



Nordic
Innovation

Nordic scalers

A study of drivers of
growth and barriers to scaling
of Nordic companies

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1. Executive summary

1. Executive Summary

The Nordic region has the potential to become one of *the* leading scale-up hubs in the world. Drawing on internationally comparable data, this report shows that in all the Nordics the number of scale-ups per capita is well above the EU average.

Indeed the scale-up density for the Nordic region is almost on par with the UK and Switzerland – two renowned scale-up nations. Finland, Sweden and Iceland rank especially high.

But the analysis also documents a significant gap between the Nordics and two scale-up champions: the US and Israel.

Thus, on average Nordic countries have 5 scale-ups per 100,000 inhabitants, while in the US this figure is close to 8, and in Israel it is 12.

If the Nordic region is to narrow the gap between it and the US and Israel it is vital that founders of

scale-ups, investors and policymakers in all of the Nordic countries have comprehensive knowledge and insights on the key challenges and barriers that Nordic scale-ups face at different stages of growth.

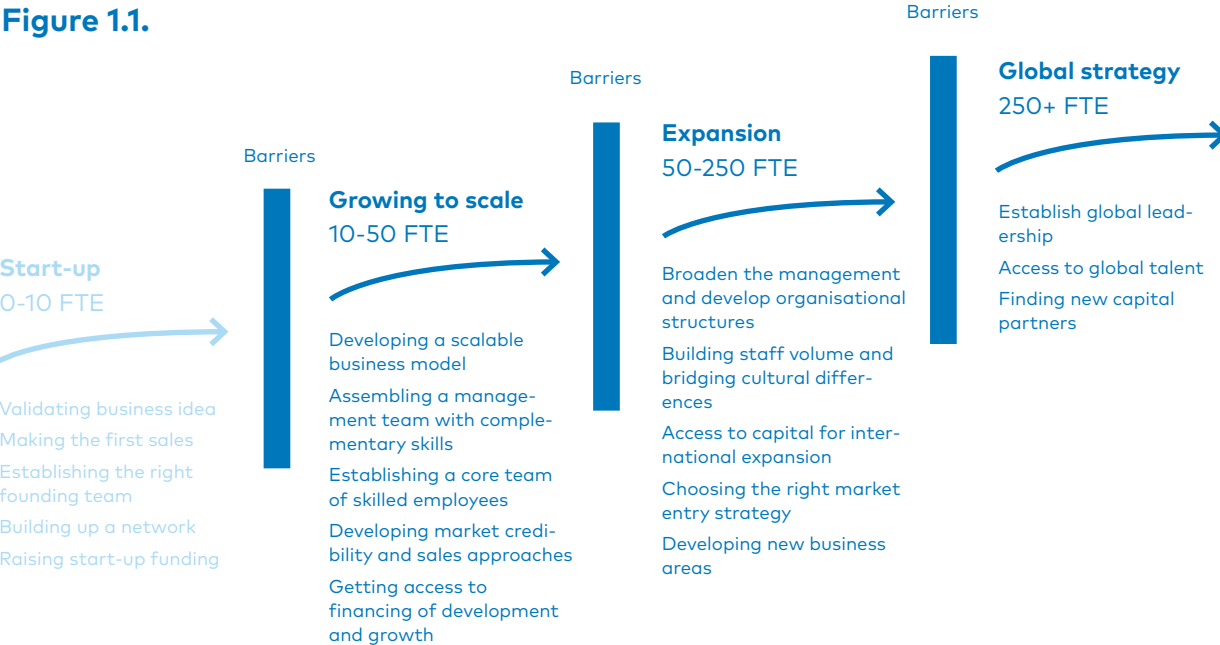
Even more importantly, all of the key actors will need to understand how successful scale-ups manage to meet and overcome key barriers for growth.

Based on more than 50 interviews with CEOs and founders of Nordic scale-ups, and representatives from the investor side, this report provides new and detailed insights into common traits and challenges among Nordic scale-ups.

Three stages of scaling up

Thorough analysis of the qualitative data suggests that the process of scaling from a start-up company with a handful of staff to an international

Figure 1.1.



company with more than 250 full-time employees can be divided into three stages. Figure 1.1 provides an overview of these and lists the main challenges which, in some degree, all companies experience and have to overcome in their efforts to move on to the next level of growth.

During the growing-to-scale phase companies grow from 10 to 50 employees. In the expansion phase, they expand from 50 to 250 employees. And beyond this, in the global strategy phase, with international growth, they come to have more than 250 employees.

Each stage is associated with a specific range of growth challenges, some of which are elaborated in the following sections.

In the **growing-to-scale** phase, companies are no longer start-ups; rather, they are gradually evolving into more mature and professionally managed businesses. However, the transition from start-up into the growing-to-scale phase is not always straightforward. It is not uncommon for companies to continue to struggle with some of the challenges they faced during their start-up days even though they have grown to employ more than ten employees.

This is particularly true of the growth challenges associated with finding the right product-market fit and developing the company's products and services towards markets of considerable size. Most of the companies we interviewed had not focused on these goals during the start-up phase. Rather, they had started out pursuing directions different from those that led to high growth. Often it is an imperfect product-market fit, or a focus on a small market with limited growth potential, that leads to slower growth and stagnation.

Another set of challenges relates to the development of a scalable business model. Several of the companies which agreed to be interviewed had adjusted core elements in their way of earning income – e.g. by changing their revenue streams or outsourcing parts of key company tasks, such as sales.

Companies usually have a strong focus on establishing effective sales channels and market credibility in the growing-to-scale phase. This can be difficult, though. Potential customers may be cautious about buying products. Often the quality of the product is as yet unproven, and new cus-

tomers may have only a few references from past customers.

At this stage, it is not uncommon for companies to also face challenges related to leadership and talent. Assembling a management team that possesses the competencies required to develop the company from start-up to scale-up, as well as building a core of skilled employees who can be bearers of the company's culture and values, is not an easy task. To give just one example, getting hold of certain types of employee, such as high-end IT developers and managers with scale-up experience, can be extremely difficult, especially if there are significant supply/demand mismatches.

Finally, access to capital is important. Scaling a company will typically require investments in product development, sales activities, recruitment, training and organisational development in order to increase revenue. Attracting capital is a very competitive game, and most companies experience difficulty attracting sufficient funding at this stage, not least because the company's market credibility and track record for generating revenue is often poor.

By the time they enter the **expansion phase** scale-up companies have overcome some of the fundamental growth challenges, such as building a scalable business model and establishing market credibility. However, they still face a broad range of challenges related to leadership, business development, internationalisation, and so on.

At this point, it becomes increasingly important to have structures in place that enable large-scale production. Almost invariably, companies need to develop formal organisational structures – e.g. to organise employees in more formalised teams, or departments, according to their area of responsibility, and to establish a tier of middle managers to oversee the newly established entities.

The senior management team often needs to be extended in the expansion phase as well. To this point, the founders will often have been involved in more or less all of the significant activities of the company, but when they reach the expansion phase they simply do not have sufficient resources to be this involved any longer. This means that additional senior managers are hired to be in charge of, for instance, financial or commercial matters.

Another key challenge in this phase arises from

the fact that if companies aspire to retain and strengthen their market position, they must continually ensure that their products and services meet the changing demands of their customers, and that their business model delivers customer value as well as economic growth for the company.

Our interviews also demonstrated that if companies wish to scale, they typically have to expand their business into foreign markets. However, choosing which markets to enter is not easy. It usually involves considerations such as the size of the specific market, cultural differences and technological readiness that are entirely new for the company.

In addition, at this point companies often find that the development of international representation is a very capital-intensive process. They may discover that they require new investors who can contribute to the massive investments required for setting up foreign sales offices, production lines, the recruitment of international staff, etc.

Finally, most scale-ups experience new kinds of challenge revolving around talent and company culture at this stage. As companies grow and expand into foreign markets, they increasingly develop into melting pots embracing different cultures, languages and professions. Often this makes it harder to build and preserve a strong company culture that promotes desired behaviour among employees – not least for the simple reason that the employees are localised all around the world, hampering day-to-day cooperation.

In the **global strategy** phase the company enters another league – one where, increasingly it is competing head-to-head with globally leading enterprises within its field. Not surprisingly, this generates new kinds of challenge to leadership, capital and talent.

Very often, companies are at this point struggling to establish global leadership and make substantial changes in senior management. In most cases, the founders have so far been a key driver behind the growth of the company, taking up key management positions such as CEO or CTO. Now, however, they in most cases replaced by experienced international top executives with a strong understanding of global markets and business culture.

Our interviews revealed that this transition can be quite a delicate matter. Understandably, founders

are not always content to accept what they see as a diminishing role in the company. Finding the right successor to the founder – someone who has the required experience, understands the company DNA and, very importantly, has a good chemistry with both founders and investors – can be like looking for a needle in a haystack.

In addition to establishing global leadership, companies at this stage often need to find new capital partners with sufficient funds and expertise to take the company through the next phase of growth. Typically, the company will have been through several successful funding rounds by now, and hence finding the right exit strategy for the company is a task carried out in a close collaboration between the management and investors. Assessing and agreeing what the right exit strategy would look like is not easy, and often companies explore various exit opportunities (e.g. doing an IPO or being acquired) before making a choice.

Finally, companies at this point are still dealing with the challenge of accessing talent. As the company becomes present in more and more markets, and increasingly competes with globally leading enterprises, it often has a greater need to recruit highly qualified and specialised employees from all around the world who can deliver innovative and high-quality products and services, and solve increasingly complicated tasks and problems in an effective manner. Competition for this world-class talent of this sort is always fierce.

Decisive factors in up-scaling

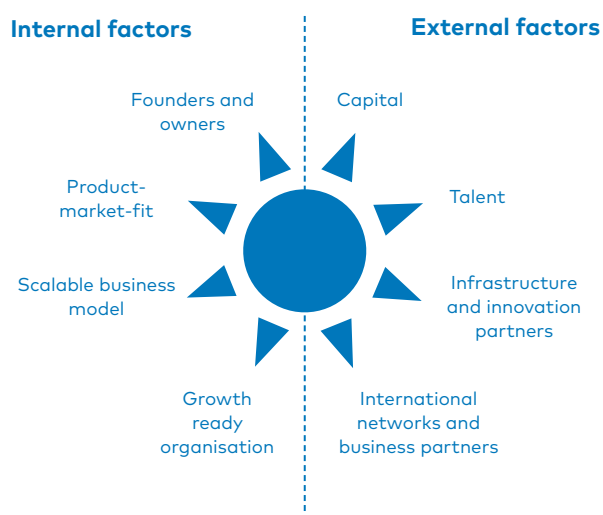
The analysis provides a thorough understanding of the reasons why some companies are able to grow and scale successfully, while others with the same growth ambitions and scale-up potential stagnate or fail.

The 40 companies we interviewed in this study were all successful in the sense that they had generally enjoyed growth from the time they were founded and to this day. Furthermore, they met the scale-up definition applied by Nordic Innovation. On the other hand, our case material was mixed. It included both extremely successful unicorns which had managed to grow to more than a thousand employees and companies which – despite having achieved growth and meeting the scale-up definition – had also experienced periods of slow or stagnating growth.

Looking across the interviewed companies, we could see that all had been struggling – to various degrees – with the challenges summarised in the previous sections, and that each had dealt with these challenges in its own unique way.

This notwithstanding, the interviews suggest that certain shared factors have a great impact on the extent to which companies succeed in achieving high growth. These factors are summarised in Figure 1.2 below.

Figure 1.2.



The left side of the figure shows four key factors that are mainly related to the internal resources and capabilities of the company. The right side of the figure lists external factors that are mainly related to resources in the ecosystem in which the company operates.

Of course, these factors are rarely an expression of purely internal capabilities or purely external resources. We make the distinction shown in the figure because we believe it is helpful to separate factors which companies have to deal with primarily internally (e.g. finding the right product-market fit) from factors where companies are quite dependent on access to external resources in the ecosystem (e.g. capital).

The following sections will explain how internal and external factors affect a company's ability to scale up.

Internal factors

Among the internal factors, the **founders and owners** of the company are of great importance. They need to be ambitious and aspire to build up a growth company from day one. They also need to have the right skills – e.g. the ability to see how the company can consistently create value for new and existing customers, and build up effective work flows and sales channels, etc. Conversely, they need to be capable of recognising their own shortcomings – both in professional skills and in personal traits. Only then will they be motivated to find ways to access the required qualifications by, for instance, bringing in new management team members, board members, mentors, and the like. Finally, it is important that founders and owners are flexible and willing to take on new roles and areas of responsibility as the company grows and requirements in the top management team change.

Other significant internal factors are the need to find the right **product-market fit** and develop a **scalable business model**. Any company that is going to scale up successfully, will need the ability to develop a product or service that meets a demand in a large and/or growing market. Our interviews showed that often companies do not find a product-market fit that leads to high growth from day one. In these cases, it is important for the company's founders and managers to be creative and continue to search for, and try out, new ways to tap into high-growth markets with existing or new products. For some companies, this may mean drawing on the expertise of experienced business people – e.g. by bringing in new members of the management team, establishing an advisory board, or participating in accelerator programmes.

However, finding the right product-market fit is not enough – it does not guarantee the company consistently achieve high growth rates thereafter. A key factor behind successful scale-up companies is their ability to keep track market trends and meet the changing needs of existing and new customers by constantly developing their products, services and business model. As part of these efforts, companies may, for instance, dedicate substantial resources to internal innovation activities, acquire new companies that have already developed a product or service that the company aspires to offer its customers, or involve customers, distributors and suppliers actively in innovation processes.

Finally, establishing a **growth-ready organisation** is vital. This means putting in place more formal structures ensuring that company tasks are handled efficiently as well as making sure that there is a strong corporate culture supporting the internal cohesion of the company.

Some of the most successful companies in the case material were characterised by a very strong focus on these matters. They had established tiers of senior and middle managers who had bought into the mission and values of the company and were capable of unifying departments. They supported a high level of cooperation and dialogue across borders through recurring meetings and events as well as an extensive use of online communication tools. And they focused on developing a common corporate language – e.g. simply by repeating certain phrases that reflect core company values as a part of their daily business talk.

External factors

In terms of the external factors, access to sufficient **capital** through all growth stages is crucial. This includes access to a broad palette of financing instruments (e.g. public support schemes, venture capital funding, bank financing, etc.).

The companies we interviewed that had managed to scale rapidly had generally raised capital through several funding rounds. However, they had not raised money at all costs. Rather, their senior management team had devoted a substantial amount of time to finding the right investor match, and they had also considered carefully what funding types were most suitable to meet the company's capital needs in their given growth phase. Many had put great emphasis on choosing an investor with whom they had a good chemistry and shared business visions. Finally, finding an investor who brings in-depth knowledge and can advise on relevant matters (e.g. on specific technologies or expansion into new international markets) was important for some of the companies.

Another key growth factor is the company's ability to attract the **talent** it needs. This includes senior and middle managers as well as specialists and generalists at employee level. In all of the scale-up companies we interviewed highly qualified staff were always in short supply.

The really successful companies had typically found ways – at times, quite creative ways – to

overcome this challenge. Thus, they had recruited from their network of foreign colleagues and fellow students, established offices in locations with better access to skilled employees, developed internal training programmes for the upgrading of new employees (allowing them to recruit from a wider circle of candidates). They had also reached out to actors in the ecosystem around them – e.g. by cooperating with higher education institutions on internships and other projects giving the company exposure to potential employees among students and researchers.

For most successful scale-ups, **international networks and business partners** are an important growth factor. In other words, companies need to build relationships with multinationals and international business partners who can provide access to new, foreign markets, growth-funding and other resources of importance for the development and expansion of the company in different phases. Successful scale-up companies are typically good at building networks like these which help them to expand their business globally. We found that often international networks and partnerships had provided access to market insight, new and talented senior managers, board members, specialists, or new investors with high levels of industry insight. Some of the interviewed companies had drawn on their strong international network when searching for potential candidates for a merger or acquisition. In some cases, scale-ups had received valuable assistance in establishing some of these contacts through publicly funded bodies and schemes, such as Nordic Innovation House.

Finally, for many of the most successful scale-ups access to **infrastructure and innovation partners** was critical. This was especially true for companies within deep tech and manufacturing. These factors involve access to advanced production facilities where products are developed, tested and manufactured, and access also to excellent researchers, private companies and public bodies who can serve as innovation partners – e.g. when prototypes are being tested.

Scale-ups with these needs often focus on establishing long-term collaborative relationships within excellent international research environments which enable the company to have its technologies and products tested through various research projects. Some also focus on making sales to industry-leading companies that are willing to try

out new, innovative technologies and products. Alliances like these can be especially valuable for companies which are in the growing-to-scale phase and have not yet built up strong market credibility, since they can serve as a "stamp of approval" of the company's technologies and products.

The successful scale-up companies in the case material tended to perform well against most of the internal and external markers listed above. And when companies had experienced slowing or stagnating growth, it was often because they were struggling to put one, or several, of the factors in place. They were, for instance, struggling to find the right product-market fit, or to assemble a competent team of managers and owners, or to locate the right investors.

How to strengthen the Nordic scale-up hub?

The many successful Nordic scale-ups have endowed the Nordic Region with strong role models who can help raise the level of ambition in start-ups with scaling potential. The region also now has experienced founders and plenty of management talent with scaling expertise.

Further, the high scale-up density in the Nordics has led a growing number of domestic and international venture funds to scout the Nordic scale-up landscape for new, successful investments cases.

The combination of management talent, ambition and access to growth capital are important building blocks that will be vital in the region's development into a leading scale-up hub.

But it is important to continue to nurture, strengthen and broaden the framework conditions for scaling up in all the Nordics.

Our desk research and interviews with policy-makers from leading scale-up nations like Israel, the UK and Switzerland suggest that policy efforts at both local/regional and national/Nordic level are needed in order to safeguard and expand the Nordic region's position as a global scale-up hub.

The box below summarises the policy areas of main concern at the regional level.

Box 1.1. Key policy areas at regional level

Enhance access to scale-up expertise

- Network of successful founders/CEOs
- Matchmaking (board members, mentors)
- Regional and international scale-up programmes

Access to private and public innovation partners

- Multinationals, lead users, providers of technological infrastructure (i.e. hospitals, etc.).

Build strong channels for talent recruitment

- Highlighting career opportunities in Nordic scale-ups locally and internationally
- Welcoming international talents

Acquire venture funding

- Attraction of (foreign) venture capital and improved matchmaking services

Access to production facilities and equipment

- Improve access to laboratories, test facilities and affordable, flexible production facilities

The primary focus at regional level needs to be on building stronger ecosystems by enhancing links between potential scale-ups and the critical resources needed to scale successfully – primarily access to scale-up expertise, talented employees and growth capital.

It is important to emphasise that a strong ecosystem for upscaling should support easy transition from one growth stage to the next. It needs to facilitate inevitable changes in company management and on the investor side.

The safeguarding and expanding the Nordic region's position as a leading scale-up hub will also require enhanced policy focus at the national level.

The textbox below summarises policy areas of key concern at a national level.

Box 1.2.

Policy areas at national and Nordic level

Increased talent pool

- Enhanced attraction of global talent
- Marketing of job opportunities within Nordic business strongholds
- Improved ability of companies to make use of employee stock options.
- Expanded national talent pools.

Better access to growth capital

- Strengthened Nordic stock markets
- Activated assets in pension funds.

Easy access to international business partners

- Enhanced collaboration across Nordic innovation centres

These key policy areas at national and Nordic level focus on giving high growth companies access to sufficient talent and venture funding, plus access to international business partners.

Successful scale-ups tend to expand their economic activities where they have the easiest access a large talent pool. Thus, it is of paramount importance for the Nordics to attract global talent and make those who bring it to the region welcome. It is also crucial to secure sufficient intake of students in education of the highest quality at all educational levels.

Where capital is concerned, significant differences exist among the Nordics. Sweden has the best-functioning markets for growth capital, including a very active investment culture and a thriving stock exchange for smaller companies and potential scale-ups.

It is important for all of the Nordic countries to work together to secure access to a broad range of funding opportunities in each of the different stages of scaling up.

This includes creating conditions that are favourable for large international venture funds and for mergers and acquisitions. It is also important to create an environment that supports companies aiming to conduct an IPO and be listed on the national stock exchange. This indeed is an area where

there is a huge potential for mutual learning across the Nordics, and where Sweden, which is at the forefront, can be inspirational for the other Nordic countries.

Finally, there may well be a need to help more potential scale-ups to access international business partners in order to approach foreign markets successfully.

Since each Nordic country is relatively small, the potentials gains from further collaboration across the Nordic region on many, if not all, of these issues are considerable.

2. Background and purpose

2. Background and purpose

2.1 Why focus on scale-ups?

For several decades entrepreneurship has been a leading theme at the top of the policy agenda for Nordic politicians and the public bodies responsible for business policy.

Considerable efforts have been made to stimulate an entrepreneurial culture and create strong eco-systems for entrepreneurial activity. Thus, all Nordic countries have invested significant resources in developing entrepreneurial training, mentoring services, incubators, and improved access to start-up funding, and they have also passed new, regulatory frameworks making it easier to set up new businesses.

These efforts have paid off. This can be seen from the reputable Global Entrepreneurship Index, which measures the health of the entrepreneurship ecosystems in 137 countries.

In the latest issue of the Index, released in 2018, three Nordics (Denmark, Iceland and Sweden) rank in the Top10, and all five Nordic countries are among the Top25 countries in the world with the healthiest ecosystems for start-ups.

Over the last 20 years or more, solid knowledge has been established on what policy measures have an impact and are effective in fostering more start-ups.

Paradoxically, much less attention has been given to the question what promotes the emergence of more high-growth companies, and what it takes for companies with a scalable business model to be successful in the later growth-phases that follow the start-up phase.

Thus, our knowledge of the main barriers to scal-

ing, and of what characterises strong ecosystems for scale-ups, is currently limited.

Until now, most scale-up analyses have focused on how to define and monitor scale-ups, and on building evidence for the importance of scale-ups as drivers for new jobs, productivity and wealth creation.

As a consequence, the economic importance of scale-ups is well-documented. Previous studies have pointed out that high-growth companies help to stimulate innovation, enhance competition, accelerate job creation, and raise productivity and incomes.

Further, scale-ups play an important role in the renewal of the industry-base in most developed countries.

But we continue to lack knowledge and insights on the actual barriers to scaling up, and on how the challenges vary across business sectors and scale-up phases.

Such insight will be needed if policymakers and others are to address the most important scale-up challenges and develop impactful policies which can raise the number of successful scale-ups.

This study aims to build a common understanding of the key barriers to scaling. It is hoped that it will help to shape policies aiming to create stronger ecosystems for scale-ups in the Nordics.

2.2 Why a Nordic perspective on scale-ups?

Several international studies monitoring the number of scale-ups across nations and regions have pointed out that, over the last 10 years, the

Nordics have created a notably high number of unicorns relative to their population size and share of the international economy.

According to one of the most comprehensive and recent studies, the Nordics account for 5% of Europe’s population and 6% of its GDP, but represent 16% of Europe’s scale-ups and account for 19% of the total capital raised by European scale-ups in 2018¹.

The “scale-up density” in the Nordics is well above the EU-average, then, and even higher than in the UK, which, by some distance, has the largest number of scale-ups in the EU and is renowned as a world-leading scale-up nation (see Table 1).

Table 1.
Scale-up density in EU and the Nordics

	Density (Scale-ups per 100,000 inhabitants)
EU-average	1.9
UK	5.37
The Nordics	4.26

Source: Tech Scaleup Europe 2019.

Note: This study applies a definition of scale-ups based on the amount of capital raised, which is different from the definition developed by Nordic Innovation and applied in this report.

Although the Nordics already punch above their weight, there are plenty of reasons to continue to collaborate to improve the ecosystem for scale-ups across the Nordic region.

The Nordic countries are alike in their business culture. This allows companies with scale-up ambitions to expand their business to neighbouring Nordic countries early on, in the first wave of internationalisation, and to access resources that are important for successful upscaling.

Rather than encouraging Nordic politicians and

other policy makers to rest on their laurels, the impressive statistics should give the business sector confidence that it is possible for the Nordic region to challenge world-leading scale-up hubs like London and Paris in Europe, Tel Aviv in Israel, Silicon Valley and Boston in the US, and Singapore in South-East Asia.

A first step towards realizing this bold ambition is to build a stronger knowledge base on the key challenges facing up-scaling and identify strengths and weaknesses of the ecosystems for scale-ups in the Nordic countries.

It is often assumed that the Nordics house an integrated ecosystem for innovation and growth. But in practice, there are significant differences between the Nordic countries, and relatively few structures and mechanisms are in place to support integration of the Nordic innovation ecosystem².

Thus, an important step is to identify areas within the Nordic ecosystem for scale-ups where closer collaboration among the Nordic countries is needed if the region is to be on a par with world-leading scale-up hubs.

2.3 Research questions and analytical approach

This analysis provides new and detailed insights into scale-up challenges and identifies the traits that are shared by scale-ups with the ability to successfully overcome these challenges.

The analysis also gives a robust picture of the Nordic ecosystem for scale-ups, and traces important differences in ecosystems across regions and countries in the Nordic region.

Three main questions have guided our analytical work:

- Why are some companies able to grow, while others (with the same growth ambitions and scale-up potential) stagnate or fail?
- What are the differences between the Nordic countries, and between the Nordic region and countries with the leading ecosystems in the world, when it comes to the key conditions for scaling up businesses?

¹ - Mind the Bridge (2019), Tech Scaleup Europe 2019.

² - Nordic Council of Ministers (2018), An integrated and effective Nordic ecosystem for green growth.

- What policy recommendations can be made (at a regional, national and Nordic level) targeting companies with scale-up potential in different sectors?

2.3.1 Scale-up definition

In this study, scale-ups are defined as fast growing companies that meet Nordic Innovation’s definition of scale-ups (see Box 2.1).

Thus, the analytical emphasis is on larger companies that have transited the start-up phase.

The focus is on the challenges companies meet in different growth phases when expanding from a modest 10 employees – all the way up to more than 1000 employees in the most successful cases.

Box 2.1. Definition of a scale-up

Scale-ups are enterprises meeting the following three criteria:

- 10 or more full-time equivalent employees.
- annual turnover of EUR 2 million or more in the first year of observation.
- average annualised growth in number of employees (FTE) greater than 20% over a three-year period.

Source: Nordic Innovation (2019): “Scale-ups in the Nordics – Statistical Portrait 2008-2016”.

2.3.2 Analytical approach

The analysis is based on a comprehensive set of qualitative data. Thus, we have:

- carried out an international literature review of academic papers and recent analysis of scale-up companies, growth barriers and scale-up policy.
- conducted 40 in-depth interviews with scale-up companies at different stages of scaling up, representing different sectors and all of the Nordic countries.
- conducted interviews with seven providers of capital representing all of the Nordic countries.

- conducted nine interviews with key representatives from world-leading scale-up hubs in Israel, the UK and Switzerland.
- discussed our preliminary results and main conclusions with the Nordic Scalers advisory board, key people in Nordic Innovation and a selected group of researchers who are highly specialized in growth companies and industrial dynamics.

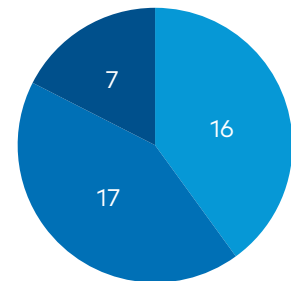
The main focus in the data gathering has been on the growth-trajectories of scale-ups, and on the challenges that scale-ups meet in different growth phases and how they are solved.

All of the interviewed scale-ups meet the scale-up definition and have, to a greater or lesser extent, been successful.

Figure 2.1. Interviewed companies: distribution across scale-up phases, sectors and countries

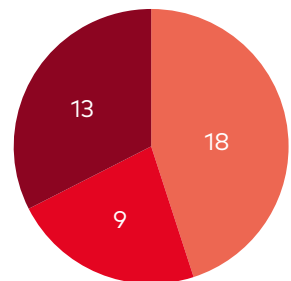
Scale-up phase

- Growing to scale
- Espansion
- Global strategy



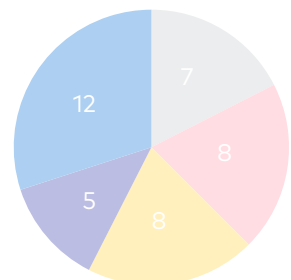
Sector

- It & software
- Service, trading & consulting
- Manufacturing



Country

- Finland
- Norway
- Sweden
- Iceland
- Denmark



Source: IRIS Group.

But it is evident from the many interviews that while scale-ups do of course experience periods of high growth, these are often separated by intervals of deceleration or stagnation.

The data gathering has been pursued with the aim of obtaining a deeper understanding of the drivers of growth and the trigger-events that spur growth in successful scale-ups. It was equally important to obtain deep insight into the barriers to growth and causes of stagnation, and perhaps most importantly to understand how successful scale-ups manage to meet and overcome the challenges these barriers create.

The companies selected for in-depth interviews, represent various sectors and all of the Nordic countries.

Figure 2.1 gives an overview of how the case companies are distributed across sectors, countries and scale-up stages.

3. The Nordic scale-up landscape at a glance

3. The Nordic scale-up landscape at a glance

This chapter presents metrics on the development of scale-ups in the Nordic countries and makes international comparisons with other successful scale-up nations.

The number, nature and growth of Nordic scale-up companies are described in Section 3.1. Then, in Section 3.2, the Nordic scale-up level is compared with that seen in the other countries.

It should be noted that the numbers underlying the findings presented in Section 3.1 and Section 3.2 derive from two distinct data sources using rather different definitions of what constitutes a scale-up company. In Section 3.1 the Nordic Innovation definition of a "scale-up company" is used (see Box 2.1 for the full definition). In Section 3.2 the definition used by Tech Scaleup Europe is used³. This gives us access to internationally comparable data.

To qualify as a scale-up company under this latter definition, a company needs to have been funded by least \$1 million, with the latest funding round being after 2010, and to have been founded in the new millennium.

As a consequence of two definitions being applied, the numbers of scale-up companies for the Nordic countries vary between the sections. The definition used in Section 3.2 is generally more discriminatory, and when it is used all the Nordic countries are shown to have fewer scale-up companies.

3.1 Nordic scale-up companies are growing in number

Figure 3.1 shows the growth of scale-ups in the Nordic countries from the period 2008-2011 to the period 2013-2016. The five Nordic countries are shown in different colours.

As can be seen in the figure, Sweden had the largest portion of scale-up companies in every one of the periods. Norway and Denmark had similar numbers of scale-ups in 2013-2016 – each had about half as many as Sweden had. Finland fol-

3 - Except that all (not just tech) companies are included

Figure 3.1.
Developments in the number of scale-ups in the non-financial business economy

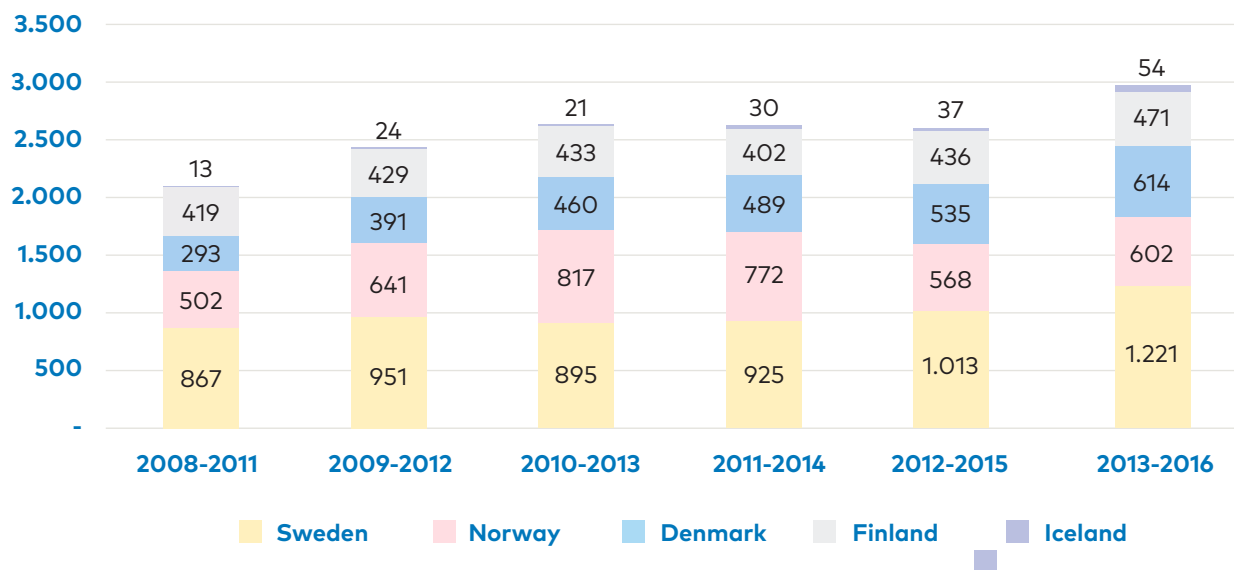
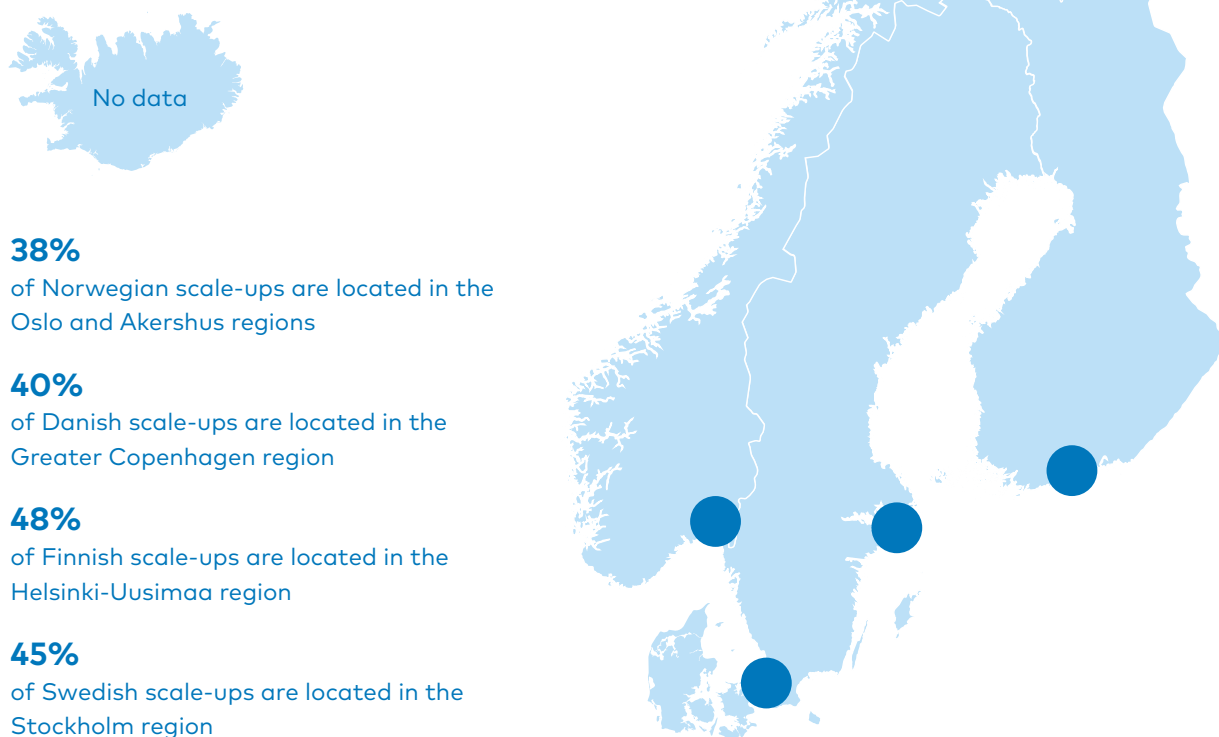


Figure 3.2.
Share of national scale-ups in the non-financial business economy in the capital regions of the Nordic countries, 2013-2016



Source: Nordic Innovation (2019): "Scale-ups in the Nordics – Statistical Portrait 2008-2016".

lows with a slightly smaller number of scale-ups in 2013-2016, while Iceland makes up comfortably the smallest portion. The portions largely follow the country sizes, as one would expect.

The figure shows overall growth in the total number of scale-ups in each of the Nordic countries. It can be seen that all countries have experienced a growth, and especially Denmark and Iceland, both of which have more than doubled their initial number of scale-ups.

In 2016, the Nordic scale-ups accounted for 5.2% of total employment in the Nordic non-financial business economy, or about 325,000 employees. In total, the scale-ups made up 0.19% of Nordic companies in 2013-2016, up from 0.15% in 2008-2011.

The growth has been most significant in Iceland and Denmark.

As can be seen from Figure 3.2, a large portion of today's scale-up companies are clustered around the Nordic capital regions – i.e. the Greater Copenhagen region, the Helsinki-Uusimaa region, the Oslo and Akershus regions, the Stockholm region, and very probably the Reykjavik region in Iceland, where unfortunately we lack data.

As shown in the figure, almost half of all scale-ups in Finland and Sweden are located around the capital regions. It is true that the numbers are slightly lower for Norway and Denmark, but all countries nonetheless have a much higher portion of their scale-ups in the capital regions than one

would expect given those regions' populations and numbers of companies.

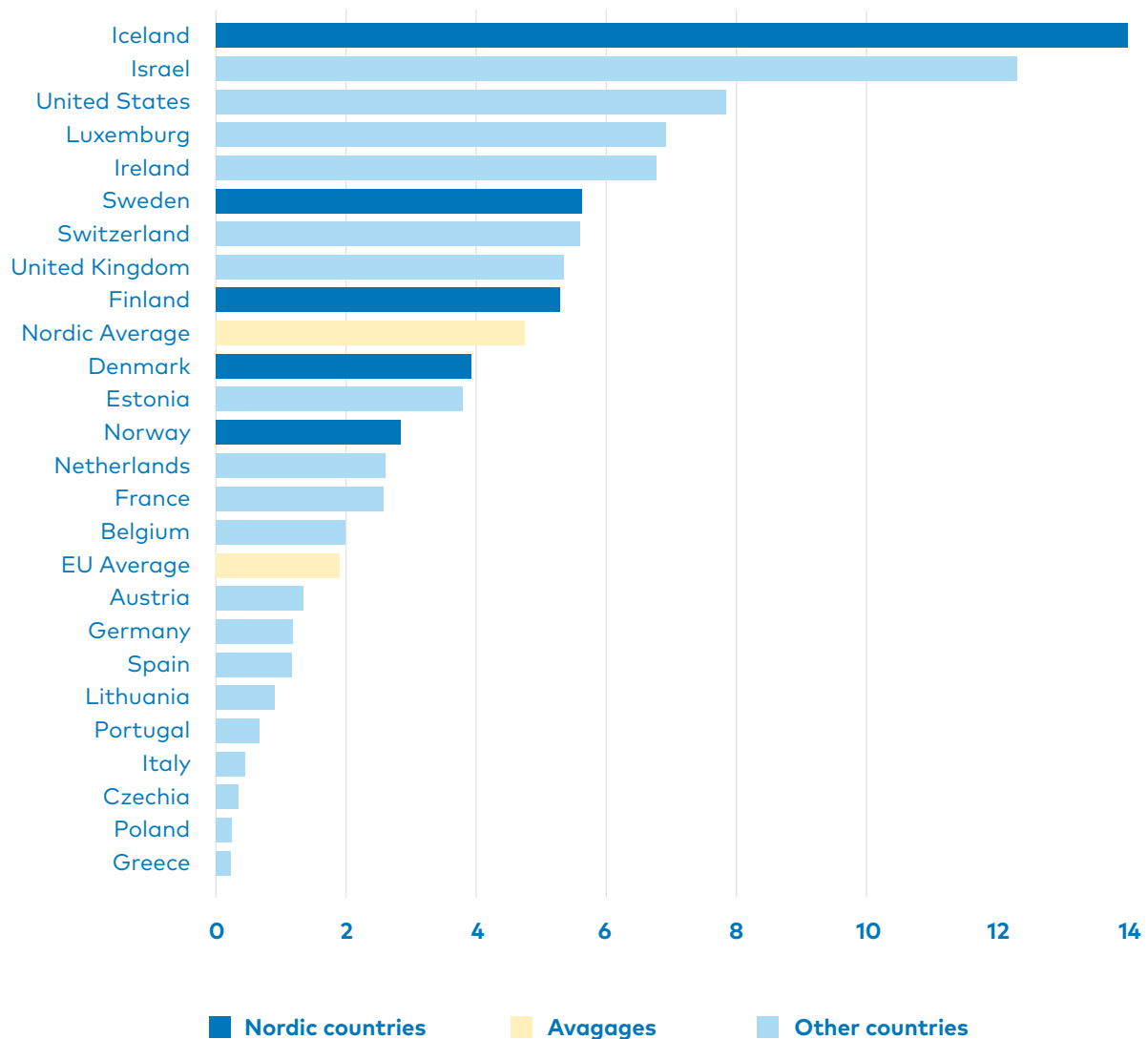
up companies, as defined by the Nordic Innovation, that adequately cover Nordic countries and a meaningful number of comparison countries.

3.2 Numbers of Nordic companies with scale-up potential compared internationally

For that reason, a different definition is used for this section. This definition is focused on funding and foundation year rather than consecutive growth years.

There is no international data available on scale-

Figure 3.3.
Scale-up density (number of scale-ups per 100,000 inhabitants) in selected countries



Source: Own analysis based on company data from Crunchbase and population data from the United Nations.
 Note: As data using the definition of 'scale-up' employed by Nordic Innovation were not available for all countries, an alternative definition was used. This definition was based on the criteria employed by Tech Scaleup Europe, although it included all categories of company rather than tech companies only. To qualify as a potential scale-up company under these criteria, a company needs to have headquarters in the country in question, to have been funded by at least \$1 million with the latest funding round being post-2010, and to have been founded in the new millennium.

We may consider these companies “potential scale-ups” as they have attracted substantial capital in a short time. Some may already be scale-ups, while some may not have revenue, growth, or even products yet. However, this data is still useful as these companies will heavily overlap with the scale-up companies of the rest of the analysis.

By measuring the *density* – i.e. the number of potential scale-ups per 100,000 inhabitants – it is possible to obtain a picture showing which countries are successful in scaling up. Figure 3.3 shows our analysis, which was based on Crunchbase data.

Figure 3.3 shows the Nordic countries in dark blue. It can be seen clearly that all of the Nordic countries are in the top half of the list of selected countries. Iceland is located in the number one spot, with more than 14 potential scale-ups per 100,000 inhabitants. Sweden and Finland are a little lower down, at around 5, while Denmark and Norway are at nearly 4 and 3, respectively. The green bars show the Nordic average and the EU average. They indicate a much higher level for the former than the latter. Other countries at a high level are Israel, the United States, Luxembourg, Ireland, Switzerland and the United Kingdom. .

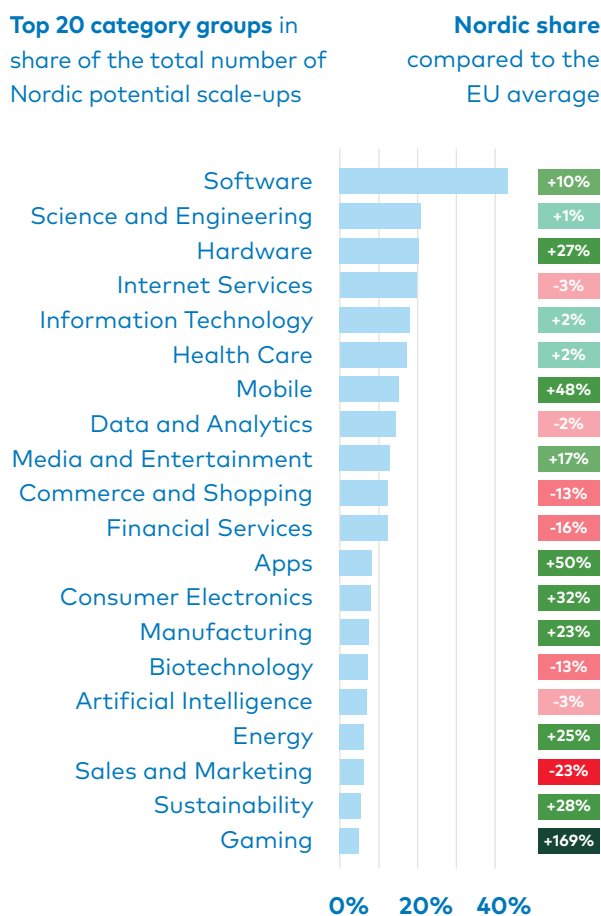
3.3 Nordic sectors of potential scale-ups compared internationally

Since the Crunchbase database categorizes the various companies listed, we can compare Nordic activity of potential scale-ups categorially (i.e. sector-by-sector) with EU averages. The categories Crunchbase applies are defined in terms of what a company sells or provides.

Figure 3.4 shows the categories with the highest numbers of Nordic potential scale-ups. As it is possible to have more than one category per company, the figures add up to more than 100%. A total of 46 different categories are used in the database, but the smallest categories are insignificant. Thus, we show the top 20 categories only.

To the right of each Nordic category share (shown in the blue bars) is a figure indicating the Nordic share relative to the EU average. This offers an insight into whether the Nordics have a relatively high, or relatively low, share of potential scale-ups in a particular category in comparison with the overall EU-average. The relative figures give a vivid indication of whether the Nordic countries are

Figure 3.4.
Shares of categories of Nordic scale-ups and how each share compares with the corresponding EU average



Source: Own analysis based on company data from Crunchbase.
Note: “Share” is defined as number of potential scale-ups within that category divided by total number of potential scale-ups. The EU average excludes Nordic countries.

significantly stronger or weaker in their number of potential scale-ups in particular categories.

The figure shows Software to be by far the largest category among the Nordic potential scale-ups – a category into which 43% of the relevant companies fall (which is 10% higher than the EU average of 39%). Next come the categories of Science and Engineering and Hardware, each of which captures approximately 20% of Nordic potential scale-ups. Overall, many of the top 20 categories involve digital solutions and IT, signifying the extensive growth in these sectors since the turn of the millennium.

When we look at categories where the Nordic countries have higher shares of potential scale-ups than the EU average, we see that Gaming, Apps, Mobile, Consumer Electronics, Sustainability, Hardware and Energy are particularly strong. Meanwhile, the shares of Sales and Marketing, Financial Services, Commerce and Shopping and Biotechnology potential scale-ups are lower than the EU average.

When the Nordic countries are analyzed categorially individually, some country-specific strengths emerge. Norway has an especially high share of potential scale-ups in Science and Engineering and Data and Analytics. Denmark is strong in Biotechnology, Sweden in Media and Entertainment and Financial Services, Finland in Mobile and Apps, and Iceland in Sustainability and Gaming.

Looking beyond the top 20 categories, we find that Denmark is the only country with a medium-to-high level of Transportation potential scale-ups. Here the other Nordic countries are significantly below the EU average. Much the same can be said about Norway and the categories of Natural Resources and Real Estate. In general, however, the Nordic countries tend to excel in largely similar categories.

4. Pathways to growth

4. Pathways to growth

The large number of in-depth interviews we conducted with Nordic scale-ups afforded insights into a variety of unique growth histories.

The cases demonstrate that successful high-growth companies can have very different prerequisites for up-scaling and often develop along different growth paths. In the cases, the following factors vary significantly:

Market conditions: Many of the successful companies were found to be operating in the booming tech sector, where new market opportunities related to, among things, computer games, web-marketing and other online services have prepared the ground for a significant number of scale-ups. On the other hand, the interviews brought to light cases of scale-ups that were excelling in more mature sectors, like the food industry, and in emerging growth sectors, like clean energy, and companies using advanced manufacturing technologies which had successfully carved out a strong niche among dominant and well-established players in these mature sectors.

Scale-up expertise in the founding team: Some scale-ups have very experienced founding teams with wide professional networks, but others do not. Obviously, more experienced founders tend to have a higher rate of success in scaling up, but it is important to bear in mind that it is possible to be successful even if the founding team lack scale-up experience. Thus, the case material covers several successful scale-ups founded and led by relatively in-experienced founders with little scale-up expertise.

The key factor for success seems to be whether a company is able to attract suitable competencies and other essential resources as it develops and grows.

Many of the successful scale-ups with less experienced founders had benefitted from having investors and board members with wide personal networks giving access to management talent, business partners, and knowledgeable funding partners with expertise in specific phases of the scale-up process.

Organic vs acquisitive pathways to growth: A substantial segment of scale-up companies we

examined had followed an organic growth path. Typically, they were companies which had developed a unique product, service or business model addressing an international market demand. Many of these companies had grown organically through effective expansion into new international markets or by putting their products, services and core competences to work in a wider array of business sectors and markets including some that were new to the company.

A smaller, but still significant segment of the scale-ups had also pursued growth through mergers and acquisitions (M&As). A quite large proportion of the companies we interviewed reported that M&A had played an important role in allowing them to build a sharper competitive edge. In many cases, M&As had provided access to valuable technologies and added important new product features while also strengthening the company's value proposition. In other cases, the M&A simply added to scale and paved the way for cost reductions through economies of scale, access to a wider customer base, and so on.

To increase the number of successful scale-ups in the Nordic region, it will be of paramount importance to build strong ecosystems for up-scaling which allow companies with scale-up potential – regardless of founder team and pathway to growth – to access the management expertise, talent, funding and key business partners needed to overcome barriers to growth. Within such ecosystems, companies will be as ready as possible to successfully undertake the scale-up journey.

4.1 Three stages of up-scaling

Our thorough investigation of the scale-up literature and the many interviews we held with high-growth companies revealed several key challenges that face most scale-ups during the scale-up phases. The scale-up process can advantageously be divided into three stages, each of which is characterised by a set of specific challenges (see Figure 4.1 below).

In the first stage – which we have labelled *growing to scale* – companies encounter challenges that typically arise for firms when they expand from 10 to 50 fulltime employees. It is often at this first stage that successful high-growth companies build the foundation for a successful (further) growth trajectory. Key challenges include the

Figure 4.1.
Stages of scaling up



development of a scalable business model, the creation of efficient sales channels, and the setting up of efficient organisational structures that will allow the company to grow.

In the next, *expansion* stage, companies are looking to further exploit growth opportunities, and revised business models are often needed. Scaling up can, for example, be reliant on the penetration of new international markets or the deployment of the company's core competencies in new industries or sectors. In some companies, fresh management skills are required in order to scale during this stage.

Those who excel as leaders in the growing to scale stage and the expansion stage are rarely one and the same profile. Thus, a key challenge is to make necessary changes to the board and at managerial level. In some cases, it is vital to be able to recruit international talent. Another important challenge that often emerges during the expansion stage is presented by a lack of the capital needed to make necessary investments for expansion.

The *global strategy* stage is where the company builds worldwide presence and develops a truly global business model. Key tasks at this point include the development of global supply chains, the construction of global sales channels, the attraction of global talent, and the successful accessing of worldwide distribution networks.

Typically, the three growth stages are increasingly capital intensive. In many cases, the level of funding needed in the later stages is ten or more times that of the funding needed in the earlier ones. This means that successful navigation through all of the stages often requires significant changes in the ownership and capital structuring of the company as it develops and progresses.

Scaling a company can be a bumpy ride influenced by unpredictable factors and unforeseen events. As a result, successful up-scaling often rests on a combination of strong managerial skills, creativity, organisational agility, calculated risk-taking and luck.

The 40 companies we interviewed as part of this study were all successful in the sense that they had enjoyed consistently high growth and met the scale-up definition applied by Nordic Innovation. But the case material we assembled covered both extremely successful unicorns which had managed to grow to more than a thousand employees and companies which, while they had achieved growth and met the scale-up definition, had also experienced periods of slow or stagnating growth.

The following chapters elaborate the specific challenges that scale-ups typically have to deal with in the three growth stages and identify in more detail what it takes to overcome the main barriers to growth.

5. Growing to scale

5. Growing to scale

This chapter focuses on the challenges companies face when they grow and come to employee 10–50 staff. At this point, a company is no longer a start-up. It is gradually evolving into a more mature and professionally managed business. However, the transition from the late start-up phase to the growing to scale-phase is not always clear cut. Often, companies are still struggling with challenges that they were also struggling with in the late start-up days even though they have entered the growing to scale phase.

Through our interviews, we have identified five key challenges that all companies have had to overcome to an extent during this process. These are:

- Sharpening product-market fit and developing a scalable business model.
- Establishing market credibility and effective sales approaches.
- Raising capital for the development of products, services and sales.
- Assembling a management team with complementary skills, and accessing supervision.
- Building a core team of talented employees, and creating a corporate culture.

The following sections will elaborate on each of these themes. They will provide a deeper understanding of the challenges, and how they were solved. They will also show how the challenges can vary from one business sector to another.

5.1 Sharpening product-market fit and developing a scalable business model

“The first challenge that entrepreneurs face is that of establishing a successful new venture. The basic skills necessary to meet this challenge are the ability to recognise a market need and the ability to develop (or hire people to develop) a product or service appropriate for satisfying that need. If these two things are done well, a fledgling enterprise is likely to experience heavy growth.”

- Flamholtz & Randle (2007): “Growing pains”

The ability to identify a market need and develop a product or service that meets that need is vital for a fledgling enterprise. But, in order to build a fast-growing company that reaches several hundred or a thousand employees, one must be able to direct one's entrepreneurial activities towards demand in sufficiently large and/or growing markets and develop a business model that is scalable.

All scale-ups covered in this analysis have managed to do this to some extent. But the detailed growth histories reveal great differences in when each company succeeded in finding the right product-market fit and managed to develop a scalable business model. In some cases, the founders got more or less everything right from the beginning – i.e. the early start-up phase. They had the ambition to build a large enterprise and entered a large and growing market with a service or product that embraced and satisfied an unmet market demand.

Box 5.1 gives an example showing how an experienced founder team successfully managed to develop a product that fitted into a growing market demand and were, from very early on, successful in developing a scalable business model.

Box 5.1. Product-market fit addressing high growth markets

Climeon AB is a supplier of renewable energy power plants, providing a technology that uses the energy in waste heat from industries and low-temperature geothermal heat to generate electricity. The company was founded in 2011 by the two experienced engineers who developed the patented technology.

The company received its first order in 2015, and since then it has established a rapidly expanding customer base in the maritime, steel and geothermal sector. Geothermal heat of 90-120 degrees is available in about 50% of all countries and can supply baseload electricity at competitive prices.

The founders had many years of experience working in large enterprises in the manufacturing sector. From the very beginning, they focused on developing a product design that was suited for scaling.

This particular product consists of components that are delivered by specialized sub-suppliers.

Climeon undertakes assembly and integration at customer sites. The product is designed in modules. This modularity allows the Climeon system to scale with demand and availability. This allows for simple pilot projects that can easily be expanded to fully utilize all of the available heat. Having started saving on energy costs as a result of using the Climeon system, it is possible for the customer to invest in additional modules that can be added together in a comprehensive energy saving solution.

Today, Climeon has 90+ employees and offices in, among other places, in Japan and Iceland. Furthermore, the company is listed on the Nasdaq First North Premier exchange, Stockholm.

Among the 40 scale-up cases covered in this analysis, only a minority had the right product-market fit together with a scalable business model in place early in the start-up phase. In several cases, companies started out pursuing a direction different from the one that led to high growth.

An example is the Norwegian scale-up Dogu. Dogu started out as a traditional consulting company offering to solve especially complex ICT problems in larger companies, but it ended up developing a digital product which provided the foundation for international growth and expansion, see Box 5.2.

Box 5.2.

From consulting to a product-based scale-up

Dogu is a software company founded in 2011 by students from the Norwegian University of Science and Technology. Dogu established itself as the preferred provider of consulting services to a number of well-established Norwegian companies.

After a couple of years, Dogu was asked by one of its customers to develop a dashboard showing progress in sales. This commission led to the idea of developing a whole new product called SalesScreen which allows sales teams to monitor sales progress against sales targets and makes it possible to readily introduce competition among different sales teams, etc.

It soon became clear that the product was successful in boosting the performance of sales teams and had a significant global market.

In 2018 Dogu received a NOK 20 million investment from Spring Capital Polaris intended to accelerate its growth and boost sales activities. The first task was to build sales capacity in US market. Founder and CEO Sindre Haaland has moved to US to head up the North American venture.

For several of the companies we interviewed sharpening the company's product-market fit and directing the focus towards high-growth markets was a challenge that reached well beyond the start-up phase.

This was particularly the case for deep-tech companies, as these often start out focusing entirely on technological R&D, without a specific market or user-need in mind. Such companies may develop well into the scale-up phase before finding a clear value proposition for their product (e.g. see the Tactotek case).

Some companies experience periods of stagnation because their product or service taps into a limited market. In this situation, although the founders have the ambition to scale and have managed to identify and meet a market need, market potential is limited. The bioIT company Medisapiens is a good example of this, see Box 5.3.

Box 5.3.

Targeting products for new markets

Medisapiens is a bioIT company offering proprietary software tools for structuring and analyzing biological data – in other words, for bioinformatics. The company has been struggling to scale, not least because bioinformatics is an emerging field of research that has not been widely applied in the industry yet. After developing and maturing the software tool with help from investors, the company managed to attract its first customers within the pharmaceutical industry. It was not long before the company realized that it would be easier to scale by selling its product not just to the pharmaceutical industry, but other industries where the tool was applicable as well. So, a couple of years after selling its first software, Medisa-

piens landed a new customer from the animal genomics industry. Animal genomics turned out to be an easier market to enter successfully with lower regulation than the pharmaceutical industry. The next step for Medisapiens is to enter the human genomics market.

Often it is an imperfect product-market fit, or a focus on a small market with little growth potential, that leads to periods of slower growth and stagnation.

Once the companies have developed a successful product-market fit in a market with significant potential for growth a new challenge arises: How to develop a truly scalable business model.

A scalable business model can be defined as a model that 1) provides exponentially increasing returns from the additional resources applied, 2) provides customers with unique and hard-to-copy value propositions, and 3) is flexible enough to cope with both internal and external forces and demands, e.g. constraints on employee hours, machine time, storage space, etc. (Nielsen & Lund, 2018).

Several of the companies we interviewed (at least half) have adjusted core elements in their way of earning income in the growing-to-scale phase. Besides getting the products and markets right, the most common adjustments include:

- Changing revenue streams, e.g. going from leasing to selling, or from licensing to subscription.
- Outsourcing parts of key company tasks, e.g. sales (read more about this in the next section).
- Building up key partnerships, e.g. with suppliers, distributors, and users/customers.

Box 5.4 below describes an example of a company that has changed its business model in the growing-to-scale phase⁴.

Box 5.4.

A company adjusting its business model

Otovo is a Norwegian company selling solar panels to private households. It handles the entire process from planning to installing the panels. Initially, the company leased solar panels, as this facilitated customers' access to the product, which improved Otovo's ability to "get sales started" and create market awareness. As the company succeeded in doing this, the management decided to sell solar panels instead of leasing them in order to generate more company liquidity. The leasing model required massive investment in solar panels, while taking a long time to build up reasonable revenues from the customers' small monthly payments. With the sales model, on the other hand, customers would pay.

Some of the companies we interviewed had spent several years experimenting with their business model before finding one that enabled the company to scale more rapidly (e.g. see the Midsummer case). Some companies, indeed, have not quite overcome this challenge yet. Others managed to develop a scalable business model in the start-up phase and experienced a high rate of growth from that point (e.g. see the iZettle case).

In most the companies we interviewed, challenges in developing a scalable business model were identified and solved by the management team, which at this point is typically the founders and sometimes, in collaboration, pilot costumers. However, in some cases the management decided to expand the management team, adding experienced business people who would then play a key role in developing a scalable business model. In other cases, expertise in the area was brought into the company via advisory boards, mentors or boards of directors. In some cases, companies benefitted from accelerator programs that assist companies with finding an optimal market focus and sharpening their value proposition, see Box 5.5 below.

⁴ - For more examples, see the case stories about TactoTek, Unity Technologies and Midsummer.

Box 5.5.

BoMill sharpened their value proposition via an international accelerator program

The Swedish company **BoMill** has developed a proprietary, high precision, grain quality sorting technology that enables users to identify, analyse and sort each individual kernel in a batch of grain.

The technology makes it possible to sort grains into different qualities with respect to protein, grain quality, fusarium, etc. A key challenge, however, is that major changes in business models applied in the milling industry would be required to reap the fruits of this new technology.

In order to find the right product-market fit, and to identify a scalable business model for its technology, BoMill participated in the global innovation accelerator Terra, funded and led by Rabobank in cooperation with the San Francisco-based Rocket space.

In the course of this six-month program, BoMill worked with leading industry experts, investment experts and specialists in food & agtech ventures.

A key element in the program is the matchmaking of the scale-ups with well-established players and potential customers in the food and agtech industry. Through the program BoMill was able to show-case its technology to an industry champion and obtain feedback on both its technology and business model as well as getting advice on how to successfully approach the industry.

Sectoral differences

The interviews demonstrated that business model development was important for all of the companies in the growing to scale phase. However, there seemed to be some sectoral differences in the aspects of business model development that the companies emphasized most.

To IT & software companies, it is often a question of finding the right balance between disseminating their digital solutions to as many users as possible and finding the optimal way of generating revenue – e.g. via a combination of freeware and a subscription-based or a license-based business model.

For companies in the manufacturing sectors, scal-

ability is often a question of finding the right revenue streams that allow the company to expand and, at the same time, finding the right way of organizing the value chain. Often this involves the reconsideration of product design – e.g. finding a modularized design well suited for international sourcing.

5.2 Establishing market credibility and effective sales approaches

Where the start-up phase often evolves around making the first sale to a customer, the growing-to-scale phase is typically focused on developing effective sales approaches and successful ways to build up a broader customer base. The interviews showed, however, that this can be a challenging for young and rather unknown companies that have not had the opportunity to build up market credibility yet. At this point, they often only have a few references from past customers, and potential customers may be cautious about buying their products or services – partly because the quality is unproven, and partly because the survival of the company cannot yet be guaranteed.

Naturally, it is important to keep in mind that not all scale-up companies in the growing to scale phase have been established within recent years. Companies in this phase may well be established many years ago, without having grown to more than 50 employees.

The case material in this report, though, is primarily comprised by rather young companies. The vast majority (80 percent) of the companies were established after the turn of the millennium and almost half (42 percent) were founded between 2011 and 2019.

Some of the companies we interviewed had tried to make up for their lack of market credibility by:

- Establishing extensive R&D&I collaborations with excellent research environments that would give the company's technology, products or services a "stamp of approval".
- Focusing on making sales to industry-leading companies which were willing to test a new product, service or technology with interesting applications, and which served as an example to be followed by potential new customers.

- Participating in renowned conferences, award shows and other events where the company can have its products or services showcased among industry stakeholders.

Box 5.6 below provides an example of how one of the companies we interviewed dealt with the challenges created by its lack of market credibility.

Box 5.6. Ways to build up market credibility

Nox Medical specialises in development of industry standard solutions for sleep monitoring and diagnostics. Nox Medical's products are used primarily by healthcare professionals, who are reliant on well-tested devices that meet official requirements. To establish the necessary credibility, Nox Medical cooperates with leading research environments at international universities and university hospitals, including Stanford University and Brigham Women's Hospital, in R&D projects using the company's technology. In this way, Nox Medical has their products validated by so-called "key opinion partners".

In addition to establishing market credibility, companies have to develop effective sales channels. The approaches companies take to this task vary. They usually depend on the type of product or service being offered, and on what type of market the company is operating in and who their customers are. Among the companies interviewed, the most frequently used sales channels included:

- Establishing internal sales and marketing teams to take care of, for example, canvassing, raising the quality of sales leads as well as online marketing (e.g. search engine optimization, use of social media, etc.).
- Hiring an external network of resellers in local markets responsible for selling the company's products or services on the basis of contracts specifying KPIs, profit shares, etc.
- Building up partnerships with well-established business partners who can help "break down the door" to potential customers with whom they already have strong networks.

Several of the companies had decided to combine

more than one sales approach. Often scale-ups experiment with different sales approaches before finding the most effective ways to grow sales.

Typically, the CEO and other top management team members play a crucial role when it comes to building up an effective sales organization and closing important sales during the company's first years of growth. For instance, the CEO and founder of one company we interviewed, Meniga, says:

"A couple of years after company foundation, our focus on sales increased. I [the CEO] moved to Stockholm to set up a sales office and was dedicated to establishing a focused and systematic sales effort. It is important that the founders are the main sellers in the first years – they have to be able to sell their own products. Too often, start-ups and scale-ups focus on technology, but not enough on sales."

- Georg Ludviksson, founder and CEO, Meniga

In a few cases, the management even continues to be in charge of sales in later growth stages. This will be elaborated further in next section.

Sectoral differences

Looking at the group of companies we interviewed as a whole, the most frequently used approach was to set up an internal sales and marketing team. However, it appeared to be more widespread among companies in industries such as IT & software, and services and trade than it was in the manufacturing sector, where it seems more common for top management to be actively engaged in sales and marketing, both in the growing-to-scale phase and later growth stages.

The difference probably ought to be seen in light of the fact that outside manufacturing the majority of companies offer standard, low-cost solutions (e.g. surveys tools, game engines, employee engagement platforms) to a broad customer base, whereas manufacturing companies tend to provide highly complex solutions that require considerable investment by customers.

5.3 Raising capital for the development of products, services and sales

Access to funding had been important to virtually all of the companies interviewed in the growing-to-scale phase. Funding is needed to carry out

R&D to improve products and technological solutions and for building scale-up capacity. It is costly to hire and train new employees, build production lines, set up an efficient sales operation and establish international representation. Often major high-risk investments have to be carried out at a point in time when sales and revenues are limited.

But access to funding is not just a matter of attracting venture capital investors or taking up bank loans. The funding decision also involves impacts on the ownership and control of the company, and consideration must be given to what assets other than money might accompany the funding.

For most of the company scale-ups we interviewed, finding *the right* funding is a delicate matter in which personal chemistry between the founders and investors plays a decisive role. Often the search for the right funding partner will take up a lot of top management resources.

Evidence from the OECD suggests that access to a *range of financing instruments* is key in facilitating growth in industries dependent on external funding⁵.

In some cases, a specialized private equity, or venture capital, fund will be the right partner. They can often provide valuable know-how on successful scaling and give access to management talent along with growth capital. They typically have a limited lifecycle and hold investments for 5-7 years. After this period the fund is dissolved, and investments must be liquidated. Thus, partnering up with such funds is often only an option if company owners are willing to sell the company within the foreseeable future.

An alternative to venture funding is traditional loans from banks. A bank loan has the obvious advantage that owners do not have to give up ownership and control of the company. But bank loans have disadvantages too. First, they provide funding alone, and do not offer access to specific know-how. Second, the borrower has to pay interest from day one, and since high growth companies are often considered high risk, interest rates can be quite high. Bank loans are typically an

option only if the company is expected to generate revenue in the near future. Box 5.7 below gives an overview of funding types that may be involved in a company's growing-to-scale phase.

Box 5.7. Funding types relevant in this phase



Public support schemes for innovation activities.

Actors: Innovation Fund (DK), Vinnova (SE), Innovation Norway (NO), Business Finland (FI), Rannis (IS), etc.



Business angels investing personal capital in small companies

Actors: Individuals often having earned a fortune from sales of former companies.



Public financing for exports, venture capital, loans, guarantees

Actors: Growth Fund (DK), ALMI (SE), Finnvera (FI), GIEK (NO), The New Business Venture fund, etc.



Venture capital funds investing in young companies with substantial growth potential

Actors: Alliance Venture, Heartcore Capital, ByFounders, etc.



Bank financing for companies with an established customer base and proven cash flow

Actors: Danske Bank, Nordea, DNB, etc.

⁵ - OECD (2015), *High Level Principles on SME Financing*, OECD report to G20 Finance Ministers and Central Bank Governors.

For some scale-up companies it is attractive to have a capital partner who, on the one hand, gives a high degree of autonomy to the founder team, and on the other hand, is knowledgeable and capable of advising on challenges in the growing-to-scale phase. Interviews with investors suggest that this approach can be particularly important in the transition from the start-up phase to the early growing-to-scale phase. During this period, businesses continue to be immature and their business models, organization and corporate culture are all under development. It is thus crucial to preserve and nurture a very strong commitment from the founder team.

An example of a newly started venture capital fund illustrating this approach is byFounders. This fund provides seed and early-stage capital for young companies. See Box 5.8 below.

Box 5.8. **byFounders**

The **byFounders** fund was set up in 2017 by a group of successful entrepreneurs. It has EUR 100 million at its disposal and invests in seed and early-stage growth companies from all of the Nordic countries. It aims to be a “founder-friendly” funding alternative taking a maximum of 20% ownership in portfolio companies.

Backed by a collective of founders, who helped to create renowned Nordic companies such as Skype, Zendesk, Kahoot, Unity Technologies, Vivino and others, byFounders’ portfolio companies benefit from unique access to deep industry and operational knowledge as well as an extensive global network. Hence, byFounders is well-positioned to support the next generation of ambitious start-ups, whether through scaling, arranging introductions, or referrals, recruiting, global expansion or raising further funding rounds.

In recent years, all Nordic countries have witnessed a growth in the diversity of potential capital partners, including venture capital funds backed by former successful entrepreneurs⁶.

⁶ - Other examples include Nordic Makers, Lifeline Ventures and Crean-dum.

Often new seed funds like byFounders play a key role in the ecosystem, scouting the start-up scene for companies with scalable business models and a real potential for future growth. And often the capital partners are capable of assisting with both funding and knowledge, experience and expert advice in order to facilitate and accelerate a company’s transition from start-up to a scale-up

Sectoral differences

The need for external funding in the growing-to-scale phase varies significantly across sectors. Funding needs are much more pronounced among scale-ups in manufacturing than they are in scale-ups in the software business.

Most of the scale ups in the software sector we interviewed had generated revenue from early on which was sufficient to cover at least some of the development expenditures. Some software companies offer consultancy services alongside the development and marketing of their new products or solutions. Others manage to have their first product ready for sales within a couple of years. The Boost.ai case is an example of the latter.

There is a contrast here with scaling up in the manufacturing sector, where the capital needs are much greater. Scale-ups in manufacturing have to invest in product development and production capacity long before they have their first sales and begin to generating revenues. The Swedish company Midsummer illustrates very well what it takes financially to set up a successful scale-up in manufacturing. Over a period of 10 years, the company attracted around SEK 80 million in grants and other forms of public funding, plus three times this amount in private capital.

5.4. Assembling a management team with complementary skills, and accessing supervision

When companies transition from start-up to a scale-up their organization changes substantially. The passage from the start-up phase to the growing-to-scale phase involves a fundamental shift from an entrepreneurial culture into a more formally planned, disciplined and well-organized entity. This transformation often places new demands on the management team.

Those demands may relate, for instance, to the team’s ability to handle financial matters, or es-

establish effective work flows and build up efficient sales channels, while still maintaining a focus on value creation for existing and new customers, and continuing with R&D to stay ahead of competitors in the market.

Founding teams do not always have the required qualifications in all these areas when a company reaches the growing-to-scale phase.

Several of the companies interviewed (around one third) had expanded their management teams in the growing-to-scale phase. This development seems to be more frequent in companies whose founders have what is primarily a technological background or limited work experience. New management team members are brought into the company for various reasons – to help the founders find a suitable product-market fit, to develop a scalable business model (e.g. see the TactoTek case), to build up new sales channels, to improve profitability, and so on. The XM Reality company is a good example:

Box 5.9. **Bringing in new a new manager**

XM Reality was founded in 2007 by a group of researchers who did advanced contract research in Augmented Reality (AR) for the Swedish Defence Materiel Administration. Through the contract research, the team developed a soft- and hardware-based tool allowing remote guidance by means of AR – and in 2012, the founding team decided to focus on marketing this product instead of on consulting.

This transition required new competencies in the management team. The preliminary tool had been developed for use in Swedish Defence, and the founders were uncertain what other industries could make use of it. To find fresh users for the technology they brought in a new operations manager who later became CEO. He had 10 years of management experience from a rapidly scaling Swedish IT & software company.

However, it is not only the professional skills of the founding team that need to be taken into consideration when suitable management is being assembled. The founders must also be honest and consider whether they possess the personal traits

required to run a growing business that is no longer a start-up. According to Flamholtz & Randle:

“This is a time when the very personality traits that made the founder-entrepreneur so successful initially can lead to organisational demise. Typical entrepreneurs tend to be doers rather than managers (...) They like to be free of corporate restraints. They reject meetings, written plans, detailed organisation of time and budgets as the trappings of bureaucracy.”

- Flamholtz & Randle (2007): “Growing pains”

The vast majority of our interviews showed that the founders enjoyed being in the midst of company development – something that remained true when the company went from start-up to scale-up. But in a few cases, the founders had hired a new CEO and had left the company as it evolved into a scale-up.

Typically, founders are good at coming up with new ideas, but less good at completing the many projects they launch – which becomes increasingly important as the company grows and more employees need clear frameworks around their work and the direction of the company.

For example, the founder and CEO of Dohop decided to leave the company five years after it was founded because he did not consider himself to be the right person to be in charge any longer. He says:

“David [current CEO] joined our growing team when I was CEO of Dohop. We were impressed by David’s deep understanding of both the business operation and software development. David showed that he had the skills, drive and energy that the growing company needed. [...] He took charge of sales and marketing and later became the CEO. I was happy to be CEO of Dohop for the first years but I was definitely not the right person to lead the company through the coming stages of growth. I really enjoy fixing problems, developing new ideas and starting new things but I do not enjoy so much the day to day management and all that it requires. I did my best but in the end I was not happy in that role. Although letting go as CEO was not easy, in my case it was definitely the best for both me and the company.”

- Frosti Sigjurrson, founder, former CEO and current board member, Dohop

The interviews provided no evidence that companies established by experienced entrepreneurs or managers generally have more success in scaling than those started by more inexperienced founders. For instance, two of the Danish unicorns participating in the study, Unity Technologies and Sitecore, were both founded by rather young and inexperienced entrepreneurs. One had recently graduated from university. The other had dropped out of university and had been working for smaller IT companies for a couple of years.

However, a few companies did emphasize that the experience brought in by those with former management positions in other companies had been advantageous. The input of such people had made it somewhat easier to scale the company, as it helped the management to see what tasks needed to be taken care of in successful organizational up-scaling. As Magnus Nilsson from iZettle puts it:

“It’s been incredibly challenging [to build up the organization around a rapidly growing company...] Jacob and I were both not super-young - I was 55 and Jacob was 35 - when we started, so we weren’t fresh out of school. So we had been starting, running and growing companies before. So I think we knew pretty much what we needed to do and the regulatory aspects [associated with being a fintech company] forced us to do things that a little bit earlier than we otherwise would have.”

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

The interviews suggested that the most important element in successful up-scaling is the founding team’s ability to recognize the areas in which they lack competencies (if indeed there is a competency gap: there may not be) and to find ways to access these competencies by bringing in new management team members, mentors, board members, etc.

This was confirmed in interviews with investors, who also saw the right founder team as a prerequisite for the raising of venture and early stage capital. The Danish venture capital fund byFounders has seven key criteria when selecting companies for their investment portfolio, for instance, and the first criterion is a great team.

Sectoral differences

There are some sectoral differences in the levels of experience of founders.

Manufacturing companies are typically established by people either with several years of management experience in the specific industry or with a background as researchers. This goes for almost all of the manufacturing companies we interviewed. By contrast, IT & software scale-ups are often established by a rather young founding team whose members have gained valuable knowledge about new technologies and market needs through university degrees or their first years in the labor market.

These differences in the founding team reflect the fact that setting up a successful manufacturing company is a much more complex task than running a software business.

Thus bringing a new technology or product to market requires among other things access to substantial patient capital, technological know-how, extensive sector knowledge, high levels of market credibility, expertise in organizing a sub-supplier network, and strong skills in technical sales.

5.5. Building a core team of talented employees, and creating a corporate culture

All of the fast-growing companies we interviewed were struggling with the dual challenge of recruiting a large number of talented employees and preserving a strong corporate culture. Highly talented people are always in short supply, and the competition for talent is fierce in all Nordic countries.

As data from Nordic Innovation show (see Chapter Three), a substantial share of the Nordic scale-ups excel in knowledge-intensive sectors, including software and hardware development and advanced engineering.

Virtually all of the interviewed IT & software companies in the growing-to-scale phase were struggling to attract talented engineers and IT-developers for their R&D departments. Several companies also emphasized that there was high demand for employees skilled in areas such as sales and marketing, and to a lesser degree senior staff in HR and finance.

As regards talent attraction in the growing-to-scale phase, the following challenges were those most often emphasized by the scale-up companies:

- Some types of skilled employee are extremely difficult to hire as a consequence of substantial demand/supply mismatches. High-end IT developers and engineers are a good case in point.
- For several reasons, it is difficult to compete for top talent with well-established enterprises. The latter often have stronger employer brands and well-developed recruitment channels. Also, scale-up companies can rarely match the salaries offered in large corporations. Finally, accepting a job in a scale-up is often riskier. The company will not yet have built up a solid market position, and thus who knows if it will exist in 2-3 years' time?
- Scale-up companies at this stage often need employees with a specific mindset who are passionate about the company's development and dedicated to its mission. The employees also have to be hard-working and enjoy working in an organization where specific procedures for workflows and problem solving have not necessarily been established as yet. To some potential recruits with highly skilled profiles, this is not an appealing job description.

The scale-up companies we interviewed had tried to overcome these challenges in various ways.

A large proportion had recruited the first group of core employees through the founders' network of former colleagues and fellow students. Some scale-ups had already decided during the growing-to-scale phase to establish departments (e.g. development departments) in countries and regions with better access to skilled employees. Others had focused on recruiting, and specifically attracting skilled employees, from abroad.

Box 5.10 below explains how one company dealt with challenges connected with the recruitment of skilled employees.

Box 5.10 Establishing IT developments abroad

Happy Helper is an online platform connecting private households looking for cleaning services with more than 3500 independent cleaners. The company was founded in 2015 and employs 20

staff in IT development, online graphics, customer support, and marketing and sales.

Most employees are located in the company's headquarters in Copenhagen. However, when the company quickly ran into challenges with recruiting IT developers, the founding team decided to establish an IT development unit in Ukraine.

The co-founder and CTO of Happy Helper had a strong network of Ukrainian IT developers, as he was also the founder and CEO of an IT consultancy company working with Ukrainian developers. He managed to establish a competent team of IT developers made up of people he had worked with previously.

Today, Happy Helper employs five Ukrainian IT developers. They are occupied with ongoing maintenance and development of the online platform.

In all cases it is of paramount importance to have a strong set-up delivering efficient on-boarding, and to be able to continually introduce new employees to the company's core values and working processes – and perhaps up-grading their professional skills as they develop.

Some of the scale-ups we interviewed had developed their own internal training programs for these purposes. They had done so either to manage a rapid intake of new employees, nurture corporate values and preserve a strong corporate culture (e.g. see the Unity Technologies case), or as a way of upgrading new employees with specific technical skills, such as programming, which would enable the company to look for new employees among a wider circle of candidates with different professional and educational backgrounds (e.g. see the Boost.ai case).

Several scale-up interviewees stressed that one of the key elements of success was the ability of the company to attract and retain talented and loyal employees whose involvement with the business reaches back to its early days. Such employees are often considered the bearers of corporate culture, and they play an important role in passing on values and the company culture to new employees. This is illustrated in an interview with Unity Technologies:

“We are a mission-driven company with very clear values that our leading engineers believe in and

align to. This also means that we have a strong core of employees who have been with us for many years. This particularly goes for our older offices in Copenhagen, Vilnius and Montreal.”

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity Technologies

Some of the companies had actively promoted employee shares to retain key staff who possess deep technological knowledge and carries the company DNA and are capable of passing it on to new employees.

Sectoral differences

There are some sectoral differences in talent attraction and retention.

The IT & software businesses naturally have a high demand for IT developers from a broad range of educational backgrounds within IT and technology. In many cases these individuals can be recruited from around the world, but there is a fierce global competition for profiles like these from many different sectors, so the scale-up companies that we interviewed had often devoted considerable resources to their recruitment, integration and retention.

For the manufacturing companies, the challenges are a little different. As regards R&D personnel, they need to be able to identify, recruit and retain people with very specific technological know-how from wherever necessary around the globe. When it comes to manufacturing workers, it is important have access to a sufficient pool of skilled staff who are conscientious and familiar with advanced production technologies. Often scale-ups in the manufacturing sector can benefit from being located nearby larger, well-established manufacturing companies.

Case 1: Boost.ai

Founded:	2016
Founders:	Lars Ropeid Selsås Henry Vaage Iversen Hadle Ropeid Selsås
Sector:	IT & software
Country:	Norway
Employees:	80
Revenue:	EUR 3,750 million (2018)
Funds:	N/A
Growth phase:	Expansion

Boost.ai aspires to be Norway's first unicorn

Boost.ai is a Norwegian scale-up company specialising in conversational artificial intelligence. It has developed an AI-powered conversational platform (also known as a "chatbot") capable of interacting online with a company's customers, typically via the company webpage. The platform helps companies to keep up with customers' growing expectation that they will receive customized services, round-the-clock access, and instant responses to their enquiries.

Boost.ai's customers are mainly large enterprises in banking, pension and insurance, plus some public sector bodies. They currently serve around 100 clients across the Nordic and Baltic regions and the UK, and have a market share of around 90% in Norway. The company is now establishing a sales office in the US in line with its ambition to expand beyond Europe.

From the very beginning, Boost.ai has had ambitious growth targets. Its mission is to become Norway's first unicorn, and it is already well on its way having grown from 3 to 80 staff in three years.

Starting up the business with help from a local bank as the provider of funding and data for product development

The company was founded in the summer of 2016 based on a source code that could be applied in the development of a commercial platform for conversational AI. The source code was developed by Boost.ai's current CEO, who teamed up with his brother and a friend when establishing Boost.ai.

The founding team were given free co-working office space financed by Finstart Nordic, the "innovation arm" of the Norwegian bank Sparebank 1 SR-Bank, which offers funding and support for ambitious start-up companies.

The primary task in the start-up phase was to find a company which wanted to be the first client to test Boost.ai's source code for conversational AI. The founding team saw Sparebank 1 SR-Bank as a potential candidate. Early on, the bank agreed to be Boost.ai's first client if the founders were able to develop a chatbot that could outperform market competitors available at the time. To support the development process, Sparebank 1 SR-Bank gave Boost.ai access to internal data for the purpose of training the AI model behind the chatbot as well as initial funding for product development.

As the founding team had substantial experience in artificial intelligence and language technology, they were able to develop the first version of the chatbot in just six months, and in January 2017 Sparebank 1 SR-Bank launched the chatbot. At this point, Boost.ai had grown from three to six team members.

Media coverage paves the way for sales through partnerships with leading tech consulting companies

Shortly after launching their first chatbot, Boost.ai got on to the front page of a Norwegian newspaper. This started a wave of enquiries from potential customers and partners interested in knowing more about the new chatbot. One of these was from the global tech consultancy company Accenture, suggesting a partnership between the two companies in which Boost.ai would deliver the specific technology and Accenture would scout for potential customers and handle the process of implementing the technology among buyers.

Boost.ai had originally planned to handle sales and implementation themselves but decided to try out the partnership model. This was partly because building up an internal sales organisation would be a costly affair, and partly because as a new company on the market Boost.ai had not yet had the opportunity to build up credibility and strong networks among potential customers.

Networks of this kind were precisely what Accenture could offer. Accenture already had relationships with an extensive range of large enterprises, and thus valuable knowledge about what companies and key contact persons to approach. They also had specific knowledge of the companies' procurement processes. And, last but not least, they had built up market credibility as a leading global tech consulting company.

The partnership quickly turned out to be an effective and easy way of building up a clientele for Boost.ai, and it was not long before Boost.ai's chatbot was being sold to large Nordic banking corporates such as Nordea.

Through the successful experience of cooperation with Accenture, Boost.ai realised that it was much easier to scale the company effectively using this sales approach, rather than selling directly to customers. The company therefore decided to focus on sales mainly through partnerships.

Until today, the partnerships have typically been established at the initiative of partners. However, it has been a high priority for Boost.ai only to cooperate with partners who are considered "the best in the field" – meaning companies with strong networks, knowledge and market credibility. The

management considers this decision to be one of the key elements in the company's success:

"We have been successful, because we only want to work with the best [tech consultancies]. Many vendors ... have more direct sales. But selling through partners is so much more scalable and easier. They [the partners] know who the companies are, they know who the relevant people are, they know about procurement process and so on."

- Henry Vaage Iversen, co-founder and CCO, Boost.ai

Today, the company has built up an extensive network of 25 partners, which – aside from Accenture – includes Deloitte, KPMG and Softronic. Currently, 60% of the company's sales are made through partnership channels.

Raising capital to hire qualified staff to manage further product development

Although by the beginning of 2017 Boost.ai had developed a chatbot that was ready to be sold to and implemented by large corporations, it was still based on a rather simple technological foundation. It was necessary to raise more capital to build a more solid product with a better chance of success in a competitive global market. Once again, the company went to Sparebank 1 SR-Bank and on this occasion managed to raise almost EUR 1 million. Along with the company's initial earnings, the founding team invested all of the capital acquired in hiring new staff. By November 2017, the fiftieth employee started working for Boost.ai.

As a company with a software-driven product, Boost.ai mainly needed skilled people working in IT-development. Although the company were able to recruit competent people from the oil industry, which was declining at the time, it was virtually impossible to get hold of trained data scientists.

To tackle this hiring challenge, Boost.ai decided to develop their own internal training and certification programme. Through the programme, new employees are upskilled to perform various programming-related tasks. This way, the company has broadened the pool of talent to recruit from, which today includes employees from various educational backgrounds including economics, statistics and physics.

Entering the US market requires higher capital and new approaches to sales and marketing

In the latest milestone in the company's scale-up journey, Boost.ai has been focusing on becoming a market leading company in conversational AI in the US. However, entering such a huge new market which differs from the European market on several parameters involves several challenges.

First of all, Boost.ai needed to raise substantial capital to help finance export promotion. The founders decided to look for funding from a venture capital fund – and they managed to raise almost EUR 1.5 million from Alliance Venture in March 2018.

Alliance Venture is based in Oslo and Palo Alto. It invests in early stage tech companies with global growth ambitions. Aside from capital, the fund offers companies access to a network of VCs, industry contacts, experienced executives and serial entrepreneurs who can act as advisors, board members and co-investors⁷.

To Boost.ai, however, the most important benefit of partnership with Alliance Venture has been the capital raised, and to a lesser extent the advisory services. Boost.ai attributes this primarily to the lack of competence among Norwegian and Nordic investors when it comes to scaling up companies specialising in conversational AI.

Aside from raising capital, Boost.ai decided to create a sales and marketing organisation in the US, solely dedicated to the task of building up an American customer base. This decision was based on the fact that Boost.ai were new players in the US market, representing a new technology that many potential customers were presumably unfamiliar with. The company expected that it would be necessary to put substantial effort into approaching potential customers, thereby "creating" a demand for its chatbot, and to train customers in how to apply the technology. In addition, Boost.ai would become less reliant on its partnership network if it could succeed with its own sales and marketing organisation.

At the beginning of 2019, Boost.ai opened its first sales and marketing office in US, in Santa Monica. In the previous past eight months, the company had put significant efforts into setting up an effective sales and marketing organisation there. This meant, among other things, building up a sales organisation with teams in charge of specific areas of sales. This included the establishment of:

1. An SDR sales team⁸ focusing on qualifying potential clients or "leads" through outreach activities.
2. A team of account executives tasked with closing business with potential clients qualified by the SDR sales team.
3. A team of customer success managers whose role is to keep customers satisfied to prevent them from switching to another vendor.

Boost.ai also established an internal partner team supporting their current partner channels with matters connected with sales and implementation.

Today, the company's biggest challenge is succeeding in building up US market presence. This is "another game where everything is bigger", including competitors, customers, investments, revenues, etc. The next step in this challenge will perhaps involve finding an American investor willing to contribute – aside from capital – valuable industry insights into how to successfully scale a company specialising in conversational AI.

"Our biggest struggle now is that the US is a bigger market with more competition. Here, it is not necessarily beneficial to be a company from Norway, because people are like, 'Norway, who?' In Norway, we are considered a relatively large company, but here, a company with 80 employees is very small. It's a different game. "

- Henry Vaage Iversen, co-founder and CCO, Boost.ai

⁷ - Read more at <https://allianceventure.com/>.

⁸ - Sales Development Representative.

Case 2: Midsummer AB

Founded:	2004
Founders:	Sven Lindström and three others
Sector:	Manufacturing
Country:	Sweden
Employees:	90
Revenue:	EUR 23 million (2018)
Funds:	EUR 26 million (total)
Growth phase:	Expansion

From R&D start-up to a manufacturing company with a global market

Midsummer AB is a Swedish scale-up company specialising in equipment for cost-effective manufacturing of thin film solar cells. The production equipment facilitates the manufacture of solar panels that can be attached to any type of surface – to membrane roofs, portable power plants, marine installations, vehicles, landfill covers and other infrastructure projects.

The founding team have a background as engineers and CTOs in companies supplying equipment for DVD manufacturing. Sweden had two of the five or six manufacturers of this equipment in the world around the year 2000.

The founders had a vision that their expertise and technological know-how within the design of manufacturing equipment could be utilized to develop equipment for manufacturing a new type of flexible (thin film) solar cell that ought to be more cost effective and capable of competing with traditional silicon solar cells. At start, the idea was not to make flexible solar cells, but rather just a drop-in replacement for Si-solar cells that were very expensive and scarce at that time. (2003-2008)

During 2004–2011, Midsummer invested considerable effort in research, development, test and demonstration. The R&D activities were funded via EU programmes and funds from private business angels the founding team had met through a pitch at STING Business Incubator.

In 2009, the technology was ready to be commercialized. The original idea was to buy machinery from equipment manufacturers and set up solar cell production in Sweden. But due to the global financial crisis, it was almost impossible to raise risk capital to set up production. Nobody believed in the idea of setting up a manufacturing company in Sweden.

The founders decided to change focus and adopt an alternative business model where Midsummer, instead of manufacturing thin film solar cells themselves, would focus on development, manufacturing and supply of equipment and the machinery for manufacturing thin film solar cells.

This business model has the advantage of being less capital dependent, since customers buying new equipment have to make a payment equal to 30% of the total price up front.

The founders saw a specific market opportunity in China, where massive investments in green energy and sustainable solutions were being made by the Chinese government after the 2008–09 financial crisis.

Midsummer hired people to do R&D, and to design and build the first machine. Between 2009 and 2011 the company grew to 32 employees. The growth was funded by a combination of national grants and venture capital provided by Midsummer's original investors through two emissions.

In 2011, the first full-scale machine was ready.

But at that time the global market conditions for solar cells had changed dramatically. Several large countries have over-invested in production capacity of silicon solar cells. Prices fell from USD 4 to USD 1 per watt, and the whole idea that thin film solar cells would be a less expensive alternative to silicon solar cells was questioned.

This caused a crisis in Midsummer. Two thirds of the employees were laid off, and additional funding was needed to keep the company going.

The strategic focus was now adjusted towards niche markets where lightweight solar panels have an advantage over mainstream silicon solar cells.

Lightweight solar panels have the advantage that energy can be produced close to where it is consumed. One key market, for example, is production plants in California, where lightweight solar panels can be installed on light roof constructions and provide energy for cooling systems noiselessly and easily when the sun shines and air-conditioning is needed most.

The many set-backs had a significant impact on the valuation of the company. At the funding round in 2008 the company was valued at SEK 250 million. At the new funding round in 2012 its estimated worth was only SEK 30 million.

In 2013, Midsummer received their first new order for a machine from a Polish customer. The order kept the company going, albeit at a slow pace, for quite some time. In 2015, an American-Chinese client placed another order for several machines, and the mood and spirit of the company improved.

International business partner acquires part ownership

The valuation of the company was low, and the Chinese client announced that, as well as being willing to buy more machinery, they wanted to acquire part ownership in Midsummer.

As the Chinese business partner was resident in California, the founders saw the offer as a good opportunity to obtain a strong business partner with networks to potential clients in both China and California. A deal was agreed, and the Chinese business partner acquired 40% of the company.

As part of the deal, it was agreed that Midsum-

mer would perform an IPO or similar within 3–5 years. This was in order to define an exit route, and to agree on how to raise funding for growth. The common goal of the IPO was also to put pressure on the management team to streamline and professionalize the company.

Sales continued to rise. In 2016, Midsummer had a turnover of SEK 59 million. The turnover doubled in 2017 to SEK 120 million. The company has been profitable since 2015, and today Midsummer AB has a total of 110 employees.

On midsummer's day 2018, Midsummer undertook an IPO on First North Stockholm, issuing new shares valued at SEK 100 million. The share offering was oversubscribed by 400%.

The capital that was raised helped to fund the company's rapid growth and was invested in buildings, equipment, training of new employees and expansion into new business areas.

For example, Midsummer has established a strategic partnership with a Swedish roof manufacturer. It has launched "Midsummer Solar Roofs", a plug & play roofing system with integrated solar panels.

In May 2019, Midsummer launched a strategic partnership with Sweden's largest manufacturer of roof tiles on the supply of integrated solar panels. Midsummer will manufacture the panels at their production site in Järfälla, outside Stockholm.

So, today Midsummer has two principal areas of business – it makes equipment for the manufacture of thin film solar cells, and it has its own production line manufacturing solar cells.

The 2018 annual report noted the continuation of high growth. Turnover had doubled again to more than SEK 250 million, and profits had risen to SEK 50 million. The growth was driven by increased demand for equipment from both US and Chinese markets.

In March 2019, Midsummer issued a so-called Green Bond of SEK 200 million. The new funding will be used for capital loans, at reasonable rates of interest, for clients wishing to purchase equipment and set up production of thin solar cells.

This loan service is needed because thin film solar cells is a new and emerging market and clients often have difficulty obtaining funding for their in-

vestments. With the new loan service, Midsummer can accelerate technological adoption and ensure faster growth.

Visionary and patient investors

In the Midsummer story, a number of decisive factors helped the company to succeed and overcome the many crises of the company's first 10 years.

The most important were access to public grants and partnerships with patient lenders of private risk capital. During the first 8–10 years, Midsummer obtained approx. SEK 90 million in various public grants. These were primarily R&D grants from the EU and the Swedish Energy Agency for the development and demonstration of Midsummer's solar cell technology and business development operations.

Equally important was having a patient private investor who believed in the team and the technology, and was able to match the public funding.

In the later growing-to-scale phase, the shared ownership with the Chinese business partner proved to be vital. Most recently, access to the successful stock exchange First North Stockholm, which targets smaller companies, has played an important role in raising additional funding, spreading risk, and obtaining a fair valuation of Midsummer that reflects the company's profitability and potential for future growth.

Access to leading research, talent and premises appropriate for manufacturing industries

"Research and talent are of major importance. If Uppsala University had not been leading in research on solar cells, I would probably never have got the idea of developing the technology and starting Midsummer. And when we did the assignment with the PhD, we got a boost to our R&D-activities. Working with the researchers really was a game changer for us."

- Sven Lindström, Co-founder and CEO

Another important factor was access to talent. The first 20–30 staff at Midsummer were former employees of two world-leading manufacturers of equipment for manufacturing DVDs and CDs, and later on it became relatively easy to recruit skilled and talented people – both students from

places like KTH and also more experienced people working in advanced high-tech companies in the neighbourhood. Järfälla, where Midsummer is located, is home to a small business cluster of high-tech engineering and manufacturing companies including SAAB Electronic Defence Systems, Silex, and others.

"We have a group of employees who all have a background from DVD/CD manufacturing and who have been at Midsummer for many years. They have deep domain knowledge and expertise and play an important role in preserving the company culture. Most of these employees were given the opportunity early on to acquire shares in the company, and they have been very loyal through our ups and downs."

- Sven Lindström, Co-founder and CEO

Finally, Midsummer highlights the importance of access to affordable premises tailored to high-tech manufacturing companies. Midsummer was able to take over a former IBM production site in Järfälla at a reasonable rent. Although the building dates from the 1970s, it is ideal, with clean room facilities, sufficient power supply, cooling water and all of the other features needed by advanced manufacturing.

Companies in the growing-to-scale phase often lack access to the funding needed to set up these facilities themselves.

Perspectives for future growth

Potentially, the market for thin film solar cells is huge. The main market Midsummer targets is in flat roof production in California, Texas and Florida. In these three US States alone, there is a total of almost one billion m² of flat roofs.

Midsummer's thin film solar cells have a payback time of around four years. Thus, the market potential is enormous.

When Midsummer undertook its IPO in spring 2018 its shares were valued at SEK 22.5 each. Less than a year later the price was SEK 40 per share.

Case 3: TactoTek

Founded:	2011
Founders:	Antti Keränen Mikko Heikkinen
CEO	Jussi Harvela
Sector:	Manufacturing and consultancy
Country:	Finland
Employees:	100
Revenue:	N/A
Funds:	EUR 45 million
Growth phase:	Expansion

TactoTek is up-scaling rapidly on the basis of a new and disruptive technology

TactoTek is an intellectual property licensing company located in Oulu, Finland. The company has developed a patented technology called Injection Molded Structural Electronics (IMSE), which offers the ability, processes and design rules to integrate printed electronics and electronic components within three-dimensional injection-moulded plastics.

Thus, where traditional electronic parts in virtually all consumer goods, from microwave ovens to remote controls and cars, consist of several layers⁹, the IMSE technology integrates the functionalities of these different layers in just one layer. This gives manufacturers much more freedom to design stylish products that meet customer demand for products with a specific size and shape.

TactoTek has 33 patent families associated with

⁹ - Typically, a printed circuit board, a cosmetic surface and mechanical pieces to separate the circuit board from the cosmetic surface.

the design and manufacture of electronics using the IMSE technology, and the company licenses rights to apply the technology in the production processes of their customers. This licensing service includes access to expertise on how to apply the technology in specific industrial settings as well as access to facilities for the development and testing of prototypes using the IMSE technology in TactoTek's own production plant.

The IMSE technology can be used to manufacture a broad range of electronics consumer goods, but TactoTek's customers are primarily large suppliers to the automotive industry, e.g. Faurecia, Nanogate and LS Automotive.

TactoTek has experienced particularly swift growth over the past two and a half years, with the company growing from around 30 to almost 100 employees. The company expects this positive growth to continue over the next couple of years.

Experienced business people with commercial skills are brought into the management

TactoTek was founded in the summer of 2011 by its CTO Antti Keränen and the current Chief Engineer Mikko Heikkinen, both of whom had several years' research experience at the VTT Technical Research Centre of Finland (VTT). During their research at VTT they had developed a technology called "optical touch" that enabled three-dimensional interaction with, for instance, smartphones by means of beams of light projected through a plastic surface.

However, as the founders had no entrepreneurial experience and limited knowledge of how to successfully build up a company around a new technology, they decided early on to hire a CEO with the necessary experience in this area. In late 2012,

TactoTek's current CEO Jussi Harvela was brought in to "put everything in place that the company needed to be successful", including establishing a management team with the required competencies. The new CEO had many years of experience as CEO, advisor and investor in global high-tech companies, and he had formerly led the scaling up process of a Finnish company, taking it from an early tech start-up to acquisition by IBM.

At this point, TactoTek's technology was still new and had not been tested commercially. To quickly investigate potential customer interest in optical touch, the new CEO decided to hire the current US-based Senior Vice President of Marketing Dave Rice in the early 2013. Mr Rice had several years of experience with a range of young tech companies, specialising in the transformation of technological innovation into market success.

Over the next couple of years, strong and experienced individuals who had worked extensively in areas such as financial operations, strategic partnerships, global sales and advanced engineering were recruited to the management team.

Establishing a technology-market match based on comprehensive market feedback

Shortly after hiring the new SVP of marketing, the management team initiated an intensive process aimed at clarifying whether there was a suitable technology-market fit. Was there any real interest in optical touch technology among potential customers?

As a part of this process, the management team set up a series of meetings with potential customers from a wide range of industries including home appliances, consumer electronics and the automotive industry, which was where the technology was assessed to have most potential. The team met with companies in the US, EU and Asia, including industry giants such as Samsung, LG, Philips Electronics and Apple. However, the responses were the same: there was very little interest in commercially applying optical touch technology.

However, what the management team learned from their hands-on market research was that the companies that they had approached so far were extremely excited about the ability to mould printed electronics and components into three-dimensional plastic structures – the technology used to implement optical touch.

Based on this market feedback, TactoTek's CEO decided to change the core focus of the business – from optical touch to a technology facilitating injection-moulded structural electronics. This happened over the summer of 2013, two years after the company had been founded.

"It was quite clear that there was not a good business case for our optical touch solution. However, almost everyone was excited about our ability to mould printed circuitry and the components into three dimensional structures. That is what we sell today - based on that market feedback."

- Dave Rice, SVP Marketing, TactoTek

Developing a scalable business model around a new technology

Having established a suitable technology-market match, the management decided to base the company on a licensing business model instead of becoming a parts manufacturer using the IMSE technology. There were several important reasons behind this key strategic decision.

First and foremost, the management team were determined to deploy a business model that was both easily scalable across markets and sustainable over time.

This ambition, however, seemed difficult to achieve by through the establishment of a manufacturing company, since this would require a lot of time, and also massive capital infusions to enable the establishment of production facilities, before the company could even begin production. The management team, with several years of experience as both managers and investors, were also well aware that it would be far from easy to find investors with the amount of capital and patience needed to realise such a project.

"Venture capitalists are not looking for companies that take huge infusions of capital over time and take a very long time to build a business. And if we were going to build a business by building a factory ourselves, it would require both a very long time and a lot of money."

- Dave Rice, SVP Marketing, TactoTek

Second of all, the markets for both automotive and IoT, smart home and industrial electronics – these being the main markets for TactoTek's technology – were dominated by large parts sup-

pliers with long-standing customer relationships with their customers, among them well-known car brands around the world. TactoTek's assessment was that trying to compete with these large enterprises head to head would be a battle lost in advance.

Instead, the TactoTek management considered that with a strategy in which the company would provide access to a new technology through licensing, they would have a good chance of becoming the "innovation arm" of the large suppliers, for whom it would be too risky to develop and apply the IMSE technology internally.

Finally, the licensing business model seemed in many ways to be the obvious choice to the management team. Both the CEO and SVP of Marketing had backgrounds in software technology companies, and, in their own words, "selling software is selling knowledge, intellectual property, whether you sell it as a packaged application or a subscription". Hence, the management had ideal prerequisites for running a business based on a licensing, where the company sells knowledge related to a new technology as opposed to manufactured parts.

Focusing on technology validation in the automotive industry through commercial experiments

From 2014 to today, a main focus of TactoTek has been to validate the IMSE technology within a defined market.

Based on the market research carried out as a part of finding the right technology-market match, the management recognised the necessity of addressing a specific market, because selling methods and validation requirements were very different across industries. Hence, the management decided to focus on the automotive industry, and more specifically suppliers of automotive interiors. Until recently, TactoTek has only taken on projects outside this sector opportunistically.

The next step was to validate the IMSE technology within this specific sector. This required extensive commercial experiments to be carried out in a collaboration between TactoTek, automotive OEMs and suppliers of automotive interiors. The experiments aimed at developing and testing prototypes using the IMSE technology – and based on the experimental results, suppliers can evaluate the

application of the IMSE technology in their regular production.

TactoTek completed its first successful commercial experiment with an automotive supplier in 2014. Since then it has carried out a vast number of experiments for both suppliers and car brands (OEMs) in the automotive industry. Service fees from these projects have been one of the principal contributors to the company's high rate of growth over the past couple of years.

Despite several successful commercial experiments, TactoTek has not yet contributed to a commercial product based on the IMSE technology in the automotive sector. This needs to be understood in the light of several factors.

First, validation requirements in the automotive sector are extremely rigorous and demanding. Prototypes have to pass a broad range of tests, including environmental and safety tests, before suppliers can even consider adopting a technology such as IMSE, and this is, of course, a time-consuming process.

Secondly, the IMSE technology is still a young and rather untried technology competing with very mature and well-known technologies within electronics, some of which have been applied by engineers over the past 70 years.

"Our main competitor is "traditional electronics". People are doing things the way they have the last 70 years – that is how electronics are made. It is electronics in a box, and sometimes that box has different shapes, sometimes it's not a cube, but a vehicle dashboard or the control panel on a climate system in a home. There are a range of alternatives. Most are very mature technologies that are very well known in the market and what most engineers think of when thinking of electronics."

- Dave Rice, SVP Marketing, TactoTek

However, TactoTek has design wins with automotive customers that will be included in production vehicles in 2-3 years, and production agreements for other markets starting in 2019.

The ecosystem for high tech companies in the Oulu region has been a key driver of growth

In addition to the factors described above, TactoTek's management emphasises that certain features of the ecosystem in Finland, and particularly the Oulu region, have been of paramount importance in TactoTek's ability to scale up.

First of all, access to capital – particularly in the company's early stages – has been a decisive factor. TactoTek has raised capital over several rounds and is currently in the middle of a funding round that includes possible investors from the US.

Throughout the company's first few years, capital was needed to hire staff, including managers, to develop the company and refine its technology. This was vital if TactoTek was to be transformed from a science project into a revenue generating company. For this purpose, TactoTek raised capital from VTT Ventures¹⁰ and Conor Venture Partners,¹¹ plus public sector funding from Horizon 2020 and the ELY Centres.¹² The TactoTek management has been involved with Finnish tech start-ups for more than 20 years. Their view is that much more in the way of funds and programs to help start-ups and early stage companies has emerged during this period.

In its later growth stages, TactoTek has required capital to continue to build and expand its capabilities to serve new customers ahead of revenue. In these more recent stages, TactoTek has raised capital from Ascend Capital Partners and secured debt financing from Nordea and Business Finland. Additionally, the company has raised capital from several prominent suppliers to both the automotive and appliance markets, for whom the IMSE technology has interesting application perspectives. This includes Faurecia's innovation fund "Faurecia Ven-

tures",¹³ Plastic Omnium and Nanogate. TactoTek's latest funding round, in 2018, resulted in a total of EUR 18.5 million being secured. This has been one of the key enablers of the company's recent growth.

TactoTek has managed to raise considerable amounts of capital over the past few years, however, its management team consider that at present there are few venture capital investors in the Baltic region able to lead later (and often more capital intensive) funding rounds.

Aside from capital, access to a skilled workforce and research-based knowledge in the Oulu region has been critical to TactoTek's growth.

This includes access to research expertise within printing technologies, which is an area where VTT has a strong and long-standing track record. It also includes ready access to a large talent pool within electronics and small-scale manufacturing. This pool of talent is highly concentrated in the region, as Oulu used to be the major stronghold of Nokia's research and manufacturing operations. Finally, the availability of well-educated graduates from the University of Oulu has also been important.

"There are a lot of enablers in the Nordic ecosystem. Any start-up friendly region combines a highly educated workforce, a critical mass of businesses – because start-ups tend to fail – and access to capital. Capital for startups seems to have become more accessible in the Nordics compared to 20 years ago. What seems lacking is larger scale funds able to invest in the more capital-intensive growth stages of businesses."

- Dave Rice, SVP Marketing, TactoTek

10 - TT Ventures is a seed venture fund. It invests in research projects from the VTT Technical Research Centre of Finland that have the potential to become outstanding from a business perspective..

11 - Conor Venture Partners is a Helsinki-based venture capital fund investing in early stage technology companies with the potential and drive to become global winners in their industry category.

12 - Finland has a total of 15 ELY Centres. These promote regional development by managing the central government's implementation and development tasks, including financing for companies.

13 - Faurecia Ventures invests in young companies capable of bringing technological advantage and long-term value for the Faurecia.

6. Expansion

6. Expansion

This chapter focuses on the expansion phase where companies grow from 50–250 employees. Companies in this phase of their development have often overcome some of the fundamental challenges to growth, such as establishing market credibility and developing a scalable business model. This does not mean, though, that all of the growth challenges are now behind them. Often the company's ability to scale to the next level is put to the test.

Typically during this phase it becomes increasingly important to have structures in place that enable large-scale production. Expansion into several new markets is often a prerequisite for further growth.

In addition, companies must continuously review whether their products and services meet market needs. They must consider whether new products, services or business models will enable further growth.

Through our interviews, we identified five growth challenges which most companies have had to deal with to some extent in the expansion phase. These were:

- Developing organizational structures and extending the management team.
- Developing new products, services and business models.
- Choosing the right entry strategy for foreign markets and in new sectors.
- Building staff volume, and bridging borders across countries, cultures and professions.
- Finding the right exit strategies and raising capital for international expansion.

This chapter will elaborate on each of these challenges and explain how they were tackled.

6.1. Building organizational structures and extending the management team

Both the literature and our interviews show that when companies reach a certain size they need to develop more formal structures to ensure the tasks of the company are handled efficiently. This involves the development of:

- An organizational structure that determines how activities and responsibilities are distributed across the workforce.
- A more structured managerial approach in which new management systems and processes are deployed. This often involves additions to the management team.

Developing more formal structures as the expansion phase is entered can be vital in supporting the continued development and growth of the company.

The existing literature and our interviews show that until this point the senior management (largely made up, in most cases, entirely or in part by the company's founders) are very often involved in more or less all of the company's activities – whether that is building up customer relations, raising capital from investors, hiring new employees or in general acting the external face of the company. But as a company grows, the management do not have sufficient resources to be involved in all aspects of management anymore. They increasingly need support from clear-cut structures and systems. As Flamholtz & Randle describes:

“Until the firm reach a certain size (which tends to differ for each firm), it can typically operate without formal management systems. Planning tends to be done in the head of the entrepreneur, frequently on an ad hoc basis. The organizational structure, if it exists, tends to be informal with ill-defined responsibilities that may well overlap several positions (or people). (...) The organization simply becomes too large for senior managers to be personally involved in every aspect of it, and there is a gnawing feeling that things are out of control. This marks the need for developing or upgrading the firm's managements systems.”

- Flamholtz & Randle (2007): “Growing pains”

A previous study by Davila et al. (2010) shows a significant association between growth and the presence of management systems in growing companies. The study shows that companies with a high intensity of managements systems also have on average a rate of growth in employee numbers that is three times higher than that in companies with a low intensity of system adoption.

Our interviews suggest that the precise point, or size, at which a company needs to develop more

formalized organization and management system varies from company to company. Some of the companies we interviewed reported that this need appeared as they came to have around 25 employees, whereas others did not experience the challenge before they reached around 80–100 employees. For example, the CEO of Meniga explains:

"New challenges occur when you become around 80-100 people. You need to think of how to build up the organization. This includes hiring middle managers, establishing sensible working processes and systems. You try to anticipate and prepare for the next growth step. You have to be one step ahead all the time."

- Georg Ludviksson, founder and CEO, Meniga

This is in line with the literature that suggests that companies can typically be managed without formal structures, systems and processes until they come to employ somewhere between 50 and 80 people (Davila et al., 2010).

Our interviews show that as company managers face these "organizational growing pains" and realize the need to build up more formalized organizational and managerial systems, they often deal with the challenge by:

- Organizing their employees in more permanent teams or departments according to their areas of responsibility, e.g. R&D, sales & marketing, accounting, etc. This often also involves appointing a tier of middle managers to be in charge of the newly established teams.
- Hiring experienced managers from outside of the company with the experience to implement management systems in relevant areas, e.g. financial systems, sales & marketing systems, etc. Hence, while just a third of the companies we interviewed made additions to their senior management in the growing-to-scale phase, more than half did so in the expansion phase.

There is some variation in the kinds of managers the company decides to bring in. CFOs are recruited to take care of financial matters, COO's to overlook the daily operations of the company and CCO's to strengthen commercial activities.

The study by Davila et al. mentioned above refers to the process of hiring people from outside the

company to take care of senior management tasks as "import in concept". The authors stress that designing and implementing management systems requires specific knowledge and experience and cannot be done simply by following instructions in a book. Therefore, bringing in an experienced manager from outside may be necessary if the company wishes to support its growth through the deployment of more extensive management systems (Davila et al., 2010).

An important finding from our interviews is that the founding team still has a very prominent role in the wider senior management team in the expansion phase. At this point, the CEO of the company is likely to be the founder of the company.¹⁴ If there is more than one founder, the remaining co-founders typically take up other key management positions where they are in charge of, for instance, technology development (CTO) or growth strategies (CGO).

Hence, what seems to occur in the expansion phase is that the management team is extended even more than it was in the growing-to-scale phase. But in the course of this change, the founders are rarely replaced. And if they are, they decide to leave the company's management themselves (e.g. see the Unity Technologies case where founder and then CEO of the company decided to resign when the company reached 250 employees).

Although senior management extension is important in the expansion phase, our interviews also show that establishing a tier of middle-managers becomes increasingly important as the company grows from 50–250 people.

Middle-managers provide a crucial link between senior management and employees. This is especially necessary as the company expands across national borders, since at this point the senior managers cannot feasibly keep track of all of the people and activities at each location within their specific area.

Box 6.1 below illustrates how one of the interviewed companies had a strong focus on developing both senior and middle-management tiers to handle the rapidly growing company.

¹⁴ - Although there are exceptions, e.g. TactoTek, XM Reality

Box 6.1.

Peakon develops senior and middle-management tiers

Peakon has developed a digital platform that companies can use for surveying and benchmarking employee engagement. The company was founded by four entrepreneurs, three of whom had founded and scaled the Danish company Podio, which was acquired by Citrix in 2012. The founding team therefore had entrepreneurial and management experience, but they nevertheless made a very conscious decision to hire skilled managers to supplement their existing competencies right from the beginning. The manager we interviewed emphasized this decision as one of the key drivers behind the company's growth.

To obtain access to experienced senior managers, the company decided to move its commercial activities from Copenhagen to London while it was still in the growing-to-scale phase. Here they managed to hire two senior managers, a Chief Revenue Officer (CRO) and Customers Success Officer, to be in charge of building up the company's sales organization.

As Peakon grew bigger and came to have around 100 employees, they also hired a Chief Marketing Officer (CMO) and a VP of People to handle human resources. Today, Peakon has 200 employees, and they are now focusing on establishing what they call "the next level of managers" who can take over different functions and release time and resources for other purposes within the senior management team. This includes strategy development and hiring of a range of VP's in areas such as sales and accounting.

Sectoral differences

All companies in the expansion phase face the need to develop more formal organizational structures. The main sectoral difference is to be found between product-focused companies and companies in the service sector.

It is relatively straightforward to define job profiles and expectations for those in management positions in manufacturing companies – e.g. to draw up key performance indicators for a country manager in a manufacturing company.

Often it is significantly harder to specify expectations and performance indicators for a country manager in a service company. It can be difficult to specify in detail the quality of the service that should be provided to the customers in the specific market.

The successful Danish chain restaurant Sticks'n'Sushi applied a very clear-cut concept for their restaurants. It invested significant resources in training the country manager to head its first international expansion into London, see Box 6.2.

Box 6.2.

Sticks'n'Sushi invests in country manager training

When **Sticks'n'Sushi** set up its first restaurant in London one of the top priorities was to find the right person to head up the UK venture. It needed to be someone capable of understanding the business concept and of securing quality in all processes, and of course a manager with the ambition and expertise set up a growing number of restaurants in the UK.

The board of directors found the right person, with solid experience of setting up similar chain restaurants. It was agreed that he should spend the first year in Denmark working in Danish Sticks'n'Sushi restaurants and at company headquarters in order to learn the corporate culture and become familiar with all aspects of the business concept.

After successful entry to the UK, and the first British restaurant, a venture capital fund bought half of the company with the ambition of expanding the number of restaurants. So far seven Sticks'n'Sushi restaurants have been opened in the UK.

6.2. Developing new products, services and business models

In keeping with the literature, our interviews indicated that in order for companies to strengthen their market position and scale, they must continually ensure 1) that their products or services meet the changing needs of their customers, and 2) that their business model enables the company to deliver customer value while creating economic value for the company as efficiently as possible. A continuous focus on product development, business model innovation and improved efficiency in all processes is needed to stay ahead of competitors.

In line with a previous qualitative study of Danish growth companies conducted by IRIS Group, our interviews showed that companies typically handle these challenges by:

- Refining existing products, services and processes in order to improve quality and add more value to the customer.
- Developing new products and services that accommodate hitherto unmet market needs.
- Developing new business models around existing products or services.

Some companies had focused primarily on just one of these strategies. Others had combined more than one strategy. As a company grows bigger in the expansion phase, it may pursue various strategies in search of further growth. The box below describes how the interviewed company Óssur had managed to scale-up by improving the quality of its existing products – a strategy the company referred to as “trading up the technology”.

Box 6.3.

Óssur grows through technology trade-up

Óssur is an Icelandic company manufacturing and selling prosthetic solutions for amputees. The company started out by developing and selling a single prosthetic component (a so-called liner), which makes out a component in a prosthetic solution. But through a range of acquisitions (of mainly US prosthetic manufacturers) in the beginning of the 2000's, Óssur managed to assemble a company that could offer amputees a full prosthetic solution (in the form of a leg), which was made up by a foot, knee, hard socket and liner.

Since then, Óssur has primarily focused on creating growth by innovating its prosthetic components – what they refer to as “technology trade up”. For instance, instead of offering only mechanical components, Óssur has developed so-called bionic components using computer power to improve the quality of the product and thereby also the amputee's quality of life. Innovations like these have enabled Óssur to charge higher prices for their more advanced products.

A key reason behind pursuing this growth strategy has to do with the fact it is difficult to create growth by selling more products as the number of amputees around the world is not increasing.

“What has driven Óssur's growth in the past years is introducing always more high-end products into the market. It is not really that you have more and more amputees in the world or that we are selling more and more prosthetic devices. The main growth comes from selling better and more high-end prosthetics”.

- David Hreidarsson, Corporate Development and Investor Relations Manager, Óssur

A few of the interviewed companies also emphasized the importance of staying true to the content of, and long-term vision for, the company's core product, and that it was necessary to avoid being distracted by requests to too many customizations that may satisfy single customers, but ultimately result in a confusing and inconsistent product line that creates less value for the majority of customers. As one company manager explained:

“Sometimes people get a little too eager to sell that one single contract – if you just change the product a little, then you can sell it to Adidas or something. And you just can’t afford to do that too many times, because then you end up with a “Christmas tree product” that has different decorations on every single branch. Then it becomes the customers that decide your product roadmap, not you. It can be hard to say No to someone who offers you EUR 50,000 for a contract when you’re behind on budgets and everybody want to move forward, but I think it is important to say No once in a while if the customization does not match the long-term vision of the product.”

- Kasper Hulthin, co-founder and Chief Growth Officer, Peakon

Refining or developing new products, services and business models can naturally be costly, time-consuming and risky. It can be also a journey into unknown territory where new skills, expertise and types of talent are needed.

Our interviews indicated that companies deploy a range of strategies to succeed with product, service and business model innovation. The strategies include:

- Dedicating more resources to ensure innovation activities are taken care of internally, e.g. by hiring new employees in R&D departments. This approach is often applied when companies decide to improve and refine their core products (e.g. see the Unity Technologies case).
- Acquiring or merging with companies which have already developed the products or services that the company aims to offer to its customers. This strategy is usually used when a company wants a fast market launch and considers that it would be too time-consuming to develop the product internally (e.g. see the OnRobot case).
- Involving customers, distributors and suppliers actively in the innovation process, e.g. via online communities, and events and workshops. This approach is used as a way to ensure that existing products are updated in line with customers’ current needs as well as to put the company at the forefront of new market trends (e.g. see the Easyfood case).

What seems to distinguish companies with very

high growth from those with more modest growth is the ability to effectively pursue a multi-approach growth strategy.

This means being capable of driving and managing innovative activities that address both new markets and new demands, while at the same time maintaining the company’s focus on structuring and optimizing internal processes.

The box below describes a company that successfully managed to balance a dual focus on operational efficiency and innovative activities targeted towards new market trends and demands.

Box 6.5.

Easyfood has a dual focus on efficiency and innovation

Easyfood is the largest producer of convenience foods in Denmark. The company develops and produces over 250 pastries, bake-off items, and thaw-and-serve products. The business concept of Easyfood is essentially based on the company’s ability to act as an innovation partner. For instance, retail customers and suppliers are invited to “co-create” new products in Easyfood’s test kitchen and café.

The high pace of innovation requires flexible production lines allowing for frequent shifts between product types. Easyfood has developed two modular production lines from scratch. The lines can be arranged or constructed differently depending on how each product needs to rise, and be baked and decorated. The company has also implemented a number of lean projects which streamline workflows and processes. Today the company is capable of producing 5–10 different products a day, and the changeover time is less than half an hour.

Sectoral differences

Naturally, there are clear differences in the way companies in the service and manufacturing sectors approach and succeed in developing new services, products and business models. Often product innovation in the manufacturing sector revolves around specific, advanced technologies, while in the service sector it is often connected with new concepts and/or the innovative use of ICT and platform technologies.

On the other hand, the present study also found growing similarities between the activities of the service and manufacturing sectors. For example, several of the service companies we interviewed were focusing on how to standardize and produce their services.

It is known that manufacturing companies are increasingly interested in adding services to their products in order to increase their value for the users. We also know that new and advanced digital technologies now play a growing role in successful innovation in both manufacturing and service sector.

6.3. Choosing the right entry strategies for foreign markets

A recent study shows that companies which start exporting within their first three years have a higher turnover, faster employment growth and are slightly more productive than those which either begin exporting at a later stage or do not export at all (Choquette et al., 2017).

Similarly, in this study the vast majority of the interviewed companies were export-active and highlighted their entry into new and foreign markets as an important milestone in the growth history of the company.

Most companies had begun exporting within the first 3–4 years of the company's life. But there were differences in the speed at which the companies initiated exports. Some had an international customer base from day one – so-called “born globals”. Others had built up a customer base and amassed good references on the domestic market before entering new markets.

Companies of this latter sort had often begun to export by initiating sales either into one of the Scandinavian markets or into other Northern European countries such as the UK, Germany and the Baltics. It was only in later stages that they have targeted other large global markets such as the US.

Companies often choose this internationalization strategy because they consider neighboring markets – with their cultural proximity, similar languages, strong skills in English and IT, and the population's high level of trust – easier places to acquire their first experience of internationalization. As one manager explained:

“Jacob and I had a discussion of whether we should go into the Nordics or UK. But we decided on the Nordics (...) Also because of the cultural closeness that made us believe that the reaction to the company's products would be the same, which it was. Norway was the second market and it exploded the same way as it had in Sweden. We are not the same in the Nordics, but we are very similar in the way we think about things and we are interested in trying out new things – we are very technology savvy.”

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

The literature refers to this approach as a “phase-model”, meaning that internationalization develops gradually and companies start by choosing markets as similar as possible to their domestic market before turning their attention to less familiar markets. Through this gradual expansion, companies build up knowledge and experience enabling them to internationalize in a more and more efficient way (Madsen et al., 2005). Interestingly, research also suggests that this approach has become less common over the last few decades as markets have in general become more internationalized (ibid.).

Our interviews and the literature indicate that several internal and external factors may affect whether companies decide to export from day one or at a later point. These factors include previous export experience in the management team, the market's existing degree of internationalization, the nature of the product, and the size of the market.

For instance, companies with a highly specialized product and a narrow target group may have to consider global marketing from day one, whereas those with a product with broad appeal which happens to be suited to the domestic market may want to build up a domestic customer base before turning to global markets. Of course, some companies do not actively choose to expand into specific markets. Rather, they are, so to speak, dragged into markets as a result of their cooperation with (a network of) companies operating in these markets. This happened, for instance, to Boost.ai. This company sells its AI-powered chatbot via a network of high-tech consultancies with customers all over Europe.

Our interviews showed that decisions about what specific markets to enter in a company's first step

towards internationalization often involve a range of considerations, such as:

- Market size? Does the size of the market make the expansion worthwhile?
- Cultural differences? Would certain market conditions ease or hamper a successful product launch?
- Access to customers? What sales approaches are most effective for this target group?
- Technological readiness? How ready are potential customers to apply this product or service?
- The competition? Who are the potential competitors, and is it realistic to compete with them head to head?

Box 6.5 below provides a few examples of the different kinds of considerations behind some of the interviewed companies' approaches to market entry.

Box 6.5. Considerations behind choice of market entry

Sticks'n'Sushi chose to focus on London as its first international venture. London is probably the most competitive market for restaurants, and if the business concept could stand this test it would be a clear indication of the company's scalability.

Lime Technologies is a leading provider of CRM systems and related services. It differentiates itself from its competitors by offering an extended service and flexibility helping customers to derive value from CRM data. Lime Technologies chose to expand into Nordic countries where business cultures are similar.

Midsummer AB develops marketing equipment for the manufacture of thin-film solar cells. It focuses internationally on two key markets, China and California, where the potential demand for this kind of solar technology is highest.

Sitecore focused on international markets with the lowest entry barriers and the greatest market potential. Initially, they used a very simple rule of thumb for prioritizing new international markets: They multiplied each country's GNP by its respective normalized "English proficiency index" and by its respective normalized Household final con-

sumption expenditure (HFCE). The highest ranking countries ranking were chosen as new international markets. .

Sectoral differences

It became clear in our interviews that the phase-based strategy for internationalization, where the focus is put on markets with low entry barriers, is much more widespread among companies either operating in the services sector or offering services as a key component in their value proposition.

Product-based companies in the manufacturing industries and in software are typically more focused on market size and less concerned about differences in business culture and the like.

6.4. Building staff volume and bridging borders across countries, cultures and professions

It was emphasized in the interviews that hiring talented employees and building a strong corporate culture was one of the key challenges in the growing-to-scale phase. However, the interviews we conducted also showed that this continues to be a challenge in the expansion phase.

Companies in this phase have usually overcome some of the main barriers to growth, such as developing a scalable business model, establishing market credibility and raising the first round(s) of capital. Therefore, many of the interviewed companies managed to scale-up at an accelerated pace in the expansion phase, as compared with previous phases, not least by targeting several new markets with their products or services (this is elaborated further in Section 6.2).

This naturally means that the company' experiences rising demand for new employees in areas such as engineering, IT development, sales and marketing, and customer support. Moreover, the requirement for talented senior managers and middle-managers increases as the companies grow bigger and develop more formalized organizational structures and systems (this is elaborated further in section 6.1).

Although the companies have grown bigger in this phase, and perhaps developed stronger employer brands, they are typically still challenged by short supply of the highly talented staff they need. This

goes particularly for senior management staff.

Strategies for accessing the required talent in the expansion phase do not differ significantly from those adopted in the growing-to-scale phase. The companies we interviewed had found new employees via personal networks, by hiring people from abroad, or by establishing offices in markets where the talent supply is better.

It is worth noting that the latter seems to become a more popular solution in the expansion phase, when the company has reached a certain size. One of the companies described their recruitment challenges and solutions in this way:

"We moved to London to build up the commercial part of our business. Partly because one of our co-founders was from London and wanted to live there. Partly because skilled commercial people were lacking in Denmark. I mean, how many people have been a CMO for a company that employs more than 500 people and is worth EUR 300 million? – that is almost none. At least not in Copenhagen."

- Kasper Hulthin, co-founder and Chief Growth Officer, Peakon

As the companies hire more and more people from abroad and expand to new markets in different countries, they increasingly transform into melting pots embracing different cultures, languages, professions, working practices, etc. This reinforces the company's need to communicate, inculcate and preserve core company values and norms in a way that promotes desired behavior among the employees.

"Organisational culture can have a profound impact on the behaviour of people, for better or for worse. Company culture is a critical factor in an enterprise's successful development and performance. It functions as an informal control system, because it prescribes how people are supposed to behave."

- Flamholtz & Randle (2007): "Growing pains"

Around a third of the companies we interviewed emphasized, to varying degrees, how building and preserving company culture, values and norms becomes increasingly challenging as the company grows, not least because the employees:

- Are located all around the world, which may hamper day-to-day knowledge sharing and

problem solving across locations.

- Come from contrasting cultural backgrounds and bring different approaches and views on, for example, deadlines, agreements, etc.
- Are accustomed to management styles that differ from the Nordic style, characterized by flatter hierarchies and high levels of self-management.

Although these factors can be challenging, they can also be considered a source of strength. For example, both Unity Technologies and iZettle indicated that the Nordic management style made it easier for them to attract and retain key staff because the employees thrive on the considerable freedom to operate which this style affords. The pair of remarks below illustrate the divergent, positive and negative, attitudes on this matter.

"Words do not mean the same to different people. When I say now, I meant yesterday, but for others it can mean whenever we get time within the next 14 days."

- Enrico Krog Iversen, CEO, OnRobot

"We have more than forty nationalities working for us in Stockholm. When you look at people from outside the Nordics, they find it very compelling that they get a lot more freedom in the way they work than they are used to. That makes it easier to retain them."

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

Some studies also suggest that the challenge of preserving a corporate culture in a rapidly growing company must be seen in light of the fact that company founders are often an epicenter for corporate culture. As the company reaches a certain size, the founders cannot interact with all of the employees anymore, and hence cannot spread the culture of the company (Sutton & Rao, 2014).

Some of the companies have tried to develop and preserve a shared corporate culture in a rapidly growing company by:

- Assembling a strong team of senior managers and middle-managers who believe in the mission and values of the company and are capable of unifying teams and departments.
- Supporting a high level of cooperation and

dialogue across borders by means of online communication tools such as Slack, email and video conferencing.

- Arranging recurring meetings and social events gathering employees from different countries and departments – e.g. weekly conference calls or monthly town halls.
- Diffusing a common corporate language that reflects core company values – e.g. by repeating and incorporating certain phrases in daily business talk.
- Discussing values and workstyles thoroughly in recruitment processes and onboarding programs to ensure that new employees fit into the company's way of working.

The text box below describes Sitecore's efforts to develop and diffuse a strong corporate culture as the company grew bigger and came to employ hundreds of people. For more inspiration, read the OnRobot and Unity Technologies cases.

Box 6.6. **Sitecore develops and diffuses a strong corporate by means of company super heroes**

Sitecore is a software company delivering business websites, intranet, portals and marketing software for companies. As the company grew bigger, the management became more and more aware of the importance of building up a robust corporate culture. Several efforts were made to realise this ambition. One of these was a to ask all new employees to fill out a test where they assessed themselves on a number of parameters. Based on their scores, each employee was assigned to a company "superhero" that reflected which of the core company values the employee possessed the most. All employees had their individual superhero attached to their corporate ID card, which could often serve as a good ice breaker when starting conversations with new employees. Furthermore, the initiative generally supported the fostering of a common corporate language.

Sectoral differences

All of the interview scale-up companies reported difficulties in recruiting a sufficient number of highly skilled people with deep knowledge and expertise in specific technological fields.

However, it was often manufacturing companies that were more seriously challenged, as a consequence of the fact that their employees typically needed to be working in the same location. In particular, it emerged that in the early growth phase it was important to have R&D activities in close proximity to the manufacturing activities.

There was a contrast here with many of the tech companies, where it was much easier to organize teams and workflows across different countries and continents. The Finnish company Maria DB is a good example of the relative ease with which digital and software-based companies can overcome recruitment challenges. See box 6.7 below.

Box 6.7. **Maria DB's IT developers have no permanent offices**

Maria DB is a company employing around 250 people, of whom approximately 100 are IT developers. Hiring people with IT skills of the kind the company requires can be challenging, but MariaDB have solved the problem by having no permanent offices. Instead, the vast majority of their developers work from home, and all communication takes place via e-mail, Slack and weekly conference calls. In this way, Maria DB has been able to hire skilled developers no matter where they happen to be based geographically.

6.5. Raising capital for international expansion and finding the right exit strategies

Companies in the expansion phase often experience a significant need for capital, and most of the companies we examined had made substantial changes to their ownership structure during this phase.

A number of factors explain the widespread need for new funding partners in the expansion phase.

First, building an international presence is often a capital incentive process in which huge investments are needed in setting up foreign production facilities, establishing sales offices, and recruiting and training international staff. Only a few companies are capable of funding these activities themselves.

Second, transition from the growing-to-scale phase to the expansion phase often leads founders and owners to consider whether it is time to exit, or whether instead they should move into another role with the company, or leave it altogether.

In some cases, key members of the founder team do decide to pursue personal goals and ambitions outside the company and therefore exit.

In other cases, founders reduce their share of ownership to allow for risk diversification.

This, of course, creates a need to find new owners and funding partners.

The case material gives many examples of companies where the decision to bring new investors onboard reflects a need to attract new types of competency to the company – e.g. people with in-depth knowledge of international markets or previous experience with successful international expansion, etc.

Box 6.8 below provides an overview of the most common funding partners for scale-ups at the expansion stage.

Box 6.8 Funding partners in the expansion phase



Private equity funds investing in mature SME's.

Actors: EQT Partners (SE), Axcel (DK/SE), Altor Equity Partners (SE), etc.



Alternative stock exchanges for smaller companies

Actors: First North (a division of Nasdaq Nordic), Spotlight Stock Market (former Aktietorget)



Mergers and acquisitions (M&A)

meaning financial transactions in which ownership of the company is transferred or consolidated with other companies

Private equity and venture capital funds often provide both funding and expertise. In many cases the VC funds specialize in specific sectors, and growth phases and are staffed with experienced fund managers who can provide expert advice and counselling to the board of directors and the management teams in the companies in which they invest.

In many of our cases, investments from international venture capital funds had provided access to global business networks and new markets, and facilitated the attraction of international business partners and international talent.

OnRobot A/S is a good example of company where an international venture capital fund acquires a significant share of ownership and plays a key role in the company's efforts to expand globally.

Box 6.9 Summit partners provide OnRobot with both funding and scale-up expertise

OnRobot A/S was founded in June 2018 as a merger of three end-of-arm tooling companies for collaborative robots. The goal of the merger, was to create a global company in the market for industrial robot accessories, giving buyers a one-stop-shop for automation components of collaborative robots.

To achieve this goal, OnRobot's aim is to quickly expand its product portfolio, and to go from 9 to 50 products over the next couple of years. For this, the company needs rapid access to products and technologies. The new products are partly developed in-house by OnRobot's own engineers, IT and software experts and partly by an aggressive acquisition strategy, bringing in new companies and products.

In August 2018, the global equity firm Summit Partners invested in OnRobot, bringing funding and expertise to support continued international growth.

Summit Partners is represented on the board and, besides offering funding, it will provide access to technology, business partners and candidates for acquisition through its impressive global network. This network was created by the equity firm's investments into more than 475 technology companies in the last 25 years.

Some scale-ups prefer to team up with a large multinational enterprise rather than a VC fund.

In some cases, the companies we interviewed had found that well-established multinationals valued the company more highly than the private equity funds they canvassed.

A possible reason for this is that the large multinationals are already present in global markets and are better suited to accelerate the expansion process and derive value from the scale-up's products, services and technologies.

The Danish scale-up Easyfood serves as an example of a successful scale-up which found that being acquired by a multinational was the most advantageous strategy for accelerating growth.

Box 6.10 Easyfood's acquisition by the Norwegian food giant Orkla

Easyfood offers meal solutions in large deliveries with easy preparation and low food waste, thus meeting the demands of retailers.

Easyfood sees considerable potential in the international market, but it will require significant investment in production capacity to develop in that direction.

In 2017/18, the founder and CEO, together with the majority owner, agreed to initiate a sales process.

The search for a new owner proved to be quite difficult and time consuming. Several venture capital funds showed interest. However, it soon transpired that they had rather different perspectives on how the company should develop and an investment horizon that failed to correspond with that of the current owners.

After searching for more than a year, the owners of Easyfood were about to abandon their hunt and continue on their own when the Norwegian food giant Orkla expressed an interest in acquiring the company in order to gain a better position to respond to changing consumer habits and capture new growth markets.

In December 2018, it was agreed that Orkla would acquire 90% of the shares in Easyfood, while the company's founder and CEO retained the remaining 10% and continued as CEO.

Easyfood was valued at EUR 44 million, and Orkla paid close to EUR 40 million for its 90% stake in the company.

The companies we interviewed also included several scale-ups which had raised capital for expansion by going public.

This path was taken by the two Swedish scale-ups Midsummer AB and Climeon AB. Both companies are now listed at the alternative stock exchange for smaller companies First North Stockholm.

First North is an alternative stock exchange designed for small and growing companies. It has a less elaborate rulebook, which allows smaller companies to go public and harvest the benefits of

being a public company without having to devote significant administrative resources to meet the extensive regulations of the main stock market.

Thus, First North is a starting place for smaller companies to reach capital markets and access growth capital to develop and expand their businesses. Each company listed with First North is appointed a certified adviser who can help the company to ensure that the regulatory requirements are met.

Investors with First North are aware that the companies listed are in a growth phase, and that turnover and revenue may fluctuate more than they typically do in for the more mature companies listed with the main market.

Midsummer AB is an example of a Swedish growth company which successfully went public and raised capital for growth via Stockholm first North.

Box 6.11 Midsummer AB's successful IPO with Stockholm First North

Midsummer AB produces turnkey production lines as well as flexible, lightweight, thin-film solar panels.

Midsummer developed a market-leading technology. It has witnessed significant growth, doubling its turnover and profit each year since 2016.

To build up its production capacity and accelerate product development, the company needed to attract significant investment.

Midsummer was already profitable, and was expected to have high and (as importantly) predictable growth in revenue. The company's board of directors, together with a group of advisers, decided that the best strategy would be to pursue an IPO.

Besides giving access to capital for expansion, an IPO also would raise public awareness of Midsummer's technology and project an image of the company as a trustworthy business partner.

Midsummer issued new shares worth about SEK 100m on Nasdaq First North Stockholm in the summer of 2018. The share offer was oversubscribed by 400%. Since the issue, the company's shares have risen in value from 20 SEK to 35 SEK per share.

Alternative stock exchanges for smaller growth companies exists in all of the Nordics. But there are great differences in how well the alternative marketplaces work in the various Nordic countries.

Stockholm has by far the most vital and effective alternative stock market, with a strong ecosystem of experienced advisors plus significant investor interest from both private and institutional investors, and from promising growth companies. In the other Nordic countries, the alternative stock markets are much less developed, with fewer listings and less investor focus. For further elaboration, see Section 8.4.

Our interviews reveal great differences in what will count as the right financing solution for scale-ups in the expansion phase. Each scale-up has to consider different options, and it is a mistake to think that one size fits all.

Our interviews with founders and investors confirmed that it is important for scale-ups to have access to specialized counselling and expert advisers who can help explain and clarify the advantages and disadvantages associated with various types of funding.

Further it is vital that several different funding options are available to scale ups. If this is to be ensured, there needs to be:

- Well-functioning markets for mergers & acquisitions, where promising scale-ups and established companies can easily find each other.
- Access to Nordic and international venture and private equity funds that specialize in the expansion stage, and in specific sectors and technologies. It is important here to have a transparent market, with meeting places where Nordic and international venture funds and Nordic scale-ups can be matched.
- A well-functioning alternative stock exchange where smaller scale-ups with real potential for significant growth can reach private and institutional investors and raise capital for their international expansion and growth. Such a stock exchange is imperative, as it provides venture investors with a well-defined path to liquidity.

Case 4: OnRobot A/S

Founded:	2018
Founders:	Enrico Krogh Iversen
Sector:	Manufacturing and Trade
Country:	Denmark
Employees:	145
Revenue:	EUR 5 million (2018)
Funds:	N/A
Growth phase:	Expansion

Leading international company in automation components for collaborative robots

OnRobot A/S was founded in June 2018 as a merger of three end-of-arm tooling companies for collaborative robots. The merger combined three companies based in the US, Hungary and Denmark – Perception Robotics, OptoForce and OnRobot. Each company specialised in different end-of-arm automation components.

Perception Robotics (founded in 2012) provided two bio-inspired robot grippers: a gecko-inspired gripper for large, flat objects and a tactile gripper with compliant rubber tactile sensors (i.e. skins) to give the robot touch sensitivity.

OptoForce (founded in 2012 as a university spin-off) provided force sensors that are able to bring the sense of touch to industrial robots so that they can automate tasks that would otherwise require the dexterity of a human hand.

On Robot (founded in 2015) provided plug-and-play electric grippers that can be mounted directly on the robot arm, are highly flexible, and can be operated from the same interface as the robot without need of engineers.

A common denominator of the three companies was the engagement of the former CEO of Universal Robots Enrico Krogh Iversen. He was an investor in, and board member of, all three companies, and he saw the potential synergetic gains to be had from a merger of the companies into a single company.

Following the merger, OnRobot A/S was able to offer a wide range of products within end-of-arm tools, including grippers and sensors, that can be applied in and integrated with all types of collaborative robots. In this way, OnRobot was able to obtain a unique market position, because their competitors typically specialised in single-arm tools that are not necessarily integrable with all types of collaborative robots.

“OnRobot is a supermarket, whereas our competitors are a whole lot of specialist shops. Instead of going to a lot of different companies where products aren’t necessarily integrable, customers can come to us and get a comprehensive and integrable solution in one place.”

- Enrico Krogh Iversen, CEO, OnRobot

Cooperation agreement and freedom to operate

To support the successful merger of the three companies, the ownership circuit – with Enrico Krogh Iversen in the lead – decided to put together a shareholder agreement. This followed thorough discussion of the company’s vision and the scope of its activities.

The shareholder agreement outlined shareholders’ rights and obligations and described how the company would be operated. It also set out the terms and conditions under which Enrico Krogh Iversen

would operate as CEO of OnRobot.

Specifically, the shareholder agreement stated that Enrico Krogh Iversen had the freedom to run and develop the company. Only extraordinary decisions should be run past the Board of Directors.

In addition to the shareholder agreement, the newly merged company put together a strategic plan for future development and growth. The plan is revisited and revised annually.

OnRobot expands rapidly through an ambitious acquisition strategy

The goal of the merger, and the establishment of OnRobot, was to create a global company with a strong focus on the market for industrial robot accessories, giving buyers a "one-stop-shop" for automation components for collaborative robots.

To achieve this goal, OnRobot's aim is to quickly expand its product portfolio and go from 9 to 40 products over the next couple of years. To do this, the company needs fast access to products and technologies. The new products are partly developed in-house by OnRobot's own engineers, IT and software experts, but the company also pursues an aggressive acquisition strategy, bringing in new companies and products.

So, one of the driving forces of the expansion and success of OnRobot is success in continuously getting the right partners and products on board. A mere two months after the OnRobot merger, an additional company, Purple Robotic, was acquired. The acquisition allowed OnRobot to offer its partners the world's first robot arm with two "hands" – a robot capable of handling several items simultaneously and solving multiple tasks in one movement.

In April 2019, OnRobot acquired the rights to a product from the recently bankrupt Danish company Blue Workforce. The acquisition was based on the synergistic possibilities given OnRobot's existing product range. The CEO of OnRobot elaborates on key considerations behind the acquisition:

"We saw an obvious opportunity to expand our product portfolio with some unique techniques and competences within soft gripping and vision technologies, i.e. solutions that can handle delicate items and foods without damaging them as well as camera-based solutions for inspection on

production lines. We expect very quickly to be able to create new OnRobot products with ingredients from the inventions we have bought".

- Enrico Krogh Iversen, CEO, OnRobot

OnRobot has been able to continue its acquisition strategy by raising a large funding round, led by Summit Partners with the participation of the existing investor The Danish Growth Fund. Over the next few years the company expects to acquire one, or possibly two, additional companies in order to build up a product portfolio with an appropriate breadth.

Access to a diversified pool of customers and dealer networks

In addition to constructing a larger, more coherent portfolio, OnRobot benefitted from the merger in terms of extended dealer networks and more customers. With the merger, the company's dealer network instantly expanded to encompass not only more countries, but also a more differentiated pool of customers.

This was in sync with OnRobot's aim to serve the whole spectrum of collaborative and industrial robots, and forging partnerships with every robot brand in the world, including Universal Robots, Fanuc, Kawasaki and KUKA.

In contrast with many of its competitors, OnRobot's customers are primarily integrators selling both collaborative robots and a range of end-of-arm tools enabling the robots to be put to use in production. The end-of-arm tools developed by OnRobot are sold in every industrial sector and around the world.

Building an integrated company culture is key to expansion and success

OnRobot is an international company with headquarters in Odense. The company was basically born as a global player by the merger of the three companies with roots in different countries. From the outset OnRobot has had a global mindset in all aspects of the business – from the establishment of worldwide sales organisations to maintenance of international networks.

One of the key challenges set by OnRobot's merger and acquisition strategy is to ensure full integration of new companies in a relatively short time. This includes establishing a common culture and shared language – something that is paramount given that OnRobot is a merger of companies from three different countries with different working cultures.

“Words do not mean the same to different people. When I say now, I meant yesterday, but for others it can mean whenever we get time within the next 14 days”.

- Enrico Krogh Iversen, CEO, OnRobot

OnRobot has taken various steps to ensure and strengthen the integration of the companies across borders and professions. For instance, it has established strong c-level executives within areas such as technology, supply chain management and administration. These executives have the “big picture” within their respective areas and are responsible for managing, and for uniting employees across national borders.

Another way in which OnRobot seeks to strengthen integration across the different companies is by arranging professional and social events for staff across teams, disciplines and borders.

Future success hinges on recruitment of qualified staff

One of the biggest challenges and threats to the continued development and success of OnRobot is posed by the difficulty of recruiting qualified and talented people.

For a newly established company like OnRobot it can be difficult to find and attract qualified employees. Often the more mature companies have

strong employer brands and well-developed channels for talent recruitment including well-established networks. Moreover, it can be hard to judge a sales manager's performance, and to assess the extent to which a record of performance reflects abilities or mere luck (e.g. working during a period of economic boom, in general or for the relevant industry).

Lastly, the recruitment of skilled employees is also hampered by the need to find the right people – employees who wish to be part of the business culture and thrive given the company's leadership style.

OnRobot has tried to overcome this challenge by being very clear about the company's values and ways of working – including its focus on execution speed, limited bureaucracy and hands-on solutions to problems. This is reflected in job interviews with leaders, which seldom dwell on the candidate's skill-set and professionalism, but focus instead on the candidate's values and workstyle.

Case 5: Easyfood

Founded:	2001
Founders:	Flemming Paasch og Hemming Van
Sector:	Convenience food
Country:	Denmark
Employees:	150
Revenue:	EUR 42 million (2018)
Funds:	N/A
Growth phase:	Expansion/global strategy

Leading international manufacturer of convenience food

Easyfood was founded in 2001 by a team of experienced founders with a background in the Danish food sector. The founders had seen an unmet demand for high quality, delicious convenience food for people on the move. The founding team received financial backing from the owner of a very successful Danish food manufacturing company.

Today Easyfood develops and produces more than 250 kinds of "heat-and-eat" and "thaw-and-serve" products (bread, cakes, pizzas and snacks). Its products are sold in a wide array of restaurants, cafés and petrol stations throughout Europe. Key customers include Costa Coffee, Tchibo, Starbucks, McCafé, Tribeka and Lidl.

Easyfood has organised production so that it combines the best of two worlds. The production line has the efficiency and volume of an industrial bakery while achieving craftsmanship of the kind many consumers associate with small bakeries.

The company is characterised by a high degree of flexibility in its production line, and it can quickly adapt to new market trends and new requests

from customers and end-users.

Easyfood offers its customers culinary and functional innovation. It does so by offering meal solutions within large deliveries, easy preparation and low food waste, thus meeting the demands of retailers.

Nurturing a company culture of innovation

The business concept of Easyfood is essentially based on the company's ability to develop innovative products and to be an innovation partner for its key customers.

Easyfood has made significant investments in production equipment that allow for a high degree of flexibility. Thus, the company has developed two modular production lines which can be set up differently depending, for example, on how each product needs to rise, be baked and decorated.

The company has made significant effort to train and develop employees, and to build a corporate culture where employees thrive on innovation and change. An innovation department has been set up working across disciplines. The department seeks to further innovation in several areas and engages with the company's backers, chefs and designers.

The flexible and efficient production line means the company is capable of producing five to ten different kinds of product a day. And the change-over time is just half an hour, which demonstrates a very high degree of flexibility for the food industry. It is not unusual for up to 20% of annual turnover to derive from products and concepts less than one year old.

Cooperation with reliable, high quality suppliers is

an important prerequisite, enabling Easyfood to realise its ambitious growth targets.

The company has built long-term partnerships with raw material suppliers and technical partners, who, in addition to providing products, also contribute with improvement input and long-term development. For example, the use of many different and complex ingredients means that suppliers must possess specialised knowledge. If a new dough prototype behaves strangely during baking, Easyfood employees should be able to contact the supplier to identify the cause and develop a solution to the problem. Easyfood promotes value chain collaboration by organising and hosting special events and workshops.

A scale-up phase with ups and downs

Easyfood has developed into a profitable niche as a concept developer and innovation partner for large food manufacturers and convenience food stores.

In the last five years turnover has seen significant growth and Easyfood has delivered solid positive financial results with, on average, profits of EUR 2 million per annum.

This has not always been the case. During its first 10 years the company had several ups and downs. In some years, new strategic approaches turned out not to be successful. For instance, an attempt to develop a new product line of heat-and-serve meals targeting average buyers of groceries in supermarkets was a mistake – one that had severe negative impacts on the company's profitability.

Thus, in the scale-up phase, where experimentation with new types of product and consumer segments was needed, it was crucial to have an investor and chairman of the board with deep pockets who believed in the company and was capable of providing additional funding.

After the first 10–12 years, Easyfood had finally refined its business model and found a recipe for success. The CEO and the board of directors drew up a new and more ambitious growth strategy focusing much more on expansion internationally. The ambition was to become a preferred business partner for a number of big-name companies within the coffee shop and food-to-go industry.

Thus in 2015, when the European Coffee Sym-

posium was to be held in Copenhagen, Easyfood decided to make a significant investment and become a sponsor. The company participated with an ambitious stand showing everybody what Easyfood was capable of and how the company could be a valuable business partner for international coffee houses and food-to-go chain stores.

The European Coffee Symposium is one of the major events where coffee shop brands meet to discuss new trends, look for new inspiration and find new business partners.

The strategy was successful. Easyfood managed to negotiate a contract and become the supplier (of a small number of products) to a couple of large international franchise and chain shops. This was an important first step in Easyfood's expansion of its international sales and effort to find new sources of growth outside Northern Europe.

Since 2015 Easyfood's annual turnover has risen by 43%. Export markets have been a significant driver of this growth.

Change in ownership is required to pursue further growth

Easyfood see considerable potential for further international market expansion and growth. But the realisation of that potential will require significant investment in production capacity.

In 2017/18, the Founder and CEO, together with the majority owner, who is also chairman of the board, agreed to initiate a sales process in order to find a new owner for the company. The investor and majority owner had by this point turned 60. He did not see himself as a suitable owner and chairman for a company transitioning from the international expansion phase to the next level as a global provider of convenience food.

The search for a new owner proved to be quite difficult and time consuming. Although the majority owner and chairman of the board had some years earlier gone through a similar sales process with his first company and had access to experienced mergers and acquisition counselling services, it was almost impossible to find a buyer who saw the same potential and future growth for Easyfood. Hence the owners were unable to find a buyer willing to pay a fair price for the company.

The challenge was not that of finding investors who were willing to acquire ownership. Rather, it was finding the right investor – someone who subscribed to the same vision and estimation of Easyfood's key strengths and future potential as the current owners.

A number of venture capital funds showed interest. However, it soon transpired that they had other perspectives on how the company should develop and an investment horizon that failed to correspond with that of the current owners.

After searching for more than a year, and being unable to find the right buyer, the owners were about to give up their hunt and continue on their own when the Norwegian food giant Orkla showed interest in acquiring the company. Orkla and Easyfood quickly found they shared a similar view of the key strengths of Easyfood, and that their visions of how to pursue further growth and expand activities globally were aligned.

For example, the founders believed it was important for a future owner to have a deep understanding of Easyfood's business model and core values (e.g. flexible production lines, highly innovative employees at all levels and flat organisational structure). They also felt they needed to find an investor who shared the view that the Nordic region (and specifically Denmark) was the best location for a food manufacturing company competing on innovation and flexibility. On both points, Orkla agreed.

“With Orkla's ownership, Easyfood has found a perfect partner which shares the same corporate values and has an aligned vision of Easyfood's future development. At the same time Orkla brings financial resources, strong competencies and a network in the global food industry”.

- Flemming Paasch, founder and CEO, Easyfood

In December 2018, it was agreed that Orkla would acquire 90% of the shares in Easyfood, while the company's founder and CEO Flemming Paasch retained the remaining 10% and continued as CEO. Easyfood was valued at EUR 44 million, and Orkla paid close to EUR 40 million for its 90% stake in the company.

Benefiting from being part of a Nordic ecosystem

For Easyfood it is important to have well-educated, innovative and highly responsible employees at all levels and positions in the company. The company's core strength is its capacity to adjust to new market trends and deliver in high volumes. Flexible and innovative employees who are capable of solving problems on there are vital if a company with this business model is to thrive.

Easyfood sees the Nordics, with their well-educated labour force and a business culture with flat organisational structures, as ideal. The company also reports that it has benefitted from the Nordic countries' international renown for high quality foods. In particular, the effort that has been made by Nordic chefs and restaurateurs to set Nordic cuisine on the map globally has been highly beneficial – both in ensuring that there are plenty of young, talented people seeking a career in the food industry and in raising awareness of the Nordic food sector globally.

Case 6: Valka

Founded:	2003
Founder:	Helgi Hjálmarsson
Current CEO:	Helgi Hjálmarsson
Sector:	Automation solutions for the fish processing industry
Country:	Iceland
Employees:	85
Revenue:	EUR 17 million
Funds:	EUR 1.5 million
Growth phase:	Scale-up ecosystem

Expanding product portfolio with leading automation solutions for the fish processing industry

Valka is an Icelandic company founded in 2003 by Helgi Hjálmarsson. It specializes in the development and marketing of equipment and automation solutions for the fish processing industry.

Valka helps fish processing companies to achieve the best product mix, and to optimize production by increasing their flexibility and accuracy in fish processing while cutting labour costs. Compared with traditional grading, the fish are handled more carefully, with less waste and higher yields as a result. Since it was founded in 2003, Valka has continuously developed a range of automation solutions for the fish processing industry. Today the company offers a fully automated production line from deboning to packaging and ice-dosing.

A particularly critical time in the company's history was the financial collapse of Iceland in 2008. All development activities with Valka's Icelandic customers were put on hold. Instead Valka decided

to focus on the Norwegian market, and on the development and sales of its aligner grader – a piece of equipment designed to grade, batch and align fish products automatically into the trays in which it is to be sold.

Originally Valka was focused on white fish fillet processing. In 2009 it sold its first packaging solution, an aligner grader, to a Norwegian salmon producer. Following this, Valka continued to develop automation for the salmon processing industry. In 2011 the company launched and marketed a complete software solution, covering grading and packaging, that was suitable for use throughout the salmon production sector in Norway.

A journey into high-tech X-ray fish processing

Valka's breakthrough came in 2012 when it developed and patented the first fish processing technology to have a fully automated pin-bone and portion-cutting line, using a combination of X-ray technology for locating fish bones and water-jet robot cutters to accurately portion fish filets. The capacity of the new machine was at least double that of manual cutting.

The first machine was installed for HB Grandi, one of Iceland's largest fishing processing companies, in Reykjavik. The new technology made it possible for HB Grandi to introduce bone-free redfish fillets. At that time, the fillets were a completely new fish product, and more valuable than redfish with bones. Before the release of Valka's new X-ray machine, the small size of the redfish fillets had meant that most were sold with bone.

Valka's latest piece of equipment is a salmon processor that can remove pinbones from salmon fillets by using X-ray technology to provide detailed

3D-imaging, enabling the bones to be located. Tilttable robot water-jet cutters trim and portion fillets. A key feature of this device is that it enables salmon to be processed pre-rigor. This removes a significant part of the processing, as salmon producers have until now needed to store fish post-slaughter and allow them to pass through the rigor stage before processing. Valka's salmon processor is still new to the market and has not yet been materialized.

Valka's products are largely developed in-house with expertise from researchers at universities with expert knowledge of software development and artificial intelligence. For instance, the optimization software used in the grader was developed in co-operation with CADIA, the Center for Analyses and Design of Intelligent Agents at Reykjavik University. Valka also works with universities in large grant applications.

Standard components and a single system for all customers

In the past Valka worked with various technologies and suppliers, each with its own range of interfaces. To minimize the effort required for the manufacturing, calibration and troubleshooting of the machines, the company chose to fundamentally revise their automation infrastructure by opting for a universal controller from the company Beckhoff.

Instead of sourcing special components from various suppliers, Valka started to use standard components and obtain everything from a single system that was able to integrate all necessary functions, from human machine interface (HMI) to robot axes and safety systems.

"A key special feature of these robotic solutions is that they are operated with a standard software platform – entirely in keeping with the philosophy of Beckhoff that all software tools must function on a simply structured platform".

- Helgi Hjálmarsson, founder and CEO, Valka

Valka expand to new markets – but started with the Nordic countries

Valka is located in, and operates from, Iceland – which is also its key customer base, with some of the largest white fish processing companies in the world.

Keeping pace with the development of automation equipment in the salmon processing industry, Valka unveiled its automation solutions to the Norwegian market in 2009. To service the Norwegian market, it opened its first branch outside Iceland in 2016. Today, Iceland and Norway are Valka's most important sales markets.

Focusing on the Nordic market, Valka developed an entirely automated production line, handling products through fish cutting, deboning, weighing, ice dosing and packaging. Key to the development of the fish processing machines was the customers' willingness to accept risk and buy an idea rather than the actual end-product from Valka. This allowed the company to develop demand-driven solutions in close collaboration with the end-users while taking on less of the financial risk associated with the development of the machines.

With the faster and more intelligent production solutions in the market, Valka has in recent years expanded internationally and now has customers in Belgium, Lithuania, the US, Poland, Russia, Chile and the UK. Central to the Valka's internationalization is its excellent relations with its key customers in Iceland. One of these customers has agreed to demonstrate Valka's machines and allow potential customers visit its production facilities.

"Once you have gotten one machine or one reference in a country it is easier to sell more. [...] We are seeing a big potential in Russia and the US [...] especially after we had the first sales in both Russia and US last year (i.e. 2017)."

- Helgi Hjálmarsson, founder and CEO, Valka

As more fish processing companies become aware of Valka's automation solutions, the potential – especially in the US and Russia – is huge. Most recently, Valka has signed a contract worth EUR 10.3 million with Muman Seafood Company to design and build a new processing plant in the town of Kola, Russia. The new plant will be the most technologically advanced groundfish processing plant in the region.

Valka is supervising the overall design of the plant, but other equipment manufacturers are involved in the installation as well. Around 80% of the equipment will come from Icelandic companies. This is the first time Valka has engaged in a large-scale plant project involving several companies. The new sales strategy builds on wider cluster

thinking, where Icelandic companies work together to strengthen each other and promote exports.

Valka expect to grow from selling completely automated production lines

The key basis of Valka's continued growth is the increased demand today for fully automated production lines that build on the same operating systems, allowing processing companies to centrally control their entire production.

Since 2012, when Valka's high-tech X-ray machine was introduced, the technologization of the fish processing industry has proceeded rapidly. More and more production modules are being automated at the expense of employed labour.

With the increasing automation of individual production modules, the fish processing companies prefer to use as few suppliers of machinery as possible.

"Systems are getting bigger and bigger. People in the industry don't want to buy one machine from one producer and another elsewhere. If you have ten different companies supplying machines, you have to make sure that the different machines talk together and work as planned. [...] Customers would like as few suppliers as possible."

- Helgi Hjálmarsson, founder and CEO, Valka

The demand structure, where fully automated systems are concerned, means that Valka's revenue is largely determined by a small number of large sales. This year 50% of Valka's sales, at EUR 17 million, were attributable to a single system-demand.

In the future, Valka expects to sell more systems covering complete processing lines. The company's aspiration is for single systems to account for one-fifth of its revenue sales. This means that it expects to grow from EUR 17 million in sales revenues today to EUR 60 million in the near future.

Successful founding rounds and the cost of growing

During its first three years, Valka focused on product development. While it has been easy to find good, strong partners for product development,

the company has received limited support from formal banks.

Valka's production is exclusively based on sales, and thus costs associated with the development and production of machines are to a large extent demand-driven and financed. However, one of Valka's central promotional strategies is to attend large international exhibitions, and this requires extensive capital for new and innovative product development. With the banks showing a reluctance to support its showcase products, Valka has obtained backing for its product development in six successful founding rounds.

Valka has raised almost EUR 1.5 million in funding. It first raised capital from The Technology Development Funds, an early-stage financier of research and development, in 2006 and 2012. In 2008 The New Business Venture Fund became a shareholder in Valka, and Frumtak Enterprise Fund joined the company in 2011.

The latest funding was raised in March 2018. At this point new shareholders joined the company and The New Business Venture Fund and Frumtak sold their total shareholding of 37%. In the absence of large bank loans, Valka has been less exposed to the risk associated with the high interest rates in Iceland. In that sense, it has been an advantage that the company's investments are financed primarily through its own capital rather than bank loans.

Valka's founder, Helgi Hjálmarsson, stresses that if the company is to continue on a positive growth trajectory it will need the formal banks to fund part of the cost associated with scaling up – including costs associated with the hiring and training of new staff, customer claims, equipment, and the stockpiling of spare components.

Costly product promotion is financed through private capital

Valka has learned from experience that promoting and selling its machines is more expensive than actually developing the products. About 90% of the costs are due to promotion sales and exhibitions, and the remaining costs are associated with the development of the machines themselves.

Originally the company expected promotion and sales costs to account for around 50% of total

costs. Valka has overcome this unforeseen challenge by raising more private funds and expanding the number of shareholders in the company.

Today, Valka is owned by 31 private shareholders. The two largest shareholdings amount to 19% and 16% of the company's ownership. Some of the largest shareholders are also Helgi Hjálmarsson and engineering companions that understand the business model.

Currency instability is a major threat to growth and further internalisation of Valka

To achieve product sales from entire production lines worth EUR 10-12 million takes a long time. It is not uncommon for fish processing companies to take up to two years to decide whether they require a new machine, and if so which one. Setting the right price at the initial stage is therefore key.

The extensive currency fluctuations that occurred in the wake of the financial crisis complicated price-setting in Euros. The weakening of the Icelandic Krona made products sold in Euros worth less in Icelandic Krona.

As the margin on long sales can quickly be eaten up by currency fluctuations, currency instability poses a substantial risk to Valka's ability to expand and scale up internationally.

7. Global strategy

7. Global strategy

This chapter describes the challenges companies experience when they grow to 250 employees and beyond. Companies which have grown to this size will have proven not only that they have a solid product with significant marketability, but also that they are also capable of renewing their products, services and business models in search of further growth opportunities. In addition, they have succeeded in organising their growing numbers of employees and activities across different locations in an efficient manner.

At this point, companies step up to another league where ambitions are raised even further. They will now need to compete, head-to-head, with globally leading enterprises in their specific sector or field. This places heavier demands on the senior management, necessitates access to the very best employees from around the world, and requires capital backing at an even higher level than before.

In our interviews, we identified three growth challenges that companies deal with at this juncture:

- Establishing global leadership and finding the right role for the company's founders.
- Accessing and managing excellent global talent.
- Finding the right exit strategy and new capital partners.

This chapter will expand on each of these challenges and explain how they can be solved. However, in this chapter sectoral differences are not addressed due to the relatively small number of interviews conducted with companies at this stage.

7.1. Establishing global leadership and finding the right role for founders

Our interviews revealed that as companies evolve into larger enterprises with more than 250 employees the management typically undergoes substantial change. With the change, the role of the company founders needs to be reviewed.

As discussed in previous sections, a company's founders will typically have been key drivers of its growth and development in both the growing-to-scale phase and the expansion phase. In many cases founders take up key management positions,

becoming CEOs or CTOs, for example.

But our interviews demonstrated that the founders' role often diminishes as the company reaches the global strategy phase. In many cases, founders are replaced by senior personnel with vast management experience from other globally leading companies. In response, they take seats on the company's board of directors or decide to leave the company altogether – often to engage in other activities, such as investing in young and promising companies or starting up a new business.

This is particularly likely to happen where the founders were occupied with more commercial and strategic matters (often the CEO). Founders who take up technological management positions (such as the CTO) are more likely to remain in post as the company evolves into a global enterprise.

The tendency to hire international top executives reflects the fact that companies competing in a global market depend heavily on management teams displaying a strong understanding of international markets and culture.

The diminished role of the founders must be seen in the light of various factors.

First of all, the senior management team running a global company need a broad palette of competencies, including among other things:

- Strong skills in building a global organisation, global management, financial planning, and the management of financial risk, etc.
- Knowledge of how to create higher sales in a wide range of different global markets – e.g. by means of multiple global marketing, etc.
- Understanding of where global markets are heading, and of how the company will remain competitive and stay at the forefront of ongoing developments.

Fulfilling these tasks successfully in a large corporation often requires an experienced senior management which has dealt with such complex matters before and can set up new goals and visions for the company. Company founders seldom have this type of experience, and thus the CEO may need to be replaced to take the company to the next level.

Secondly, companies are typically owned by several investors. Some may have been involved in the

company's activities for a number of years and therefore wish to prepare for a successful exit. This will often involve a strategy where the company seeks out opportunities for an IPO, or to be acquired by another company or sold to an equity fund (this process is elaborated further in Section 7.3).

Preparing the company for a sale or IPO will often involve changes at senior management level as additional competencies in areas such as finance are sought (e.g. see the iZettle case). And when the company has succeeded with its exit strategy, the ownership structure often changes dramatically, potentially ushering in changes in the strategic direction of the company. In some cases, the founders see these developments as a signal that it is the right time for them to step down.

By this point, founders will typically have been engaged with the company for many years – and it is not unusual for their association to stretch back decades. Being a top executive in rapidly growing companies like these naturally takes up a great deal of the average founders' time, and thus some founders also have a wish to slow down, rebalance their lives, and find time for other things (e.g. see the Unity Technologies case).

The text box below gives some examples of what happened to the company founders we interviewed when their companies reached the global strategy phase.

Box 7.1.

Unity Technologies' co-founder and former CEO (David Helgason) left the company's senior management in 2015 when the company had grown to 500 employees. He remained an active member of the board and is still the face of Unity for new employees and at selected conferences. Only one of the company's co-founders (the CTO) has remained on the senior management team.

Sitecore's co-founder and former CEO (Michael Seifert) stepped down from senior management in 2017 – a year after the company was sold to the equity fund EQT. At this point, the company employed around 1000 people. He joined Sitecore's board of directors until 2018, after which he decided to leave the company.

Universal Robots' former CEO (Enrico Krogh) was brought into the company in its start-up days and scaled the company to a point where it was acquired by Teradyne for EUR 1.7 billion. He resigned as CEO one year after the acquisition and started the robotics company OnRobot. One of the co-founders remained in post as CTO until spring 2019.

iZettle's co-founders (Magnus Nilsson and Jacob De Geer) are still a part of its senior management team, and holds the positions of CEO and Executive Chairman. The senior management was extended in 2016 when the management and board of directors decided to prepare iZettle for an IPO. To support this process, a CFO and COO with extensive management experience in publicly listed companies were hired.

MySQL and Maria DB was co-founded by Michael Widenius, who held the position of CTO in MySQL until it was acquired by Sun Microsystems in 2008. After the acquisition, Michael continued working for Sun's CTO, but he left the company in 2009 to start up his own IT company, Monty Program AB, where he acted as CEO until the company merged with another IT company in 2012. The merged company was renamed MariaDB, and a new, experienced CEO was appointed. Today, Michael holds the position of CTO in MariaDB.

Finding an appropriate role for the founders, and hiring suitable people for top management positions, is of paramount importance if companies are to realise their full potential and build global competitiveness. But this can be a challenge, and delicate matter.

First of all, there may be disagreements between the founders and the board of directors over what role the founders should have in the company at this point. Our interviews showed that the transition from a role as a top executive responsible for day to day operations and decision-making to a role as a board member is not always satisfying for a company founder.

Second, the new senior executives must have the necessary knowledge and experience, understand the company's DNA, and see where it is going, and preferably they must have a good chemistry with both founders and investors. Finding a profile like this is rarely easy.

In some cases, the board of directors recruits a new global management team in close collaboration with the founders and current management executives. But more often, a new majority owner, such as a private equity fund introduces the new management team as part of the acquisition process.

In all of these cases, it is vital that the management changes are well planned, and that there is a shared understanding of how the company should evolve, of what kind of management skills it requires, and of the future role of the company's founders.

The observations made in the quote below illustrate how Unity Technology managed to achieve a rather smooth management transition and was successful both in agreeing ongoing roles for the founders and finding qualified successors.

"The CEO [John Riccitiello] we took in was one that David [co-founder and former CEO] had brought on to the board of directors to "shake things up" a little. And when David and the board agreed that it might be time to make a change in the top management, the board decided to appoint John Riccitiello. He was very experienced in this industry as the former CEO of EA Games. It was definitely a good move to bring in a very experienced industry leader and give him time to get to know the company DNA. He has done many things right. Among other things, he has stayed true to the founders' original vision for the company."

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity Technologies

Some of the companies we interviewed had succeeded in finding suitable senior managers to take over from the founders relatively quickly. Others had hired and then dismissed several CEO's after finding that they did not perform as expected. Naturally, hiring and firing means that valuable time and resources are wasted. It often slows down the pace of growth in the company.

7.2. Accessing and managing excellent global talent

Our interviews showed that companies continue to experience challenges in gaining access to talent in the global strategy phase. But the challenges differ somewhat from those that are salient in the growing-to-scale phase and the expansion phase.

First, for most companies, regardless of size, it becomes more important to be present in the markets where their customers are – among other things, to keep up with increasing customer demand for high level services, and to be alert to customers' changing needs and requirements (Schuler et al., 2010). Hence, as companies grow and sell their products and services to more and more markets, the need to set up international offices offering representation in many different locations becomes greater. This also implies a growing need for access to global employee and management talent in the specific markets where company representation is set up.

Second, as companies expand they typically experience a growing need for highly qualified and specialized employees, including knowledge workers such as managers, technicians, researchers and accountants (ibid.). At this point, they have to be able to compete with globally leading enterprises in attracting the global talent they require to deliver innovative and high quality products and services to a global audience.

In the global expansion phase, it becomes crucial to tap into regional talent pools around the world. Thus, it is important to develop efficient channels for recruitment through employer-branding and collaborative activities with students and researchers at Higher Educational Institutions globally in order to access top-talent and state-of-the-art expertise within specific fields of research.

Some of the companies we interviewed explained that as a company grows bigger, and its level of ambition rises, it also has to deal with more and more complicated tasks, addressing problems which cannot be solved effectively and at a high level simply by hiring more employees with relevant skills. It becomes necessary to hire world-class employees, as they can solve these highly complex problems more effectively, and more efficiently, than perhaps five or ten employees who are less skilled.

"We have a very global workforce, and people are a key resource. We have high demand for software developers. Some challenges can be solved by hiring more people and we have been through that part. But there are other problems where it is not enough to just hire more people – now we have to hire the best. We have come to a point where it doesn't make sense just to just pour out more software developers to solve our hard problems."

Today, we rather need and want to hire one world class software developer, because he or she can do the same as perhaps ten software developers. And everybody wants to hire them. That is always a challenge. The more ambitious we become, the better the people we need, and the bar is set a little higher every day."

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity Technologies

Third, as companies grow, some experience a greater need to be capable of upscaling or down-scaling the workforce in a more agile manner. Our interviews show that many scale-ups do not experience linear growth from day one. Rather, their rates of growth tend to rise and fall (while rising, of course, over the longer term). Often, it is critical for growth for companies to be able to deal with fluctuations in an efficient manner. In particular, in the later phase of growth fluctuations will potentially threaten the company's existence, so it is important to be able to hire and lay-off employees as readily as possible.

Sitecore is a company that has experienced these fluctuations throughout its life – including during the global strategy phase. Hence, the company went through a massive downturn in 2014, caused by a failed growth plan:

"We have had many crises, but the worst was probably a lay-off round where we had to let go of ~20% of our employees. A new investor had come in and we had also taken in new professionals in charge of finance and sales. We ended up with a very aggressive growth plan and a goal to go from 30% to 60% growth annually, and a recruitment plan was made to support the anticipated growth. And then we started, but we naturally never succeeded with driving from 30% to 60% growth in 12 months – instead, we were stuck around the 30%. The average efficiency decreased, because so many people were taken in and so we had to do a restructuring of the company. "

- Michael Seifert, co-founder and former CEO, Sitecore

Some of the interviewed companies emphasised that having a flexible labour market which allows for easy "hiring and firing" is a prerequisite when a company is bearing the risks associated with investing in a number of new employees with no guarantee that order flows will continue to rise.

Lack of flexibility may hamper the company's willingness to make timely investments and result in missed growth opportunities. As one of the company managers explained:

"The workforce flexibility from an employer perspective is important when you have this staircase growth. In Norway, there is a very strong employee protection, and while that is really a good thing, it does reduce the risk appetite for a company that scales, because you have to be so sure of the company's future growth rates, before you make an investment in new employees."

- Michael Sagen, Co-founder and COO, Pexip

The Nordic region is internationally renowned for its flexible labour markets, and the "flexicurity model" is often praised as a competitive strength of Scandinavian countries. It is important that this strength is safeguarded, and that flexible labour markets are further developed.

7.3. Finding the right exit strategy and new capital partners

Any company that reaches the global strategy phase and employs more than 250 people will typically have been through several funding rounds. Often, private equity funds specialised in taking companies through the expansion phase will at this point have majority ownership. In other cases, companies may have managed to raise capital from many different investors, leaving their ownership divided across several minority shareholders.

Taking a company successfully through the global strategy phase is both a risky and extremely capital-intensive process. Thus, often it is necessary to bring new investors on board who have sufficient capital and expertise to take the company to the next level of growth.

This normally involves a process in which the management, in close cooperation with key shareholders, figures out what a successful exit strategy would look like. This strategy must enable the company to raise capital for continued growth and to buy out the existing investors. Our interviews showed that several successful strategies are being used. Companies seeking an exit strategy may be:

- Acquired by another global corporation.

- Sold to a private equity fund.
- Listed on major stock exchanges, such as NASDAQ.

For some companies, a merger or an acquisition will be the best way to maximise the company's growth potential. For others it will be important to continue as an independent company, but to go into new ownership by, for instance, a private equity fund that specialises in taking companies successfully into global markets. Some companies will find that an IPO is the most profitable exit option.

There is variation in exactly how big a company will have become when it chooses to pursue one of the strategies listed above. Among the companies we interviewed, however, all had grown to become somewhat bigger than the 250 employees that marks the transition to the global strategy phase in this study.

In general, companies that are acquired, or do an IPO, employ more than 500 people. This is particularly likely to be the case if the company is one that has decided to seek a stock exchange listing. Thus, the Icelandic company, Óssur, employed more than 1500 people when it was listed on NASDAQ Copenhagen in 2009. And Unity Technologies, which is currently preparing for an IPO, employs 3500 people.

The text box below elaborates the thinking of the management, and the considerations behind the choice of exit strategy, in various companies that have reached the global strategy phase.

Box 7.2.

iZettle was acquired by the American online payment service provider PayPal in 2018, although the company actually had been preparing for a listing on the Swedish stock exchange for some years. The management decided to accept the acquisition, because the two companies had aligned business visions and the acquisition was a tremendous opportunity for iZettle to access SurveyPal's extended global customer network.

MySQL was acquired by Sun Microsystems in 2008. Ever since raising capital from investors in the beginning of the 2000s, the company had

expected and planned either to be acquired or to undergo an IPO when its investors decided to exit. MySQL ended up agreeing to an acquisition, partly because this was considered a better financial offering, and partly because Sun Microsystem shared MySQL's vision of remaining an open source database management system.

Óssur was listed on NASDAQ Copenhagen in 2009. It was initially listed on the Icelandic stock exchange, but the company decided to change to a Copenhagen listing to overcome obstacles to the initiation and maintenance of trade with international investors caused by, among other things, foreign exchange risk issues associated with the Icelandic listing. Óssur specifically chose Copenhagen, because in the city region there is a developed market for healthcare companies, sophisticated infrastructure, readily available analyst knowledge of the sector, and excellent access to the international investor community.

Universal Robots was acquired by Teradyne in 2015. With rising revenues, the company was approached by several interested investors. Therefore, it established an exit committee, assisted by the investment bank Mooreland Partners. Mooreland specialized in acquisitions and sales of technology companies, and facilitated contact between Universal Robots and Teradyne. Universal Robots agreed to the acquisition in part because Teradyne came forward with an offer that far exceeded the price target, and in part because there was a good chemistry between the top managers of the two companies, and Universal Robots were offered a high level of "freedom to operate" after the acquisition.

The biggest challenge for companies entering this phase is naturally that of assessing the best exit strategy. In search of the right form of exit, some companies pursue a so-called "dual strategy", where they explore opportunities both to do an IPO and to be acquired by an industrial buyer or equity fund. In other cases, the company will decide to focus on one of these strategies alone, because they consider that this will make them appear more serious in their efforts to exit successfully. As one of the managers from iZettle explained to us:

"We had continued discussions of a dual track or not. The question was whether to run the IPO process while still running an M&A process. But we felt that it [a dual strategy] was not what we

wanted to do – that it was a sign of weakness and us not being really serious about the IPO if we were contemplating other things.”

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

A number of the companies we interviewed had brought in external assistance with their exit strategy – e.g. by hiring new top management team members or appointing external advisors specialising in these matters.

Companies are usually quite open to the exploration of various exit possibilities before they decide which one to pursue. However, our interviews showed that an important factor when a company is deciding upon an acquisition – in addition to obtaining a good price, of course – is that the top managers have a good chemistry and an aligned vision for the companies that are being merged.

Case 7: iZettle

Founded:	2010
Founders:	Magnus Nilsson Jacob De Geer
Current CEO:	Jacob De Geer
Sector:	It & Software (fintech)
Country:	Sweden
Employees:	800
Revenue:	EUR 90 million (2017)
Funds:	EUR 200 million
Growth phase:	Global strategy

iZettle offers low-cost, easy-to-use payment solutions that make it easier to start and run a small company

iZettle is a Swedish fintech company specialising in payment solutions for small companies in sectors such as retail, hospitality, service, and health and beauty. The company offers its customers easy, low-cost access to point of sales systems (including invoicing features), card readers, e-commerce platforms and small business loans.

For instance, new customers can download an iZettle cloud-based point of sales system for free and buy a card reader at a low price. When customers start making their first sales, iZettle charges them at 1.75% of the value of each transaction. Thus, instead of fixed monthly fees, customers are charged in accordance with the level of their sales.

iZettle believe that this business model has driven the significant growth experienced by the company ever since its foundation. In May 2018, just eight years after its establishment, iZettle was

acquired by PayPal¹⁵ in a deal valuing the company at almost EUR 2 billion. iZettle management expect the acquisition to accelerate the company's growth further still and predict annual growth of approx. 40% in the years to come.

In search of market needs and capital for product development

iZettle was founded in April 2010 by current CEO Jacob De Geer and current Executive Chairman Magnus Nilsson. Both men had several years' entrepreneurial and management experience with tech and investment companies.

The business idea arose when the founders noticed that the small business sector was underserved in terms of affordable and easy to use payment solutions. Payment solutions provided by the banks typically required a substantial lump sum investment combined with fixed commission. This could be a costly affair for entrepreneurs and small businesses with limited time and money.

The founding team decided to create a solution to this challenge and spent the first year building the foundations of the company. This included, not least, getting to know the market, and the challenges it posed, better, and raising capital for product development. As a part of this process, the iZettle founders were in dialogue with several companies about their specific challenges. They raised their initial capital from a business angel round in 2010. In August 2011, about a year after its foundation, the company launched its first product: a card reader attached to an iPhone.

¹⁵ - A globally leading provider of online payment services with headquarter in San Jose, US.

iZettle continues to raise capital and its company valuation climbs in every round

The founding team behind iZettle quickly realised that they needed to raise further capital from external partners. For one thing, the company was based on a so-called "low friction acquisition model". This meant that customers faced very few costs at the early stage when acquiring iZettle's payment solutions. But it also meant that it would take time for iZettle to build up significant revenue from its relatively small transaction charges. Secondly, the founders needed capital to pursue new ideas for business development. And, last but not least, from day one the founders had shared an ambition to build a global company, which naturally implied expansion into new markets outside of Sweden.

Therefore, the founding team were focusing heavily on raising capital from both Nordic and international venture capital funds. They were encouraged by the renewed optimism among actors in the investment landscape after some quiet years following the financial crisis in 2008. Again, investors were seeing a need and desire for entrepreneurs to come to market. In addition, several investors had scouted iZettle as an interesting company after seeing a YouTube video, published by iZettle for the launch of its first product, which had gone viral.

Investor interest in the young and promising fintech company meant that iZettle was able to raise EUR 8.2 million from Index Ventures¹⁶ and Creandum¹⁷ by the end of 2011 – less than six months after their first product launch.

Following this, iZettle managed to raise capital sums from a broad range of venture funds almost every year. However, the management had a very clear investment strategy to ensure that their ownership and control of the company was not diluted too early in the company's growth journey.

They consciously decided not to raise too much

money at a time. Instead, they chose to be confident in their own ability to prove the business case for the company and raise the company's valuation through frequent financing rounds. In this way, iZettle could continuously take new investors on board, while still maintaining a significant ownership share. This strategy turned out to be wise, as iZettle kept increasing its company valuation in every financing round over the next five years.

iZettle attacks new markets – starting with the Nordics

The capital raised and increasing revenues from a growing customer base were to a large extent re-invested into markets expansions.

Already, in February 2012 – less than a year after their first product launch – iZettle rolled out fully digitalised payment services in the Norwegian market. Roll-out to the Danish and Finnish markets followed shortly thereafter. Two main reasons lay behind the decision to choose the Nordic countries as the first target territories of internationalisation.

First of all, iZettle had sensed some resistance to their card payment solutions among key card providers in other potential export markets, such as the UK. Instead of challenging the existing card providers at a point at which fintech was still a relatively new and emerging field, iZettle assessed that it would be smarter to enter the Nordic markets where they had already managed to get to get important payment cards such as Mastercard, American Express and Visa on board.

Secondly, iZettle management believed that there was a cultural closeness between Sweden and the remaining Nordic countries when it came to technological maturity and the curiosity and openness of the general population. It seemed probable that potential customers in the remaining Nordic countries would receive iZettle's payment solutions in the same positive way as Swedish customers.

The predictions turned out to be correct, and demand for iZettle's payment solutions exploded, just as it had in Sweden a few months earlier.

"Jacob and I had a discussion of whether we should go into the Nordics or the UK. But we decided on the Nordics ... Also because of the cultural closeness that made us believe that the reaction[to

¹⁶ - Index Ventures is an international venture capital fund based in London and San Francisco. It focuses on tech startups within fintech, among other areas.

¹⁷ - Creandum is an early-stage venture capital fund based in Stockholm, Berlin and San Francisco investing in fast-growing tech companies.

the products] would be the same, which it was. Norway was the second market and it exploded the same way as it had in Sweden. We are not the same in the Nordics, but we are very similar in the way we think about things, and we are interested in trying out new things – we are very technology savvy."

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

Later that same year, iZettle decided it was time to roll out its services in Germany and the UK, where they had managed to get card providers on board after proving that their payment solutions were both secure and successful among Nordic companies. In 2015, iZettle expanded into Brazil and Mexico, after discovering that small business owners' product responses were very similar regardless of the specific market.

Expanding the product portfolio with lending services, turnkey solutions and invoices

Aside from expanding into new markets, iZettle put substantial efforts into optimising their potential earnings by developing new business areas.

In 2015, iZettle launched a pilot lending service for its core target group of small businesses, enabling small companies to take a loan to finance further development and growth, e.g. through hiring new staff.

The management decided to pursue lending services as a new arm of the business, because this was yet another example of an area where their main customer base was underserved by the banks. In addition, iZettle had a solid basis for evaluating the creditworthiness of each customer before granting a loan because they had access to the daily transaction data of each merchant.

"We try to democratise financial services to small businesses. And lending was yet another example of where they were underserved by the big companies. Banks would react like "first you go after card payments, and now you go after us on lending as well?" Whereas I replied "I don't know what you are talking about... You haven't lent a dime to these companies ever. You may think we come after you, but we are not. We are creating a new market that you never went after".

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

Aside from lending services, iZettle expanded their product portfolio with turnkey solutions for the hospitality sector following its acquisition of the Edinburgh-based company Intelligentpos in 2016.

iZettle managers were ambitious to secure this acquisition because they wanted to expand the company's customer base to include somewhat larger companies – i.e. companies with a higher demand for payments services than the micro companies iZettle was primarily serving at the time. Intelligentpos had already developed its own software services for slightly bigger companies within the hospitality sector, and iZettle considered acquisition to be a faster and easier way of accessing this market than could be achieved by developing the software themselves. With the acquisition, Intelligentpos' software and iZettle's payment solutions were integrated, enabling the now united companies to offer a full package of software, payment and lending services to a defined particular group of customers.

Finally, iZettle added invoicing to their product portfolio in 2017, as this was a payment collection method frequently used by customers.

Preparing for an IPO, and ending up with an acquisition

By 2016, and after consulting the Board of Directors, iZettle management decided that it was high time to prepare the company for an IPO. iZettle had grown to become a fairly big company by this point. Its worth was estimated at EUR 100 million, and it had more than 400 employees. Early investors in iZettle had been involved with the company for five years and thus were eager to find a successful exit strategy.

An IPO was initially decided upon, because the management wished to continue running iZettle as an independent company that continuously raises money – something they had been doing successfully so far.

"On a board level we discussed everything from a private equity fund to an M&A to public listing and decided on the latter. The company had fantastic growing sales [...] and we wanted to continue running the business on our own and raising money.

We thought this was an attractive proposition.”

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

To prepare iZettle for a successful public listing, the management team – which up to this point had consisted only of the two founding partners – was extended with the addition of a CFO and a COO, both of whom had substantial experience of top management positions in other publicly listed companies. Through this management extension, the idea was to build a stronger company that would be less reliant on the two-man co-founding team which had been involved in all of the key decisions and processes of the company so far. The goal of the new management team was to have the company ready for a public listing by the middle of 2018.

However, the plans changed radically when PayPal made a serious bid to acquire iZettle in April 2018 – just four weeks before the IPO whose planning had been underway for the past couple of years.

iZettle decided to accept PayPal's offer following extensive negotiations between senior managers representing the two companies. The final decision to accept PayPal's offer was not a very difficult one to make. The iZettle managers considered the acquisition to be a valuable opportunity for the company to sell its services to PayPal's extensive global customer base. At the time of the acquisition, PayPal globally had a total of 250 million signed-up users of their online payment services, of which 20 million were companies. By contrast, iZettle had around a half a million users. Moreover, the two companies had a closely aligned view of the world – one that included, not least, their shared vision of democratising financial services and providing services to the then underserved segment of small businesses.

The acquisition was concluded in September 2018. The companies have, however, been working as two autonomous companies until now, because the Competition and Markets Authority in the UK has decided to investigate whether the acquisition would distort competitiveness in the UK market, where both PayPal and iZettle operate. The CMA's final decision has not been issued yet.

“It was really not a hard decision to make. In many ways, this is a match made in heaven. It has

opened up incredible opportunities for iZettle that would have taken much longer to create ourselves. PayPal also have incredible confidence in online payments, which we don't. Many businesses today need both online and offline payments, so we have to offer them both things. To do this, we would have to partner up with someone else no matter what, because it is a too competitive field to go into for us as a company and believe that we could win that.”

- Magnus Nilsson, co-founder and Executive Chairman, iZettle

Case 8: Unity Technologies

Founded:	2003
Founders:	David Helgason Joachim Ante Nicholas Francis
Current CEO:	John Riccitiello
Sector:	IT & Software
Country:	Denmark
Employees:	2500
Revenue:	EUR 310 million (2018)
Funds:	EUR 640 million
Growth phase:	Global strategy

Unity Technologies¹⁸ democratizes the world of content creation by offering a market leading 3D development platform

Unity Technologies (Unity) is a Danish tech unicorn that has developed the world's most widely used real-time 3D development platform, enabling the creators of different types of content to develop interactive experiences in 2D, 3D, Virtual Reality (VR) and Augmented Reality (AR).

The platform can be employed for various purposes, but it is mainly used for creating, operating and monetizing different types of game (e.g. mobile, console and PC games).¹⁹ Other applications include development of apps for film production

18 - This Unity case is based on an interview with the company's global R&D HR Director, who joined the company in 2014, and an account of Unity's operations from the book "Learn from the best" (2017) written by Nikolai Steensgaard.

19 - 50% of all PC games in the world are created using Unity Technologies' platform.

as well as apps for the design and visualization of consumer goods, buildings, bridges, etc.

With so many applications of the platform, Unity has a wide customer base, including both private individuals and professionals and companies from various industries, including gaming, automotive parts, film, architecture, engineering, and construction. Customers are given access to the platform through a tiered subscription scheme.²⁰

Today, Unity Technologies has 1 million active users, and 40% of the top 20 games sold via Appstore have been developed using the Unity platform. The company has experienced massive growth – particularly over the past 4–5 years, during which Unity has gone from having 250 to 2500 employees. In 2018, the company grew by 46%, and this growth rate is expected to continue in the years to come.

From game development start-up to game engine provider

Unity was founded in January 2003 by current board member and former CEO David Helgason and his two friends Nicholas Francis (former Chief Creative Officer) and Joachim Ante (current Chief Technology Officer).

All three friends had solid coding experience and wanted to start their own gaming company. However, as a team they were challenged by the fact

20 - Free access (without additional support, training and services) is given to private individuals who want to learn how to make interactive content using the platform. A cheap monthly subscription (including access to training resources) is offered to private individuals who wish to accelerate their learning and development using the platform. Finally, slightly more expensive subscriptions are offered to professionals using the platform who require more advanced features.

that it was difficult to obtain access to the kind of software required to create a computer game – to what are sometimes known as “game engines”. At the time, the gaming industry was dominated by 15–20 global enterprises that had developed their games on the basis of proprietary game engines. These engines were difficult and expensive to purchase for the trio young and aspiring entrepreneurs. Instead, the founding team decided to develop their own game engine. In the beginning, the engine was intended to be for their own use.

The team managed to develop a game engine that was quite solid and user-friendly in comparison with their competitors’ engines, which were designed primarily for professional programmers. Hence, the idea arose that Unity – instead of focusing on game development – should focus on offering cheap and easy access to the company’s game engine for anyone wanting to create their own game. In 2005, the first version of the engine was launched. Customers were able to access it for a lump sum ranging from EUR 130 to 1300.

New technological advances accelerate growth, and capital is required to make room for continued business development

Unity’s game engine attracted users instantly. It seemed that many creative minds around the world had been waiting for a product like this that could help them realize their ideas for new games. Unity was also lucky, however, in that favourable new technological advances were made in the mobile market around the year 2007. This was when Apple launched its first iPhone – a development quickly followed by the launch of alternative smartphones by other mobile brands. Unity had particularly focused on developing a game engine that would be suitable for smaller PCs. That kind of platform suited perfectly the technology platform that lay underneath the many new mobile games for smartphones.

These developments ensured that Unity had an influx of new customers, and the company grew to 30 employees by the end of 2008. In spite of having more customers, and hence increased revenues, the management considered that it was high time to raise some capital. All of the company earnings were being spent on salaries, and if the company was at some point to experience a decline in cus-

tomers inflow it would be advantageous to have access to “back-up capital”. This would give the management more room to focus on questions about how to develop Unity as a company, rather than concentrating on company survival on a monthly basis. In late 2009, Unity managed to raise EUR 4 million in a funding round led by Sequoia Capital.²¹

Change of business model – from a licensing model to a subscription model

2009 was also a landmark year for Unity in other respects. This was the year when the management decided to make fundamental changes in the company’s approach to earning money – by going from licence-based access to a subscription-based product. Furthermore, the management decided to pursue the company’s vision of democratizing the gaming industry even further by offering a free version of the game engine (albeit with limited content).

“2009 was the first critical year. This is the year when the management starts to run a more professionalized and structured business, and when they realize that the product must be given away for free, while still earning money.”

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity

Several reasons lay behind these key strategic changes. First of all, subscription-based business models were becoming increasingly widespread, and Unity was inspired by this trend. Second, the management concluded that if they really wanted to realise their ambition to democratise the gaming industry, offering a game engine for free would be the ultimate way of doing it. Finally, a free version of the game engine could form the basis of growth in the number of paying customers.

Unity launched its first free version of the game engine in 2009, and within just 24 hours of the release the company had doubled its number of users. The change in business model, however, also resulted in reduced earnings – a setback which it took the company a couple of years to make up. But all in all, the change in business model was a

²¹ - Sequoia Capital is an American venture capital fund focusing on the technology industry. The fund has invested in several well-known technology brands including Apple, Google and PayPal.

great success and laid the foundation for a much broader customer base.

“There have been strategic changes along the way, in part in the way we earn money. [...] We went from being a license-based product that customers in principle could use in all eternity to being a subscription-based product. That is of course rather expensive, because instead of getting money up front, money is paid back little by little over a longer period of time. It has taken a couple of years to catch up [...]. It is a big step to say that now you pay via a subscription. It was a big strategic shift.”

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity

The new chief executive heads Unity's transformation into a globally leading company in the gaming industry

In the years 2009–2014 Unity enjoyed steady and organic growth and ended up with around 250 employees. At this point, co-founder and CEO David Helgason decided to resign as CEO and sit on the board. He now wished to focus on the long-term strategic development of Unity instead of its day-to-day operations – partly for personal reasons, and partly because he recognized that another candidate would be better suited to run and develop the fairly big company that Unity had become.

Unity Technologies' current CEO, John Riccitiello, took over company management the same year. He was originally brought on to Unity's board of directors by Helgason to “galvanise things” and inject the company with new energy and fresh ideas. Riccitiello had extensive experience from management positions with various global companies, including the world's largest video game company, Electronic Arts.

With the new CEO now leading, internal strategic changes happened again, and the ambition of the company grew further. Unity was going to become the world's market-leading company by offering what would be indisputably the best technology: a high quality game engine with excellent graphics that works on all platforms, has an effective internal infrastructure and continuously offers the new functionalities that customers demand. At the same time, Unity would remain true to the vision of democratising game development.

In order to realise these ambitions, the management decided to up-scale the company's research & engineering departments dramatically. Thus, in the period 2015–2019 Unity went from employing 125 developers to employing 1000 all around the world. And today, the company has a product that can compete with game engines developed by some of the world's biggest game development companies, such as Epic Games' Unreal Engine.

“Four years ago, we started to make massive investments in product development, because we wanted to be the best – not just the second or the third best. This also meant that we scaled our research & engineering departments from 125 to 1000 persons in this period. And now we have a product that is on par with the biggest competitors in the market, e.g. Unreal produced by Epic Games. With these internal strategic shifts we said “we are an engineering company that believes in our core product and our vision of democratizing game development.”

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity

Creating a strong and coherent corporate culture in a rapidly growing company

The substantial intake of employees placed heavy demands on Unity's ability to onboard and integrate people successfully in the company. To ensure that this happened, it was of particular importance to create a strong working culture that is aligned with the overall vision of the company, permeates the employees' approach to their job, and provides the basis of a healthy working environment where employees speak their mind and have real freedom in their problem solving. Unity put in place several measures calculated to realise these ambitions, including:

- Making sure to hire top and mid-level managers who believe in the overall vision of the company.
- Developing systematic onboarding programs, where employees are introduced to core company values.
- Offering management and employee training programs in which the company's values and working practises are always central themes.

- Holding monthly “townhalls” where Unity employees across the global offices meet and share knowledge and experiences.
- Inviting Unity’s users to conferences to harvest feedback and inputs to the company’s products and services.

Through initiatives like these, Unity has tried to create and diffuse a corporate language that ensures employees are aligned with company values and incorporates the values in working practices. This includes the framing of shared phrases such as “users first”, “the best idea wins” and “we are in it together”.

The management considers Unity’s strong vision and culture to be one of the key reasons why the company has, to a large extent, succeeded in retaining its employees – not least, the core engineers and developers who have been a part of the company since the early days.

Helping customers succeed by adding new services to the core product

Aside from Unity’s change of business model, and massive investments in R&D staff, an important strategic shift has been the company’s decision to add new services to its core product. The management realized that if the company wanted to be a market leader in the gaming industry, it was not enough to base growth on incrementally rising charges for the company’s game engine. Instead, it was crucial to focus on customers’ needs and demands – and to help them achieve success with their own games. Therefore, Unity has focused on adding new services to their game engine over the past few years, including:

- Advertising software enabling users to earn revenue from their games through ads.
- Voice and chat systems enabling several players in one game to communicate.
- Game hosting offered at a low price and high quality compared with other vendors.

Most of these new services were successfully added through the acquisition of smaller companies which had already developed the technological solutions required. This was simply easier and much faster than developing the solutions internally. In 2014 Unity acquired a Finnish company, Applifier, which had developed a video advertising network

for mobile games. And in 2019, it acquired the American voice and text chat company Vivox.

“We have bought different companies, so that we can offer a core product, but also services that make sure that our customers generally have success with their products [games]. We can offer them commercials to make money, cheap and better hosting than for instance Amazon and Microsoft as well as a voice and chat system so that players can communicate in a game. [...] All this was strategic, because now our developers [customers] feel that we actually help them deliver all they need to be successful. Unity is no longer one product, but a product portfolio that looks at the whole life cycle in games.”

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity

Expansion beyond the gaming industry and into new industries

The most recent strategic shift in Unity has come through its efforts to expand the company’s existing technology into new industries. This was not least due to the management’s realisation that people outside the gaming industry were increasingly using the Unity game engine for purposes that had nothing to do with game development. According to Unity management, this must be seen in light of the fact that the global gaming industry produces some of the world’s most effective and high performing software solutions – solutions with many potential applications. As a market leader in the field, Unity’s technology is naturally adapted to new uses.

With this observation in mind, the management decided to focus more vigorously on expanding into the industries of film and animation, and automotive parts and manufacturing, as well as architecture and engineering. These industries were chosen as their entrance barriers were expected to be lower than those to other industries. First, some of the industries (particularly film and animation) were very similar to the gaming industry. Second, the industries into which Unity was moving seemed to have a serious interest in applying Unity’s technology anyway – some of them were already using the Unity technology on a pilot-testing basis. And third, these industries have a high proportion of well-educated staff in relevant areas such as engineering (something particularly true of the automotive industry).

"Computer games are like Formula 1 in software. It's the most effective and well-performing software developed and it can be applied in many industries. For instance, the automotive industry can use it to design, showcase and test their cars. With our technology, you can create 1000 dangerous situations in a row instead of driving one million kilometers just to get close to perhaps 100 dangerous situations. So, it's a faster way of testing the car – and in self-propelled cars it's a faster way to train the artificial intelligence of the car to learn from mistakes."

- Anders Peter Kierbye Johansen, Global R&D HR Director, Unity

Successful funding rounds and preparation for an IPO

The massive investments in staff, products and service development as well as market expansion over the past 4–5 years have been enabled and supported by several successful founding rounds. Thus, in 2016 Unity closed a EUR 160 million funding round led by DFJ Growth,[1] and in 2017 Silver Lake Partners[2] invested almost EUR 360 million in the company. Sequoia Capital invested in Unity for a second time in 2018, and this time the investment was EUR 130 million. Most recently, in May 2019 Unity raised EUR 110 million from an as yet unofficial investor.

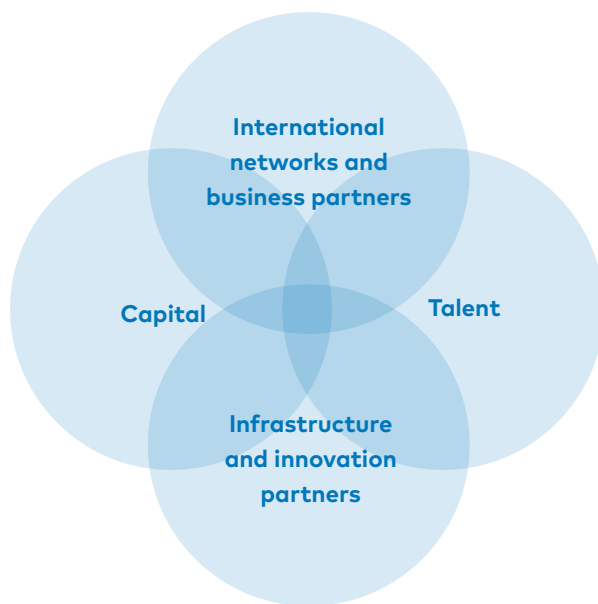
On the capital side, the next step is to do an IPO. To prepare Unity for this, a CFO (Kim Jabal) was hired in February 2019.

8. Key elements of a healthy scale-up ecosystem

8. Key elements of a healthy scale-up ecosystem

Our analysis of the interviews we held with Nordic scale-up companies and investors identified four elements that are important to a scale-up company's ability to realize its growth ambitions and are thus cornerstones of a healthy scale-up ecosystem. These are outlined in Box 8.1.

Box 8.1. Four cornerstones of a healthy scale-up ecosystem



Capital includes access to a broad palette of financing instruments and partners, including venture capital funds, government support schemes, private business angels and business partners, and private equity funds. However, it is not only a question of raising the capital needed, but also of finding investment partners with aligned business visions, investment horizons and perhaps industry expertise, because the absorption of new investors typically affects the ownership structure and control of the company.

Talent covers access to skilled employees and senior managers, and thus to specialist knowledge relevant to the field in which the company operates (e.g. R&D personnel specialising in certain technologies). It also covers more generic competencies in areas such as sales, marketing and accounting.

International networks and business partners involves building up relations to international companies, investors and business partners who can support the development and growth of the company in different areas and growth phases. A strong network to relevant people can, for instance, be useful when companies are scouting for new and talented senior managers, board members or specialists, or if they are looking for potential company candidates for mergers and acquisitions, or searching for new investors with high levels of industry insight.

The last element, **Infrastructure and innovation partners** has two components. The first is access to advanced production facilities where products are developed, tested and manufactured. The second is access to excellent research environments, public bodies (e.g. hospitals and municipalities) and private companies, which can serve as innovation and test partners in, for example, prototype testing. Infrastructure and innovation partners are particularly important among heavily technology-driven scale-up companies like those involved in deep tech and manufacturing.

The following sections will elaborate the most effective ways to strengthen each of the four outlined elements through concrete policy measures framed at various political levels (regional, national and Nordic) and for various industries. The policy analysis is supplemented with examples of good practice from three other globally leading scale-up nations: Israel, the UK and Switzerland.

These countries were chosen because they have a high scale-up density, meaning a high number of scale-ups per 100,000 inhabitants: all of them are above the Nordic average in terms of scale-up density (see Figure 3.3). Israel, especially, stands out, with more than 12 scale-ups per 100,000 inhabitants. The corresponding Nordic figure (averaged) is 4.76.

Desk research and interviews with representatives from organisations engaged in the scale-up agenda also show that these three countries perform well in the four areas constituting key elements in a healthy scale-up system. For instance:

- All three countries are at the top in international innovation rankings. Switzerland has been ranked 1st in the Global Innovation Index eight years in a row, while the UK and Israel were ranked 3rd and 11th, respectively, in 2018.²² The index compares the innovation performance of 126 countries' using 80 indicators. The indicators include business/university collaboration on R&D, employment rates in knowledge intensive industries, and the percentage of university graduates in science, engineering, manufacturing and construction.
- Israel has been notably successful in managing to attract venture capital investments at all stages (seed, start-up, early and later stages). In a recent report, it was ranked 2nd of all OECD countries – surpassed only by the US – in respect of venture capital investments. Thus, in 2017, Israel's total venture capital investments equalled 0.35% of the country's GDP. In the same report, the UK was ranked 5th and Switzerland was ranked 13th (OECD, 2018).
- The UK and Switzerland are home to some

22 - The Global Innovation Index is carried out annually by INSEAD, World Intellectual Property Association (WIPO) in collaboration with Cornell University.

of the top universities in the world with renowned collaborative arrangements with businesses, including the University of Oxford, the University of Cambridge and ETH Zürich. In 2019, these were ranked 4th, 7th and 6th, respectively, by the World Economic Forum.²³ In addition, the World Economic Forum's 2018 Executive Opinion Survey ranked Switzerland, UK and Israel 1st, 3rd and 6th for university-industry collaborations in R&D.²⁴

8.1. Capital

Our interviews show that finding the right investors is a complex and time-consuming task and absorbs substantial top management resources. There is no "one size fits all" when it comes to growth funding in different phases. The right investor match varies from company to company, and it can change within the same company as that company evolves through different growth phases. Furthermore, certain types of companies (e.g. manufacturing companies) have much greater capital than other companies. Drawing on our interviews and desk research, this report outlines four policy areas in which to address capital-related challenges in various growth stages and for different types of scale-up.

Improve investor-company matchmaking

In order for scale-ups and investors to meet in mutually rewarding ventures, it is important to secure transparency and efficient matchmaking. This requires access to knowledge about what kinds of financing opportunity exist, including both private actors and public support schemes. It also requires potential (Nordic and international) investors to have easy access to information about Nordic scale-ups looking for new funding partners.

A range of initiatives designed to address this need among entrepreneurs and young growth companies have already been devised. For exam-

23 - In 2019 Times Higher Education ranked the same universities as number 1, 2 and 11, respectively.

24 - The Executive Opinion Survey is part of the World Economic Forum's Global Competitiveness Report series. The Survey is conducted among business executives from 140 global economies and provides an annual evaluation of critical aspects of competitiveness for which statistical data is missing because the relevant competitiveness is either impossible or extremely difficult to measure on a global scale.

ple, Danske Bank Growth launched the digital platform "The Hub" in 2015. The platform provides companies from the Nordic region with an overview of the various funding opportunities and tools for investor matching and pitching (among other tools). It also contains an overview of existing start-ups and young growth companies, so that investors can scout for new potential portfolio candidates.

There may be potential for public and private partners in the Nordics to join forces on initiatives that can further increase transparency and effective matchmaking. This might include initiatives that focus on scale-ups in the "growing-to-scale"-phase that supplement existing platforms.

The Israeli digital platform "Start-up Nation Finder" may (despite of its slightly misleading name) be a source of inspiration in this regard. The basic concept is quite similar to "The Hub", but the Israeli platform provides more extensive information and advanced search options on Israeli investors, companies, technologies, innovation hubs (e.g. accelerator programmes, innovation centres, co-working spaces, etc.) and research environments that have relevance to companies at all growth stages. See Box 8.2 below.

Box 8.2. Start-up Nation Finder

Start-up Nation Finder is an online platform that collects and organizes comprehensive information about the Israeli innovation ecosystem. Here, companies (and other users) can conduct targeted research using the various filtering mechanisms provided. They can, for instance, search for:

- Investors at different investment stages (from pre-seed to late stages), of different kinds (e.g. corporate VC's and private equity funds), and in different investment ranges, etc.
- Companies at different funding stages, with differing numbers of employees (1 to 500+), at different geographical locations, with different business models, in different industries, etc.
- Multinational companies with activities in Israel, e.g. sorted by activity type, number of employees in Israel, etc.

- Research-based technologies operating in a broad range of research areas.

In addition to facilitating searching, the platform mediates contact between users and key contact persons in all of the organizations listed in the database.

Companies' access to domestic and international investors could also be improved by joining forces in the Nordics when it comes to organizing match-making events. The events may, for instance, centre on specific technologies and business strongholds in the Nordics, such as green energy, food tech, IT and software, robotics and advanced manufacturing.

Over the past few decades, the Nordics have acted as an incubator for several successful unicorns, and the region generally has a quite high scale-up density.²⁵ This means that international investors are increasingly looking towards the Nordics to find interesting companies to invest in – and it is therefore important to leverage this momentum through the creation of meeting places where relevant companies and investors can easily find each other.

Activate assets in pension funds

To ensure that promising scale-ups have access to the capital they require in all growth phases, some of the interviewed investors have emphasized a need to activate more of the substantial financial assets currently in Nordic pension funds. In this connection, some also highlight the importance of having Nordic venture funds with sufficient capital (e.g. from pension funds) and expertise to preserve a degree of "Nordic ownership" as scale-ups evolve in later growth stages – a point at which they typically experience rising capital needs.

In recent years, many European countries have given political attention to the fact that pensions funds tend to be somewhat risk averse and invest primarily in assets (e.g. government bonds, infrastructure, property) with a secure return on investment. The pension managers are often reluctant to place their assets in venture capital funds, as

²⁵ - The Nordic region has 4.76 scale-ups per 100,000 inhabitants, while the EU average is 1.91 (see Figure 3.5 in Chapter Three).

the attendant risk of loss is high.²⁶ In addition, some interviewees argued that Nordic pension funds place some of their investments in foreign venture funds (e.g. US based VCs) which have a strong track record for delivering high return on investments.

Although some of the investors we interviewed highlighted the need to encourage more pension funds to invest in venture capital, it is worth noting that the Nordic pension funds actually perform quite well in this area as compared with their European peers. According to a recent study, Nordic pension funds account for 16% of all VC funds raised in the region since 2013, which is more than seven times the European average (Atomico, 2018).

In seeking to encourage pension funds to invest an even larger share of their assets in Nordic based venture capital funds, it would be worth considering how to develop models for venture investments where the risk of loss is reduced. For instance, by:

- Developing new forms of syndicated investment where multiple (public and private) partners join forces and develop funds-of-funds with investments made across a diverse pool of promising scale-up companies within industrial strongholds in the Nordics.
- Increasing knowledge sharing and cooperation with existing investment funds from the Nordics and abroad that have built up a solid track record of successful investments over recent years.
- Drawing even more on the expertise of successful entrepreneurs from the Nordics who understand how to build a successful scale-up.

Successfully encouraging pension funds to invest more in venture capital is a widespread challenge – also in countries with a large share of scale-ups. For instance, only 0.02% of the assets in Swiss pension funds are invested in venture capital (Grabber Motion, 2013). This has given rise to extensive discussion in Switzerland in recent years about how to activate pensions funds' assets. , includ-

²⁶ - A recent study shows that 45% of all venture capital investments among major Nordic venture capital funds generate a loss, but that the potential upside is high – 4% have a return ten times the invested amount (Copenhagen Economics, 2019).

ing discussions of independence and risk aversion of pension funds and whether the venture capital market can become overfunded (see Box 8.3 below).

Box 8.3.

Encouraging pension funds to invest

Discussion of the low level of investment in venture capital by Swiss pension funds was ignited in 2013 when the so-called "Grabber Motion" was passed in the Swiss Council of States. The motion stated that the Federal Council should encourage pension funds to devote "a modest amount, e.g. 1% to promising, potentially value creating state-of-the-art investments".

To support venture capital investments and mitigate the risk of loss by gathering volume, the motion proposed that a Swiss Future Fund should be created that would bring together highly specialized knowledge and serve as an aggregated investor in other, less risk-averse venture funds. However, in 2019 the fund has yet to become fully operational.

A recent report showed that pension funds would resist: 1) any requirement that a minimum level of funds must be reserved for a specific purpose; and 2) the prospect of an external fund handling their investments. These elements of the motion have therefore been withdrawn. Nonetheless, the Swiss debate, and the ideas with which it engaged, may provide lessons for the Nordic countries, where investors are experiencing a similar need to see pension funds increasing their investments in venture capital.

Increased focus on companies with high capital needs

As emphasized in previous sections, raising the required capital can be particularly challenging in deep tech and advanced manufacturing. First of all, the "time-to-market" here is often lengthy. Our case studies showcase companies where the time from conception of a product idea to the market launch of the new product is more than 10 years. Second, accessing facilities and setting up production lines for the manufacture of these companies' products can be very costly. Patient investors who can provide large amounts of capital are needed.

An important element in meeting the capital requirements of these companies might be the activation of more pension fund assets (see the previous section). More private equity and industrial venture funds investing in these types of company would also help. This could be achieved through increased use of public-private investment partnerships where a public partner matches private investments in promising scale-ups in order to lower the risk associated with the investment.

Attempts to increase private investment in highly innovative technology companies by means of private-public partnerships have already been made in the UK, as explained in Box 8.4 below.

Box 8.4.

The British Investment Accelerator

In 2017, recognising that unsatisfactory levels of private capital were available to highly innovative technology companies, the British government established the “Investment Accelerator” under the jurisdiction of InnovateUK. The Investment Accelerator is a public grant to match private investments in technology companies with up to EUR 6.5 million.

To match companies and private investors, InnovateUK invites technology SMEs from a selected range of sectors – such as infrastructure, agriculture and precision medicine – to apply for grants via an open call. All applications are assessed by a team of sector experts appointed by InnovateUK who approve grants if the technologies the companies are focusing on are sound.

Companies with their approved applications have an opportunity to present their businesses to a panel of venture capital firms specialising in the same sector as the company. If the companies are able to convince one of the venture capital firms to invest, InnovateUK will match the investment. While the venture capital firm takes equity, InnovateUK funds the grant.

The programme has not run its course for long enough to be fully evaluated, but a preliminary evaluation is expected in 2019 or 2020. However, the initial experience appears very positive: the programme appears to have boosted private scale-up investment while mitigating risk by involving sector experts.

Strengthen the Nordic stock markets

The last policy area on the capital side we shall consider concerns the Nordic stock markets. As stated previously, a broad palette of financing instruments is important in supporting scale-ups' ability to grow. Venture funds and private equity funds need to consider what exit strategies are available before investing in scale-ups in later stages. Venture funds typically hold their investments for at most 5–10 years, and in many cases an Initial Public Offering (IPO) is considered a suitable strategy for venture funds investing in scale-ups in the expansion and global strategy stage.

An IPO could be made either on an alternative stock exchange suited to smaller companies, like the Nasdaq First North, or on the main stock market.

It appears, though, that there are substantial differences between the Nordic countries in respect of how well their individual stock markets function. Sweden stands out as the country that performs best.

First, there are significant differences in the numbers of IPOs completed in the Nordic countries. A recent analysis shows that in 2014–2017, a total of 6 and 10 so-called “micro IPOs” were completed respectively in Denmark and Norway.²⁷ In comparison, up to 200 micro IPOs were completed in Sweden during the same period (Copenhagen Economics, 2018).²⁸ In addition, more than 20 Danish companies have been listed on foreign stock exchanges, including approximately 17 listings on Swedish exchanges.

National differences between the stock markets extend beyond the numbers of completed IPOs. Other important differences include:

- Numbers of stock exchanges. Denmark and Norway have one stock exchange each, whereas Sweden has three.²⁹

27 - Micro IPOs include listings where new capital is raised at a maximum of EUR 40 million.

28 - Unfortunately the report does not contain information on the number of micro IPOs carried out in Finland and Iceland.

29 - Denmark has the Nasdaq Copenhagen stock exchange, including First North Copenhagen; Norway has the Oslo Stock Exchange, including Oslo Axxess and Merkur Market; Sweden has the Nasdaq Stockholm, including First North Stockholm, Aktietorget and Nordic Growth Market (Copenhagen Economics, 2018).

- Numbers of advisors (lawyers and financial advisors) who can advise companies through the process of doing an IPO. Denmark only has a handful of advisors who have helped companies with a micro IPO on Nasdaq First North, whereas Sweden has up to 20. Norway ranks somewhere in between (ibid.).
- The extent to which private individuals invest personal assets in stocks. Around 25% of a household's total financial assets are placed in stocks in Denmark and Norway. In Sweden, the proportion is 38% (ibid.).

Taken together, these factors result in inefficient markets for IPOs in Denmark and (to a lesser extent) Norway – making them less attractive places for companies to be publicly listed. Moreover, Denmark is challenged by the fact that Nasdaq First North has a somewhat tarnished reputation, partly as a result of some difficult years during the financial crisis in which several companies were de-listed, and partly in consequence of a negative price trend on many listings made within the past two years (ibid.).

Given these differences and challenges, there may be a need for some of the Nordic countries to look to Sweden for inspiration and guidance on how to strengthen the national stock markets. That guidance may include: 1) re-evaluating whether taxation on stock incomes should be lowered in order to encourage more individuals to invest in them;³⁰ 2) strengthening the tier of advisors who assist companies in the IPO process; 3) increasing media coverage for companies that are in the process of, or have completed, a public listing; and 4) providing companies with more information about the opportunities, advantages and disadvantages of raising capital by means of an IPO.

8.2. Talent

Our interviews show that access to talent is important in all growth phases. But we also know that the need for global world class talent may intensify as companies begin to compete with world-leading corporates. In addition, access to experienced senior managers who are able to offer industry insight, business sense and a global outlook is often crucial to the initiation of further

growth in later growth stages. However, our interviews show that scale-up companies are generally challenged by a substantial mismatch between supply and demand for these kinds of profile. Based on our interviews and desk research, this report outlines four policy areas for addressing these challenges.

Improve global talent attraction

The interviews with companies and investors emphasised a need for enhanced frameworks for hiring people from abroad. This goes for talent attraction from both the EU and, in particular, non-EU countries. The need to create better opportunities for the hiring of non-Europeans is reinforced by the fact that most European countries experience the very same talent shortages as the Nordics do (Iværksætterpanelet, 2018). Measures to improve companies' ability to hire global talent might well include:

- **Marketing job opportunities within Nordic business strongholds.** Analysis shows that none of the Nordic countries appears in the top 10 most attractive countries to which foreigners would like to go and work (BCG, 2018). Hence, there may be a potential for the Nordic countries to join forces in branding and marketing the Nordic region as a place with interesting companies, good job opportunities, excellent work/life balance, and so forth. This could be a task involving existing Nordic organisations that are already engaged international talent attraction activities, such as Copenhagen Capacity (DK).
- **Improving the ability of companies to make use of employee stock options.** In order to obtain work permits for people from non-EU countries, companies often have to offer salaries that are on par with the general industry standard.³¹ However, scale-ups (particularly in early growth stages) are rarely capable of offering wages that can compete with wages offered by well-established companies in the same industry. In view of this, some interviewed companies and investors suggested that companies should be allowed to hire non-EU employees by offering them co-ownership of the company – and thus a share in its

30 - Efforts of this kind have already been made in Denmark, with the introduction of the so-called "Aktiesparekonto".

31 - This applies to, for example, the "beløbsordningen" scheme in Denmark.

eventual success – in return for a salary that is slightly lower than the general wage level.³²

Enhance global talent retention

The successful recruitment of people from abroad is accompanied by challenges in retaining those recruited for a sufficient time. Some of the companies we interviewed emphasised that the problems here often revolve around the fact that foreign employees and their families find it hard to build social networks outside the workplace. This issue might be addressed by strengthening strategies for welcoming and integrating employees from abroad – e.g. through better use of, and cooperation between, existing expat programmes and companies, or by establishing shared accommodation for international staff from different companies. The challenge needs to be addressed at both a regional and local level to support new employees in building up a social network in the area where they live and work.

Expand national talent pools

To address the issue of talent mismatch in the longer term it will be necessary to increase the intake of students on educational programmes producing graduates with the types of skill and competency that are in high demand among scale-ups. This applies especially to STEM programmes (i.e. courses offering science, technology, economics and mathematics). This is a policy area with implications for the direction of higher education which must be handled individually by each Nordic country.

Some of the companies we interviewed also emphasised a need for joint initiatives strengthening Nordic talent mobility. Young talent with strong skills in science, tech and mathematics are in high demand all over the world. It is important to nurture the interest of young talent in pursuing career opportunities with scale-ups in technology areas where the Nordics have a particular stronghold.

³² - "Iværksætterpanel" also recommended this to the Danish government in 2018. Iværksætterpanelet was appointed in 2017 by the Danish Minister of Business and Industry in order to shed light on how to improve framework conditions for entrepreneurs and growth companies. It has input from successful entrepreneurs and investors, and other experts.

8.3. Infrastructure and innovation partners

Our interviews showed that access to innovation and test partners, and state-of-the-art research infrastructure and equipment, often play an important role in the development of successful scale-ups in deep tech, hardware and manufacturing.

However, identifying and starting collaborations with suitable innovation and test partners can be challenging – not least because scale-up managers already are extremely busy establishing a successful company. Analysis of our interviews and desk research suggests focusing on the following policy areas to address these challenges.

Strengthen networks between existing research and innovation actors

To develop new and innovative products that meet continually changing customer needs, some scale-ups need access to cutting-edge equipment, technologies and research-based knowledge (e.g. laboratories, databases and registers, instrument centres, etc.).

This type of research infrastructure is already widely available in Nordic countries, both in universities and in other institutions focusing on applied research and innovation in collaboration with industry. Examples of such institutions include GTS-institutes in Denmark, SINTEF in Norway, RISE in Sweden and VTT in Finland. These institutions specialise in renewable energy, materials, digitalisation, manufacturing, health and well-being, and other areas.

It might be useful to consider whether Nordic companies could be provided with easier access to an even wider pallet of highly specialized knowledge, technology and equipment if closer networks extending across the relevant institutions in the Nordic region were created.

Initiatives to create networks between research institutions, and new world-leading innovation centres specialising in strategically important business areas, have already begun in both the UK and Switzerland (see Box 8.5 below).

Box 8.5. Catapult Centres and Switzerland Innovation

Catapult Centres make up a network of physical centres where UK businesses and researchers can work side by side on late stage research and development, transforming high potential ideas into new commercial products and services. The centres give companies access to technical capabilities and advanced equipment in 10 selected areas with particularly strong growth potential in the UK (examples are cell and gene therapy, high-value manufacturing, and satellite applications).

The centres also help companies with various tasks related to the launching of commercial products and access to global markets. The network of technology and innovation centres is expected to deliver a step change in UK's ability to commercialise its research.

Switzerland Innovation is a national organisation that aims to provide a joint platform on which domestic and international companies can identify and access new research and innovation partners. The organisation does this by gathering Swiss universities and HE institutions across five regional sites called Innovation Parks, and supporting them with the following services:

- Coordination and networking activities across the sites
- International marketing of Switzerland as a leading research and innovation hub
- Ensuring uniform quality standards are applied at the individual sites

Switzerland Innovation is run by the Switzerland Innovation Foundation, which is funded entirely by the private sector, and in particular 19 renowned Swiss companies and trade organisations.

A first step would be to map the unique research infrastructure and test facilities that are available to companies in the Nordic region.

In a continuation of current efforts to establish this type of network, the participating partners could also consider whether it would be useful to direct investments into new types of research infrastructure in Nordic business strongholds that are not already addressed by the existing actors.

Access to business parks with suitable manufacturing facilities

Our interviews demonstrated that while many technology-driven companies (particularly in IT & software) can easily be housed in premises providing them with basic facilities such as office space, meeting rooms and a reception, other technology companies (in deep tech, hardware and manufacturing, for example) have requirements that are both more onerous and less well-served. One issue is access to premises that are suitable for manufacturing, meet environmental requirements (e.g. on the handling of waste water, air pollution and noise) and contain advanced facilities (such as clean rooms).

Some of the companies we interviewed reported that finding premises like these that are affordable and need little in the way of conversion can be a quite challenging. For instance, Renewcell, a Swedish company which dissolves cotton and viscose and turns them into new raw materials for the fashion industry, had struggled to find suitable facilities in Sweden. It started looking for premises in Germany, where it obtained support from the economic development agency Germany Trade and Invest (GTAI). GTAI identified both appropriate manufacturing premises and financial backing via the national grant Joint Task program.

If the Nordics wish to have a strong base of young and innovative manufacturing companies – something that may also contribute to the renewal of established industries – it might be relevant for each individual Nordic country to investigate whether there is a real shortage of national business parks with the required manufacturing facilities. Where there is such a shortage, there may be a role for government in facilitating the establishment of the business parks.

Improve companies' access to public and private innovation partners

Our interviews with both investors and companies showed that, for some scale-ups, access to private or public innovation and test partners is an important element in finding the right product-market fit and building market credibility.

However, getting a foot in the door with relevant partners can be challenging – particularly for scale-ups in the growing-to-scale phase which specialise in emerging technologies or products

and do not yet have a recognized brand.

In Israel, attempts have been made to improve technology companies' access to public innovation partners through incentive programmes for innovation with government entities. See Box 8.6 below.

Box 8.6. Incentive programmes for innovation with Israeli government entities

The **Incentive programme** was established in 2018 by the Israeli Innovation Authority (IIA) and the Government Companies Authority (GCA) with the objective of enabling Israeli technology companies to partner up with state-owned companies in the testing of new technologies and products in large-scale infrastructures administered by the public.

The programme focuses on nine technology areas (which include transportation, environmental protection, digital health, and space technologies) where Israel has substantial growth potential. Companies can apply at any time to participate by submitting a project proposal in one of the selected technology areas.

Participating companies receive public financial support for their projects – usually between 20% and 50% of project expenditures are covered. But projects with the potential to make an especially big impact may be supported with up to 75% public funds. The remaining funding must be provided by the company or investors.

The programme was supported with EUR 18 million in its first year and has helped 60 companies to collaborate with government companies on issues in the selected technology areas.

8.4. International networks and business partners

Networks are often reliant on connections between individual people and built up through years of experience within the same industry. This can be particularly challenging for relatively young scale-ups that were established by less experienced entrepreneurs. If these younger companies – and indeed more experienced entrepreneurs – are to be able to establish strong global networks, the following policy area will require attention.

Enhanced collaboration across Nordic innovation centres

Initiatives to connect Nordic businesses with relevant resources in some of the most important innovation hubs of the world already exist. A common denominator in initiatives like these is that they have professionals from the Nordics stationed at relevant localities whose job is to assist Nordic companies in obtaining a head-start in the specific market. Examples of such initiatives include the joint Nordic project Nordic Innovation House, and the establishment of Denmark's eight Innovation Centres (see Box 8.7 below).

Box 8.7. Nordic Innovation House and Danish Innovation Centres

Nordic Innovation House is a joint initiative aiming to help Nordic companies to enter global markets by connecting with local networks (e.g. mentors and advisors), accessing co-working spaces, and participating in acceleration programmes and other events. The initiative is backed by the Nordic Council of Ministers and Nordic Innovation. It has sites in Silicon Valley, New York, Singapore and Hong Kong.

The goal of **Innovation Centre Denmark** is to assist Danish companies and research institutions in accessing foreign knowledge, networks, technology and capital market opportunities. The Centre's services include advice on raising capital, and on the mediation of researcher contacts and innovation monitoring. Services are adapted to needs at individual destinations that include Boston, Munich, New Delhi, Sao Paulo, Seoul, Shanghai, Silicon Valley and Tel Aviv. The centres are supported by the Ministry of Higher Education and Science and the Ministry of Foreign Affairs in Denmark.

In considering how best to improve Nordic companies' access to suitable resources in various global innovation hubs, it may be helpful to ask how collaborations between existing actors in this area can be strengthened – thereby widening the overall pool of relationships which the Nordics has in relevant hotspots around the world. This may improve the access the companies have to global business and funding partners, and mentors and specialists, at specific locations even further.

9. Appendix

9. Appendix

9.1. Overview of interviews

Companies

- Dogu
- Ticketco.
- Oliasoft
- Pexip
- Boos.ai
- Xeneta
- Otovo
- Bright Product
- XM Reality
- Episerver
- iZettle
- Midsummer
- Lime Technologies
- Renewcell
- Climeon
- BoMill
- Ôssur
- Nox Medical
- Dohop
- Valka
- Meniga
- Sticks n' Sushi
- Peakon
- OnRobot
- Universat Robots
- Unity Technologies
- Easyfood
- Complea
- Gubra
- Happy Helper
- Sitecore
- Fiberline
- White Away
- Emtele
- Medisapien
- Reach Law
- Surveypal
- TactoTek
- Cloudator
- Maria DB
- MySQL

Investors

- Vækstfonden
- byFounders
- Heartcore Capital
- Industrifoden
- Finnvera
- Danske Bank Growth
- Nordic Makers

Policy experts

- Scaleup Institute
- Innovate UK
- The Swiss Entrepreneurs Foundation
- Innovation and Entrepreneurship Lab, ETH Zürich
- Digitalswitzerland
- Innovation Centre Denmark in Tel Aviv
- Innovation Israel
- Israel Europe R&D Directorate
- Start-up Nation Central

