Preface

On behalf of the Ministry of Trade, Industry and Fisheries, Menon Economics has mapped the status of entrepreneurship in Norway. The purpose of the assignment is to create a better understanding of the current status and how entrepreneurship in Norway has changed over time.

The project has been led by Per Fredrik Johnsen, with John Oskar Skjeldrum and Ada Lunde as project associates. Leo A. Grünfeld has been the project manager.

Menon Economics is a research-based analysis and advisory firm at the intersection of corporate economics, public economics, and industrial policy. We offer analytical and advisory services to businesses, organisations, municipalities, counties, and departments. Our main focus is on empirical analyses of economic policy, and our employees possess economic expertise at a high scientific level.

We thank the Ministry of Trade, Industry and Fisheries for an exciting assignment. The authors are responsible for all content in the report.

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# Summary

Entrepreneurship is an important source of innovation and growth in the economy. In this report, we take stock of what entrepreneurs in Norway have achieved in recent years. We focus on who they are, whether their numbers have increased, how their businesses fare over time, and, not least, whether they have sufficient access to capital, expertise, and networks.

To be able to comment on entrepreneurs and their start-ups, we must first define what an entrepreneur and a start-up are. We have also set out to define what a company with growth potential is. It is not straightforward, and there is a need for clarification in this area. Chapter 2 is dedicated to this discussion. Our mappings in subsequent chapters are based on this.

## Briefly about the start-up businesses

Contrary to what we have often been told, Norway has many startup companies compared to other European countries, both in relation to the number of residents and in relation to the total number of companies in the country. We are seeing clear signs that startup activity in Norway has significantly increased over the past 15 years. However, the number of startup companies has decreased somewhat over the last three years, primarily due to fewer incorporations of limited companies. It is typically limited companies that form the basis for businesses with growth potential.

A very large number of start-ups never become active, and many companies are established as investment firms, holding companies and the like that do not intend to conduct their own operational business. A fair number of companies do not have an entrepreneur (person) behind them as a central initiator. When we narrow the focus to companies (2–5 years old) that do have such operational activity and that have an entrepreneur as initiator, we see that the number of such active entrepreneurial companies increased significantly from 2013 to 2017 and has since remained relatively stable at just over 40,000. The increase from 2013 came parallel with the slowdown in the oil sector. This led to a marked increase in attention towards entrepreneurship and simultaneously a notable increase in the capital supply to early-stage companies.

In the area adjacent, we illustrate how we progressively narrow down the universe of all business establishments to focus on start-up companies with growth potential. In order to substantiate ambitions and growth potential, we apply a filter that the company is either innovative/R&D-intensive, possesses a J-curve profile, or is capital-intensive. Collectively, these filters significantly reduce the number of start-up businesses. Ultimately, we end up with a population of start-up companies with growth potential. These constitute about 7 percent of all active start-up companies.

The development over time for various types of start-up businesses is illustrated in the figure below. Here, we describe the change over time where the number in 2007 is set as the baseline at 100. The green curve represents the growth of all active start-up businesses. The figure indicates that the number of start-up businesses with growth potential is increasing more slowly than the total number of active start-up businesses. The number of knowledge-intensive businesses is growing at the same rate as the number of active start-up businesses.

## A Brief Overview of How the Businesses Are Doing 5 Years After Startup

We start with all active entrepreneurial businesses and look at their performance five years after they started operations. They are then categorised into six success categories. The category 'successful business' (12 percent of the entrepreneurial businesses) is constructed to capture three types of companies: Companies that experience revenue growth and have value creation per employee that suggests they can operate profitably and pay out reasonably good salaries; Companies that are perceived as good cases by those managing equity instruments or investment funds; Companies that attract a great deal of equity from owners/investors. Businesses that are inactive (defunct) make up 40 percent of the entrepreneurial businesses after five years. The categories 'low growth' (34 percent) and 'struggling' (5 percent) both have positive value creation after five years. The businesses in the low growth group have low revenue growth, while those that are struggling have unprofitable growth. Businesses that are operating at a significant loss and have negative value creation are captured in the two categories 'burning money' (6 percent) and 'burning money, but capitalised' (1 percent). The capitalised businesses manage to attract either equity and/or debt financing to fund a significant part of their deficits.

The proportion of successful enterprises has remained relatively consistent over time, despite the number of active start-ups increasing significantly since 2013. The distribution across various categories has remained quite steady through the decade 2007-2017 that we have studied. This suggests that the rise in entrepreneurial activity has had little impact on the quality and achievements of the entrepreneurs.

A significantly higher proportion of startups with growth potential remain active after five years. Furthermore, the proportion of successes is higher among these companies. 27 percent of the companies are categorised as successes, compared to 11 percent of other entrepreneurial businesses. This provides clear indications that we are successful in identifying businesses with growth potential with our approach.

## Brief on who the founders are

Approximately 13 percent of Norway's adult population at any given time harbour the dream of starting a business. Around 5 percent express that they have a firm intention to do so. Only just over 1 percent actually start a business each year.

When we look at all active startup companies, entrepreneurs are gradually becoming somewhat younger, and a rapidly growing proportion of the entrepreneurs have higher education. However, the growth rate is not higher than the increase in the proportion with higher education in the general population. The largest share of entrepreneurs in startups with growth potential is in the age group 30-59 years. This age group has generally constituted around 80 percent of all entrepreneurs through the years 2007 to 2020. The proportion of entrepreneurs in startups with growth potential in the age group 20-29 years has decreased somewhat over time, while there is a small increase in the group aged 60-69 years from 2017 to 2020. The consistently high proportion in the age group 30-59 years may suggest that startup entrepreneurs often have work experience that is valuable when they establish companies with a focus on growth and innovation.

The proportion of female entrepreneurs in Norway has remained constant at just over 20 percent since 2014. In certain sectors that employ many women, females represent the majority of new establishments. This applies within personal services, health and social care, and education. The journey from aspiring to become an entrepreneur to actually achieving success with the business is long, and women disproportionately fall away on this journey. 38 percent of all those wishing to start a business are women. 21 percent of those who actually do start up are women. Women account for roughly the same proportion of businesses that have survived the first five years. However, on the path to becoming a successful business, the proportion of women is significantly reduced. Only 12 percent achieve this status after five years.

## Brief on Access to Capital

For many years, the availability of equity for innovative early-stage companies has been low in Norway compared to other high-income countries, particularly other Nordic countries, the UK, and the USA. Since 2015, the provision of venture capital to early-stage enterprises in Norway has changed significantly. The number of investor environments that make capital available has increased markedly over the past decade. Since 2015, we have identified 78 new funds and investor environments that are focused on companies in the earliest stages. This picture is reinforced by the fact that injected equity in start-ups has also increased significantly in recent years, as documented in Menon (2022). This has occurred in parallel with the emergence of a more dynamic ecosystem around entrepreneurial start-ups. However, the growth is not evenly distributed across the country, and the availability of external equity for start-ups in Oslo has been increasing.

Concurrent with the significant increase in the number of private investment environments, there has been a marked increase in the influx of capital through public funding, including through seed fund schemes, Nysnø, and Investinor, as well as grants through Innovation Norway. Large capital reserves are now being built up in both private and public funds and investment instruments, but in recent years, the number of investments in early-stage companies (including start-ups) has not increased, and the growth in investments has not kept pace with the growth in fund capital. An important question that must now be asked is whether there is a lack of available capital or a lack of good investment opportunities. With a significant build-up of capital reserves and weakened interest for Innovation Norway's grants and loans for start-ups, there are clear signs that it is a shortage of good investment cases that dominates the picture.

## Brief on Access to Expertise and Networking Arenas

The surveys indicate that educational paths particularly critical for developing entrepreneurial enterprises with growth potential have a weaker foothold in Norway compared to other Nordic countries. The number of study places in STEM subjects (Science, Technology, Engineering and Mathematics) is not growing as quickly as other educational paths, and a significant proportion of the PhD students in these subjects are from other countries, with a high likelihood of future emigration. In recent years, we have also seen a sharp increase in the number of study programmes focused on entrepreneurship. The number of study places in these entrepreneurship studies has grown rapidly over the last decade, but from a low base.

Our surveys have identified a large and rapidly growing number of venues and networks with various roles and functions that contribute to entrepreneurship, ranging from informal digital chatrooms to well-established TTOs and incubators that offer premises, capital, networks, and expertise/advice. One gets a clear impression that the number of players in this landscape has increased significantly in the past ten years. It is natural to question whether the need for such venues is as great as the number would suggest. Many of the networking venues are part of or interact with the industry-directed support system (Innovation Norway, Siva, The Research Council, county authorities, etc.).

We have counted the number of entities and distinguished between TTOs, incubators, accelerators, business gardens, and entrepreneurial houses/coworking spaces as well as clusters. In total, we have identified 336 entities operating in this landscape.

Overview of the number of players with network arenas in Norway



# Introduction

Entrepreneurship is an important source of innovation and growth in the economy. Successful innovative startups that achieve growth are significant contributors to this, often through radical innovations. Beyond contributing to growth and innovation, entrepreneurs are also significant contributors to job creation. Among those who create many jobs, we find that a small proportion of growth companies are responsible for a large share of the jobs created. Risk-willing entrepreneurs creating innovative companies will help shape Norwegian business in the years to come. In the face of major societal upheavals ahead, entrepreneurship will be important for ensuring the adaptability of both business and society at large.

For many years, the extent of growth-oriented entrepreneurship has been low in Norway. Access to equity for innovative early-stage companies has also been low in Norway, compared with other high-income countries, and particularly other Nordic countries, the UK, and the US. Since 2015, the supply of venture capital to early-stage companies in Norway has changed significantly. The number of investor communities that make capital available has almost exploded.

Over time, the supply of external equity to early-stage startups has increased. Injected equity in startups has risen, as documented in Menon (2022). This has occurred in tandem with the emergence of a more vital ecosystem surrounding entrepreneurial startups. However, the growth is not evenly distributed across the country, and the supply of external equity to startups in Oslo has been increasing.

There has also been a significant change in the entrepreneurial culture over the last decade. It has become much more popular to start something for oneself and the role of the entrepreneur has gained a substantial boost in status. This has occurred in step with a growing and increasingly mature ecosystem around start-ups and growth companies, especially in the capital region.

To target efforts and stimulate entrepreneurship through well-designed measures, one is dependent on a good situational description and comprehension of reality. On this basis, through this project, we have attempted to gather insight into the development and status of entrepreneurship and start-ups in Norway. The report seeks to answer two main issues. Part 1 is an inventory and analysis of entrepreneurship in Norway, aiming to provide insight into current status and changes over time. Part 2 is an analysis of entrepreneurs' access to capital, competence, and networking arenas. The report forms part of the knowledge base for the government's entrepreneurship message, intended to provide insight into the demographics of entrepreneurs, challenges they face, and contribute to the development of entrepreneurial policy to make Norway an attractive country for entrepreneurship.

The report is structured as follows: Chapter 2 describes our methodological approach to mapping entrepreneurship and data sources. Chapter 3 presents findings from the mapping and analysis of characteristics of the identified start-up companies, before we present an analysis of capital access in chapter 4. Chapter 5 examines the access to expertise for start-up companies, before we look at their access to networking arenas in chapter 6.

# What is an entrepreneur and what is a startup company?

An entrepreneur is a person who starts up a business. Therefore, the entrepreneur is defined in the light of their startup. But what defines a startup and what is required to be considered an entrepreneur? Not everyone with a certain ownership of a new business is necessarily an entrepreneur. It can involve co-investors, friends and family, etc. In this chapter, we define what we mean by an entrepreneur and what defines a startup, as well as subgroups of such businesses that may indicate high future growth and innovation capacity.

## Definition of a Startup Company

A start-up company in year T is an enterprise that was registered as a new business in the Central Coordinating Register for Legal Entities in that year. This is the broadest and unfiltered interpretation of the term start-up company.

A significant proportion of these enterprises fall under what we designate as the re-registration of existing businesses, in the form of spin-offs, transformations, and mergers of existing businesses. This is not the same as a start-up company. To filter out these companies, we have established a set of rules to be applied, linked to the number of employees, turnover, and recorded equity. The number of employees must be under 20 in the first year, and 55 in the second year. Turnover must be under 50 million in the first year and under 250 million kroner in the second year. For recorded equity, we assume that it must be under 75 million kroner in the first year. The thresholds are set based on a review of which companies are eliminated at various thresholds, with the aim of excluding companies that are not genuine start-ups.

Correspondingly, a number of subsidiaries are established in foreign corporate groups in Norway. This arises from existing operations in another country, but may be considered as new business activity in Norway. However, this is not what is traditionally associated with startup companies and entrepreneurship; therefore, these are not regarded as startup companies. A large number of enterprises are established to own other companies; so-called holding, management, and investment companies. We do not consider these as startups either. In addition, we have excluded real estate firms, financing, and insurance activities. We filter these out through industry codes and by requiring that the company has labour costs, turnover, or employees. In this way, we filter out pure holding companies and companies that do not have activity.

### Relevant delineations in the population of start-up businesses

Every year, a large number of new enterprises are established that never become active. Therefore, we are focused on concentrating the analyses on start-up businesses that are active. We call them active start-ups. We have thus chosen to define a company's start-up year as the first year the company is registered with either turnover or wage costs. This eliminates a large number of newly registered businesses. However, they may reappear at a later date in the future, if they become active again.

The focus of this report is particularly directed towards growth-oriented entrepreneurship behind start-up companies with growth potential. In this context, it is appropriate to concentrate the analyses on companies that are limited by shares, where growth is central. We aim to capture companies that have ambitions and opportunities to grow and where there is an element of risk-taking. Therefore, it is common to establish a limited company as one is not personally liable for the company's obligations and has the opportunity to scale up. Sole proprietorships are livelihood businesses that are primarily established and operated by an individual or a family with the purpose of securing income and sustenance for the owners, rather than to maximise profit or grow significantly in size. The main goal of a livelihood business is to create a stable and sustainable source of income for the owners and their families, rather than focusing on growth or expansion.

## Definition of an entrepreneur

There is no agreed-upon definition of what an entrepreneur is. A critical element is that the entrepreneur is a person who has made a substantial contribution to the establishment of a business, either through ownership and capital injection and/or through significant labour input from the beginning.

Our definition of "person" excludes companies with public sector owners, foundations and member companies, owners residing abroad, and foreign enterprises. We focus exclusively on entrepreneurs who are individuals residing in Norway.

Statistics Norway defines an entrepreneur (they use the term founder) as a person who becomes the proprietor of a new sole proprietorship or is a participant in a new general partnership (ANS) or limited partnership (DA). An entrepreneur of a newly established private limited company (AS) or public limited company (ASA) is defined as a person who either:

Owns a stake and is the managing director, chairperson of the board, vice-chairperson or board member in the same enterprise.

Direct or indirect strategic ownership interest (share of share capital) in the enterprise above a certain threshold, where the threshold is defined by:

100 percent of an enterprise with 1 shareholder

At least 40 percent of an enterprise with 2 shareholders

At least 30 percent of an enterprise with 3 shareholders

At least 20 percent of an enterprise with 4 or more shareholders

In this status report, we have chosen to use Statistics Norway's definition, but our assessments of the data suggest that the first criterion marginally adds more entrepreneurs beyond the second criterion. Therefore, we have not included this part of the definition.

The data used in the analyses of entrepreneurs and their startup companies are based on four main sources: the Norwegian Bureau of Statistics' surveys of founders, accounting data from the Brønnøysund Registers, Menon's ownership database, and the Norwegian Venture Capital Association's (NVCA) database with activity data from active equity funds. Through processing and enriching the accounting data and ownership data, we have created a comprehensive dataset with ownership data and financial statements for companies between 2007 and 2022.

Box: Description of Key Data Sources



## On growth-oriented entrepreneurship

Entrepreneurship, in the broadest sense, is most often understood as starting a new business. It does not necessarily say anything about opportunities or ambitions for growth. Most enterprises that are established are typically what is referred to as "subsistence businesses," which differ from growth-oriented entrepreneurship. Founders of subsistence businesses are often individuals who wish to create their own place of work. This implies that they have relatively low capital requirements and provide services without ambitions to scale up the business.

Growth-oriented entrepreneurship encompasses businesses that can develop into innovative growth companies. These businesses are based on ideas and solutions that are scalable, and in this respect, differ from what many describe as subsistence enterprises. Technology is often a key input factor in these businesses. However, it is very difficult to distinguish between young companies with limited history in terms of ambitions and opportunities for growth. Furthermore, there is considerable risk associated with growth-oriented entrepreneurship, and experiences show that the proportion of businesses that manage to grow significantly is low, even in the sectors commonly referred to as growth industries.

Entrepreneurs create dynamics in the business sector by challenging the larger players, by introducing new solutions and products that the established companies do not see the value in developing themselves. Perhaps the most important role of entrepreneurs is to take risks. To try something new with a dream of independent success as a growth entrepreneur. Only a few percent of those who start up manage to achieve such status.

## The region: From all start-up companies to those with growth potential and ambition

It is challenging to define and identify a growth-oriented start-up company. Before the company has a history to show, it is difficult to find objective characteristics that can likely indicate ambitions and growth potential. Additionally, there are many ambitious entrepreneurs who do not succeed, despite high ambitions and potential. As an approach to these challenges, we have used multiple sources of information and indicators to substantiate growth-oriented start-ups. A comprehensive mapping of entrepreneurship should, in our opinion, be verifiable and transparent. Therefore, we base our analysis on publicly available information and objective criteria as far as possible.

Figure: The Region - Identification of Ambitious Start-up Companies



To distinguish innovative companies with growth potential from other types of entrepreneurship, we have established a sort of funnel. The "funnel" starts with all newly established enterprises and ends in a population where it is substantiated that we are dealing with growth-oriented entrepreneurship. At each level of the funnel we move through, companies are filtered out, reducing the population of newly established enterprises.

We begin with all newly established businesses, including personally owned enterprises which are primarily sole proprietorships. However, most personally owned companies are subsistence businesses, and if there is an opportunity to scale up, the business activities in the sole proprietorship will typically be continued in a private limited company. Therefore, the first filter we apply is that it must be a private limited company. Even among private limited companies, there will be numerous subsistence businesses that do not have the ambition or prerequisites for significant growth. For a company to be innovative and/or scalable is often a prerequisite for growth. To substantiate this, we apply a criterion that the business belongs to an industry defined as knowledge-intensive and has economic activity in its first full year after establishment.

The characteristics discussed so far can be identified already in the first year after establishment. However, some history is necessary to be able to substantiate ambitions. We therefore proceed from the basis of companies that are in the "start-up phase". This means that the company is up to five years old. We look at characteristics of all companies that have a 2-5 year history to identify features that suggest the company has growth potential. Businesses aged 2-5 years are thus in a start-up phase, where they have some history that also allows for the identification of characteristics that indicate ambitions.

Just because a company is established does not mean there is activity within the company. Many companies never engage in any activity or only do so for a brief period before being wound up. In addition, there are many companies in "hibernation". They have no activity but are also not wound up. Other companies are established to own other companies and have no operations, while some companies go bankrupt. In total, less than 50 percent of enterprises are active five years after they were registered. Therefore, in our further analysis, we assume that the company is active in the given year in order for us to count it.

In the next step of the funnel, we narrow down to active entrepreneurial businesses. We apply a criterion that the active limited company has a shareholder on the ownership side who falls within our definition of an entrepreneur. This implies that one or more persons have a sufficiently large shareholding, either directly or indirectly through a holding company or the like. Companies that are not entrepreneurial businesses and thus are excluded are companies that are foreign-owned, newly established subsidiaries in conglomerates, and companies that are spun off from existing operations.

In order to substantiate ambitions and growth potential, we apply a filter that the company is either innovative/R&D-intensive, exhibits a J-curve pattern, or is capital-intensive. The fact that the company has been granted SkatteFUNN within its early years of operation indicates that the company is investing in R&D and innovation. The J-curve criterion entails that the company incurs significant losses which are financed by either the entrepreneur or investors with the expectation of future returns through growth. Capital-intensive businesses that are capitalised by either the entrepreneur themselves or acquire capital from external investors to fund development and commercialisation also indicate ambitions and growth potential. Collectively, these filters contribute to significantly narrowing down the number of startup companies. From the year a company meets one of these three criteria, it is defined as a startup with growth potential. This applies up to and including the fifth year counted from the first full year of economic activity.

Ultimately, we end up with a population of start-up companies with growth potential, which is defined as growth-oriented entrepreneurship, according to the definition in the box below.

Box: Definition of Start-up Company with Growth Potential



There are a range of knowledge-intensive companies in Norway. These are characterised by belonging to a knowledge-intensive industry. Norway is a country with a generally high level of education, and therefore many industries are defined as knowledge-intensive, which makes it a broadly applicable indicator. In order to sharpen the focus towards innovative startups with growth potential, we have not applied this criterion to identify them. Nonetheless, we will maintain a focus on knowledge-intensive businesses in certain analyses.

In Chapter 3, the definition of a start-up with growth potential is used to identify their extent in Norway. The identified population of start-ups with growth potential is compared to other existing businesses.

# Start-ups in Numbers

In this chapter, we will present the scope of startups in Norway, based on the methodology described in the previous chapter. We follow the funnel and initially present all new establishments, before moving on to active businesses and entrepreneurial firms. Finally, we narrow down to startups with growth potential. Furthermore, characteristics of these businesses are described, as well as how startups fare five years after inception (first year of activity).

## Start-ups in Europe

In the vast majority of countries, the establishment of new businesses is generally regarded as something positive for the economy by contributing to the dynamism in the business sector in terms of innovation and business development. Therefore, entrepreneurship is high on the agenda in most countries, not least in the EU countries, since the EU has directed significant resources towards innovation and new ventures in the region. How extensive is the rate of business establishment in Norway compared to other European countries? The figure below shows the proportion of new businesses in 2022 per 100,000 inhabitants. Norway has a relatively high number (1,225) compared to the rest of the EU when we consider all newly established enterprises.

Figure: Number of new enterprises per 100,000 inhabitants in EU countries and Norway. Source: Eurostat and SSB



Countries in Europe operate with different definitions and classifications of businesses, and the countries' registers also look different. Therefore, the figures for the number of new businesses are not 100 percent comparable, but the basis is sufficiently similar for Eurostat to publish the figures systematically over time. The figures for Norway are not included in Eurostat's statistics, so this has been sourced from the SSB. To provide the most relevant picture possible, we have reported both for all new enterprises and all new joint stock companies. There has long been an impression that Norway has low establishment activity compared to other countries it is natural to compare with, but this is not correct. The figure shows that Norway has high establishment activity. Even when we only focus on new joint stock companies, Norway exhibits an establishment rate that is higher than many of the countries in the EU.

An alternative measure of the rate of establishment is the number of business start-ups as a proportion of existing businesses. The figure below shows the proportion for Norway compared to other European countries. This measure also suggests that Norway has a large number of newly established enterprises. This is partly a result of many new businesses being established, but also due to relatively few businesses being registered per inhabitant in Norway compared with other European countries.

Figure: New businesses as a proportion of existing businesses in the EU countries and Norway (2021). Source: Eurostat and SSB



## All start-up companies in Norway

We base this on the broadest interpretation of a start-up – a new enterprise registered in the Central Coordinating Register for Legal Entities this year. This includes a variety of different enterprise forms, but the most common are limited companies and sole proprietorships. The figure below shows the development in the number of newly established limited companies, sole proprietorships, and other enterprise forms from 2008 to 2022.

Figure: Number of newly established sole proprietorships, limited companies, and other enterprises over time. Source: SSB



The figure shows that there has been a gradual increase in the number of new enterprises and companies over time. In total, 72,000 enterprises were established in 2022, compared to 50,000 enterprises in 2008. There was a particular surge in 2012, driven by growth in the number of established limited companies. This is primarily due to the requirement for share capital for a limited company being reduced from 100,000 to 30,000 kroner. Furthermore, the introduction of dividend tax and the exemption method in 2006 likely contributed to gradually increasing the number of personal holding companies in the period before 2012. From 2018 to 2021, there was also significant growth in the pace of establishment, again driven by limited companies.

## Active limited companies and entrepreneurial businesses

We have defined an initial phase of 2-5 years following the first year of activity, as it is necessary to have some history to assess whether the companies have growth potential. This makes it possible to identify the companies that are active, as opposed to at the time of establishment. In this initial phase, we identify businesses with growth potential by meeting one of the three criteria indicating growth potential (see section 2.4 for the criteria). To compare the population with other company establishments, we also look at the other new establishments in the initial phase, defined as being 2-5 years old in the given year.

As mentioned, there are a great many companies established that either never undertake any activity or where the activity is discontinued after a short period. Furthermore, several of these companies are not what we define as start-up businesses. These include, among others, companies with foreign owners, newly established subsidiaries in groups, and companies that are spun off from existing enterprises. We therefore first look at the number of active limited companies and active start-up businesses in the initial phase before narrowing down further. The figure below illustrates how the number has evolved from 2007 to 2022.

Figure: Active entrepreneurial businesses and other active limited companies in the start-up phase (2-5 years). Source: Menon



The number of active start-up enterprises has more than doubled from 20,000 in 2007 to 45,000 in 2022. There was a noticeable increase in the years 2007 to 2010, and similarly from 2013 to 2017. Several factors indicate a rise in start-up enterprises. With lower capital requirements from 2013, the threshold for establishing a limited company was reduced. In 2014, the price of oil fell significantly, and many previously secure high-paid jobs disappeared or became very uncertain. This may have led more people to attempt entrepreneurship on their own. Since 2017, the growth in the number of start-up enterprises has halted, and the number of active start-up enterprises has remained flat over the past five years. The number of other limited companies in the start-up phase has also increased, albeit at a far more moderate pace. Between 2007 and 2014, there was no growth in the number of such companies, but from 2014 to 2022, the number has increased from 3,100 to 3,900. Consequently, other forms of ownership have become more common among companies in the start-up phase since 2014.

The size ratio between the number of start-up enterprises and other types of limited companies in the start-up phase clearly shows that the majority of limited companies are established by Norwegian entrepreneurs. Growth has not been as significant among other types of ownership either. In 2007, 87 percent of active limited companies in the start-up phase were start-up enterprises, whilst other types of ownership constituted 13 percent of active limited companies. By 2022, the proportion of other types of ownership had decreased to 8 percent.

Thus far, we have narrowed down from all newly established enterprises to a selection of businesses that are active limited companies in the start-up phase and which had a Norwegian founder on the ownership side at the establishment. To substantiate growth potential, we are adding an additional criterion here, namely that the company is either innovative/R&D-intensive, a J-curve business, or capital-intensive.

## Start-up Enterprises: Knowledge-intensive and those with Growth Potential

To highlight the proportion of start-ups with growth potential compared to other categories, we focus here on the number of start-ups with growth potential, knowledge-intensive companies, and other entrepreneurial businesses in the start-up phase. Being a knowledge-intensive company is not used as a criterion for being a start-up with growth potential. It is a broad indicator and not suitable alone as a criterion for start-ups with growth potential. However, it is in these sectors that we typically find start-ups with growth potential. The figure below illustrates how entrepreneurial businesses are distributed across "start-ups with growth potential," "knowledge-intensive companies," and "other entrepreneurial businesses in the start-up phase".

Figure: Number of start-up enterprises in the initial phase (2-5 years) distributed by type of start-up enterprise. Source: Menon



From the figure, we see that most entrepreneurial firms in the start-up phase are not characterised as either knowledge-intensive or start-ups with growth potential. The number of active start-ups with growth potential, knowledge-intensive companies, and other entrepreneurial firms in the start-up phase has increased over the period, especially after 2014. Of active entrepreneurial firms, we observe that the majority are neither knowledge-intensive nor display indications of growth potential. Particularly, companies with growth potential constitute a very small proportion of entrepreneurial firms in Norway. The number of start-ups with growth potential has risen from 2,100 in 2007 to 3,100 in 2022. The proportion of start-ups with growth potential has decreased slightly over the time period, from 10 percent in 2007 to 7 percent in 2022.

Knowledge-intensive enterprises in the start-up phase account for 23 percent of entrepreneurial businesses in 2022. This demonstrates that it is a broad indicator, and in our assessment, not very precise for identifying start-ups with growth potential. At the same time, there is a significantly higher density of businesses with growth potential in these industries compared with the rest of the business sector. By narrowing down to only start-up businesses with growth potential, we look at companies where characteristics of the business activities indicate that they are innovative and have opportunities for growth. The figure below shows the development in the relevant population of start-up companies with growth potential.

Figure: Number of start-up companies with growth potential in the start-up phase. Source: Menon



The figure displays a similar development to that of the number of startup companies (see Figure 34), with growth until 2010, followed by a period of reduction until 2013. It is clear that during the 2010s, there was an increase in the number of startups with growth potential and the emergence of an ecosystem surrounding these businesses. This growth has tapered off since 2017, and in the last couple of years, the growth has come to a standstill.

From 2013 to 2020, the number of start-up companies with growth potential increased significantly, but not as much as the number of entrepreneurial businesses. In other words, the proportion with growth potential among entrepreneurial businesses in the start-up phase has decreased somewhat since 2013. To more easily compare how the number of different types of start-up businesses has developed, we have indexed the number to 100 in 2007. This is shown in the figure below.

Figure: Indexed development of the different categories of start-ups in the area (2007 = 100). Source: SSB and Menon



The figure shows that active joint-stock companies as well as entrepreneurial and knowledge-intensive businesses have had a relatively similar development since 2013. They experienced a significant increase from 2013 to 2017. Since 2017, the number has stabilized for entrepreneurial companies and other joint-stock companies, while knowledge-intensive companies have seen a moderate downward trend. The number of start-up businesses with growth potential also grew from 2013, but more moderately than the aforementioned. In return, these companies have seen growth in numbers up until 2020, before it declined marginally in 2021 and 2022.

Sole proprietorships differ from other types of enterprises in that there has been an almost consistent downward trend. The decreasing number of sole proprietorship formations in favour of limited companies is likely due in part to the reduction of the share capital requirement in 2012 and partly to the exemption method introduced in 2006, which means that dividends to companies are not taxed in the same way as dividends to individuals. This makes it more attractive to receive income through a limited company if one anticipates reinvesting profits.

## Further on those with growth potential

### Three ways to be assessed for growth potential

In the previous subsection, we presented the identified population of startups with growth potential. There are no set definitions for when a company in the startup phase transitions from being an ordinary company to a startup with growth potential. The population we have identified comes from the definitions given in Chapter 2.3: About Growth-Oriented Entrepreneurship. We will now take a closer look at the various categories and how they distribute and develop over time. In the figure below, we have split the population of startups with growth potential according to the three different criteria.

Figure: Number of start-up companies with growth potential divided by the criteria capital-intensive, innovative and J-curve. Source: Menon



The majority of the identified start-up businesses with growth potential meet the criterion of being capital-intensive. In 2022, 80 percent of the companies meet the criterion of being capital-intensive, followed by innovative at 24 percent and J-curve at 19 percent.

Over time, there has been growth in all three categories, but the rate of growth differs between the groups of start-up companies with growth potential. Since 2014, the number of J-curve companies has doubled from 300 to 600, while the number of companies that are innovative/R&D-intensive has increased by 62 percent and the number of capital-intensive companies has grown by 42 percent. In 2022, however, the level of capital- and R&D-intensive companies is approximately at the same level as in 2017, with 1,000 and 2,500 start-ups respectively. The number of J-curve companies has increased by 41 percent since 2017.

### Age development over time

The age composition among start-up companies with growth potential provides insight into when the companies typically meet criteria for growth potential, in addition to giving an indication of what we can expect about the development in the coming years. The figure below shows how the age composition among the population of start-up companies with growth potential has evolved over time.

Figure: Number of start-ups with growth potential by age. Source: Menon



We observe that the number of startups with growth potential increases as they age. This is due to the fact that, with increased age, startups have more opportunities to meet one of the three criteria to be defined as a startup with growth potential. At the same time, some startups will disappear due to inactivity or bankruptcy. We see a general increase in the number of startups with growth potential by age, indicating that more are being identified with growth potential than those that drop off as the companies get older.

Over time, we once again see that there has been growth in the number of start-up companies across various ages prior to 2018, but this has levelled off towards 2022. From 2007 to 2012, there were only minor changes in the number and age composition, while from 2012 to 2018, there was a significant increase in the number of businesses of all ages. From 2018 to 2022, there has been a decrease in the number of 2- and 3-year-olds in the population, while the number of 4- and 5-year-olds has marginally increased. In other words, the influx of new start-ups with growth potential has been weaker in recent years. If this trend continues, we can expect a further reduction in their number in the coming couple of years.

### Characteristics of those with growth potential

Innovative start-up companies with growth potential often have characteristics that significantly distinguish them from more established businesses. Here we look at these characteristics for the entire population of start-up companies with growth potential from 2007 to 2022, with a particular focus on their contribution to employment and value creation.

Entrepreneurship contributes to creating jobs both for the entrepreneurs themselves, as well as employing other workers. The figure below shows how employment in the population of start-up companies with growth potential has developed over time.

Figure: Number of employees in start-up companies with growth potential. Source: Menon



Start-ups with growth potential employed between 12,000 to 16,000 individuals from 2007 to 2014. During the period from 2014 to 2021, there was a substantial increase and the number of employees nearly doubled to close to 25,000 in 2021. Particularly high growth in the number of jobs occurred from 2014 to 2017, in line with the significant rise in the number of companies in the population. The majority of the growth in the number of employees can be attributed to the increase in the number of start-up companies with growth potential during this period.

In the figure below, we show how the average number of employees per startup company has developed over time for businesses with growth potential and other startup companies, respectively.

Figure: Average number of employees in start-up companies with growth potential compared to other start-up enterprises. Source: Menon



Despite the increase in the number of start-ups and employees, the average number of employees per start-up has remained relatively constant. The average number of employees in growth potential start-ups has been stable between 6 and 7.5 throughout the period. For other entrepreneurial companies, there has been a downward trend in the number of employees per company, from 5.4 in 2007 to 3.5 in 2022. In other words, the remaining entrepreneurial companies have become smaller and smaller over the period, while we do not observe the same trend among those with growth potential. This has caused the size gap between the two groups of companies to widen over time. The average for the number of employees in growth potential start-ups is around 7, while other entrepreneurial companies in the start-up phase have an average of half as many employees per company.

During the start-up phase, there are many companies that develop products and commercialise these. In this phase, one can expect investments in future growth and often negative operating results. Despite low value creation during periods with significant development costs and negative operating results, it is often in these periods that the foundation for future value creation and returns is established.

In the figure below, we show the development of value creation for the population of start-up companies with growth potential.

Figure: Total value creation in start-up companies with growth potential. Current prices. Source: Menon



The figure shows a significant increase in value creation for start-up companies with growth potential from 2014 up to 2019, in line with the increasing number of firms. From 2019, there has been little change in value creation for the population as a whole. The total value creation in start-up companies with growth potential has increased from 6.2 billion Norwegian Kroner in 2014 to 10.2 billion in 2022. The rise is primarily driven by a growing number of start-up firms with growth potential. The average value creation per company has seen a moderate increase from 2.9 million Kroner per company in 2014 to 3.3 million in 2022.

As mentioned, there are many start-up companies that incur significant operating deficits while developing and commercialising their products. Since operating deficits are part of value creation, this will mean that the value creation per employee, often referred to as labour productivity, will be relatively low. Nevertheless, there are investors willing to finance these investments as they assess that there is potential for future value creation. The figure below shows how the combined operating result of start-up companies with growth potential has evolved over time.

Figure: Total operating result for startup company with growth potential. Current prices. Source: Menon



The figure above shows that, overall, start-ups with growth potential are operating at a loss. Their development costs and investments are higher than operating revenues, and the deficit has been increasing since 2015. In 2022, the total operating loss for these companies is 4.9 billion Norwegian kroner. 2007 is the only year with a positive operating result for the start-ups as a whole, before the result drops to a loss of 1.7 billion in 2008. After this, the deficit decreases until 2015, with the exception of 2013. From 2015, this trend reverses, with a steadily increasing deficit up to 2022. In 2022, it is particularly companies in the start-up phase related to climate technology that contribute to the increasing operating deficit in start-ups with growth potential. These are companies with a high need for capital and large investment costs that are unprofitable in the start-up phase.

### Start-ups with growth potential by geography and industry

The ideas and innovations that form the basis for startups originate from a variety of different sources. Many companies emerge from entrepreneurs' ideas and hobbies, while others are derived from research in either academia or established businesses. As research and educational institutions and established industry are unevenly distributed geographically, there are geographical differences in where startups with growth potential are located. In the following, we look at how the startups are distributed across counties. In the figure below, we show the development in the number of startup companies with growth potential for 2007 and 2022, respectively, divided by counties.

Figure: Number of start-up companies with growth potential distributed by counties. Source: Menon



The majority of businesses in the population are located in Oslo, followed by Viken, Vestland, Rogaland, and Trøndelag. It is evident that startups tend to be situated in and around the major cities. All counties, with the exception of Nordland, have more startups with growth potential in 2022 compared to 2007. However, the growth is very unevenly distributed among the counties. In Nordland, the number remains unchanged, while there has been an increase of 137 percent in Oslo. Following Oslo, the highest growth has been in Rogaland and Vestland, followed by Vestfold and Telemark and Agder. The counties with the weakest growth are Innlandet and Troms og Finnmark, in addition to Nordland.

The population varies significantly between the counties, from 242,000 in Troms and Finnmark to almost 1.3 million in Viken. To assess the density of start-ups with growth potential against the population, we show the number of start-ups in the population per 10,000 inhabitants in the figure below.

Figure: Number of start-ups with growth potential per 10,000 inhabitants. Source: Menon



The density of start-ups with growth potential is clearly highest in Oslo with 9.9 such businesses per 10,000 inhabitants, followed by Agder and Rogaland with 6.6 and 6.5 per 10,000 inhabitants, respectively. Oslo is the largest city with a diverse economy, a strong technology environment, and the most jobs in Norway within ICT and academia. Innlandet stands out with the lowest occurrence of start-ups with growth potential among the counties by a wide margin (3.6 per 10,000), followed by Viken with 4.4 per 10,000. The other counties are at roughly the same level, in the range of 5-5.6.

Start-ups with growth potential are often associated with technology. Growth potential is often related to scalability, and scalability is often related to the use of technology. Technology is used in an increasing number of industries, and start-ups with growth potential are found in a range of sectors. This applies to sectors traditionally associated with technology, such as the ICT industry and the health industry, but also to sectors not associated with technology, such as the trade industry. The figure below shows how start-up companies with growth potential are distributed by industry in 2007 and 2022.

Figure: Number of startup companies with growth potential per industry in 2007 and 2022. Source: Menon



The figure above shows that we find a significant number of start-ups with growth potential across a wide range of industries. The majority are found within ICT, trade, and knowledge-intensive services, with just over 500 start-ups with growth potential accounting for 49 percent of the population in 2022. ICT and knowledge-intensive services are sectors that deliver specialised services or ICT goods, and where skilled labour is an important input factor, while they are relatively less capital-intensive. As a result, many businesses are started within these sectors, and many of them are innovative and have growth potential. The trade industry is a large and relatively fragmented sector with many start-ups, and in some cases, it can be more capital-intensive than, for example, ICT and knowledge-intensive services. Furthermore, we find a number of start-ups within construction, other services, and tourism.

The growth of start-up companies from 2007 to 2022 varies significantly from sector to sector. ICT and knowledge services stand out with high growth in both absolute and relative terms, while the number within trade has decreased. Seafood, health, financial services, and supply industries have experienced high percentage growth, but from relatively low levels. There has also been an increase within construction, other services, tourism and health. The number of start-ups with growth potential has significantly decreased within the petroleum industry and the maritime sector.

## Five Years On: How Are the Start-Ups Doing?

Earlier in the report, we have looked at companies in the startup phase, but the actual growth and value creation of the company most often come after several full years of operation. We have applied several different criteria to categorise the identified active entrepreneurial companies into six different categories. The companies are categorised into various success categories based on value creation and revenue growth, as well as profitability.

To assess how start-ups appear after a certain period, we look at how the businesses are doing five years after their first year of activity. Note that we are starting with all entrepreneurial companies that have been active to see how they perform five years later and whether there has been a development in the occurrence of success over time. The entrepreneurial companies have been analysed for the cohorts with their first year of activity in 2007, 2010, 2013, and 2017. The table below explains the different categories of success.

Table: The Categories of Success



Through these six categories, we capture various development trends in the companies. Businesses that are inactive are self-explanatory and have fallen away within five years after their first active year. The categories of low growth and poor performance have common characteristics such as positive value creation, meaning that labour costs exceed any potential deficit. The distinction between these two categories is related to low sales growth in the low growth category, while those performing poorly have growth, but this growth is unprofitable as value creation per employee is less than half a million Norwegian kroner. This typically means that they either operate at significant losses and/or the labour costs per employee are not sufficient to finance a full-time equivalent.

Businesses running substantial deficits and exhibiting negative value creation per employee are caught in the categories 'burning money' and 'burning money, but capitalised'. The distinction between these two lies in whether the companies manage to attract either equity and/or debt financing to fund a significant part of the deficits.

The success category is designed to capture three types of businesses:

Businesses experiencing revenue growth and with value creation per employee suggesting that they can operate profitably and pay salaries

Enterprises that are perceived as strong cases from equity instruments or active ownership funds that invest on market terms, and that believe they can achieve good risk-adjusted returns on equity

Businesses that attract a great deal of equity from investors

The table below shows how start-up businesses are distributed across the different success categories five years after launch.

Table: Status 5 years after the startup business first commenced operations. Source: Menon



Even when we stipulate that they must be an active entrepreneurial business, about two out of five businesses have no activity five years later. The proportion that is inactive/deceased has increased somewhat for businesses established in 2017 compared with the previous cohorts. Despite the number of established entrepreneurial businesses having almost doubled, the share of businesses categorised as a success remains at the same level as before. The proportion that is burning through cash is low and has been stable over time, regardless of whether the business is considered to be adequately capitalised or not. Slightly fewer businesses are performing poorly, while the share with low growth is roughly at the same level as for the 2007 and 2010 cohorts.

Start-ups with growth potential account for 16 percent of the successes. In comparison, they only constitute 7 percent of all entrepreneurial businesses that have been active. In other words, the proportion of successes among start-ups with growth potential is almost 130 percent higher than among other entrepreneurial businesses.

In the following, we compare the selection of start-ups with growth potential to other entrepreneurial companies with activity in the start-up phase. The figure below shows how the businesses that started in 2017 are distributed across success categories in 2022.

Figure: Distribution of start-ups with growth potential and other entrepreneurial companies across success categories in 2022



A significantly larger proportion of start-ups with growth potential are active after five years. Note that the definition of a start-up with growth potential requires that the company has been active for at least one of the years in the start-up phase (2-5 years following the first year of activity). It is therefore expected that a higher proportion of start-ups with growth potential are active in year five.

27 percent of the companies are categorised as successful, compared to 11 percent for other start-up businesses. Even if we require that other start-up businesses must still have been active two years after the start-up year, the proportion of successes is only 15 percent and still significantly lower than among start-up businesses with growth potential. This provides clear indications that we succeed in capturing relevant businesses that have growth potential with our approach.

Start-ups constitute a higher proportion among those who are both burning cash and those who are at risk and burning cash, yet are capitalised. Low growth occurs more frequently among other entrepreneurial businesses.

## Unicorns

In a business context, a so-called "unicorn" is a young, privately-owned growth company (not publicly listed) that has achieved a valuation of over 1 billion US dollars. This has historically been a rare occurrence, but in recent years a number of companies around the world have achieved just that. When discussing unicorns in business, there are various definitions depending on whom you ask. There is disagreement regarding the maximum age a company can be when it reaches this milestone and still be considered a unicorn. Furthermore, there are differing opinions on whether a company that is spun off from a conglomerate can be regarded as a unicorn. Here, we adopt a broad definition.

Unicorns typically build on scalable technology within various industries and value chains. Scalability must be combined with being innovative and disruptive to achieve such valuations. The name originates from such companies initially being a rarity worldwide. In 2013, there were 51 unicorns globally. Over the past decade, the number has increased significantly, and by the end of 2023, the number of existing unicorns had risen to 1,200. Of these, four are Norwegian, including Cognite, Gelato, Dune Analytics, and Remarkable. In comparison, six of these were Swedish, four Finnish, and two Danish. It took a long time before Norway got its first unicorn, and this was often cited as a sign that entrepreneurship in Norway was not as successful as in, for example, Sweden.

Collectively, we have had seven unicorns in Norway when applying a broad definition. A company can lose its status as a unicorn if the valuation were to decrease at a later date, so there is no guarantee of retaining unicorn status. The table below shows all Norwegian unicorns.

Table: Overview of Norwegian unicorns. Source: Menon



The Norwegian unicorns represent a wide range of industries/value chains in which they operate. On one hand, there is capital-intensive hardware in Autostore and Remarkable, which target businesses and private individuals respectively, on the other hand, there is Oda, which is home delivery of groceries with a heavy emphasis on technology, and Kahoot!, which is software aimed at learning. With the exception of Cognite, which particularly targets the petroleum industry, none of the unicorns operate within the ocean space industries typically associated with Norwegian business life. They demonstrate the breadth of successes that have emerged from Norwegian start-up environments in step with the ecosystem's development seen in the 2010s.

The age at which unicorn status is achieved varies significantly among companies. Dune Analytics reached unicorn status in just over 3 years of operation, with only 18 employees. Autostore, on the other hand, was established in 1995 and had almost 25 years of operation behind it before reaching the milestone. More recently, both Autostore and Kahoot! have been listed on the Oslo Stock Exchange. Furthermore, Oda has a lower valuation than 1 billion dollars in 2023.

# Founders: Characteristics and Development

In the previous chapter, the focus was directed towards start-up companies. Further down the funnel, we did indeed require that the companies must have been started by an entrepreneur, but so far, we have only to a limited extent outlined the characteristics of the entrepreneurs, and the extent of entrepreneurship in Norway compared to other countries.

## The dream of starting a business

In a survey conducted by Ipsos MMI in 2015 on behalf of DNB regarding entrepreneurial dreams within the Norwegian population, it was revealed that 13 percent of Norway's population dreams of starting their own business, which amounted to approximately 500,000 individuals of working age. The Global Entrepreneurship Monitor (GEM) is an international research project that annually charts the extent and attitudes towards entrepreneurship in various countries. GEM utilises small surveys and slightly different definitions of entrepreneurship, which means that the figures are not entirely comparable with Norwegian registry data. GEM finds that Norway scores significantly below the average in the proportion of the population with intentions of establishing a business. In the Global Entrepreneurship Monitor, about 5 percent of Norwegian respondents expect to start their own business within the next three years. By comparison, the corresponding figures in Finland and Sweden are 10 and 14 percent, respectively.

Figure: Proportion of the population intending to start a business within the next three years. Source: GEM Adult Population Survey 2021



Internationally, Norway stands out with a very low proportion of the population with intentions to start a business in the next three years. Japan is the only country with a lower percentage envisioning starting a business, at 3.2 percent. These numbers are based on survey studies with a very limited scope in each country. Therefore, there is significant uncertainty attached to these numbers. For Norway, they also correspond to a small extent with the figures for new business establishments, which are very high in international comparisons (see chap. 3.1). An explanation behind this disparity may be driven by differences in the registration of independent economic activities. Eurostat collects data on the number of self-employed from member countries each year. Of these, we see that 14.99 percent of the European workforce was self-employed in 2022. At the same time, the variation across countries is very high. Norway is registered with a share of just 4.06 percent. Norway has the lowest proportion of self-employed, compared with countries in the EU. According to Hatfield, there has traditionally been a north/south divide in Europe regarding the role of the self-employed in the economy. Several of the southern European countries, such as Greece, Italy, Portugal, and Spain, have traditionally had a high proportion of self-employed as their economies have largely been based on primary industries. Moreover, several of these countries are characterised by more rigid labour markets and the informal economy plays a larger role. For many, entrepreneurship is an important way out of unemployment in these countries. At the other end of the scale, we find Norway and other Nordic countries, where the labour market has to a greater extent rested on a regular employer/employee relationship. There is a clear positive correlation between unemployment and the proportion of self-employed. The higher the unemployment, the higher the proportion of self-employed.

## Characteristics of Entrepreneurs in Norway

Based on the Definition of an entrepreneur from section 2.2, we here account for the characteristics of entrepreneurs in Norwegian business life. First, we look at all entrepreneurs, before narrowing down to the entrepreneurs behind the companies in the population of start-ups with growth potential.

Over time, the education level of the population has increased. The proportion with more than 4 years of higher education in Norway has risen from 12 to 18 percent since 2007. In the figure below, we show the development of entrepreneurs in all start-up companies in the business sector. The number of entrepreneurs behind new establishments has increased from 21,200 in 2007 to 34,300 in 2022. These are the entrepreneurs behind every newly established private limited company and public limited company established in the respective year.

Figure: Distribution of educational level among entrepreneurs (founders) in business. Source: SSB table 08194



As the number of start-up companies has increased, so has the number of entrepreneurs. There has been a significant rise in the proportion of entrepreneurs with more than 4 years of higher education. However, the proportion is considerably lower for entrepreneurs of Norwegian limited companies and public limited companies at 9 percent, compared with 18 percent in the population as a whole. Over time, the proportion of entrepreneurs with over 4 years of higher education has increased significantly, while the proportion with education from secondary school has decreased. The proportion with primary education and 1-4 years of higher education has remained stable.

The age of entrepreneurs in the business sector has decreased somewhat over time. The figure below shows the age distribution among entrepreneurs of all start-up companies in the business sector over time.

Figure: Age distribution among entrepreneurs (founders) in the business sector. Source: SSB table 08194



The proportion of entrepreneurs under 45 has been stable, but the age composition has shifted somewhat. The percentage of entrepreneurs under 25 has increased slightly, but still only constitutes 5 percent of all entrepreneurs. The fact that the proportion under 25 is increasing over a fifteen-year period, where the number with higher education has risen significantly, suggests that young people are increasingly recognising the potential of entrepreneurship. The age group 25-44 represents the majority of entrepreneurs and is somewhat lower in 2022 compared to 2007. The proportion in the age groups over 45 has been relatively stable.

## The founders behind startups with growth potential

Here we narrow down to the entrepreneurs behind the companies in the population of start-ups with growth potential in the start-up phase. The figure below shows the number of entrepreneurs behind ambitious start-up companies from the years 2007 to 2022. In the figure below, we see the development of the number of entrepreneurs.

Figure: Number of entrepreneurs behind start-up companies with growth potential. Source: Menon Economics



In 2022, there were a total of 4,900 entrepreneurs behind a population of 3,100 start-up companies with growth potential. In 2007, the corresponding figures were 3,600 entrepreneurs distributed across 2,100 start-up businesses. The number of entrepreneurs per start-up has remained relatively stable, with a marginal reduction from 1.7 to 1.6 entrepreneurs per company over the past 15 years. In other words, the number of entrepreneurs largely follows the number of start-up companies.

It follows from the definition of a founder used here that a start-up company can have up to five founders, as you must have a minimum ownership stake of 20 percent if there are four or more founders. The figure below shows the distribution of the population of start-up companies with growth potential by number of founders.

Figure: Number of start-up companies grouped by the number of founders in the company. Source: Menon



Most businesses in the population have only one founder, and this proportion has increased from 52 percent in 2007 to 57 percent in 2022. The proportion with multiple founders has seen a corresponding decline. There has been a reduction in the share of businesses with two, three, and four founders, although the number over time has increased. The number of businesses with five founders, which entails that all founders have 20 percent ownership each, has fallen despite the underlying growth in the number of start-up enterprises with growth potential.

Despite the common association of young technology entrepreneurs with startups, the age composition of startup companies with growth potential shows that the demographic among founders is quite varied. The figure below illustrates the age distribution among the founders in the identified population.

Figure: The proportion of entrepreneurs in different age groups. Source: Menon



The figure shows that the largest proportion of entrepreneurs in start-up companies with growth potential is in the age group 30-59 years. Generally, about 80 percent of all entrepreneurs have been in this age group through the years 2007 to 2020. The proportion of entrepreneurs in the age group 20-29 years has decreased somewhat over time, while there is a small increase in the group 60-69 years from 2017 to 2020. The consistently high proportion in the age group 30-59 years may suggest that start-up entrepreneurs often have work experience that is valuable when establishing companies with a focus on growth and innovation. The decline among the very youngest entrepreneurs (under 20 years) is likely due in part to an increasingly higher proportion undertaking higher education, and longer higher education.

## Brief on Women as Entrepreneurs

### The proportion of women in active businesses

Historically, entrepreneurship has been highly male-dominated, and over time there have only been marginal changes in the gender composition towards gender balance. Here, we summarise the gender distribution behind all start-up companies first, before looking at start-ups with growth potential based on the identified population.

In the figure below, we show the distribution of the number of entrepreneurs/founders behind limited companies by gender, grouped by year of establishment.

Figure: Incorporators of limited companies distributed by women and men. Number in thousands. Source: SSB table 08194



The proportion of women among entrepreneurs in Norway has remained constant at just over 20 percent since 2014. Over the last fifteen years, the share of female entrepreneurs has increased marginally from 17 to 21 percent. At the same time, there has been an underlying growth in the number of entrepreneurs, which has seen the number of female entrepreneurs increase from 3,600 in 2007 to 7,100 in 2022, approximately a doubling.

The proportion of women varies significantly across industries. In certain industries, women make up the majority of entrepreneurs, while in other industries women are almost absent among entrepreneurs. The figure below shows the percentage of women among identified entrepreneurs in companies established in the period 2014 to 2022.

Figure: Proportion of Female Entrepreneurs by Industry. Source: Menon



In certain sectors where women constitute a large proportion of those employed, women account for the majority of new establishments. This is the case within personal services, health and social care, and education. We observe that the industries where the proportion of women is highest are labour-intensive industries such as personal services, health and social care, education, tourism, and culture, whereas the proportion is lowest in capital-intensive industries such as finance and insurance, real estate, ICT, and transport.

The age composition among female entrepreneurs has historically been quite different from the age composition among men. Over time, however, the differences in age composition between the genders have diminished. The figure below shows the proportion of young entrepreneurs divided by gender.

Figure: Proportion of young entrepreneurs (under 45 years) in 2007, 2015, 2022. Source: SSB



The figure shows a tendency towards older female entrepreneurs. The proportion of young entrepreneurs has decreased from 66 to 61 percent over the last 15 years. Among men, the proportion has remained virtually unchanged compared to 2007. Despite the declining proportion, there is still a larger percentage of young female entrepreneurs in 2022 compared to men.

Women have traditionally owned few businesses and have started far fewer new enterprises compared to men. As financial investors, women have been far less inclined than men to expose themselves to risk by purchasing shares in individual companies. At Menon, we demonstrate that women's activity in these areas in Norway is, at best, increasing very slowly. Below, we reproduce excerpts from what we have reported about female entrepreneurs in this study. The figure below shows the proportion of companies with female entrepreneurs and the proportion of female entrepreneurs from 2014 to 2022.

Figure: Proportion of Female Entrepreneurship Over Time. Source: Menon



In the figure, we see that the proportion of female entrepreneurs is 21 percent and companies with at least one female founder constitute 26 percent of all entrepreneurial companies. We do not observe a clear increase in the proportion over time.

### Female Entrepreneurs and the Development of Businesses Over Time

Is it the case that female entrepreneurs have a different growth and development trajectory compared to male entrepreneurs? In Menon, women's aspirations, objectives, and outcomes related to entrepreneurship were mapped through surveys, financial statements and balance sheet data, as well as information on companies in venture capital portfolios. To illustrate this, we use a funnel which clearly shows that the path to a successful startup becomes progressively less characterised by women. In Menon Economics (2015), a similar exercise was conducted which also showed clear differences between women and men in the funnel.

The journey from wanting to become an entrepreneur to actually achieving success with the business is long, and women drop off to a greater extent than men on this journey. The figure below shows how the proportion of women develops in the "entrepreneurial funnel".

Figure: Women in the Entrepreneurial Sector: Source: DNB, Menon Economics and NVCA. Retrieved from Menon



Thirty-eight percent of those wishing to start a business are women. Twenty-one percent of those who actually start up are women. Women account for roughly the same proportion of businesses that have survived the first five years. However, on the path to becoming a successful business, the proportion of women is significantly reduced. Only 12 percent achieve this status after five years. Just 9 percent of entrepreneurs who end up in private equity portfolios are started by women. Our previous analyses of the private equity share showed only 4 percent in 2016, so there has been a significant change here.

At Menon, we examine various barriers and deficiencies for female entrepreneurship. It is important to note that barriers and deficiencies can be imposed on women from the outside, but they can also be established by women themselves. To a large extent, the largest barriers consist of combinations of external and internal conditions in women. The research shows that:

Women are more significantly influenced by female entrepreneurs as role models. Because there are few female entrepreneurs and because female entrepreneurs have smaller networks, an important self-reinforcing effect that could foster more female entrepreneurs in the future is lost.

Women's perception of their own competence and self-confidence affects their propensity to become entrepreneurs.

Educational choices are not necessarily a significant barrier to entrepreneurship for women.

Lack of information concerning rights related to sick leave and maternity leave is experienced as a barrier, in addition to welfare schemes with maternity leave and childcare/nursery being perceived as favouring employees over self-employed individuals.

Women face stricter requirements for information gathering for capital raising in financial markets, and female entrepreneurs' experiential backgrounds are given less weight by investment funds.

Based on the identified start-ups with growth potential, we have examined the gender distribution in the population. The figure below shows the proportion of women and men among the founders of the start-ups over time.

Figure: Number of female and male entrepreneurs in start-up companies with growth potential. Source: Menon



We observe that the proportion of female entrepreneurs in startup companies with growth potential has remained relatively stable since 2007. There is still a long way to go before approaching gender balance among entrepreneurs, as women today only constitute 16 percent of the entrepreneurs in startup businesses with growth potential. The reasons for there still being few women may be manifold, but limited access to funding, risk aversion, and preferences for working in labour-intensive industries might be factors contributing to women not initiating more startup companies.

## Brief on Social Entrepreneurship

Social entrepreneurship is characterised by the enterprise or work intending to solve a social or welfare-related problem. The focus on social entrepreneurship has gained increased attention in recent years because it is seen that these enterprises solve social problems in an innovative and efficient manner. Some important characteristics are that the enterprise or work has a social purpose or works to solve an unmet welfare need, and that the enterprise works with innovative solutions to social or welfare challenges. To qualify for grants for social entrepreneurs from NAV, the enterprise must meet five formal requirements. These are: 1) the enterprise must define itself as a social entrepreneur, 2) the enterprise's goal must be to solve social problems, 3) no dividends may be distributed, 4) the enterprise is driven by social results and the business model must be viable, and 5) the enterprise must be registered in the Voluntary Register.

It is important to note that the requirement to not distribute dividends only applies to receive subsidies from NAV. There are several commercial cases within social entrepreneurship, where many cases have been able to raise capital, commercialise, and upscale their operations. There are between 300 and 400 social entrepreneurship entities in Norway. An example of a social entrepreneur is Ferd Social Entrepreneurs, which has worked in the field for an extended period. They have undertaken the mission to demonstrate that social entrepreneurship is a profitable investment, amongst other things, through annual conferences and the awarding of the social entrepreneur of the year. They have matured both the market and themselves. Furthermore, enterprises such as Impact Startup and Tøyen Unlimited are important players in social entrepreneurship, where both offer various packages that they tailor to the individuals receiving assistance from them.

Furthermore, there are also several educational institutions that see the value in teaching social entrepreneurship. The University of Oslo offers a biannual summer programme in social entrepreneurship, and SPARK Social Innovation provides a two-year innovation programme in social entrepreneurship. These are initiatives that aim to enhance the capacity for innovation within social entrepreneurship in the fields of social sciences and humanities.

In addition to the aforementioned actors, there are a number of start-up enterprises working on social issues, which can be categorised as either social entrepreneurs or social enterprises. In the table below, we have listed 16 different start-up enterprises working dedicatedly to address social and societal issues within mental health. We observe that technological solutions are particularly widespread, including those seeking to create platforms between people or software services designed to help users feel that they manage daily life better. See the table below for a more detailed overview.

Table: Examples of startup companies aimed at solving social and psychological issues in society. Source: Shifter



# Development of Capital Access for Start-up Companies

In order for innovative startups with growth potential to invest in research, development, commercialisation and scaling, they are almost always dependent on capital infusion. Before the company has a finished product, there are no revenues to finance these development activities. Therefore, most startups with scaling potential require capital infusion in a pre-commercial phase. This capital can come from the entrepreneur themselves, or from external financing sources. In cases where the entrepreneur is wealthy, they may finance these activities themselves. However, in most cases, it is not possible or desirable for the entrepreneur to finance these development stages. In such instances, the primary source of capital is external financing.

In this chapter, we first look at injected equity in the identified start-up companies with growth potential. Then we consider various sources of financing in the start-up phase. There is significant variation in the availability of different financing options. The following sources of financing are highlighted here:

The business-oriented policy instrument framework

Active ownership funds (private equity)

Various investment funds and instruments aimed at early-stage enterprises

Angel investors

Bank financing

In addition to these sources of funding, the entrepreneurs themselves are important financiers at the start-up stage, as well as friends and family ("friends, fools, and family").

## Contribution of the policy instruments to capital access in the start-up phase

Access to capital is essential for ambitious start-up companies to have the opportunity to grow through the unprofitable startup years. In Norway, there are several possible sources of capital access, both public funds and private investors contribute to supporting the start-up businesses.

A central question related to the state's role as a provider of capital for early-stage enterprises is how the private market for early-stage capital functions. In other words: How significant is the actual market failure in this market today? It is generally difficult to answer this question because both the supply side and the demand side in the market determine this condition. For example, there is nothing wrong with a market where little capital is offered if the number of start-up enterprises with high potential is low. In other words, we are dependent on looking at both the supply and demand sides. We first examine the supply side and will return to the demand side in the next subchapter.

The aggregate limits of Innovation Norway's financing offerings aimed at startups have varied over time. From 2011 to 2015, the aggregate limits more than doubled. In the following years, aggregate limits have remained at around 350 million Norwegian kroner, with the exception of extraordinary provisions in 2020. In line with the targeted objectives, loans have accounted for an increasingly larger share of the total limits from 2017 onwards. Of those who have received startup financing in the period 2009-2021, about 30 percent are women-focused, around 55 percent are companies within ICT or knowledge services, and just over 50 percent of the limits have gone to companies in the counties of Oslo, Vestland, Viken, and Trøndelag.

In the table below, there is an overview of available grants, financing, and loans from Innovation Norway. To apply for grants and financing, companies are required to register and comply with various criteria based on which grants or financing they are applying for. The various offers are intended to aid startup companies from idea to commercial product through grants, financing, and loans.

Table: Innovation Norway's offers for grants, financing, and loans. Source: Innovation Norway



## Capital access in the identified start-up enterprises with growth potential

To assess the capital access for startups with growth potential, we look at paid-in equity. Paid-in equity is the capital that is invested at the incorporation of the company and during capital increases. In other words, a company's paid-in equity is the sum of the share capital that is invested at the establishment and through subsequent share issues. A share issue means that the share capital in a limited company or public limited company is increased. This normally occurs through the issuance of new shares in the company. If the owners decide that the profits from previous years should be retained in the company and not distributed as dividends, this is called retained earnings.

Injected equity capital provides insight into the amount of capital that companies receive at establishment and through emissions. It is the interplay between the supply and demand for risk capital that determines the amount of capital provided to start-up companies and the implicit capital cost for the company. In other words, it is not possible to conclude whether there is good or poor access to capital for companies based solely on how much capital they receive. The need will depend on how many good projects emerge from the ecosystem, and how capital-intensive these projects are. Additionally, capital providers play a key role in screening out poor projects and identifying projects with a positive net present value. Nevertheless, injected equity capital in startup companies can indicate how the access to risk capital has evolved over time. The figure below shows the total injected equity capital in startups with growth potential.

Figure: Development in injected equity in start-up companies with growth potential. Source: Menon



The graph shows a steady increase in invested equity capital in startups with growth potential from 2013 to 2022. This growth exceeds the increase in the number of startups, so that the average equity capital per company has risen. This could indicate more capital-intensive start-ups than before and/or that their access to capital has improved. With the development seen in the ecosystem over the last decade, there is reason to believe that both the supply of venture capital and the quality of startups have increased. The increase may also reflect general economic growth or improved conditions for entrepreneurship in Norway, such as better access to capital and support schemes for startups. A rise in investments in climate technology and renewable energy has contributed to the increase in invested equity capital. Several of the companies that have received the most capital through share issues are based on climate and energy technology.

Furthermore, we examine how capital is distributed across various industries. The figure below shows the injected share capital in start-up companies with growth potential for industries in 2017 and 2022.

Figure: Start-up companies with growth potential distributed by industry. Source: Menon



The sectors with the most start-ups are also those that attract the most capital. The ICT sector had the highest injected share capital in 2022, with the largest growth since 2007, followed by knowledge services. Despite there being relatively few businesses within seafood and other industries in the population, these capital-intensive companies attract substantial capital.

There are significant differences in the amount of capital injected into businesses across regions. The figure below shows the contributed equity capital in the population by county.

Figure: Injected equity in start-up companies with growth potential by county. Source: Menon



Startup enterprises in Oslo clearly attract the most capital. In 2022, the total contributed share capital was 9.6 billion Norwegian crowns, or 34 percent of the national share capital deposits. Oslo is the national hub for entrepreneurship with a large startup community that is situated close to research institutions. In addition, Oslo draws startups and entrepreneurs from across the country, as documented in Menon. Beyond Oslo, the total injected share capital is roughly at the same level in Viken, Rogaland, and Trøndelag, and all counties have experienced significant growth over time. Furthermore, companies in Agder and Vestland have increased their invested share capital. For companies in Innlandet, Nordland, and Troms and Finnmark, the level is modest, and the development has been weak. The investment communities that provide venture capital are often located in and around the major cities. This may contribute to companies in these areas having better access to capital. There may also be systematic differences between the growth potential and/or capital needs of startup companies that explain the geographical disparities.

We have already demonstrated that there is a significant difference in the extent of entrepreneurship between women and men. When considering invested equity capital, this impression is reinforced, in that the average invested equity capital in companies with female entrepreneurs is lower than in those with male entrepreneurs. The figure below shows invested equity capital in start-up companies distributed by the entrepreneur's gender.

Figure: Injected equity capital in start-up companies with growth potential distributed by the founder's gender. Source: Menon



Female entrepreneurs are behind 16 percent of start-up companies in the population. These businesses make up only 8 percent of the injected equity. This implies that the average injected equity where women are the entrepreneur is half of the level of companies with a male entrepreneur. Over time, the proportion has decreased, despite the share of start-ups with a female entrepreneur remaining stable.

The fact that companies founded by men attract more capital may reflect different barriers to capital access or differences in company size and sector choice between the genders.

## Access to debt financing

There is considerable risk associated with businesses in a start-up phase, illustrated by the fact that most start-up companies do not survive five years. As the risk is very high, debt financing is often not available to these companies. High risk, without upside, would require a high interest cost to grant loans, which in turn increases the risk associated with repayment capacity. The result is that few credit institutions wish to provide long-term loans to start-up companies.

Among the start-ups with growth potential, most companies do not have loans, and a small minority have loans exceeding 1 million Norwegian kroner. The figure below shows the total long-term debt financing and the proportion with debt beyond 1 million Norwegian kroner for start-ups with growth potential.

Figure: Start-ups with growth potential's access to debt financing, and the proportion with debt over 1 million kroner. Source: Menon



The overall debt in the population has varied significantly over time, but since 2017 the level has remained relatively stable after a period of increased debt. Compared to injected equity, we see that equity constitutes a far more important source of financing than debt. Moreover, equity has only become more and more significant compared to debt financing. In 2022, debt financing amounted to 6.5 billion Norwegian kroner, compared to 28 billion Norwegian kroner in injected equity. The proportion of start-ups with over 1 million Norwegian kroner in long-term debt financing fell from 2007 to 2017, while the share has increased from 15 to 22 percent of businesses from 2017 to 2022.

The debt is concentrated in individual sectors such as seafood, maritime, trade, and construction. Together, these four industries account for 68 percent of the long-term debt in start-up businesses with growth potential.

## Capital access from active owner funds

Access to risk-willing capital at an early stage is crucial for successful development, commercialisation, and scaling for innovative companies with growth potential. There are numerous providers of venture capital to businesses in early stages, including family offices, angel investors, investment companies, and investment communities. Active ownership funds, often referred to as private equity, are an important part of the Norwegian market for venture capital. This asset class covers everything from small promising innovative startups (venture) to large industrial firms with thousands of employees (buyout). The common feature of private equity as an asset class is that they typically invest in unlisted enterprises outside the stock market (or alternatively take them off the market), and in addition to capital, they contribute with knowledge and networks in the development of the companies. The capital invested typically comes from pension funds, university foundations, life insurance companies, banks, and public investment funds. Over the past 20 years, the industry for active ownership funds has established itself in Norway. With the rise of active ownership funds, the access to venture capital in Norway has improved, well-supported by the policy instruments in the earliest phases.

The Norwegian Venture Capital Association (NVCA), in collaboration with Menon, compiles statistics on capital raising (the amount at their disposal) and investments made by member funds. Subsequently, we present the extent of seed and venture investments since 2007. The numbers include investments in Norwegian portfolio companies from both Norwegian and foreign managers.

We distinguish here between seed and venture investments. The seed phase refers to the stage before a product has been commercialised and before there is any significant revenue. This implies that there is still considerable technological risk involving research, development, piloting, and/or product design. The venture phase is the stage where a company typically has achieved some revenue and has a product or pilot in the market, but it is still an early stage where the product is being developed, marketed and the business scaled up. However, there are gradual transitions between the corporate stages, and the development paths look very different across industries.

Investments in the seed phase are the type of companies closest to start-ups which are the focus here. However, we also include venture investments, as it is relevant for start-ups experiencing particularly high growth from the beginning, and it is these companies with growth potential that form the basis for growth companies later. Often, it is with venture capital backing that these start-ups move into a growth phase.

In the figure below, we show how investments in seed funding in Norwegian start-ups have evolved over time.

Figure: Seed investments in Norwegian portfolio companies. Source: PEREP and Menon



Since 2016, there has been a significant increase in seed capital investments, partly driven by the establishment of new seed funds with public equity injections (so-called wave 3 funds) and investments through pre-seed funds that are co-financed through loans from Innovation Norway. In 2022, there was a marginal reduction from the record level of capital that was provided to Norwegian seed companies in 2021.

Investments in the next business stages are most often referred to as venture investments, and cover a broader spectrum of companies than seed investments. They invest in everything from early-stage ventures, where the companies are in the development phase, to a late growth stage where the companies have launched products and have already scaled significantly. In the figure below, we show how venture investments in Norwegian portfolio companies have evolved over time.

Figure: Venture investments in Norwegian portfolio companies. Source: PEREP and Menon



For venture investments, there was a downward trend in invested amounts from 2007 to 2015. However, from 2015, investments have increased significantly and since 2019 have stabilised at a higher level than observed before 2015. In 2022, 1.5 billion Norwegian kroner of venture capital was invested in Norwegian portfolio companies.

Furthermore, we have examined how the number of investments from active owner funds has developed in the earliest stages. In the figure below, we show the development since 2007 in the number of seed and venture investments.

Figure: Number of early-stage investments (seed and venture) in Norwegian portfolio companies. Source: PEREP and Menon



When it comes to the number of investments, the picture is quite different. In line with the amount invested, investments have grown since 2015. However, the number of investments is still lower than in the period 2009-2012. This applies to both the number of seed and venture investments.

The invested amount has, in other words, increased significantly while the number of investments has not increased at the same pace. The average invested amount has risen markedly, but there are not notably more companies receiving support. However, during the same period, the industrial policy instruments' efforts towards businesses in the earliest stages have been strengthened through a variety of grant and loan schemes, in addition to the equity measures that are captured in these figures.

In Autumn 2023, Menon conducted a survey of active equity funds' available capital for new investments, the so-called "dry powder". The survey includes members of the NVCA and managers with a significant portion of their portfolio in Norway for 2023. The survey was also conducted for 2020 and 2021. In the figure below, we compile the available capital for new investments for seed and venture funds and the development in recent years.

Figure: Available committed capital for investments in the early phase over the next few years. Source: Menon



Available capital for active private equity funds in the seed and venture phases has increased significantly over the past few years. From 2020 to 2023, available capital for investments rose from 12 to 29 billion Norwegian kroner. This increase is due both to established managers raising new funds of considerable size, as well as new managers entering the Norwegian industry for active private equity funds in recent years. Despite the significant increase in available capital, we do not yet see the same growth in the level of investment. A significant portion of the capital will be invested in the late venture phase, where the focus is on scaling and growth. This often requires substantial investments, and the companies are often not in a startup phase anymore, but somewhat older.

## New active investment funds aimed at early stage

Since 2014, when the oil industry faced significant challenges due to lower prices, there has been a marked shift in investors' willingness to allocate their capital to early-stage companies within other industries. This has been partly channelled through the establishment of new funds and similar investment vehicles. We have identified no fewer than 78 new investment instruments in the form of funds and investment frameworks (see the figure below). In total, we have identified capital that has been made available for early-stage investments amounting to NOK 23.5 billion over the period from 2015 to 2023 (9 years), of which approximately NOK 15 billion has been added to funds and instruments that allow for seed investments. In Appendix 3, we list all new funds and instruments that have been established since 2015. A portion of this is invested abroad and a significant proportion is used to follow up existing portfolio companies, but this is nothing new for the funds that have come about. Our estimates suggest that approximately NOK 7 billion of these investment funds are dedicated to investment in the earliest stage (seed) of companies in Norway. The remainder is expected to be placed in businesses operating in the venture phase or expansion phase.

Figure: Number of new seed-focused funds in Norway and committed capital in the funds. Source: Menon



Investinor has entered as a fund-of-funds investor in 14 such environments. In addition, 260 million Norwegian kroner have been allocated through Investinor's pre-seed scheme, which has been channelled to about 30 incubators, accelerators, and private investment environments, including angel investor networks. This is then matched with the equity of the actors and co-investors. We estimate that this matched capital amounts to approximately 750 million kroner. Some of these environments also appear amongst the ones underlying the figure above. In appendix 3, we list all the pre-seed environments.

According to NVCA's member survey, NOK 6.4 billion was raised for funds that invest in seed and early venture in NVCA's member portfolio during the period 2015-2022. The figure below has isolated capital raising in the seed stage among NVCA's member portfolio. It shows that there has been significant growth in capital raising in these funds in recent years as well.

Figure: Capital raising in the seed phase. Source: PEREP and Menon



The demonstrated pattern clearly shows that there has been a substantial increase in active and competent capital available for seed investments, and that the investor universe has become broader and more diverse. This clear trend has also been described in Investinor's recent market assessments.

## Business angels

Business angels, also known as angel investors, provide start-up companies with capital, expertise, and networks. These are individuals who invest their own capital. There is a significant risk associated with taking strategic ownership positions at an early stage of the business. As start-up companies typically see low revenues in the initial years, whilst expenses for research, development, and salaries are often high, access to capital through investments and other means is essential for start-up companies to succeed.

We have defined a business angel as a person who owns between 5 and 33 percent in at least 3 companies, based on established businesses in the period from 2007. To identify these, we have looked at the cumulative number of companies individuals own a minimum of 5 percent stake in, provided they are not one of the founders. The figure below shows the inflow of new business angels per year among the identified growth companies with growth potential.

Figure: Number of New Angel Investors per Year. Source: Menon



There has been a significant growth in the number of business angels since 2014, with just over 100 new ones per year since 2018. When we total up the angel investors for all the years since 2007, we find there are a total of 1,100 angel investors. There is an excess of male angel investors. Men make up 85 percent of the business angels. Male angel investors are also on average invested in more companies.

# Access to expertise for start-up enterprises

Access to relevant expertise for entrepreneurial businesses is a vital prerequisite for a rich entrepreneurial ecosystem. The expertise that is pertinent to the business depends on the type of innovation and development with which the business is engaged. A significant question, therefore, is what type of expertise the businesses need, and whether the Norwegian education system provides relevant courses and a sufficient number of study places. In the following, we first present a summary of access to expertise within selected educational programs that are particularly relevant for entrepreneurs, including STEM subjects (Science, Technology, Engineering, and Mathematics) at Norwegian universities and colleges, before examining access to expertise from abroad.

## Access to expertise from Norwegian universities and colleges

While most studies can be relevant for entrepreneurship, there are certain fields of study that are particularly pertinent. As many start-ups with growth potential are based on technology, degrees in the natural sciences and technology are considered particularly relevant for new business ventures. Graduates in economic-administrative disciplines and entrepreneurship are also deemed relevant as they provide entrepreneurs with insight into innovation, operations, and finance. Furthermore, there are numerous initiatives aimed at stimulating entrepreneurship amongst students at Norwegian universities and colleges, across different fields of study. Here, we present an overview of these initiatives.

### Entrepreneurship and Innovation Studies

Norwegian educational institutions have over the last decade introduced a range of studies aimed at entrepreneurship and innovation. We have mapped study programmes within entrepreneurship and innovation at Norwegian educational institutions and how the enrolment numbers for these have developed over time. In the table below, we have listed the enrolment figures for study programmes within entrepreneurship and innovation at Norwegian educational institutions for the academic years 2012-2013 and 2022-2023. The list primarily comprises degree programmes, as well as some continuing and further education. For a complete list of all the studies and institutions, see Appendix 4: Overview of study programmes in entrepreneurship and innovation.

Table: Overview of study places/students admitted to entrepreneurship and innovation courses at Norwegian educational institutions, as well as admission figures for 2012-2013 and 2022-2023. Source: DBH



From 2012 to 2023, the number increased from 575 to 1410, a growth of about 250 percent. In comparison, the number of students in university and college education in Norway has increased by 19 percent from 2012 to 2022. This illustrates the increased focus on entrepreneurship and innovation in the university and college sector, as well as the growing interest from students who are increasingly seeking these courses. The number of study places linked to master's programmes has almost exploded, from 185 in 2012 to 810 including professional studies. At the bachelor level, growth has been about 50 percent since 2012. Where two out of three study places within innovation and entrepreneurship were bachelor's studies in 2012, in 2023 they constitute just over 40 percent of the study places. Over time, the development means that far more in the workforce will have significant expertise in the field of entrepreneurship and innovation, especially at the master's level.

### Studies in STEM subjects

Growth-oriented entrepreneurship is often directed towards technology. Consequently, STEM subjects are essential to ensure competence for startups that want to innovate and grow. The figure below shows the number of study places in STEM subjects, as well as study places in economic-administrative subjects, in Norway in respectively 2013 and 2023. For Master's programmes, we have used figures for students who have been admitted, as there is no publicly available statistics on the number of planned Master's places.

Figure: Number of study places and enrolled students within STEM subjects and economic-administrative subjects. Source: DBH



The study places principally comprise bachelor's, master's and professional degrees, as well as a few one-year programmes or other durations of study. As shown in the figure, there has been an increase in the number of study places and master's students over the past ten years, across all fields of study. In 2023, 15 percent of the study places were in economic-administrative subjects, 10 percent in mathematical-natural sciences, 7 percent bachelor's level subjects in engineering science, and 4 percent professional studies in technology. The growth in the number of study places within economic-administrative subjects has been significantly higher than the growth in the number of study places for STEM subjects.

Comparison with OECD countries

STEM subjects therefore account for approximately 21 percent of study places in Norway. By comparison, STEM subjects make up about 24 percent of graduate students in OECD countries in 2021. In Denmark, Sweden, and Finland, the proportion of graduate students within STEM subjects was higher than in Norway, at 24, 26, and 28 percent respectively. If we look at the number of students admitted, the proportion of female students is relatively low in technological and engineering sciences in Norway, compared to the OECD average. In 2023, the proportion of women admitted to technological and engineering sciences was 36 percent in the OECD and 23 percent in Norway. The proportion of women also remains the same for the number of applicants in technological and engineering sciences. On average, women make up 29 percent of the STEM field. By comparison, the OECD average is 32 percent in STEM subjects. In Denmark, Sweden, and Iceland, the proportion of women in STEM fields in 2021 was higher than both Norway and the OECD average, at 34, 36, and 42 percent respectively.

### Student Entrepreneurship

At the various educational institutions, there are several organisations that facilitate entrepreneurship among students. At UiO, they have the organisation Insj. At NTNU, they have both Start NTNU, Spark NTNU, and the innovation centre Fram, which offer services and guidance to encourage entrepreneurship and innovation. Furthermore, there are means such as STUD-ENT aimed at stimulating students to become entrepreneurs. In connection with Norwegian universities and colleges, there are a number of other initiatives aimed at student entrepreneurship. The table below summarizes the identified initiatives targeting entrepreneurship and innovation related to students in the higher education sector.

Table: Overview of Initiatives Aimed at Student Entrepreneurship. Source: Menon



### STUDENT

We have also gathered information about idea generation that has been funded through the grant scheme by Innovation Norway, STUD-ENT, and allocated these business ideas according to the educational institution the students are from. The scheme is aimed at students who have an idea and ambition to start a business and have established a team. They can receive up to 1 million Norwegian kroner for the development and commercialisation of the solution. Statistics on grant recipients through STUD-ENT are shown in the figure below. The figure displays both the number of STUD-ENT and the proportion of business ideas that have received funding per 1,000 students for each of the educational institutions.

Figure: Number of recipients of grants for Student Entrepreneurship (STUD-ENT). 2016-2023. Source: The Research Council of Norway and Innovation Norway



The distribution shows that NTNU has four times more recipients of the STUD-ENT scheme compared to UiO. UiO has the second highest number of recipients, followed by NMBU which has significantly fewer students. When we adjust for the size of the university, we see there are three higher education institutions that stand out. NMBU, NTNU, and NHH have 1.8-2.1 STUD-ENT business ideas per 1,000 students, while UiO has 0.8. Therefore, there are relatively few student entrepreneurs at UiO compared with these three institutions. This indicates that UiO has a weaker culture of entrepreneurship compared to these three educational institutions which have the strongest. Ignoring the three that stand out, UiO nevertheless has a higher density of student entrepreneurs than other universities and colleges in Norway.

Regarding student entrepreneurship locally at the universities, UiO, OUS, and Ahus are affiliated with SPARK Norway, which is an innovation programme aimed at further developing health-related ideas within life sciences from these three institutions. The programme is led by UiO:Life Science and is supported by OUS, the management of UiO, and Inven2, and was developed in collaboration with SPARK Berlin and SPARK Finland. The programme itself is based on the original Stanford SPARK programme and is designed to mature discoveries in academia and hospitals towards practical solutions through education, mentoring, advisory services, and milestone-based funding. The programme aims to increase the success rate of projects with great potential for impact that meet critical needs within life sciences.

Similarly, NTNU offers the two-year Master's programme in Entrepreneurship through the Department of Industrial Economics and Technology Management. The Entrepreneurs' School focuses on business development and technology-based entrepreneurship, offering students workspace in the NTNU incubator in addition to support through a mentoring scheme and the network associated with the Master's programme. Located at NTNU, students also have access to seed funds and testing facilities. According to the Entrepreneurs' School, most projects associated with the programme succeed, and 50 percent of graduates are working on their own startup after completing their Master's degree.

## Access to competence from abroad

Access to expertise from abroad can be vital for the development of a strong entrepreneurial culture. Expertise sourced from overseas can broadly meet two essential needs. Firstly, bright minds from abroad can bring with them great ideas that can be cultivated here in the country. Secondly, and perhaps more importantly, there is a need to bring in people from overseas with niche expertise or solid experience in managing growth businesses with aspirations for international expansion and establishing larger business networks abroad. We have few to draw from, and often need to bring in the more experienced individuals from abroad.

It is consistently difficult to map the inflow of these types of expertise. An indicator that may affect the access to young foreign talents with good ideas is the number of foreign students at Norwegian educational institutions. We take a closer look at this below.

In Menon, we found that access to international cutting-edge expertise was one of the main challenges for Norwegian growth companies, particularly within IT, digitalisation processes, and individuals with practical experience and expertise in international sales and marketing. The lack of opportunities in Norwegian tax legislation to offer attractive stock option programs was highlighted as a barrier to attracting top talent in competition with more established businesses and growth companies in other countries. More recently, several start-ups linked to the Oslo entrepreneurship ecosystem have expressed that it is challenging to attract foreign top talent, and the waiting time associated with employing workers from outside the EU/EEA is seen as an obstacle. The waiting period can be up to 9 months for non-European workers, and this lengthy wait is the reason behind the pilot project "Kompetansespor" led by Oslo Municipality. The project aims to reduce the waiting time to as little as three days, to improve access to international talent in Oslo and Norway as a whole.

### Foreign students as a source of labour

According to the Directorate for Higher Education and Competence (HK-dir), international students who pursue a complete education in Norway coincide with labour immigration. International students who come to Norway to obtain a full degree often remain in Norway to work after completing their education. The figure below shows the number of international students in Norway, divided between EU/EEA and the rest of the world.

Figure: Number of foreign students in Norway, 2013-2023. Source: DBH



If we look at the total number of foreign students, the figure remains at approximately 20,000 students, which is the average number of foreign students in Norway in the period from 2013 to 2023, with the exception of 2020 due to the pandemic. This is because the number of students coming from the EU has somewhat increased from 2022 to 2023. The number of students from countries outside the EEA and Switzerland has overall decreased by over 1,000 students from the autumn intake of 2022 to 2023. In 2023, the number of students was 7,990, the lowest figure from outside Europe since 2009.

One of the potential explanations for the decline in this group of students is the introduction of tuition fees. The Norwegian Parliament decided that tuition fees will be introduced from the autumn of 2023 for students from countries outside the EEA and Switzerland. The tuition fee is determined by the respective educational institution, but must at least cover the institution's costs associated with the educational programme. However, the requirement will not apply to refugees, people displaced from Ukraine, doctoral candidates, and exchange students. The regulatory change has met with opposition from educational institutions and certain interest and employer organisations. The opposition is related to fears of reduced access to relevant labour, particularly within technological and mathematical/natural science subjects.

In a survey conducted by the Directorate for Internationalisation and Quality Development in Education (formerly Diku; now HK-dir) in 2019, 89 percent of full-degree students from countries outside the EEA responded that the absence of tuition fees in Norway was an important or very important factor for choosing to study in Norway over other countries. The survey also found that these students chose Norway due to the opportunity to work during their studies. Students from countries outside the EEA predominantly chose economic-administrative subjects (20 percent), mathematical-natural science subjects (16 percent) and technological subjects (13 percent) in 2022. While the introduction of tuition fees will lead to fewer international students, it will free up capacity for students from Norway, the EEA, and Switzerland.

# Venues and networks for development and growth

Access to venues, networks and infrastructure for entrepreneurship and innovation is often highlighted as important for start-up companies to be able to survive and grow. Sitting alone and isolated as an entrepreneur is not easy. There is a need for access to others' expertise, experiences, and networks.

There exists a large and rapidly growing number of venues and networks with various roles and functions that contribute to entrepreneurship, ranging from informal digital chat rooms to well-established TTOs and incubators that provide premises, capital, networks, and expertise/advice. One gets a clear impression that the number of players in this field has increased significantly over the past ten years. It is natural to question whether the need for such venues is as great as the number would suggest. In the past year, this has become a more pronounced issue as an increasing number of players in this area are struggling financially, partly due to falling demand for premises and services.

Many of the networking arenas are part of, or interact with, the business-oriented policy instruments (Innovation Norway, Siva, the Research Council, the county municipalities, etc.). Some are owned wholly or in part by universities, colleges and hospitals, and in many places the municipality or county municipality plays a central role through the provision of resources to the actors.

In a complex landscape of actors, there is a need for some tidying to gain an overview of all the networking arenas. In our surveys, we have chosen to categorise the actors into four groups:

Figure: Grouping of Important Networking Arenas for Start-Up Businesses



Technology Transfer Offices (TTOs) are linked to the Higher Education sector and hospitals, tasked with contributing to the commercialisation of innovations developed at these institutions. They offer both advice and capital to innovators, including assistance in establishing a startup, should that be the most appropriate route to commercialisation. Commercialisation of research findings from publicly funded research has received significant attention over time, and the establishment of TTOs has been a central part of the effort to increase the rate of commercialisation from basic research.

Incubators and accelerators are tasked with facilitating the development and growth of start-ups by offering premises, networks, advice, and some capital. It is by no means straightforward to draw dividing lines between incubators and accelerators. The latter are meant to have a somewhat greater focus on scaling up businesses, but in practice, this is done by all such agents. There are 35 incubators in SIVA’s incubation programme. Innovation Norway has three global scaling programmes, which aim to assist businesses that have ambitions and potential for further growth. These programmes, Tech Incubator Silicon Valley (TINC), Executive Marketing New York (EMNY), and Tech City Executive Accelerator London (TEA), are intended to enable the companies to realise their growth ambitions by providing concrete guidance for this, through mentoring schemes, pitch training, business model and scaling expertise. Other examples of accelerators include StartupLab Accelerator and EY’s global accelerator programme "Amplifier".

Business gardens, enterprise houses and coworking spaces are actors/arenas that primarily offer premises for start-up enterprises, but also offer advice and networking to varying degrees. Business gardens will typically accommodate a wider selection of businesses, where the presence of more established companies is more pronounced. Business gardens are often part of SIVA's business garden programme. There are 39 business gardens in SIVA's business garden programme.

Clusters consist of network organisations that gather selected and related businesses for collaboration and development through networks, projects, and studies. Clusters primarily offer a network, but can also provide advice and some project funding. Unlike incubators and accelerators, which focus on start-ups and growth, clusters engage a wider spectrum of business phases. The membership of clusters comprises both start-up and growth companies, and established industry. There are significant differences among the clusters in how the membership is distributed across business phases, reflecting the level of establishment of the industries/teams within Norwegian business life. Innovation Norway has 35 clusters in its cluster programme, Norwegian Innovation Clusters, divided into three different levels: Arena, Arena Pro, and GCE. At the Arena level, there are 20 cluster projects where businesses aim to focus on long-term innovation; at the Arena Pro level, the cluster programme is intended to stimulate further development from the Arena level. The GCE level corresponds to world-leading clusters with potential for growth in the international market. There are three GCE clusters in the cluster programme of Innovation Norway: GCE Blue Maritime, GCE NODE, and GCE Ocean Technology.

It is important to note that actors often offer several types of networking arenas simultaneously. Therefore, there is considerable overlap between actors and arenas. In the table below we have listed the number of actors offering arenas that we have identified through our surveys. We do not rule out the possibility that there are a good deal more actors offering such arenas, but our survey has been relatively comprehensive. We have counted the number of actors and differentiated between incubators and accelerators. Again, we are concerned with clarifying that it is difficult to distinguish between these in practice.

Table: Overview of the Number of Network Arenas and Number of Participants in Norway



The table below shows the 8 relevant TTOs in Norway, and the geographical area they represent.

Table: Overview of TTOs



In the table below, we summarise the number of incubators, accelerators, entrepreneurship hubs and the like, distributed by counties. We have identified 146 incubators, but we specify that the distinction between incubators and accelerators is unclear and overlapping. The name and location of each of these are placed in Appendix 5.

Table: Overview of incubators, accelerators, and entrepreneurial hubs, etc., divided by county. Source: Menon, various websites, Innovation Norway



We have identified 35 industrial clusters of relevance for entrepreneurship. These are listed in Annex 5. Collectively, the clusters cover a wide range of industries and themes. However, there are particularly two themes that recur in many clusters, being targeted at ocean technology and maritime industries, and renewable energy and energy transition. The GCE clusters are exclusively directed towards sectors related to the maritime domain, reflecting Norway's leading role in this sector. These clusters represent a specialisation that mirrors the country's long maritime tradition and expertise. In addition to maritime, many of the clusters are directed at the power and energy sector. This includes the development of renewable energy and energy technology, as seen in clusters such as Energy in the North, Energy Transition Norway and NCE Energy Technology. Taken together, these cluster initiatives reflect Norway's ambitions to be a leading nation in both maritime industries and renewable energy. These are not necessarily the areas where one finds the most start-ups with growth potential, since often capital-intensive and research-heavy innovations emerge from the industry. However, these are areas where Norway has leading knowledge and expertise internationally, and where the need for transition is significant. By ensuring networking arenas within these sectors, one promotes innovation and development in key industries, which is crucial for both Norwegian business and global sustainable development.

# Attachment

## Attachment 1: Knowledge-intensive industries

Table: Knowledge-intensive industries, defined by the proportion of employees with higher education being over 33 percent. Source: SSB



## Annex 2: Industrial Classification

In this attachment, we present a detailed explanation of the industry classification.

Table: On the Industrial Classification



## Annex 3: Overview of all new investment funds and instruments

Table: Overview of all new investment funds and instruments. Source: Menon



Table: Pre-seed environments with risk mitigated loans from Investinor. Source: Innovation Norway/Investinor



## Annex 4: Overview of educational offerings in entrepreneurship and innovation

In the table below, we have listed enrollment figures for courses in entrepreneurship and innovation at Norwegian educational institutions for the years 2012-2013 and 2022-2023. The list primarily comprises degree programmes, along with some continuing and further education. Between the two periods, several institutions have merged, and we have accounted for this by looking at the course offerings and enrollment figures from the merged institutions. Where enrollment figures are missing for 2012 or 2013, this is because the course offerings did not exist during this time period.

Table: Overview of studies in entrepreneurship and innovation at Norwegian educational institutions, as well as admission numbers for 2012-2013 and 2022-2023. Source: DBH



## Attachment 5: Overview of All Network Arenas by Function

Table: Overview of Clusters Associated with Norwegian Innovation Clusters



Table: Complete list of venues for entrepreneurs. Source: Menon

