrian Economic Service, mentioned by survey results.
[143] Government decree 331/2017, Hungary, mentioned by survey results.
[144] See: Tech Scaleup Finland 2018 Report
[145] Italian Decree-Law n. 179/2012. See: mise.gov.it, mentioned by survey results
[146] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[147] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020, mentioned by survey results.
[148] Law proposal presented. See: Sifted
[149] Government decree 331/2017, Hungary, mentioned by survey results.
[150] Dealroom reports using this definition cover several EU Member States. See, for instance: Flanders' Startup Ecosystem 2022
[151] Law proposal presented. See: Sifted
[152] Directorate General for Enterprises, Internal Work 2022, mentioned by survey results.
[153] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020, mentioned by survey results.
[154] Law proposal presented. See: Sifted

[155] Slovak Ministry of Economy support schemes. This definition was identified by survey results as an operational definition used in the Slovak Republic only for the purpose of the support scheme of the Ministry of Economy, otherwise not widely used in the Slovak Republic.
[156] Austrian Economic Service, mentioned by survey results.
[157] Eligibility criteria of Slovenian funding programmes Startup programme: P2, Startup programme: SK75, and Startup programme: SI-SK, mentioned by survey results
[158] National Centre for Research and Development, Poland, mentioned by survey results.
[159] Startup Hungary, *Hungarian Startup Report 2021*, Budapest 2022. See: startuphungary.io
[160] *Czech Startups Report 2016*. See: aspeninstitutece.org
[161] Survey results
[162] Startup Hungary, *Hungarian Startup Report 2021*, Budapest 2022. See: startuphungary.io
[163] National Centre for Research and Development, Poland, mentioned in survey results.
[164] Directorate General for Enterprises, internal work-2022, mentioned by survey results.
[165] Slovak Ministry of Economy support schemes. This definition was identified by survey results as an operational definition used in the Slovak Republic only for the purpose of the support scheme of the Ministry of Economy, otherwise not widely used in the Slovak Republic
[166] Ibid.
[167] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es; Italian Decree-Law n. 179/2012. See: mise.gov.it, mentioned by survey results.
[168] See: Innovative Impact Startups autumn 2022
[169] Techleap.nl, CBRE and Dealroom.co, *Netherlands Startup Employment 2021*, October 2021. See: techleap.nl
[170] See Italian Statistical indicators
[171] Government decree 331/2017, Hungary, mentioned by survey results.
[172] Polish National Centre for Research and Development, mentioned by survey results.
[173] Malta Enterprise, Support Measures and Other services. See: Business Start 2021
[174] Among other examples: Eligibility criteria of the Slovenian Startup programme: P2, funding programme, mentioned by survey results.
[175] + impact, Dealroom.co, Green Innovation Group A/S, *Nordic Impact Startups 2021*, May 2021. See: Dealroom.co
[176] Ibid.
[177] Rijksdienst voor Ondernemend Nederland, Seed Capital, see: Seed Capital RegelingSeed Capital Regeling
[178] See: Italian Statistical indicators
[179] Ibid.
[180] Ibid.
[181] Ibid.
[182] Definition given by survey results as used within the Bulgarian legal system.
[183] Definition mentioned by survey results, with reference to Business Demography data by Statistics Denmark and Eurostat – OECD Manual on Business Demography Statistics, which defines new enterprises as those which are active within a certain period of time, but not in the previous one. Statistics on new Danish enterprises are gathered here and include the number of enterprise births, deaths, and survival up till 5 years.
[184] See: Estonian Aliens Act, mentioned by survey results.
[185] Survey results: Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020, mentioned by survey results.
[186] Government decree 331/2017 (source mentioned by survey results as legal definition in use in Hungary)
[187] For a description of a company's innovative character according to the Italian Decree-Law, see the definitions of the concept of innovative company.
[188] Survey results. See Legal Acts of the Republic of Latvia, mentioned by survey results.
[189] See: Lithuanian Law of Small and Medium Enterprises, mentioned by survey results.
[190] Law proposal presented. See: Sifted
[191] Article 31(3) of the Investment Promotion Act (Official Gazette of the Republic of Slovenia, No 13/18, 204/21 and 29/22), mentioned by survey results. See pisrs.siSee pisrs.si
[192] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[193] Polish Development Fund, mentioned by survey results.
[194] See quality report of the Slovenian Statistical office: *High-Growth Enterprises*, mentioned by survey results. The document refers to scale-ups as high-growth enterprise.
[195] Survey results.
[196] See: Ministry of Economics Republic of Latvia - Support for start-ups and SMEs and Ministry of Economics Republic of Latvia - Startup support programs, mentioned by survey results.
[197] See quality report of the Slovenian Statistical office: *High-Growth Enterprises*. The document refers to scale-ups as high-growth enterprise, mentioned by survey results.
[198] See: Estonian Aliens Act, mentioned by survey results.
[199] See: Estonian Startup Database
[200] Nordic Innovation, *Scale-ups in the Nordics 2020*, mentioned by survey results. See: diva-portal.org
[201] See webpage of the Irish Central Statistics Office: *Access to Finance 2014*. Please note such companies are referred to as high-potential start-ups.
[202] France Stratégie, Ministère de l'économie, des finances at de la relance, *L'emploi dans les startup françaises*. See: strategie.gouv.fr. Please, note these companies are referred to as gazelles.
[203] Statistics Denmark presents statistics on Entrepreneurship, and the notion of new high-growth enterprise/gazelle has been identified by survey results as definition of scale-up. More specifically, the documentation presenting statistical data mentions that

the definition of gazelle follows in part the definition given by OECD and Eurostat in the Eurostat OECD Manual on Business Demography Statistics, 2007 edition. However, the Danish definition considers 5 employees as cut-off, instead of 10. The reason is explained by Statistics Denmark: they consider that "*the limit of at least five employees are set to avoid small companies with high percentage growth, but with little absolute growth, are categorized as growth entrepreneur*".

[204] Definition mentioned in survey results

[205] Nordic Innovation, *Scale-ups in the Nordics 2020*. See: diva-portal.org

[206] See quality report the Slovenian Statistical office: High-Growth Enterprises. The document refers to scale-ups as high-growth enterprise, as identified by the survey results.

[207] *Mind the Bridge*, Tech Scaleup Finland 2018 report, Startup Europe Partnership Monitor. See: mindthebridge.com

[208] See: Estonian Aliens Act

[209] See: Estonian Startup Database

[210] France Stratégie, Ministère de l'économie, des finances at de la relance, *L'emploi dans les startup françaises*. See: strategie.gouv.fr. Please, note these companies are referred to as gazelles.

[211] Statistics Denmark presents statistics on Entrepreneurship, and the notion of new high-growth enterprise/gazelle has been identified by survey results as definition of scale-up. More specifically, the documentation presenting statistical data mentions that the definition of gazelle follows in part the definition given by OECD and Eurostat in the Eurostat OECD Manual on Business Demography Statistics, 2007 edition. However, the Danish definition considers 5 employees as cut-off, instead of 10. The reason is explained by Statistics Denmark: they consider that "*the limit of at least five employees are set to avoid small companies with high percentage growth, but with little absolute growth, are categorized as growth entrepreneur*".

[212] Bpifrance, as mentioned in an answer to the survey.

[213] Survey results.

[214] This definition was mentioned in survey results.

[215] Statistics Denmark presents statistics on Entrepreneurship, and the notion of new high-growth enterprise/gazelle has been identified by survey results as definition of scale-up. More specifically, the documentation presenting statistical data mentions that the definition of gazelle follows in part the definition given by OECD and Eurostat in the Eurostat OECD Manual on Business Demography Statistics, 2007 edition. However, the Danish definition considers 5 employees as cut-off, instead of 10. The reason is explained by Statistics Denmark: they consider that "*the limit of at least five employees are set to avoid small companies with high percentage growth, but with little absolute growth, are categorized as growth entrepreneur*".

[216] See: Estonian Alien's Act

[217] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020.

[218] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020.

[219] Survey results.

[220] Survey results, see also: Ministry of Economics Republic of Latvia - Support for start-ups and SMEs and Ministry of Economics Republic of Latvia - Startup support programs

[221] Directorate General for Enterprises – Deeptech Study 2022, Definition mentioned by survey results.

[222] Polish Development Fund, as mentioned by survey results.

[223] See: DeepTech Focus — Startup Estonia, as mentioned by survey results.

[224] National Centre for Research and Development, Poland, as mentioned in survey results.

[225] See: AWS Seedfinancing - Deep Tech - Austria Wirtschaftsservice

[226] Survey results.

[227] See: Bpifrance Aid for the development of deep-tech

[228] See: Bpifrance Aid for the development of deep-tech

[229] Survey results, adapted from DeepTech & Climate Fonds

[230] See: *Business dynamics in the Knowledge Economy in Germany 2020*

[231] For example, spin-offs from the Tallin University of Technology. See: Startup Centre (taltech.ee), mentioned by survey results. Here, spin-off companies are defined as private legal entities with the founders and / or shareholders of Taltech or its member, which uses Taltech research and development results or know-how in its activities.

[232] Survey results.

[233] Survey results.

[234] Bpifrance, as mentioned in an answer to the survey.

[235] Survey results, see also: Ministry of Economics Republic of Latvia - Support for start-ups and SMEs and Ministry of Economics Republic of Latvia - Startup support programs

[236] National Technology Transfer Portal, Slovakia, as mentioned in survey results.

[237] These are the Université Libre de Bruxelles and the Université Catholique Louvain: ULB - spin-offs, UCL Louvain

[238] Austrian Startup Monitor, mentioned by survey results. More specifically, survey results mentioned that the academic spin-off is a start-up in which the idea for the product/business model arose during and a) in causal connection with a tertiary educational relationship at a university or university of applied sciences or b) in thematic connection with an employment relationship at a university, university of applied sciences or research institution. This definition is mentioned by survey results as one developed within the framework of the Austrian Startup Monitor.

[239] Survey results; Polish Development Fund, mentioned in survey results.

[240] National Centre for Research and Development, Poland, mentioned by survey results.

[241] National Centre for Research and Development, Poland, mentioned by survey results.

[242] See: UT spin-off companies | University of Tartu. Source mentioned in survey results. More in particular, survey results indicate that a spin-off company of the University of Tartu is defined as: company which, in agreement with the university, wishes to highlight its connection with the university for business development and whose founders and / or shareholders are the university administration company and / or its UT employees / students and uses the university's intellectual capital and / or infrastructure. Knowledge, information, intellectual property, experience, etc. are considered intellectual capital.

[243] National Centre for Research and Development, Poland, as mentioned in survey results.
[244] National Technology Transfer Portal, Slovakia, as mentioned in survey results.
[245] See: Dashboard Spin off Austria
[246] Bpifrance, as mentioned in an answer to the survey.
[247] Survey results. In Austria, commercialisation spin-offs at public universities are counted on a legal basis with this definition, according to survey results.
[248] See: Spin-offs_be.brussels. Source mentioned in survey results. In addition, se also financing programmes for spin-offs foreseen by Wallonia (here) and Flanders (here).
[249] See: Cyprus Public University legislation, n. 144/1989, Ar. 3(3)(ε), mentioned in survey results. See: cylaw.org
[250] Survey results.
[251] Greek law, Law 4864, φεκ 237/A/2.12.2021: Strategic investments and improving the investment environment through acceleration procedures in private and strategic investments, creating a framework for spin-off companies and other urgent provisions for the development. Source mentioned in survey results. See: kodiko.gr
[252] Polish Development Fund, as mentioned by survey results; Startup Strategy of the Federal Government, Germany, as mentioned by survey results.
[253] Definition used in Dealroom.co reports. See, for example: Central and Eastern European Startups 2022 by Dealroom.co, Google for Startups, Atomico, Credo. See: Dealroom.co
[254] Survey results.
[255] Survey results.
[256] Survey results, see also: Ministry of Economics Republic of Latvia - Support for start-ups and SMEs and Ministry of Economics Republic of Latvia - Startup support programs
[257] Operational definition in use in Portugal, mentioned in survey results.
[258] Startup Estonia White Paper 2021-2027. See: startupestonia.ee. Source mentioned in survey results.
[259] Elysée 01/2022, source mentioned in survey results.
[260] Dealroom report, *French startups and venture capital on record track in 2021*. See: Dealroom.co
[261] *The Lithuanian startup ecosystem 2021*. See: Practica.vc
[262] Impact Startup 2022. See: Dealroom.co
[263] Definition within Bulgarian Legal System, mentioned in survey results.
[264] Survey results.
[265] Survey results, definition mentioned as non-legal, operational definition in use in Poland.
[266] Survey results; Polish Development Fund, mentioned in survey results.
[267] See: Italian Statistical indicators
[268] Ibid.
[269] Survey results.
[270] Survey results.
[271] Survey results identified this as an operational definition in use in Germany, adapted from InvestEU Gender Selection Criteria.
[272] Survey results; Polish Development Fund, mentioned in survey results.
[273] See: Italian Statistical indicators
[274] Survey results identified this as an operational definition in use in Germany, adapted from InvestEU Gender Selection Criteria.
[275] Survey results identified this as an operational definition in use in Germany, adapted from InvestEU Gender Selection Criteria.
[276] Survey results.
[277] *Start-up scanner 2022*. See: preduzmi.rs
[278] *Start-up scanner 2022*. See: preduzmi.rs
[279] *Japan Startup Funding 2021*. See: initial.inc
[280] *Startups and Scaleups in the Oslo Region 2022*. See: oslobusinessregion.no
[281] Start-up Radar 2021/2022. See: startupticker.ch
[283] Scaleups: energizing the economy: ScaleUp Annual Review 2021.. See: scaleupinstitute.org
[284] *Start-up scanner 2022*. See: preduzmi.rs
[285] Ibid.
[286] See: *The Ascent of Women-Founded Venture-Backed Startups in the United States*, startupusa.org
[287] Erasmus Centre for Entrepreneurship, European ScaleUp Monitor. See: ece.nl
[288] See report by the European Startup Network: *European Startup Monitor 2021/2022*; the same stages distribution is also used by the European Commission for the Annual Report on European SMEs 2018/2019.
[289] See: *Global Entrepreneurship Monitor*
[290] See: startup.info; See also: Startups.com
[291] See: *The State of European Early-Stage Investment* (dealroom.co)
[292] See report by ABC Accelerator: Southeast Europe Startup Report 2018
[293] See: European Startup Network, European Startup Monitor 2020-2021
[294] See: Innovative Impact Startups autumn 2022
[295] Erasmus Centre for Entrepreneurship, European Scaleup Monitor. See: ece.nl
[296] See: OECD Structural and Demographic Business Statistics
[297] See: *The Untapped Potential of Women-Led Funds.pdf*
[298] See: *CEE Report 2021 (unconventional.vc)*
[299] See: *Moving toward gender balance in private equity and venture capital*
[300] See: *Accelerating women-led startups* (galidata.org)
[301] See: *Diversify minorities* (knightfoundation.org)
[302] See: Unwomen.org

[303] See: *The Venture Capital Gender Gap: What Qualifies as Female Content?*
[304] Mind the Bridge, Tech Scaleup Finland 2018 report, Startup Europe Partnership Monitor. See: *OECD Structural and Demographic Business Statistics* mindthebridge.com
[305] This is the case within the working paper *A portrait of innovative start-ups across countries* by the OECD. See: oecd-ilibrary.org.
[306] The Greek National Registry of New Business requirements. See: Elevate Greece. Reference within Greek Law: ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020
[307] Definition present within the Bulgarian legal system, as mentioned in survey results.
[308] See: Estonian Aliens Act
[309] Survey results. See Legal Acts of the Republic of Latvia
[310] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020
[311] Law proposal presented. See: Sifted
[312] Italian Decree-Law n. 179/2012. See: mise.gov.it Italian Decree-Law n. 179/2012. See: mise.gov.it
[313] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[314] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020
[315] Law proposal presented. See: Sifted
[316] *High Growth Enterprises: Statistical presentation* - Statistics Denmark (dst.dk). Please, note these companies are referred to as high growth enterprises.
[317] See: Estonian Aliens Act
[318] Call for proposals under the Recovery and Resilience Fund.
[319] According to survey results, this definition is only used for the purpose of the support scheme of the Ministry of Economy it refers to.
[320] Directorate General for Enterprises, Internal Work 2022 (mentioned as part of Survey Results).)
[321] See: Austrian Startup Monitor (ASM)
[322] See: *L'écosystème des startups numériques et tech en Wallonie*
[323] See: Estonian Startup Database
[324] See: Deutscher Startup Monitor 2022
[325] See: Luxembourg Startup Ecosystem Tracker
[326] Polish Development fund (source mentioned in survey results).
[327] Law proposal presented. See: Sifted
[328] EuropeanStartupMonitor2019_2020
[329] See: *L'emploi dans les start-up françaises*: this age is referred to one specific population of start-ups, identified as such by the report, the young enterprises.
[330] Bpifrance (Definitions mentioned as part of Survey Results). This definition refers, in particular, to "*young innovative companies*".
[331] The Greek National Registry of New Business requirements. See: Elevate Greece. Reference within Greek Law: ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020.
[332] See: Austrian Economic Service - Definition of Start-up. Please note that the figure of seven years is given as an alternative to five (a start-up is, according to this definition, either a company whose foundation dates back a maximum of five years or which has not been commercially active for more than seven years since its first commercial sale.
[333] See: Practical guide for applying to acquire a Certificate of Innovative Enterprise. Please note that the definition refers to so-called "innovative SME" (see: Cyprus, Practical guide for applying to acquire a Certificate of Innovative Enterprise).
[334] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[335] See: Austrian Economic Service - Definition of Start-up
[336] Survey results.
[337] See: Promoting Start-Ups and Scale-Ups in Denmark's Sector Strongholds and Emerging Industries | en | OECD
[338] See: France Digital Barometer 2022
[339] See: KfW Start-up Report 2021
[340] Eligibility criteria of Slovenian funding opportunity Startup programme: SK75 and Startup programme: SI-SK.
[341] Mentioned in survey results
[342] See: Italian Decree-Law n. 179/2012
[343] See: Lithuanian Law of Small and Medium Enterprises
[344] Article 31(3) of the Investment Promotion Act (Official Gazette of the Republic of Slovenia, No 13/18, 204/21 and 29/22). See pisrs.siSee pisrs.si
[345] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[346] See: Annual Report on European SMEs 2021/2022 SMEs and environmental sustainability
[347] *Startups and Scaleups in the Oslo Region 2022*. See: oslobusinessregion.no
[348] Slovak Ministry of Economy support schemes. This definition was identified by survey results as an operational definition used in the Slovak Republic only for the purpose of the support scheme of the Ministry of Economy, otherwise not widely used in the Slovak Republic..
[349] Government decree 331/2017, source mentioned by survey results.
[350] See: *Tech Scaleup Finland 2018 Report*
[351] Italian Decree-Law n. 179/2012. See: mise.gov.it Italian Decree-Law n. 179/2012. See: mise.gov.it

[352] Spanish Startup Law: Ley 28/2022, de 21 de diciembre, de fomento del ecosistema de las empresas emergentes. Published on: BOE núm. 306, de 22/12/2022. See: boe.es
[353] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020
[354] Law proposal presented. See: Sifted
[355] Government decree 331/2017, source mentioned by survey results.
[356] Dealroom reports using this definition cover several EU Member States. See, for instance: *The State of Flanders Startup Ecosystem 2022*
[357] Law proposal presented. See: Sifted.
[358] Directorate General for Enterprises, Internal Work 2022 (mentioned as part of Survey Results).
[359] Registry - Elevate Greece Greek Law, ΦΕΚ 3668/B/02.09.2020, revision: ΦΕΚ 5587/β/18.12.2020
[360] Law proposal presented. See: Sifted
[361] See: Annual Report on European SMEs 2021/2022 SMEs and environmental sustainability
[362] Definition mentioned in survey results.
[363] Survey results, see also: Ministry of Economics Republic of Latvia - Support for start-ups and SMEs and Ministry of Economics Republic of Latvia - Startup support programs
[364] See quality report the Slovenian Statistical office: High-*Growth Enterprises*. The document refers to scale-ups as high-growth enterprise, as identified by the survey results.
[365] See: Estonian Aliens Act
[366] See: Estonian Startup Database
[367] Nordic Innovation, Scale-ups in the Nordics 2020. See: diva-portal.org
[368] See webpage of the Irish Central Statistics Office: *Access to Finance 2014*. Please note such companies are referred to as high-potential start-ups.
[369] France Stratégie, Ministère de l'économie, des finances at de la relance, *L'emploi dans les startup françaises*. See: strategie.gouv.fr. Please, note these companies are referred to as gazelles.
[370] Statistics Denmark presents statistics on Entrepreneurship, and the notion of new high-growth enterprise/gazelle has been identified by survey results as definition of scale-up. More specifically, the documentation presenting statistical data mentions that the definition of gazelle follows in part the definition given by OECD and Eurostat in the Eurostat OECD Manual on Business Demography Statistics, 2007 edition. However, the Danish definition considers 5 employees as cut-off, instead of 10. The reason is explained by Statistics Denmark: they consider that "*the limit of at least five employees are set to avoid small companies with high percentage growth, but with little absolute growth, are categorized as growth entrepreneur*".
[371] See: Annual Report on European SMEs 2021/2022 SMEs and environmental sustainability
[372] See: European Parliament, 2017, **https://data.europa.eu/doi/10.2861/433038**
[373] European Investment Bank, 2020
[374] See: Annual report on European SMEs 2018/2019
[375] *Startups and Scaleups in the Oslo Region 2022*. See: oslobusinessregion.no
[376] Scaleup Institute. Scaleup Annual Review 2021. See: scaleupinstitute.org
[377] The OECD identifies as gazelles those high-growth enterprises younger than five years. See: OECD (2021), *Understanding Firm Growth: Helping SMEs Scale Up*, OECD Studies on SMEs and Entrepreneurship, OECD Publishing, Paris, https://doi.org/10.1787/fc60b04c-en.
[378] OECD (2021), *Understanding Firm Growth: Helping SMEs Scale Up*, OECD Studies on SMEs and Entrepreneurship, OECD Publishing, Paris, https://doi.org/10.1787/fc60b04c-en
[379] See, for instance: Central and Eastern European Startups
[380] Definition mentioned in survey results.
[381] Nordic Innovation, *Scale-ups in the Nordics 2020*. See: diva-portal.org
[382] See quality report the Slovenian Statistical office: *High-Growth Enterprises*. The document refers to scale-ups as high-growth enterprise, as identified by the survey results.
[383] Mind the Bridge, Tech Scaleup Finland 2018 report, Startup Europe Partnership Monitor. See: *OECD Structural and Demographic Business Statistics* mindthebridge.com
[384] See: Estonian Aliens Act
[385] See: Estonian Startup Database
[386] France Stratégie, Ministère de l'économie, des finances at de la relance, *L'emploi dans les startup françaises*. See: strategie.gouv.fr. Please, note these companies are referred to as gazelles.
[387] Statistics Denmark presents statistics on Entrepreneurship, and the notion of new high-growth enterprise/gazelle has been identified by survey results as definition of scale-up. More specifically, the documentation presenting statistical data mentions that the definition of gazelle follows in part the definition given by OECD and Eurostat in the Eurostat OECD Manual on Business Demography Statistics, 2007 edition. However, the Danish definition considers 5 employees as cut-off, instead of 10. The reason is explained by Statistics Denmark: they consider that "*the limit of at least five employees are set to avoid small companies with high percentage growth, but with little absolute growth, are categorized as growth entrepreneur*".
[388] See: Annual report on European SMEs 2018/2019
[389] See: Dashboard | European Startups
[390] *Startups and Scaleups in the Oslo Region 2022*. See: oslobusinessregion.no
[391] OECD (2021), *Understanding Firm Growth: Helping SMEs Scale Up*, OECD Studies on SMEs and Entrepreneurship, OECD Publishing, Paris, https://doi.org/10.1787/fc60b04c-en
[392] See: Annual report on European SMEs 2018/2019
[393] Erasmus Centre for Entrepreneurship, European Scaleup Monitor. See: ece.nl
[394] See: *Accelerating women-led startups* (galidata.org)

[395] See: *Moving toward gender balance in private equity and venture capital*
[396] Survey results; Polish Development Fund, mentioned in survey results.
[397] See: Italian Statistical indicators
[398] European Innovation Council (EIC), Work Programme 2022. See: eic.ec.europa.eu
[399] See: *The Venture Capital Gender Gap: What Qualifies as Female Content?*
[400] See: Unwomen.org
[401] Survey results identified this as an operational definition in use in Germany, adapted from InvestEU Gender Selection Criteria.
[402] Survey results identified this as an operational definition in use in Germany, adapted from InvestEU Gender Selection Criteria.
[403] Survey results.
[404] See: Diversify minorities (knightfoundation.org)

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Within the context of the European Innovation Scoreboard (EIS), this feasibility study provides an overview of how different sources, such as laws and reports produced by distinct stakeholders define and measure key concepts of the startup ecosystem in Europe and worldwide. The analysed concepts focus on innovative companies, stages of growth, early stage startups, startups, scale-ups, deep-tech startups, spin-offs, unicorns, and women-led ventures. The study contributes to the design of a future European Startup Scoreboard.

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