



Nordic Council
of Ministers

An integrated and effective Nordic ecosystem for innovation and green growth

A closer look at access
to risk capital in the
Nordic countries

BY IDAR KREUTZER

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Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland, and Åland.

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To the Nordic Council of Ministers

Thank you for this opportunity to take a closer look at the need for, and access to, risk capital for early and growth-phase companies in the Nordic countries. This report is based on my observations from more than 60 meetings and consultations with ministers, ministries, national and international institutions, relevant organisations, banks, investors and important parts of the Nordic innovation ecosystem. I am grateful for their patience and wisdom. I would like to thank the Nordic Council of Ministers for all its support of my work, particularly the hard-working, professional and ever-positive Elvar Knútur Valsson, without whom this report would not exist.

Job creation and green growth are top political priorities in all the Nordic countries. New jobs will be created in existing companies and organisations, but a significant number of new jobs will have to be created in new companies based on new technologies and new business models. At the same time, the Nordic countries have all set ambitious targets for reducing carbon emissions and have pledged to switch to a low-carbon economy. The green transition is a challenging task, but also represents major business opportunities. New companies are being developed by innovative entrepreneurs throughout the Nordic countries. They need access to relevant, competent risk capital to grow, and to create value and new jobs.

The Nordic countries enjoy well-functioning capital markets with strong banks and a professional investor community. The economic cycle is positive, and access to capital is good on a macro level. At the same time, there are important differences between the Nordic countries, between sectors and in different phases of the development of new companies. Access to long-term "patient" capital is an issue. All the Nordic countries have introduced a number of different public financing mechanisms to

strengthen access to risk capital in the early phase. Some work well, but there is significant potential for improved effectiveness.

The Nordic region represents a large market and is one of the most digitalised, technologically advanced and best-integrated regions in the world. Seen from the perspective of international capital markets, the Nordic countries are often viewed as a whole – as one integrated region. On a standalone basis, the Nordic countries have limited access to international markets for early-phase risk capital. However, an integrated Nordic innovation ecosystem could develop into a very attractive region for international investors, and it would make sense for large international investors to spend more time developing their knowledge of the Nordic countries. In a challenging geopolitical environment, a region known for strong institutions, transparent and well-functioning markets and political stability has significant potential to strengthen its market position.

This report shows that there is currently very limited actual integration and co-operation between the Nordic countries when it comes to innovation and risk capital for financing job creation and green growth. This report also points to a number of concrete steps that could be taken to develop a more integrated Nordic Ecosystem, to realise the significant potential of this region through more effective use of the current financing mechanisms, and to attract more risk capital from new investors in the region and internationally. It is my hope that the Ministers will find this report inspiring and that it will be a small, yet helpful tool in building a stronger, more integrated and greener Nordic region.

Yours faithfully
Idar Kreutzer

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Executive summary

In 2017, Norway held the presidency of the Nordic Council of Ministers. In line with the Norwegian presidency's emphasis on increased competitiveness and the green transition, this study was initiated by the Ministers for Nordic Co-operation. The purpose of this study is to explore the potential for increased Nordic collaboration in relation to financing early-phase companies and companies in the growth phase.

In a global context, the Nordic countries are small, and the Nordic region as a whole is economically strong, representing a significant, technologically advanced market. Although the Nordic countries do compete with each other as attractive domiciles for companies and investments, there are clear synergies in co-operation when it comes to competition with other regions of the world. This is important as companies in each of the Nordic countries are facing increased competition nationally, on a Nordic level and on a global level, in their search for the best competences and access to competitive financing.

Joint Nordic efforts will increase the region's competitiveness through common political ambitions and concrete actions. The region can thus become more attractive. This may contribute significantly to job creation and green growth in the Nordic region.

A number of the recommendations in this report are directed at national ministries and institutions in order to improve and develop national instruments, schemes and the national ecosystems for entrepreneurship and innovation. Further optimisation will make Nordic co-operation an effective instrument for helping the Nordic countries reach their national goals, while simultaneously making the Nordic region as a whole more attractive. Other recommendations are directed at more systematic and targeted Nordic collaboration where Nordic added value can be achieved by joining forces.

An overview of the recommendations is as follows:

For better-integrated Nordic countries

- The Nordic prime ministers are encouraged to communicate their common ambitions to create a Nordic, world-leading ecosystem for innovation and to develop an action plan based on the study's recommendations.
- Policy guidelines for stronger Nordic mandates of national institutions should be developed to provide a common approach for national instruments to support an integrated Nordic innovation ecosystem.
- The regulatory framework and relevant tax rules should be benchmarked between the Nordic countries and with other competing regions on a regular basis. Framework conditions and tax rules should be aligned where this is relevant.
- The public sector's role in financing early-phase and growth companies should be defined more clearly.

To strengthen the Nordic market

- To further incentivise business angel investments, regulatory frameworks and tax treatment for angel investors should be benchmarked with progressive peer regions.
- A Nordic white paper should be produced on the regulatory changes that will be required to motivate institutional investors, including pension funds, to invest in startups and innovative SMEs.
- Established national fund of funds structures should be given Nordic mandates, and new fund of funds structures established.
- A Nordic plan for green and innovative procurement should be produced with the aim of accelerating the green transition and creating a more integrated Nordic market. Ongoing work in the Nordic countries for innovative and green procurement should be aligned on a Nordic level.

To create more effective framework conditions

- The regulatory framework in relevant areas should be improved and harmonised. This should be done by learning from Nordic and international best practices and developing a common Nordic policy rationale in chosen areas. The issues of harmonising tax treatment of stock options and tax incentives for attracting investment and talent should be addressed. Harmonising market supervision and regulatory framework conditions between the Nordic countries should be a priority.
- National rules for crowdfunding should be harmonised and formulated collectively in order to stimulate competition.
- The framework for regulatory sandboxes in the Nordic countries should be aligned on a Nordic level to increase Nordic market access. This is relevant for ongoing work in the Nordic countries on the development and positioning of regulatory sandboxes.
- Strengthened Nordic collaboration is proposed in the development of national state-aid-compliant instruments and schemes to support early-phase and growth-phase companies.

To ensure more targeted instruments

- National instruments for supporting innovation and growth can be made more targeted, effective and co-ordinated by institutionalising collaboration between the Nordic countries.
- A forum for the European Investment Fund and the relevant financing institutions in the Nordic countries should be established to increase cross-border collaboration and contribute to the development of new instruments.
- New Nordic academic research initiatives should be supported to inform policy-making in the field of risk capital and early-stage companies.
- In order to address identified market failures, the mandates of Nordic Investment Bank and NEFCO should be reviewed to define clear focus, stimulate pragmatic co-operation and optimal utilisation of competences and financial resources.

Key observations

After more than 60 meetings in the five Nordic countries, I am struck by the uniform nature of the input received, both from the public and the private sector. The following are some key observations:

1. The Nordic capital markets function well. A general observation is that the availability of risk capital is adequate in the Nordic countries on a macro level. Capital markets function well and a strong economic cycle has resulted in GDP growth, low interest rates, a high level of employment and consumption, and rising asset prices. This situation may be negatively affected by an economic downturn.

2. The Nordic countries are often considered one innovation ecosystem, but actual co-operation and integration is limited. International capital markets tend to see the Nordic region as a single investment and innovation hub. In practice, there are significant differences between the Nordic countries, and there are very few structures or mechanisms established to support an integrated Nordic innovation ecosystem.

3. Some sectors have limited access to risk capital. Although access to capital is generally considered good, specific sectors have more difficulty attracting investments than others, and equity investments for smaller companies are identified as particularly challenging. Companies in the area of cleantech, contributing to the green transition, have more difficulty accessing financing. Although there are distinctive differences, companies focusing on bio- and health-technologies find financing challenging. The reason seems to be that these companies are developing products and solutions that are often highly complex with long time horizons. These issues are relevant in all the Nordic countries.

4. Market failures appear to exist in obtaining capital for later-stage startup and in the scaling phase. Although the market conditions are favourable at the moment, market failures can be observed in two transformational phases. The late-stage startup to market launch is recognised as challenging. These findings echo the Norwegian Capital Access Commission's conclusion which emphasises that the number of new, large growth companies in Norway has been limited in recent years. Access to capital for smaller businesses with capital needs of up to NOK 20 million is identified as particularly challenging. These challenges are relevant in all the Nordic countries to varying degrees, according to national studies and analyses. Financing of the scale-up phase (also referred to as the high-growth and/or expansion phase) is also recognised as challenging, as there is usually a need to finance large volumes for further expansion and international growth.

5. Private competent risk capital is a precondition for job creation and growth. Private capital from angel investors, venture capital funds, private equity funds and institutional investors is the cornerstone of the Nordic market for risk capital. The regulatory framework and tax rules under which they operate in the Nordic countries play a defining role for their ability to fund innovators and entrepreneurs, and have a significant impact on the Nordic region's ability to attract international investments.

6. Effectiveness of national instruments can be improved. All the Nordic countries have various institutions and instruments in place to support innovation, job creation and growth. Some seem to work very well. At the same time there are clear indications that many of the established instruments and mechanisms can be improved through clearer and more targeted mandates. The public sector financing mechanisms play a particularly important and efficient role in the startup phase, and can play an important role in neutralising market failures.

7. There is an untapped potential that can be realised by introducing Nordic mandates. Although there are examples of collaboration across the Nordic borders, the main rule is that national instruments have national mandates. The study has revealed that there is a potential for more systematic cross-border collaboration, and that this will be welcomed by the national organisations administering the instruments, as a way of attracting more talent and risk capital.

8. A new Nordic innovation fund should not be a priority. Establishing a new Nordic innovation fund based on a model from the European Investment Fund was one of the issues to be addressed in the study. The conclusion, based on meetings with market participants, the EIF and the countries' representatives, is that such a fund should not be a priority given the current financial market situation. New public funding mechanisms, building on existing structures and making them more effective and targeted, is considered more relevant. Strengthening collaboration with the European Investment Fund on a Nordic level would however be an appropriate step to take in order to establish a stronger network and collaboration for the future. This would be rational as market conditions can and will change over the economic cycle.

9. The Nordic countries are integrated in an otherwise fragmented world. The Nordic countries have a history of strong political collaboration through the Nordic Council of Ministers (governmental collaboration) and the Nordic Council (collaboration of parliamentarians). This collaboration has to a large extent been voluntary and based on trust. In a challenging geopolitical environment, a region known for strong institutions, transparent and well-functioning markets and political stability has significant potential to strengthen its market position. The Nordic countries have a unique opportunity to strengthen their collaboration and further develop the Nordic hub for innovation and entrepreneurship. This will support the job creation and green growth agendas, and will be in line with and

support the Nordic prime ministers' ambitions for the Nordic countries to become the world's most integrated region.



Context

The Nordic countries are among the most developed economies in the world. Digitalisation, globalisation and the shift towards a greener economy are key trends. The Nordic countries have significant potential to address these challenges and develop leading positions in green transition and digitalisation. This potential is rooted in the competitiveness of the Nordic region, building on the Nordic welfare model, high-quality education, innovation capacity and solid infrastructure, including digital infrastructure.¹ The Nordic countries are doing well according to numerous indicators, measuring various factors ranging from competitiveness and innovation to happiness and gender equality.²

The Nordic region as such comprises the 12th largest economy in the world, with a population that is growing faster than the EU average, a labour market that receives global praise and a welfare system that has proved resilient.³ Stronger collaboration between the Nordic countries may contribute significantly to improving the region's competitiveness.

Digitalisation

The Nordic region is one of the most digitalised in the world, according to various measures and indices.⁴ This strong position must be built upon and is an important prerequisite for the fourth industrial revolution, in which, for example, the Internet of Things, robotics, virtual reality and

Figure 1
World Economic Forum
Competitiveness Index
ranking

Source: World Economic Forum (2017). Global Competitiveness Report 2017-2018

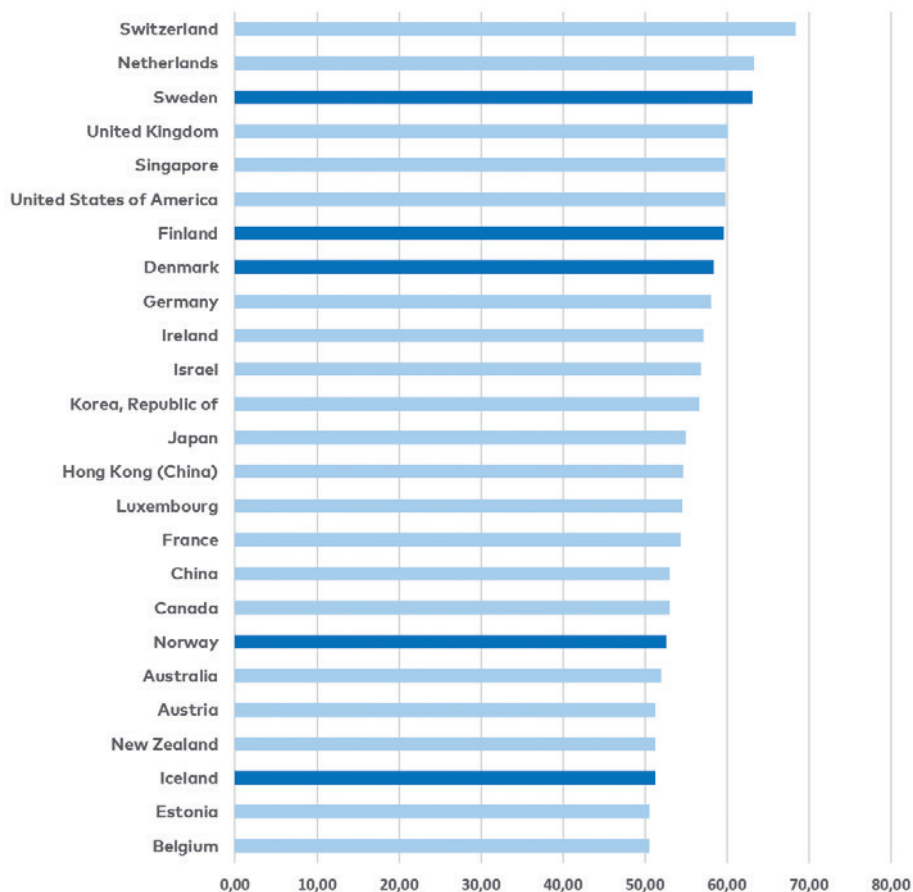
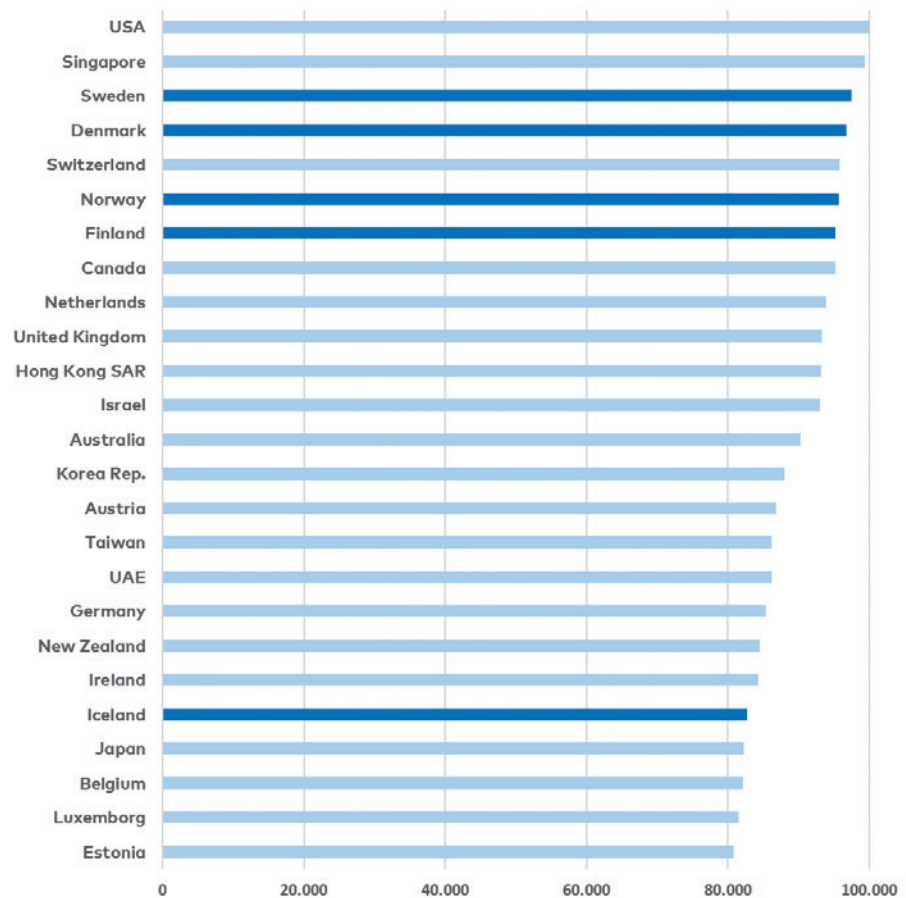


Figure 2
IMD World Digital Index

Source: IMD business school. World digital competitiveness ranking, 2018



artificial intelligence (AI) will be influential drivers of innovation and economic progress. The future competitiveness of the Nordic region will rely on how adaptive and innovative the region can be, in both the public and the private sector. It is therefore crucial that public policies, regulations and strategies for research, development and innovation are designed more effectively than before. By doing so, existing Nordic industrial and knowledge strongholds can be strengthened and new ones established.

The green transition

Environmental and climate issues are among the most serious challenges facing mankind. Due to the multiple effects and complexity of these challenges, there is no silver bullet we can use to combat them. These challenges require political and private sector commitment and engagement.

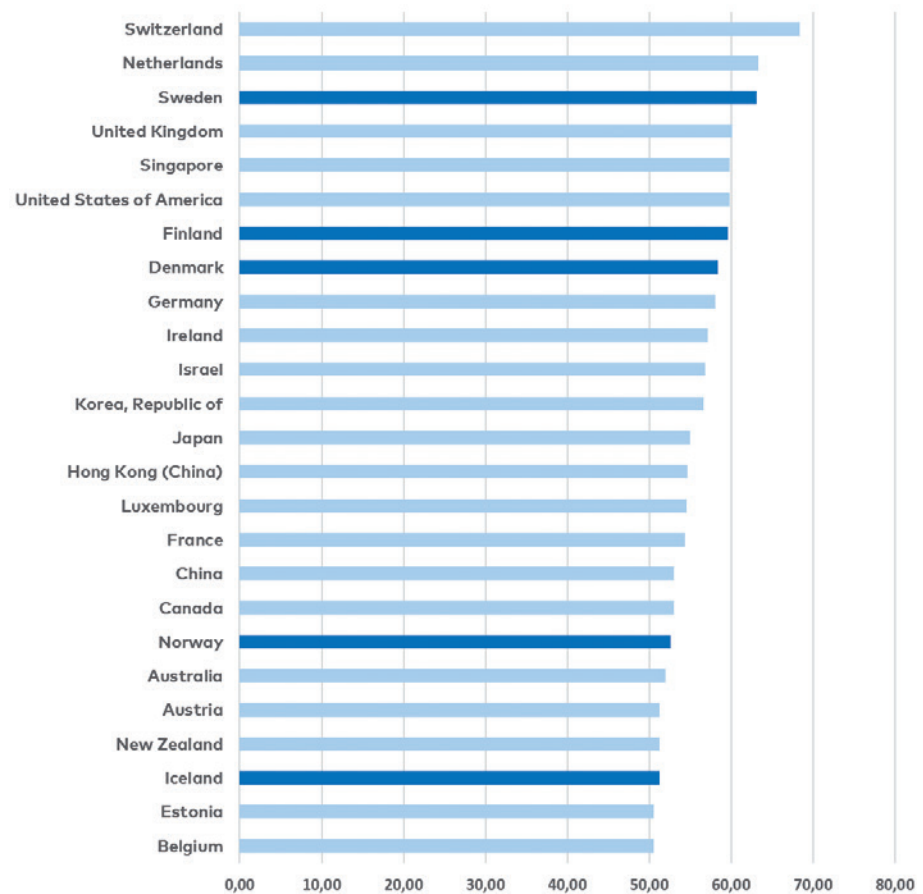
This is where the Nordic countries should play an even more significant role.

The Nordic governments are committed to working nationally and together to contribute substantially to the Paris Agreement, the UN's 2030 Agenda and the Sustainable Development Goals. The Nordic focus on the environment, climate and energy policies is apparent in the ambitious national plans.

Optimal Nordic collaboration can be an effective tool to support individual countries in meeting their national goals. Strategic reviews by Jorma Ollila (energy) and Tine Sundtoft (environment and climate) provide concrete proposals on how the Nordic countries individually and the Nordic region as a whole can benefit from stronger collaboration. Due to the political turmoil internationally,

Figure 3
Measuring the performance of innovation ecosystems: Global Innovation Index ranking 2018

Source: Cornell University, INSEAD and the World Intellectual Property Organization (2018). Global Innovation Index 2018.



there is scope for the Nordic region to take on a leading position, not only in terms of political leadership, but also in the business community. There are great opportunities to be harvested in developing and exporting Nordic solutions for the green transition. The Nordic countries should continue to step forward and lead the way.

Innovation ecosystems

The Nordic countries have a long tradition of supporting innovation, and have in recent years topped various innovation performance rankings in the EU and globally.⁵ Some of the fundamental prerequisites for innovation and growth in the economy, where digitalisation and the green transition are crucial, are research, education and talent. An equally important precondition is innovative companies' access to financing.⁶ This is particularly relevant to the development and growth phase.

However, financial mechanisms are only part of a bigger picture. The widely-used term is entrepreneurial or innovation ecosystem, which emphasises interactions of various components in a more complete system.

It should be underlined that the innovative undertakings taking place in an innovation ecosystem are executed in a regulatory environment, which is the framework in which entrepreneurs and companies operate. When addressing access to financing, as has been mandated in this study, it must be recognised that other relevant factors influence financing for early-phase and growth-phase companies, i.e. the ecosystem, in broader terms than just the financial instruments. The interplay between various financial instruments and other elements in the innovation ecosystem must be taken into account. Nordic countries are, individually and as a region,

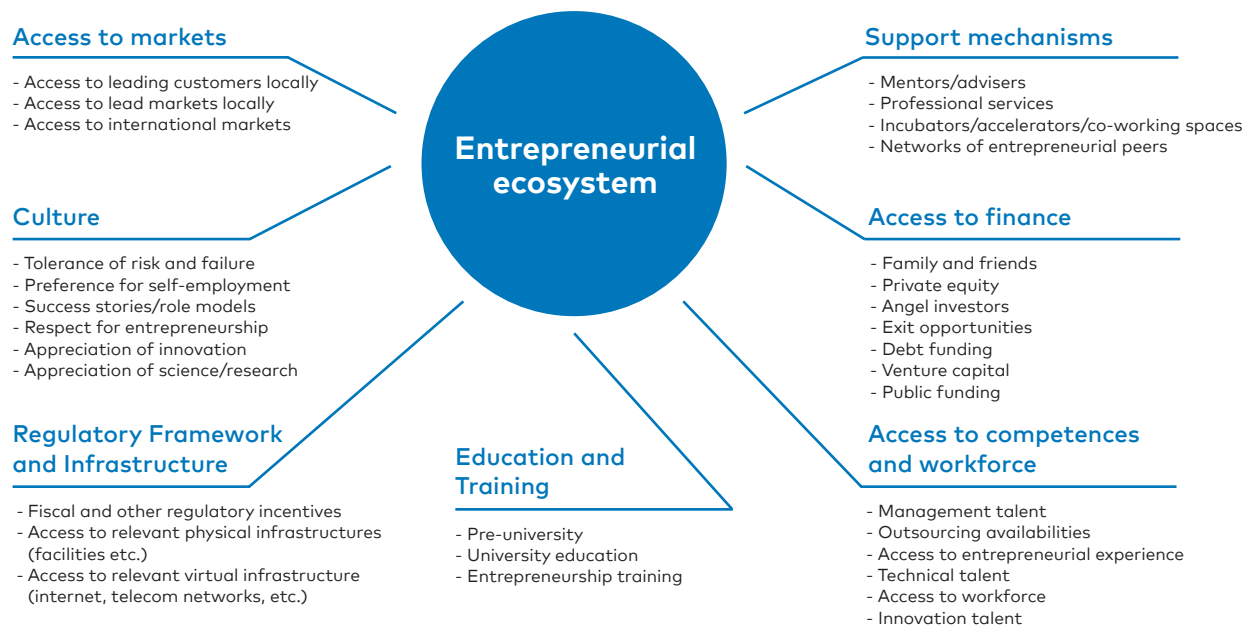


Figure 4

An entrepreneurial/innovation ecosystem

Source: Nordic Innovation (2016). Nordic Entrepreneurship Check 2016.

competing with other innovation ecosystems. The innovation ecosystems in, for example, London, Berlin and Amsterdam are all striving to improve in order to attract investments and talent. The same goes for other ecosystems in the USA and in Asia. Nordic collaboration will improve the region's innovation ecosystem and create synergies that are beyond the reach of the individual countries.

In the Nordic Entrepreneurship Check 2016,⁷ the Nordic ecosystems were compared with benchmarks, namely Berlin, Amsterdam and London. Characteristics of the Nordic countries in comparison with the benchmarks were as follows:

Comparison of Nordic and selected innovation systems

Nordic Countries

- Growing venture capital and business angel activity
- Increasing international interest in the Nordic region
- VC markets still not mature, gaps especially in expansion stage and private early-stage funding
- VC markets are mostly national and thereby also fragmented
- Very little cross-border funding in the Nordic region
- Crowdfunding is emerging (fast), but is still weak
- Tax regimes (and regulations) for private and institutional investors favour traditional investment options (real estate and stock market)
- Increasing amounts of public funding allocated to early stage

- Lack of industry-specific international start-up and growth company competences and specialisation among VCs
- Limited exit opportunities.

Benchmarks

- London, Berlin and Amsterdam are more based on private funding than Nordic Eco-systems
- The role of business angels is prominent in London (and in Berlin)
- Public VC is privately managed in London, Berlin and Amsterdam
- Gaps in VC markets differ between eco-systems, partly depending on exit opportunities, partly on the role of various investors
- Banks and institutional investors play a stronger role in the startup systems in London, Berlin and Amsterdam, partly because of more VC funds with longer track records
- Larger deal flow in London, Berlin and Amsterdam allows for specialisation among investors
- Exit opportunities are to some extent limited in Berlin and Amsterdam.

Despite the Nordic countries scoring high in an international comparison, there is still room for improvement. This is evident if the comparison is made with competing global hotspots for innovation.

Economic cycles

The current economic context is strong. The financial markets are generally effective and well-functioning and close to the top of the economic cycle where both public and private sources of funding are represented in various stages of the development phase of companies. In such conditions, the public sector should play a clear role and make sure it does not crowd out or compete with private investors.

It should be underlined that removing market failures is an attempt to hit a moving target. At the time of producing this report, new funds were being established, numerous investments were made and the political and economic setting changed daily. Agility is vital if public instruments are to

respond to the demands of fast-changing economic conditions and company needs.

Integrated Nordic countries in a fragmented world

The Nordic societies are all characterised by a high level of social trust, which has numerous benefits for the economy. Societies distinguished by high social trust are less likely to experience formalism, inequality and conflicts. In economic terms, social trust minimises transaction costs and has multiple positive economic and social effects.⁸

Acknowledging the benefits of Nordic collaboration and identifying the Nordic added value is key. Not only is Nordic collaboration driven by the benefits and added value it provides, but it is also based on trust between the countries. The traits of like-mindedness and trust are key drivers for the currently strong Nordic integration. It increases the potential for further strengthened collaboration in other fields such as innovation ecosystems and accessible financing.



PHOTO: RICKY JOHN MOLLOY / VF.DK

Status in the Nordic countries – point of departure

Innovation is high on the political agenda, and all of the Nordic governments acknowledge the importance of creating new businesses and adapting to changes driven by technology and globalisation.

In the Nordic Business Ministers' (MR-GROWTH) Co-operation Programme for 2018–2021, better access to risk capital across borders is a priority. It is stated that in many of the Nordic countries, companies' ability to access bank loans has deteriorated, resulting in a need for new sources of risk capital such as business angels, venture capital, crowdfunding and other alternatives. Furthermore, the co-operation programme states that the Nordic countries can collaborate to identify barriers and explore opportunities for improving access to capital across borders. Increasing cross-border investments by business angels, venture capital funds and other sources is considered to be an important precondition for strengthening growth in the Nordic region.⁹ This study will provide concrete actions to address the issues

highlighted in the Business Ministers' collaboration programme.

Despite the fact that the Nordic countries have ambitious policies for operating national innovation systems and instruments, there are issues which have been highlighted as areas where improvements can be made in each country. To name just a few examples, the Norwegian Capital Access Commission concluded that Norwegian wealth tax should be abolished and replaced with other taxes with less negative impact on access to capital, and allow for the share savings account scheme to also include unlisted shares.¹⁰ The Finnish Venture Capital Association (FVCA) has pointed to the fact that foreign funds of funds face unnecessary obstacles when investing in Finnish venture capital/private equity funds.¹¹

In the autumn of 2017, the Danish government's Entrepreneurial Panel (Iværksætterpanelet) presented its recommendations to improve the framework conditions for entrepreneurs and start-



The tax system has a bearing on the connection between capital seekers and capital owners. The Commission has therefore considered the effect of the tax system on access to capital. From a capital access perspective, the Committee's proposals include abolishing the wealth tax.

– The Norwegian Capital Access Commission

ups. The panel identified challenges in accessing finance. Early-phase financing was identified as difficult and owning stocks in Denmark considered less favourable than in many other countries due to high taxation. Furthermore, it was highlighted that there was a much better functioning market for risk capital in Sweden, compared to Denmark. In June 2018, the panel presented new recommendations. The panel acknowledged improvements in the ecosystem e.g. through the implementation of investment savings accounts and tax deductions for investors. However, further improvements should be made to improve access to finance and talent in Denmark, according to the panel.

According to *Nordic Entrepreneurship Check* from 2016, barriers to the successful development and growth of companies are lack of access to financing along with challenges relating to access to talent and internationalisation. Although the situation is improving, there are gaps in financing, for example, companies in the early phase and scale-up phase. Despite growing venture capital and business angel activity, the VC market is still not mature and there is limited cross-border funding in the Nordic region. The tax system and regulations for private and institutional investors also favour traditional investment options such as real estate and the general stock market.¹²

The Nordic countries do well when it comes to supporting seed and early-stage companies and entrepreneurs. There are multiple instruments and schemes in place, as there is a general consensus that the public sector can and should stimulate entrepreneurship and innovation in the early phases. However, later stage and scale-up instruments and schemes are not as well developed, but no less important. The absence of relevant financing for later stages may force startups and scale-ups out of the region when business models are tested and revenue stream started.

In order to maintain this important company base in the Nordic countries to fuel job creation and growth, the Nordic ecosystem for innovation must be globally competitive.

Market failures in phases

The study has revealed that there are two specific phases where companies are faced with challenges when it comes to accessing financing, indicating market failures. These are the transformation phases, namely the later startup phase and the scale-up phase (frequently referred to as expansion phase or growth phase).

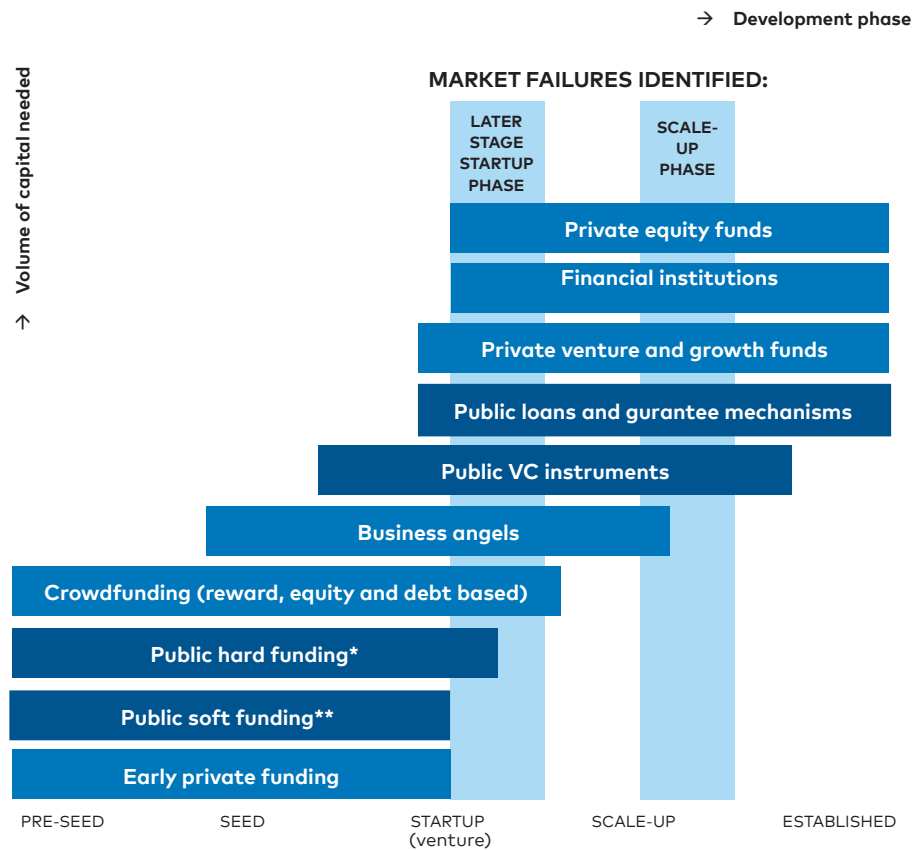
In the early startup phase, funding is still primarily based on grants and/or financial resources from individuals close to the entrepreneur. This phase is usually characterised by focusing on proof of concept and development. Early-stage private capital, angel investors and seed funds in some cases support these stages as the business concept develops. However, progressing to later stage startup means that the company is further developing the product and is preparing for market launch and first sales. At this stage, the company is generally moving from public grants, initial seed funding and possibly angel investors towards venture capital and other instruments for later stage start-ups. This can take the form of various loans, guarantees and equity investments. This transformational phase is identified as a challenging phase which should be addressed. As an example, in the Norwegian Capital Access Commission's report from March 2018, access to equity investments of up to NOK 20 million for smaller companies is identified as particularly challenging.¹³ A Swedish inquiry on access to capital from 2015 identified a need for stronger support in the early stages of development of new innovative enterprises and when financing the interval from SEK 5-50 million.¹⁴ The Danish entrepreneurship panel concluded that Denmark is losing out on potential economic growth as small companies find it difficult to access international capital markets. In the panel's report from June 2018, a gap in financing early-stage companies is identified in the seed phase for equity investments in the interval DKK 1-5 million.¹⁵ In recent studies in Iceland, financing later-stage startups and growth financing has been identified as particularly challenging.¹⁶

Figure 5
Market failures identified

■ Private
■ Public

* *Hard funding*: e.g. loans and equity investments

** *Soft funding*: grants



Unlike startups, which typically have little revenue, scale-ups have proven their business model by achieving reliable revenue. One primary challenge for the Nordic ecosystem is the fact that the Nordic countries are simply small in size, limiting the pool of local investors who are able to invest as needed in the scale-up and growth phase, which requires substantial financing. Lack of exit opportunities, local investors and the means to attract foreign ones can result in limited growth opportunities for Nordic companies and their possibilities for scaling up and growing.

Growth funds could in this context play an important role in ensuring financing for Nordic growth companies. Fund of funds structures would be ideal for meeting the financing demand of such companies, as they usually require large sums of capital to inject into the business for international scaling and expansion. If such constructions/instruments are not accessible in the Nordic

countries, Nordic growth companies will explore opportunities elsewhere. The state of access to venture capital, private equity and mezzanine capital is of great importance in this context. These challenges in financing the later-stage startup and scale-up phases are relevant in all the Nordic countries to a varying degree, according to national studies and analyses, and should be addressed with relevant policy measures. As the identified market failures appear to exist in all the Nordic countries, a Nordic approach to addressing these is recommended.

Market failures in sectors

Although access to capital is generally considered good, there are specific sectors in the Nordic region that experience market failures, and they have more difficulty attracting investments than others.

In 2007, venture capital investments in cleantech in the Nordic region amounted to EUR 55 million,

Figure 6
Key funding characteristics of KETs projects

*Source: European Investment Bank (2018).
Financing the deep tech revolution: How investors assess risks in Key Enabling Technologies (KETs)*



High capital intensity

High-value R&D investment required.
Investments earlier in the lifecycle than other sectors.



Low success rate

A large proportion of projects do not achieve technical or commercial success.



Intangible assets

Difficult to access lending due to lack of liquid collateral.



Long development and production lead time

Long time from idea to commercialisation. Production volumes hard to scale up.

peaking in 2010 with a total of EUR 140 million invested. The following years are characterised by falling investments, reaching a low point of approximately EUR 23 million in 2016. Similar developments of falling venture capital investments in cleantech can be identified in the EU member states in the same period.

From 2007 to 2017, biotechnology venture capital investments fell from EUR 69 million to a low point of 8.5 million in 2013. Developments in recent years indicate that biotechnology investments are gaining momentum although not reaching same levels as in 2007. However, the development in Europe is characterized by strong growth, particularly from 2014. Investment levels in 2017 reached 478 million EUR compared to 225 million in 2007.

In 2017, EUR 98.6 million was invested in healthcare venture companies in the Nordic region compared to 160 million in 2007. Venture capital investments in healthcare have thus not reached the same levels as previously. Europe has however experienced strong investment growth from 2012, with investment volume of EUR 626 million

in 2017, compared to 507 million in 2007. Further information can be found in appendix III.

Comparing the sectors with other investment alternatives indicates that these sectors are lagging behind in the Nordic countries, e.g. in comparison with ICT investments. Looking for explanations for this, profitability, risk aversion and other investment alternatives are factors influencing investments in any given sector. In 2017, in Europe, the ICT sector attracted significant venture capital investments (45.3% of the total), followed by life sciences (23.7%) and the industrial/energy sector (18.2%).

Although it is challenging to provide empirical facts and analysis of specific market failures in health-care, biotech and cleantech, there are identifiable discrepancies when comparing trends in the Nordic region and Europe, especially within healthcare where Europe is experiencing strong growth while the Nordics are lagging behind.

In 2016, a study was conducted by InnovFin Advisory¹⁷ on access to financing conditions for Key Enabling Technologies¹⁸ (KETs) companies. The

study highlighted the fact that, despite exceptionally good market conditions in the financial markets, not all companies benefit from such conditions. Many research-driven companies were found to have had difficulty raising much-needed capital for scaling up and expanding their business after initial commercial success. In addition, the complexity of the technology and inherent risk and uncertainty in relation to the value of the intellectual property, long life cycles between investment, and cash flow and capital intensity were identified as the dominant factors blocking access to necessary capital. Broadly speaking, the market failure arises from the fact that such projects/companies require particularly large investments with a long time horizon, and that the technological complexity makes it difficult for lenders and investors to understand and assess the market potential.¹⁹

According to the study's findings, there is a need for the Nordic governments to address these market failures.

Collateralising intangible assets is also a known challenge. Intangible assets, i.e. an identifiable non-monetary asset without physical substance, such as software for computerised databases, licences, intellectual property rights, patents, copyrights, etc., make up an increasing part of the value of SMEs. It is typically difficult to value and resell intangible assets and therefore challenging to use them as collateral for obtaining loans. There thus appears to be a market failure, most prominently in debt funding.²⁰

There are various methods and mechanisms available to address market failures in specific sectors. Industry-specific strategies, targeted instruments and public-private partnerships may be effective instruments for addressing sector-specific issues and development.

As an example, the UK government, in partnership with individual industries, has in recent months developed so-called Sector Deals in life sciences, the automotive industry, creative industries and artificial intelligence. It builds on the strengths of the UK, with the aim of boosting productivity, employment, innovation and skills. The deals involve substantial investment from private and charitable sectors and

significant commitments in research and development from the government. Key policies include raising total research and development investments to 2.4% of GDP by 2027, increasing the rate of R&D tax credit to 12 percent and finally investing £725m in new industrial Strategy Challenge Fund programmes to capture the value of innovation. Furthermore, the sector deals will address access to financing and the scaling-up of SMEs. These actions aim to make the UK an attractive location for innovation and investment.

Initiatives similar to the UK's Sector Deals could be effective alternatives to the existing general instruments in the Nordic region. Such initiatives would be directed at eradicating identified market failures in specific sectors such as cleantech, biotech and healthtech in the Nordic region. These sectors are important for the Nordic region as current industrial strongholds with vast potential for future growth. Various national initiatives focusing on specific industrial sectors have been launched in recent years in the Nordic countries, but further co-ordination across borders is needed to reach critical mass.²¹

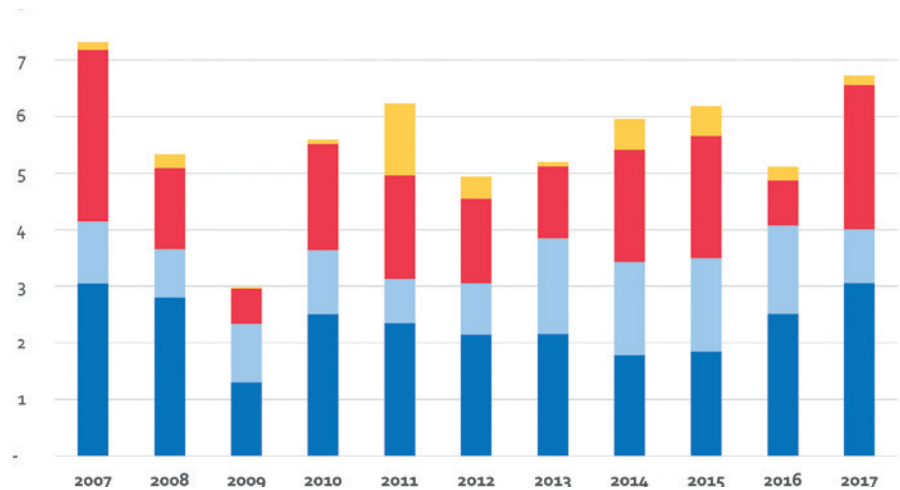
Financing activity in the Nordic region 2007–2017

According to data from Invest Europe²² for the period 2007–2017, private equity and venture capital investments in Nordic portfolio companies in 2017 are close to the investment levels from 2007 (measured in EUR billion, as illustrated in figure 7). Nordic cross-border investments have remained quite stable over the 10-year period. Comparing private equity and venture investments in individual Nordic countries in the period, there are significant identifiable divergences. This applies both to the geographical source of investments and to the volumes invested, which change markedly from year to year during the period measured.

Further information can be found in Appendix III.

Figure 7
Private equity and
VC investments into
Nordic portfolio
companies
(EUR billion)

■ Domestic Nordics
■ Cross-border
Nordics
■ Europe to Nordics
■ Rest of the World to
Nordics



Source: Invest Europe

Figure 8
Private equity and
VC investments into
Nordic portfolio
companies
(number of companies)

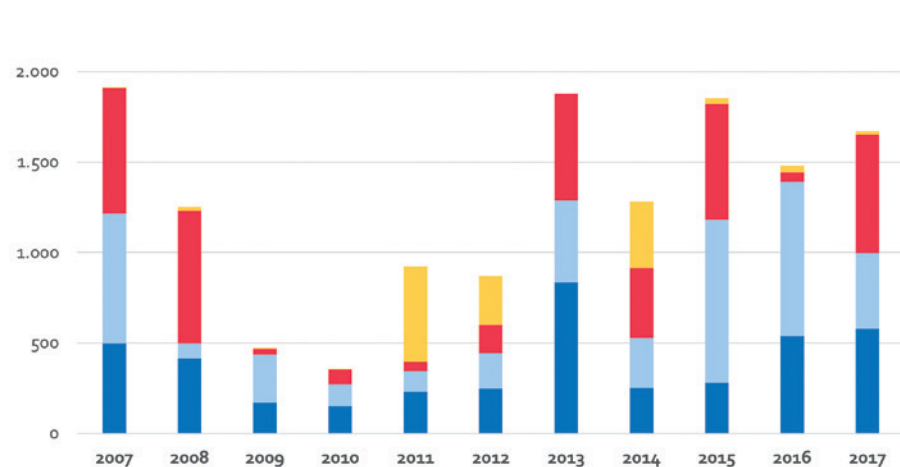
■ Domestic Nordics
■ Cross-border
Nordics
■ Europe to Nordics
■ Rest of the World to
Nordics



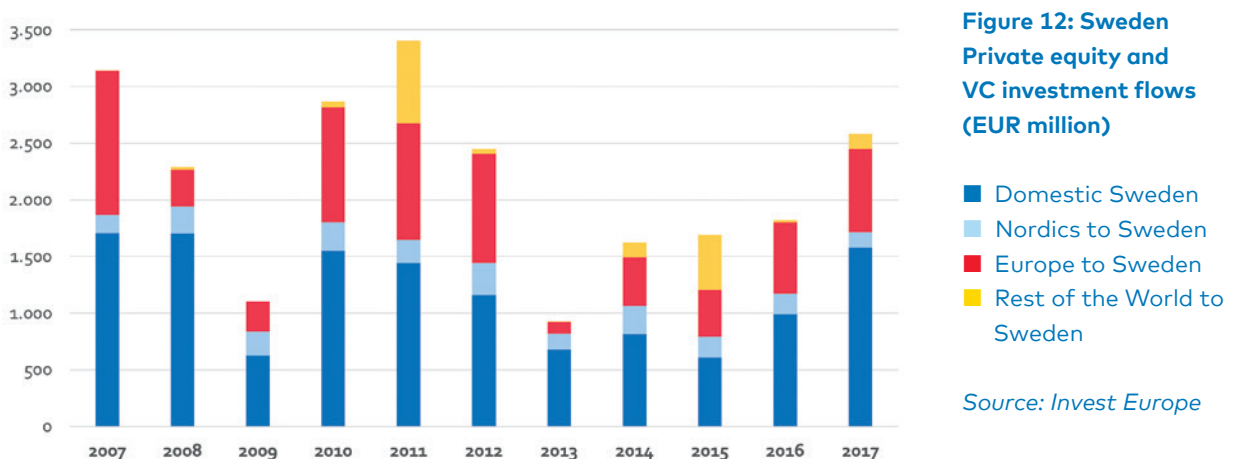
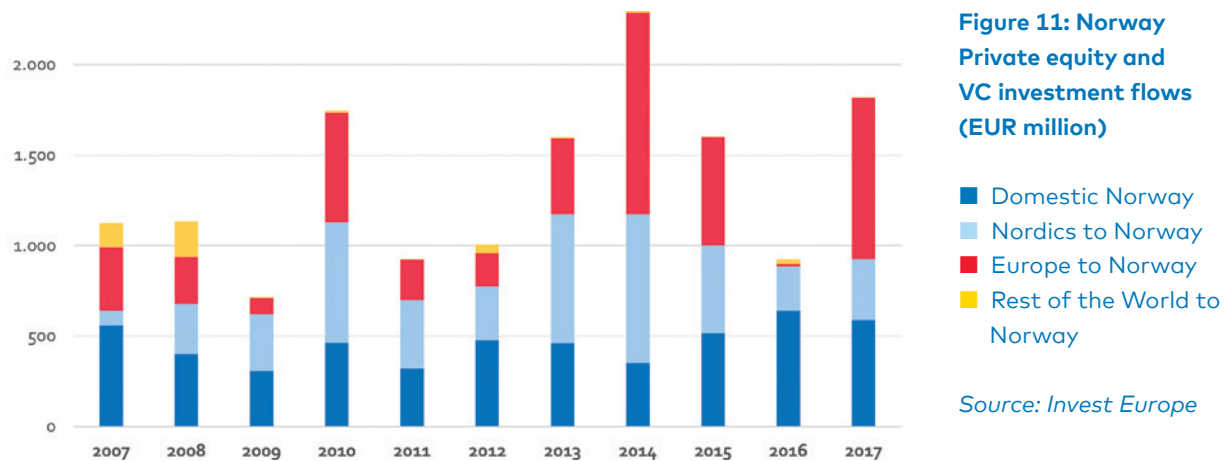
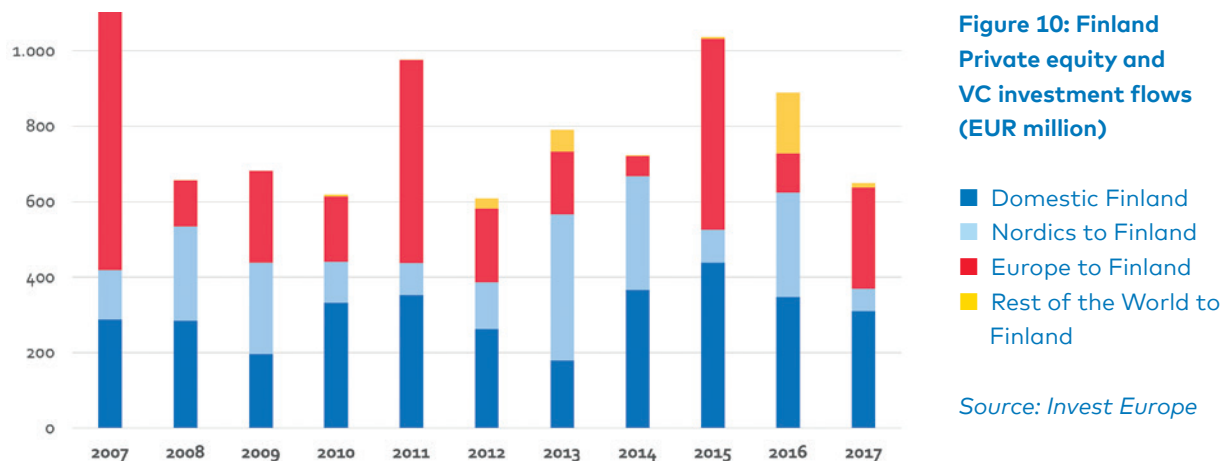
Source: Invest Europe

Figure 9: Denmark
Private equity and
VC investment flows
(EUR million)

■ Domestic Denmark
■ Nordics to Denmark
■ Europe to Denmark
■ Rest of the World to
Denmark



Source: Invest Europe





Recommendations



Better-integrated Nordic countries

Competitive Nordic economies are a fundamental precondition for the Nordic welfare system and high quality of life in the region. The Nordic countries should aim to increase the region's competitiveness, building on their strengths and embracing global developments and trends. By strengthening Nordic integration and innovation collaboration, the Nordic countries can better address the aforementioned challenges, nationally and as a region. Creating an attractive Nordic innovation ecosystem should therefore be an objective for the Nordic governments. Capital will flow to the more attractive hubs. Increased attractiveness of the Nordic innovation ecosystem is therefore a successful strategy for increased access to financing and risk capital.

1. Communicating the political vision of creating a world-leading innovation ecosystem

ACTIONS

- The Nordic prime ministers are encouraged to communicate their shared vision of creating a Nordic world-leading ecosystem for innovation.
- An action plan for realising this vision should be developed in collaboration with each Council of Ministers, based on the study's recommendations.

Despite the good collaboration already in place between the Nordic countries, there are barriers standing in the way of the Nordic countries further utilising the innovation and growth potential to be gained from a stronger Nordic integration. Assessments of regional innovation activities across the Nordic countries have identified challenges and regulatory barriers, resulting in unnecessary fragmentation which at the same time limits the potential synergies of a more integrated and co-ordinated region.²³

Therefore, the Nordic prime ministers' vision of the Nordic region becoming the most integrated region in the world is important and needs following up with a focus on making the region a more integrated and co-ordinated innovation ecosystem. This would make the Nordic region more attractive for companies, investments and talent. In the international capital markets, the Nordic countries are already seen as one region. This should be clearly reflected in political ambitions and inspire a more unified policy framework.

The Nordic governments should communicate their vision of creating a world-leading innovation ecosystem. The best way of doing this would be for the Nordic prime ministers, on behalf of the Nordic governments, to issue a joint declaration. When following up on this shared vision, the focus should be on identifying and recognising where the Nordic countries can create both national and Nordic value by strengthening regional collaboration and integration. This might be in areas such as harmonising rules and regulations for attracting financing and talent to the region and stimulating cross-border investments and financing of innovative activities.

The topics in question primarily concern the ministers of finance and the ministers of business, who should be involved in the process, spurred by a motivation to create competitive framework conditions for innovation and growth. A realistic plan for meeting these shared ambitions should follow.

2. Strengthen Nordic mandates for increased leverage

ACTIONS

- Develop Nordic policy guidelines and provide a common approach for national instruments to support an integrated Nordic innovation ecosystem.
- Establish mechanisms to estimate and report effects of cross-border activities.

The national innovation ecosystems in the Nordic region should ideally be better co-ordinated across borders with the common aim of creating jobs and growth as well as attracting talent and investments to the region. Each of the Nordic countries has numerous public (and public-private) institutions, schemes and initiatives for supporting innovation, creating jobs and stimulating economic growth. These instruments normally have national mandates, based on the fact that they receive

financing from their respective state budgets. By making government-financed national instruments (e.g. VC funds) able to operate more actively across Nordic borders and create relevant incentives, synergies and greater impact can be realised with stronger Nordic mandates of national instruments. This will for example happen through the pooling of financial resources, talents and knowledge across borders in the Nordic region. Nordic mandates would mainly apply to institutions in each country responsible for financing R&D, and those financing the development and growth of startups and innovative companies, including venture capital funds.

This is deemed relevant as there is a general lack of systematic collaboration across borders, even though most of the organisations in question are requesting closer collaboration with their Nordic counterparts. It is not through lack of interest that the cross-border collaboration has failed to reach its optimal potential, but rather lack of co-ordination, structures and mandates for the national bodies.

The budget of the Nordic institutions, e.g. Nordic Innovation, is insignificant by comparison with the budget of the national innovation institutions in the Nordic countries. The Nordic budget must therefore be used effectively and in a targeted manner to achieve the best leverage possible. At the same time, due to the relatively large budgets of the national innovation institutions and schemes in the Nordic countries, engaging a relatively small proportion of those budgets in Nordic activities would exceed the Nordic budget significantly and create opportunities for further leverage and influence.

This description is not completely universal as there is already collaboration between the Nordic countries, formal and informal, on specific matters. But the potential for further collaboration is clear, particularly due to the nature of digitalisation and the network economy, which in most cases does not respect national borders.

This is already happening to a degree with e.g. the Danish Growth Fund in Denmark investing in funds outside the country, Argentum in Norway investing with a Nordic mandate, and Finnish Industry Investment investing in funds outside of Finland. However, the mandates vary between instruments and countries, which indicates a need for more cross-border co-ordination.

Further comparison of objectives, mandates and methodologies would be a valuable policy discussion for the responsible Nordic ministries and institutions.

3. Benchmark framework conditions in order to optimise the Nordic investment environment

ACTION

- The regulatory framework and relevant tax rules should be benchmarked between the Nordic countries and with other competing regions on a regular basis. Framework conditions and tax rules should be aligned where this is considered relevant.

Conducting regular benchmarking analyses and comparisons between the Nordic countries and leading economies globally is a pragmatic approach which can support the development of competitive framework conditions in the Nordic region. This has been done sporadically in recent years, e.g. by Nordic Innovation and international organisations via various benchmarks indices. The benchmarking work can be made more tailored and targeted to fit the needs of the Nordic policy discussion, and followed up by the Nordic Council of Ministers (e.g. by finance and business ministers).

In Jorma Ollila's strategic review of the Nordic energy collaboration,²⁴ it is proposed that the national governments consider reviewing the impact of differences in the investment environment in the region in order to optimise it. One part of this could be an assessment of the influences of different taxes and tariffs on how attractive (or unattractive) it is to invest in the Nordic region. It might also include an assessment of access to and demand for investment capital for the green transition.

Ollila's proposal echoes this study's findings. Benchmarking the differences in the investment environment would shed a light on differences in the national framework conditions and how they affect the attractiveness of investing in different Nordic countries.

4. Define the role of the public sector in financing early-phase and growth-phase companies in the Nordic region

ACTIONS

- Define the role of the public market financing mechanisms with a focus on early phase and growth phase, market failures and the need for "patient capital".
- Develop models for measuring national effects; evaluate and report regularly.
- Engage in public debates on role, actions and effects, and create a process for learning and improving.

The debate regarding the public sector's role in financing innovation, startups and growth companies is important and complex. Policymakers tend to disagree about whether the public sector should intervene or not, what role it should play in various phases in the life cycle and which instruments should be deployed. Moreover, the risk of the public sector crowding out private investors is another important issue.

The simple prerequisite for state intervention is a perceived market failure. This means that relevant markets do not function as they should, resulting in worthy projects or companies not having access to the appropriate funding at the right cost at the right time.

Most private funds have a limited time horizon and are focused on exit. This should imply that a meaningful contribution from the public sector might be to develop instruments with a longer time horizon which base their value creation on cash flow and dividends rather than exit.

There are differences between the Nordic countries in relation to the role played by the public sector in reducing risks in relation to access to financing for companies in early phase and growth phase. The public sector can play various roles ranging from channelling capital to prioritised industries and sectors of national importance, minimising risk, incentivising private capital and so on.

Public co-investment models investing in early phases vary between the Nordic countries, ranging from direct investments to investments in funds of funds. Recent trends indicate that funds of funds are becoming the prevailing model. Sharing experiences of best practices for different types of mechanisms, policy rationale, instrument design, implementation and evaluation in order to improve national instruments would be beneficial for each country individually. By improving the national systems, the Nordic region as a whole will become more attractive.

Another issue for the Nordic countries to address is the existence of information asymmetries. Information asymmetries occur when buyers or sellers in a market do not have access to the same information, which can lead to market failure. The Norwegian Capital Access Commission has mentioned the possibility of increasing access to relevant information for investors to prevent such market failures. There are numerous opportunities to be pursued by using central registers and digital solutions to lower the inherent informational asymmetries. This is relevant for all the Nordic countries and could be pursued by a common method and approach in the Nordic region.

Strengthen the Nordic market

The capital markets for innovation and growth companies in the Nordic region should ideally function as one instead of five fragmented markets. Opportunities to reach critical mass by integrating the markets are evident. However, there are indications of differences between the Nordic countries. The stock markets in Sweden are considered to be those that function best in the Nordic region, while the other countries lag behind. This is apparent if we compare smaller IPOs between the countries. Throughout the course of the study, ideas relating to establishing a Nordic technology stock market were proposed as well as increasing Nordic collaboration to strengthen the market for small and mid-cap stocks. Initiatives to strengthen the common Nordic market for innovative SMEs and growth companies are considered positive. The market needs to develop over time to reach optimal professionalism and maturity. The same applies to venture capital markets where the funding itself is only a part of the equation, and the supply of and demand for competent capital is important. Moreover, the entrepreneurs and companies raising funds vary a lot, as does the financing need in each case. At the same time, the investors (public and private) can differ, e.g. in relation to size, investment mandate, risk profile, focus on time horizon, level of maturity of companies invested in, etc.

A better-functioning Nordic market for innovative SMEs and growth companies is a prerequisite for making the Nordic region more attractive. This is important, because if companies have difficulties accessing appropriate funding within the Nordic region, they might consider it a better option to move abroad to raise capital. Such a scenario could result in the value creation of these companies increasingly taking place outside the Nordic countries instead of within the region. This means that the Nordic countries are in danger of losing out in the race to create and maintain growth companies which are powerful engines for creating jobs and value for the Nordic economy.

5. Attract institutional investors

ACTIONS

- Produce a Nordic white paper on regulatory changes required to motivate institutional investors, including pension funds, to invest risk capital in startups and growing innovative SMEs.
- Give established national fund of funds structures Nordic mandates, and establish new fund of funds structures to support Nordic growth companies and sectors.

Engaging institutional investors to invest in start-ups and growing innovative SMEs is an important element in creating a world-leading innovation ecosystem in the Nordic region. Incentives to attract institutional investors will play a key role, along with ensuring that investment mandates and relevant regulations allow these investors to invest in early phase and growth companies.

Regulations concerning institutional investors and investment mandates vary between the Nordic countries. However, there is obvious potential for the Nordic countries to learn from each other and identify the optimal role of institutional investors via appropriate regulations, structures and mechanisms.

Due to their size, institutional investors often lack the mechanism and structures to invest in innovative SMEs and growth companies, as individual investments are usually considered too small. In order to attract institutional investors, the most optimal mechanism is considered to be fund of funds²⁵ structures. Such structures would allow institutional investors to participate in the innovation ecosystem and contribute to bridging the financing gaps that SMEs and growth companies are facing. Existing competences and expertise already in the market can be utilised effectively by investing in a specialised fund of funds. This

applies to risk assessment capabilities as well as knowledge and experience in specific sectors such as cleantech, healthtech and biotech, which is valuable but limited in the market. Moreover, the nature of the digitalised and network economy has led to the due diligence of investments gradually becoming more technical as the level of technological complexity increases.

Relevant stakeholders should discuss the possibilities of increased participation of institutional investors investing in innovative SMEs and growth companies, nationally and on a Nordic level. This is relevant to the Nordic governments as well as to independent financial institutions and funds. The topics which should be addressed include regulatory changes in order to allow pension funds to invest in a broader portfolio (e.g. unlisted shares) and how the Nordics can learn from best practices and experiences. Even a small percentage of the

accumulated capital with institutional investors (including pension funds) could play a significant role in shaping the future Nordic economy.

However, venture capital investments will always be considered higher risk than broader investments in funds and listed companies. Such investments may not, therefore, be regarded as attractive investment products for non-professional retail investors.

The Nordic ministers of finance and business are encouraged to initiate the process of producing a white paper to review regulatory changes required to attract and allow institutional investors to invest in startups and growing innovative SMEs. Existing funds of funds should operate across Nordic borders and new funds of funds should be established.

In 2017, the Norwegian government asked an expert commission to consider Norwegian businesses' access to capital. The Commission was led by Aksel Mjøs, Associate Professor at the Norwegian School of Economics. The Commission is of the opinion that a substantial proportion of Norwegian pension assets are not optimally managed considering the objective of maximising the risk-adjusted return. The Commission therefore proposes measures to allow pension savers who so wish to take higher risks in their pension saving. This could potentially contribute more financing to Norwegian businesses. The Commission also proposes measures allowing for more of the capital placed in foundations to contribute to financing Norwegian business and industry.

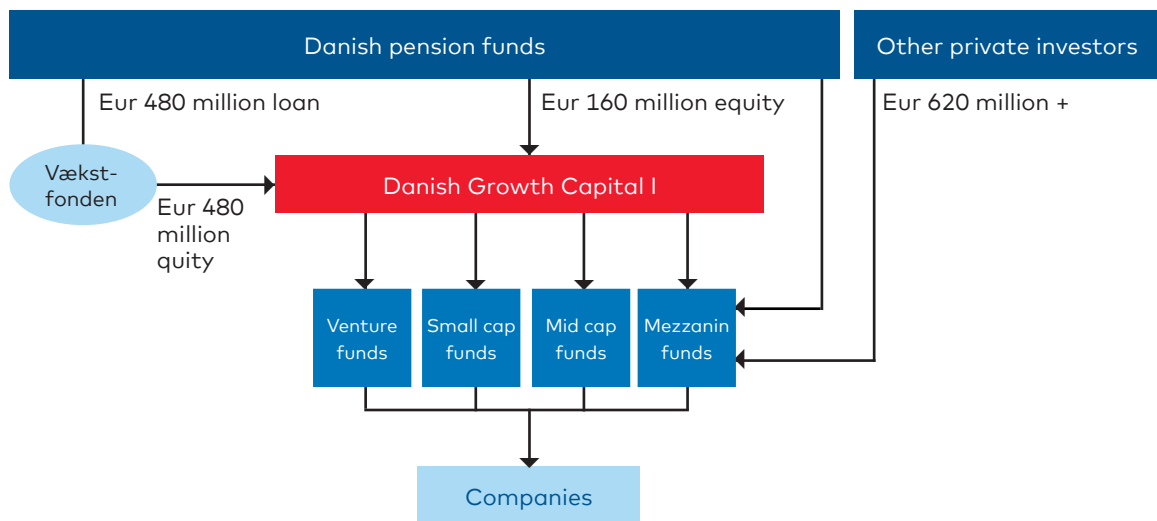
Model for the Danish Growth Capital Fund I and II

An example of a fund of funds structure can be found in Denmark. In 2011, an agreement was reached between the Danish government and pension funds to establish Danish Growth Capital with the objective of improving startups' and SMEs' access to risk capital. This was done with the aim of creating more growth companies and jobs. The original idea was that the Danish Growth Capital should invest in 15–20 funds which then could invest further in approx. 100 companies. Investments from Danish Growth Capital may reach maximum 50 per cent of the investment as the fund investments attract further private investments. The fund's time horizon is estimated at 10–12 years.

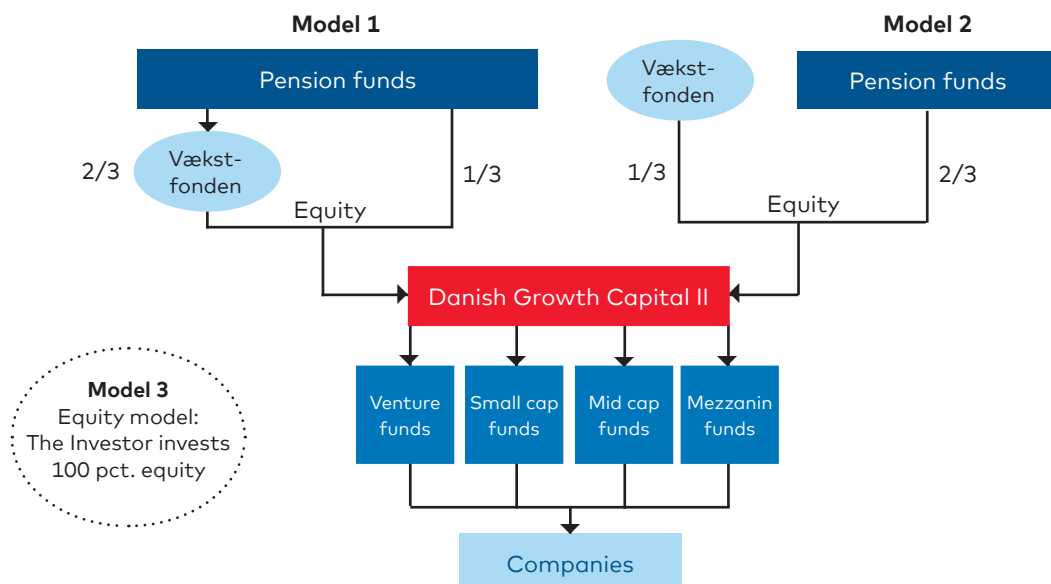
In 2015, the Danish government reached an agreement with a number of the largest pension funds in Denmark to establish Danish Growth Capital II. Danish Growth Capital II is a fund of funds which invests in funds run by professional private managers who invest in companies within their respective competence areas.

ATP has made the biggest contribution to the Fund's equity, with a pledge of DKK 200 million, while Danica Pension and Pension Denmark have pledged DKK 150 million each. If any investors are interested, there will be additional funding. The fund is a private investment fund that invests in a wide range of funds under private management, including venture funds and small and mid-cap funds. Around a third of the fund's capital is aimed at the venture area (startups), while the other two-thirds are allocated for established small and medium-sized companies. The establishment of Danish Growth Capital II is a continuation of the co-operation on risk capital that was initiated by the government and the pension funds in 2011, with the establishment of Danish Growth Capital I. Danish Growth Capital II contributes to making risk capital available to company startups as well as existing small and medium-sized companies with significant growth potential.²⁶

Danish Growth Fund I



Danish Growth Fund II



6. Create a market for innovative and green solutions through public procurement

ACTION

- Develop a Nordic plan for green and innovative public procurement with the aim of accelerating the green transition and creating a more integrated Nordic market. Ongoing work in the countries should be aligned on a Nordic level. The plan should include harmonising the implementation of rules for public procurement, sharing best practices and experience in relevant procurement systems, and raising the procurement competences in the Nordic region.

Public procurement should be used in a more targeted manner to accelerate the green transition and drive innovation, e.g. by creating markets for new products and services and stimulating technology development by demanding new solutions. In addition to stimulating innovative and green solutions, innovative public procurement can lead to reduced costs for the state budget, improving services and enhancing quality of life in the Nordic region.

This has been pointed out by various studies, most recently by Tine Sundtoft's strategic recommendations of the Nordic co-operation on the environment and climate in the run-up to 2030. In her review, it is reiterated that public procurement and investments have great potential in terms of stimulating the demand for environmentally friendly products, services and other solutions on a system level.²⁷

From 2016, new rules changed how EU countries and public authorities can spend a large part of their EUR 1.9 trillion budget for public procurement every year in Europe. The new rules make it easier and cheaper for small and medium-sized enterprises to bid for public contracts. In order to encourage progress towards particular public policy objectives, they also allow in particular for environmental and social considerations as well as

innovation aspects to be taken into account when awarding public contracts.²⁸

Referring to the new EU rules on public procurement, there are opportunities for the Nordic countries to increase their collaboration and create a greater demand for innovative and green solutions and products in the Nordic market. Although the European regulatory framework is the same, the implementation varies in each of the Nordic countries. The ongoing work in the individual Nordic countries should be aligned on a Nordic level.

Aligning the implementation of the regulatory framework is considered favourable since there is no need to create barriers between the Nordic countries when a larger and more dynamic market could be created. Sharing experience and best practices would be ideal, so that respective procurement authorities can be inspired by good cases and learn from those that are not so successful. This applies to both centralised and decentralised procurement systems, i.e. on a state and municipal level. Raising the procurement competences in the whole of the Nordic region is a preferable and pragmatic way of ensuring more professional and secure procurement processes.

Current procurement procedures are considered too stringent and to have too much focus on costs and low risks. The risk of making a mistake should not exceed the ambitions and expectations of gains from more innovative processes. The public sector should be more focused on procuring a solution or function instead of standard products "off the shelf", so to speak. If the public sector only procures standard products where the product or service itself and the price are the main variables, the public sector is basically pressing the margins of yesterday's technologies instead of stimulating the development and implementation of innovative solutions.

The responsible ministers are encouraged to strengthen the Nordic collaboration regarding public procurement and to develop an action plan on how the political ambition for more innovative and green public procurement can be achieved.

Innovative public procurement in Finland

The value of the Finnish public sector's procurements is approximately EUR 35 billion annually, or on average 16 per cent of the country's GDP. The Finnish government recently set a 5 per cent target for innovative public procurement for the public sector. In May 2017, the Finnish Ministry of Economic Affairs and Employment launched a project to create an overview of public procurement practices in the different administrative branches, produce a concrete action plan to facilitate innovative procurement and create a systematic development process for co-operation across central government sectors and administrative branches.

The action plan promotes the implementation of the objective of increasing the proportion of innovative procurement in all public procurement. The action plan on innovative public procurement contains 14 measures, divided into four categories:

management, information sharing, skills development and concrete tools such as risk management tools.

The measures in the action plan aim to promote a more strategic approach to innovative procurement and better management and preparation of procurements in administrative branches. The measures will promote the government's objective of raising the share of innovative procurement in all public procurement to 5 per cent.

The Competence Centre to boost sustainable and innovative public procurement was established in 2018, and the main objectives for 2018–2021 include increasing the number of innovative and sustainable procurements in Finland, recognising and actively using public procurement as a management tool and sharing experiences and learning from each other.²⁹

7. Incentivise business angel investments

ACTIONS

- To further incentivise business angel investments, regulatory frameworks and tax treatment for angel investors should be benchmarked with progressive peer regions.
- Establish a forum for dialogue between existing business angel networks and Nordic policy-makers in order to discuss improvements of relevant framework conditions.

A well-functioning capital market is one of the key prerequisites for a good innovation ecosystem. Business angel investors are particularly important in this context as they invest in early-stage companies and often add valuable knowledge and experience.³⁰ Various studies have identified positive macro-economic impacts associated with venture capital and business angel investments in young and innovative companies, e.g. economic benefits such as economic growth and job creation.³¹

The Nordic governments are encouraged to establish or improve national measures incentivising business angels to invest in early-phase and growth companies. Generally, tax credit and tax deduction are by far the most common tax incentives for angel investment.³² In this context, it is important to recognise that during the early stages, money itself only provides a part of the value. Competent capital, i.e. investment accompanied by skills and knowledge,

can prove to be crucial for the future development of startups and early-phase companies.

Currently, the United Kingdom, and the ecosystem in London in particular, is considered a good benchmark in relation to incentives for angel investors, since here there are schemes enabling business angels to deduct their investment from their taxation.³³ The Nordic and European experience with business angel incentives schemes should be examined further with the objective of improving public intervention in the Nordic countries to stimulate more business angel investments and engage competent business angel investors. These might take the form of tax incentives, funds, support for new and existing networks, or data collection, to name a few examples. In addition, collaboration with the European Investment Fund has been launched in a number of Nordic countries, with e.g. the European Angel Fund being established in Denmark and Finland. Furthermore, tax incentives have been introduced in Sweden, Norway and Iceland, but compared to the United Kingdom,³⁴ the Nordic countries are not as progressive in targeting increased angel investments. This could be improved by deploying more ambitious measures.

The Nordic finance ministers and business ministers are encouraged to explore which issues are the most relevant, requiring public intervention and support. This work should result in a Nordic benchmark and subsequently an overview of the potential to increase angel investments in the Nordic region. Although there are existing schemes in the Nordic region, the system can be improved.



Effective framework conditions

In line with the ambition of the Nordic countries to become a more integrated and innovative region, the need for further collaboration across Nordic ministries is evident. As has been discussed earlier, various instruments and schemes are currently being deployed nationally, such as grants, funds, guarantees and loans from public and/or private institutions. The framework conditions also play a crucial role, as the interplay between specific instruments and the existing framework conditions constitute the aforementioned innovation ecosystem. That is why framework conditions are included in the study.

8. Harmonising the regulatory framework in relevant areas

ACTIONS

The ministers of finance and ministers of business are encouraged to launch a Nordic process with the following objectives:

- Improve and harmonise national framework conditions by learning from Nordic and international best practices.
- Develop a common Nordic policy rationale in chosen areas.
- Harmonising tax treatment of stock options, and addressing tax incentives for attracting investments and talent.
- Harmonising market supervision and regulatory framework conditions between the Nordic countries should be a priority.

A study from 2018 on the potential of strengthened Nordic legislative collaboration by emeritus professor Inge Lorange Backer at the University of Oslo concludes that the Nordic countries can improve national and Nordic routines and better utilise resources by collaborating more systematically.

There are already certain issues which should be addressed and examined in a Nordic context. Unintended national and Nordic barriers to innovation and growth and discrepancies in the framework conditions between the Nordic countries should be the starting point.

As has been done in many European innovation ecosystems, introducing tax incentives for investors could have great potential in the Nordic region. Ideally, the Nordic countries should co-laborate on establishing similar tax-incentive schemes, despite fiscal systems varying somewhat between the countries. A policy discussion between the countries regarding designing, implementing and evaluating different measures would be valuable. A common policy rationale would also prove to be fruitful, with the aim of harmonising national incentives and schemes.

Tax incentives to attract talent to the Nordic region is another issue that companies in the region consider important. The Danish scheme of providing tax incentives to attract international talent to the country is considered a good example which can be implemented in other countries. The recently launched Finnish Startup Permit³⁵ is another example of how framework conditions can be improved to attract talent and founders from countries outside the EU/EEA.

Regulations regarding venture funds have been raised as an issue for improvement in order to ensure a competitive playing field in the Nordic region. This should be done to attract foreign investment into funds operating in the Nordic countries as well as to attract funds to the region. In addition, the regulatory framework should be reviewed to minimise the startup cost for new funds.

Early-stage companies often face limited cash flow from operations. Capital invested in such companies is typically used to cover wages and operating costs, resulting in an increased need for capital. In order to reduce the need for capital while also attracting the right talent, many early-

phase companies and startups prefer to pay their employees a part of their wages in the form of the right to buy shares at a fixed price at a later point in time by issuing stock options. The Nordic countries have different tax treatments (tax rules and regulations) regarding stock options. Personnel stock option schemes are generally considered technically difficult and unfavourable in the current regulatory environment. Tax issues in relation to options for employers should be simplified in all of the Nordic countries. The current regulations are considered technically difficult and unfavourable for the recruitment of international talent, which in some cases results in promising companies in a highly competitive environment moving outside the region.

Another example worth looking at is investment savings accounts, which have been introduced in Sweden (2012) and Norway (2017) with plans to introduce them in Denmark in 2019. There is currently no coherent Nordic model, but the objectives of introducing the accounts must be similar across the Nordic countries. The Nordic countries should share experiences and knowledge, and formulate common policy rationale.

Finally, the operations of market surveillance authorities should also be harmonised and consistent across the Nordic countries as these are based on European regulations via the EU or EEA. Discrepancies in relation to surveillance are unnecessary and should be avoided.



The most effective public intervention to support a startup in its growth is changing, or eradicating, the tax treatment of stock options for employees. The current tax deferral scheme is too rigid to help attract competent staff and talent to companies which cannot compete with other more stable companies in terms of salary. The fact that employees are obliged to hold on to the stock option for 3 years before exercising the option, at which time the company can have a maximum of 10 employees and the tax base for the employee may not exceed NOK 500,000, makes the tax deferral scheme on stock options useless in practice for companies planning to grow. Loss of earnings and risks taken by employees in startups in the growth phase should be considered capital investment of a similar nature to that of typical financial investors, and should therefore be taxed similarly. Moreover, the stock options should not be taxed when exercised, but rather when the stock is realised.

– Merete Nygaard, CEO/Founder Lawbotics AS

9. Increased collaboration in relation to crowdfunding

ACTION

- National rules for crowdfunding should be harmonised in the Nordic region and formulated collectively in order to stimulate competition. Nordic collaboration for crowdfunding should be formalised and based on a mandate from the respective Nordic ministers.

Crowdfunding is becoming a new form of financing in a global context, paving the way for a more decentralised financing system than we have become accustomed to. The crowdfunding phenomena will affect the regulatory framework in the Nordic countries, where new and upcoming financial mechanisms and products will be introduced. Expected regulations from the EU will set the scene, but the Nordic countries will still play a role in how they formulate and implement the legislation.

In the Nordic Entrepreneurship Check 2016, the authors conclude that crowdfunding may be regarded as an increasingly important source of private funding for companies in the Nordic region. However, the future growth of crowdfunding activities depends largely on how flexible and harmonised the regulatory framework in the Nordic region will be.³⁶

The countries do acknowledge that it can be challenging to address new developments such as crowdfunding. The Nordic countries should engage in closer collaboration with the aim of facilitating crowdfunding for the purpose of both equity and loans. It is important to clarify the regulatory framework and to avoid creating barriers to the establishment of crowdfunding platforms.

This can be done by sharing ideas and knowledge, and by pooling resources in a more structured manner, e.g. by using the Nordic Council of Ministers' structure. Increased Nordic collaboration will result in a more harmonised development of the regulatory framework in each country and in the Nordic region as a whole.

10. Create competitive conditions for Fintech development

ACTIONS

- Nordic collaboration in developing the regulatory framework for Fintech should be formalised on a Nordic level with relevant Nordic ministries and surveillance authorities.
- The framework for regulatory sandboxes in the Nordic countries should be aligned on a Nordic level to increase the Nordic market access. This is relevant for the ongoing work in the Nordic countries on the development and positioning of regulatory sandboxes.
- Encourage cross-border collaboration between the Nordic Fintech hubs.

In the Nordic countries, there are already so-called Fintech hubs with the objective of supporting and accelerating the development of Fintech. To better support the ongoing development, there is a clear need for increased Nordic collaboration in developing the regulatory framework on the basis of this new reality of new financial services and products utilising new technologies.

Aligning the regulatory framework for Nordic regulatory sandboxes would provide Nordic Fintech companies with a common point of departure and access to a larger market in the Nordics as a whole, instead of just in a single country. There is already an informal collaboration between national authorities regarding Fintech development, but strengthened collaboration between respective Nordic ministries and surveillance authorities would facilitate a closer dialogue and create even more competitive framework conditions. This should be taken up by the respective Nordic ministerial councils, namely the finance and/or business ministers.

According to the study, the Nordics are doing well when it comes to Fintech. If statistics are combined, the Nordic region is among the leading global Fintech hubs. However, in reality the Nordic countries do not function as one Fintech hub but rather as separate national hubs, according to

various Fintech entrepreneurs. This means that the Nordic countries are not leveraging the full potential of combined Nordic Fintech strengths. To realise the Nordic potential, there is a need to strengthen cross-border Fintech interaction and to engage in a united effort. The Nordic region can be showcased as a global Fintech hub. This can be done through regular international and Nordic events, analysing the status and development of Fintech startups in the Nordics, and supporting exchange between countries. A Nordic plan for creating competitive conditions for Fintech development in the Nordic countries should be produced by responsible ministries and authorities.

The Norwegian Capital Access Commission has proposed that the regulatory framework for crowdfunding and loan brokerage platforms (in addition to markets such as typical stock exchanges) should be clarified further and unintended barriers to establishing and operating both loan and equity platforms should be removed. Furthermore, while awaiting the coming EU regulations, it is proposed that Norwegian authorities consider establishing national rules for loan and equity platforms. In the case of such regulatory formulation, the authorities should look to the other Nordic countries.³⁷

Copenhagen Fintech on the potential of Nordic collaboration

Copenhagen Fintech is an association built on the vision of creating a Danish growth adventure within Fintech. We want to position Denmark and the Copenhagen region as leading in the field of Fintech.

We acknowledge the fact that Denmark will never be the biggest hub, but we can be the most connected.

We truly believe that joint Nordic Fintech collaboration will build stronger and more sustainable bridges to other ecosystems around the world. It will make the Nordic region much more attractive to companies – and talent – and it will provide the Fintech companies, and particularly startups, with a much bigger domestic market in which to test and scale their solutions.

The first step has already been taken. Earlier in 2018, the Nordic Fintech Alliance (NFA) was established between independent organisations in the Nordic countries. The ambition is to further increase co-operation and information-sharing in relation to emerging Fintech trends and developments. The partnership also aims to help startups scale in the Nordic countries and gain market

traction. The NFA will also collaborate in terms of Fintech delegations to events and conferences in and outside the Nordic region. We believe that the great work done by the Nordic embassies around the world can be collectively utilized when scaling Nordic fintech solutions globally and in building the crucial partnerships and alliances.

The potential of developing a more Nordic approach in the area is huge, and there is a strong desire to develop a more coherent Nordic Fintech story that can position the region in an attractive way for global financial institutions, technology companies and investors.

There is definitely a great need to supplement the national funding of entrepreneurial (Fintech) projects with Nordic funds aimed at supporting joint Nordic innovation, growth and scaling activities. We need to make sure that Nordic values and ethics are defined and embedded in the solutions – and scaled in the future. Trust by design will be a major competitive advantage for Nordic companies going forward.

– *Thomas Krogh Jensen, CEO, Copenhagen Fintech*

11. Increased Nordic collaboration regarding the development of national state aid compliant instruments and schemes

ACTION

- Strengthen Nordic state aid collaboration, focusing on developing instruments and schemes supporting early and growth-phase companies.

State aid rules set the limits for what national public authorities can provide in terms of support to a company. State aid is generally prohibited unless it is justified by reasons of economic development.³⁸ When designing public instruments and schemes to support innovation, including early and growth-phase companies, consideration must be given to what is state aid compliant.

In order to create a level playing field in the Nordic countries (consisting of EU and EEA/EFTA states) and in Europe, it is important that the interpretation of state aid rules is harmonised, so that all countries stipulate the same requirements from surveillance authorities. If this is not the case, there might be a risk of discrepancies in relation to what individual countries are allowed to implement in terms of specific instruments and schemes to support innovation and growth (i.e. incentives and financial support). Such requirement discrepancies could lead to increased fragmentation and prevent the creation of a level playing field in the Nordic innovation ecosystems. Harmonising relevant national instruments and schemes in the Nordic countries (e.g. national tax incentive schemes, grants and funds) would also result in a more efficient process in the countries preparing and communicating state aid measures due to possible pooling of resources and sharing of experiences and best practices. This could be done under the auspices of the Nordic Council of Ministers, where the recently established state aid expert group of the four Nordic countries could play a role.

More co-ordinated and targeted instruments

There is a strong consensus within all the Nordic countries that national instruments and schemes for stimulating innovation, job creation and growth should be as effective as possible. These instruments should be designed to address specific issues that require public intervention. Furthermore, these instruments usually focus on the different stages of development in the lifecycle phase, spanning from the idea phase and development to market introduction and growth. Due to this, public innovation policy and instruments have often been developed in a manner in which multiple national schemes have been established in order to address various issues. This development has led to nationally constructed systems in which there is a real risk of overlap between instruments, fragmentation and an unclear focus in the system as a whole.

In addition to national systems and instruments, there are other institutions and instruments operating on a Nordic and EU level. These institutions and instruments should provide added value to the national structures, and the same applies to them as others, in that they must be co-ordinated, targeted and effective. Their focus should be directed towards a specific issue. This study has identified certain issues and it is up to the Nordic countries to direct and/or utilise these instruments in favour of innovation and the green transition in the Nordic region.

12. Ensure targeted, effective and co-ordinated national instruments

ACTIONS

- Institutionalise collaboration in relation to the benchmarking, design and evaluation of national innovation support instruments. This should include institutional set-up, consulting services, financing mechanisms from soft funding (e.g. grants) to hard funding (e.g. loans and equity) and other relevant public instruments.
- Establish closer Nordic collaboration for development of sector-targeted instruments.
- Get expert groups to share experiences and best practices, in order to measure performance and design more effective systems.

Designing effective and targeted public support systems for innovation, job creation and growth is an unceasing task with which all the Nordic governments are occupied. Streamlining national systems should be the point of departure for increased Nordic collaboration in order to make the national systems more effective, co-ordinated and targeted. This is an objective all the Nordic countries can agree on, especially as agility is more important than ever due to rapid technological developments, changes in business models and digitalisation.

In addition, most public instruments are general, i.e. they are sector-neutral. An effective alternative, complementing the general instruments that already exist, is to launch sector strategies and sector-specific instruments (e.g. in the area of cleantech, biotech and healthtech). Such initiatives would address the identified sectoral market failures in a more targeted manner.

In order to improve and/or redesign the national public innovation support systems, it is proposed that the respective ministries increase their collaboration with the objective of making the national systems more agile, effective and targeted. This can be done in numerous ways. Here it is proposed that the responsible ministries institutionalise their collaboration. The Nordic Council of Business Ministers would be an ideal venue for the work, which could consist of expert groups sharing experiences and knowledge, adapting and implementing best practices, and embarking on fact-finding missions and conducting analyses, to name a few examples. All this should be done under firm political leadership with the ambition of improving current systems. This strengthened collaboration would result in improved methods of designing effective and targeted national instruments while also improving co-ordination between the Nordic systems.

13. Forum between the Nordic countries and the European Investment Fund

ACTIONS

- Establish a forum between relevant financing institutions in the Nordic countries and the European Investment Fund.
- Increase Nordic collaboration and develop relevant instruments.

The Nordic countries have to varying degrees begun collaborating with the European Investment Fund (EIF) on various financial products. These products range from equity, loans and guarantees to angel funds. As the countries already have experience with and knowledge of these products individually, sharing those experiences and best practices in order to learn from each other to improve national instruments is an optimal way forward. This would also contribute positively to the development and implementation of possible new instruments nationally, and possibly on a Nordic level. As an example, investments made by the Venture EU initiative will be very interesting to follow, and its effects in the Nordic region should be followed closely.

A forum should be established in which the Nordic countries, together with the EIF, could meet and share information, experience and best practices. Strengthening the network between the Nordic countries and the EIF would also establish a valuable forum for discussing access to financing for early and growth-phase companies, and which instruments are most appropriate in each case considering market conditions. Such a forum could be co-ordinated by a national institution or by a Nordic one, e.g. Nordic innovation.

14. Strengthened collaboration regarding EU/EEA-related issues

ACTIONS

- Communicating a strong Nordic voice with focus on protecting common interests and values.
- Enhancing collaboration in the field of EU affairs and ensuring co-ordination on a Nordic level in relation to Horizon Europe, the European Innovation Council and various EU programmes and funding opportunities.
- Enhancing collaboration to attract targeted funding to the region.

All of the Nordic countries are involved in European collaboration. As a consequence of Brexit, the Nordic countries must recognise the importance of strengthening their collaboration concerning EU/EEA policy. According to the study, Nordic collaboration is currently considered more important than in previous years, partly because an important ally, the United Kingdom, is leaving the European Union. This will have an economic impact due to the

uncertainty of how Nordic trading relations with the UK will be affected. Increased protectionism and populism is also evident in various regions. The need to protect common interests, common attitudes and emphasise the Nordic agenda and values has become an issue the Nordic countries cannot neglect. The structures of the Nordic Council of Ministers should be used for more targeted political discussions of EU/EEA policy, formally or informally.

In addition to the increasing importance of protecting the interests of the Nordic countries, the study has highlighted the need for financing in specific sectors and types of projects, primarily cleantech, healthtech and biotech. These areas are recognised as strongholds in the Nordic countries as these are already home to numerous operating clusters. To attract increased financing to these sectors, platforms/networks can be created and strengthened with the aim of improving access to financing, including from EU programmes. By joining forces in a more structured manner, the Nordic region has every precondition in place to attract increased programme financing on an EU level and beyond.

The European Commission is proposing its most ambitious research and innovation programme yet. For the next long-term EU budget 2021–2027, the Commission proposes to devote EUR 100 billion to research and innovation. A new programme (Horizon Europe) will build on the achievements and successes of the previous research and innovation programme (Horizon 2020) and keep the EU at the forefront of global research and innovation. Horizon Europe is the most ambitious research and innovation programme ever.³⁹

15. New Nordic academic research initiative to improve policy-making in the field of risk capital and early-stage companies

ACTIONS

- Annual conferences rotating between leading business schools in the Nordics, with global invitations within either the overall topic or a narrower focus. These could be combined with a practitioners'/policymakers' event to secure the applicability of the initiatives and enhance visibility.
- Co-ordinated access to corporate and registered data for research across the Nordic countries. This could range from securing constructive legislation and public policies to facilitating research via a Nordic co-ordinated interface which makes research on Nordic data more attractive and could facilitate comparative studies.
- Call for proposals for research into the field could be supported by significant research grants. This would allow for a more targeted focus of the research in terms of areas, disciplines, dissemination and policy evaluation.

New Nordic academic research initiatives should be supported to improve policy-making in the field of risk capital and early-stage companies. This would include more standardised use of defini-

ons, terminology and analytical frameworks covering the lifecycle curve (incl. companies in early phase and growth phase). The specific objectives may include the development of knowledge of how private and public financing sources can best support the creation, development and success of growth companies, including constructive public-private partnerships. A Nordic policy on creating and sharing data for empirical research into early-stage growth companies would also be of great value for extending the knowledge base on the subject.

The recognition and application of research-based knowledge to improve the effectiveness of public policies and initiatives to support growth companies would be of much value to policymakers and other stakeholders, and contribute to the design of more effective public support schemes. Issues of particular interest include the holistic evaluation of the combination of public policies to support growth companies, and what might constitute optimal combinations. A study on the effects of taxes and regulations on the development of growth companies and their access to capital would also be highly relevant.

It is proposed that a Nordic initiative for research into capital access for early-stage growth companies may take different forms, depending on the level of ambition and the resources available. It may even be relevant to invite policymakers and relevant academics to an extended workshop to develop an action plan.

From a macroeconomic perspective, the Brexit vote implies a substantial increase in economic, political, and institutional uncertainty, which is projected to have negative macroeconomic consequences, especially in advanced European economies. But with the event still unfolding, it is very difficult to quantify its potential repercussions.⁴⁰

16. Co-ordinated and effective use of Nordic institutions and instruments

ACTION

- In order to address identified market failures, the mandates of Nordic Investment Bank and NEFCO should be reviewed to define clear focus, stimulate pragmatic co-operation and optimal utilization of competence and financial resources.

The Nordic Investment Bank (NIB) is rated AAA by international ratings agencies, and the bank's operations are effective according to its mandate, under which national institutions/instruments can obtain loan capital. Ideally, NIB should play a role in the Nordic innovation ecosystem, collaborating with institutions in the market which have risk and credit competences. NIB could play a role in this context and contribute to addressing identified market failures in the growth phase by providing loans in collaboration with other instruments in the market.

Companies in the growth phase are typically challenged by lack of competence in addressing the planned growth, while many also lack the collateral necessary in order to obtain loans from financial institutions, as intangible assets and intellectual property are often the company's main assets. This is the case for a large proportion of companies operating within the field of green transition and companies basing their business models on digitalisation. NIB should move more in this direction, where the need for capital is evident to ensure the green transition in the digitalised economy. The mandate for NIB could be further co-ordinated to address this issue.

NEFCO's role in this context should also be evaluated.



Appendix I: Mandate and limitations

Mandate

The ministers for Nordic Co-operation approved the mandate for the study on 31 October 2017. According to the mandate, the study shall assess the need for increased Nordic collaboration in relation to the financing of early and growth-phase companies. This includes exploring the potential for more effective streamlining of national and Nordic instruments and schemes aimed at financing early and growth-phase companies.

The study shall:

- Analyse and assess the potential for more targeted and effective Nordic financing schemes for early and growth-phase companies.
- Provide an overview of existing national, Nordic and European financing mechanisms targeting early and growth-phase companies.
- Assess access to financing, focusing on venture capital and identifying existing market failures
- Reflect on the role of Nordic institutions.
- Clarify the potential for strengthened collaboration with Nordic and European investors with the aim of attracting more capital for investment during early and growth-phases in the Nordic countries.
- Propose concrete actions to improve the framework conditions for financing the early and growth phases.

The study focuses on identifying where in the life-cycle/financial phase there are challenges and perceived market failures. Based on the assessment of independent countries' challenges, potential collaboration and joint initiatives are proposed.

These include increased co-operation regarding sharing of experience and best practice, and how public funding instruments/schemes can be implemented in a more targeted and intelligent way. The study includes discussion of streamlining and better co-ordination of existing instruments (national as well as Nordic), approaches to stimulating the attraction of private funding to early and growth-phase

Nordic businesses, and how regulatory barriers can be avoided.

The study will submit proposals on how state financial support to early and growth-phase companies in the Nordic countries could be improved through stronger Nordic collaboration. The proposals address how Nordic schemes and programmes, e.g. grants, loans, equity and other relevant schemes, can become more targeted and more effective.

Finally, collaboration with Nordic and European financing institutions is explored, and mechanisms for attracting private capital to invest in early and growth-phase companies in the Nordic countries.

Limitations of the study

What distinguishes the study's topic, access to financing for early and growth phase companies, is its dynamism and vibrancy. During the study's working process, public instruments were developed, new public and private funds were raised and EU initiatives were being prepared, some of which have already been launched. For this reason, studies like this one will always be challenged by the fact that it is like hitting a moving target.

This does not change the fact that the study's recommendations build upon the latest knowledge and market conditions. They are designed to improve the current state of affairs and lead the Nordic collaboration in the right direction, i.e. make the region more integrated and attractive. That principle applies regardless of recent developments.

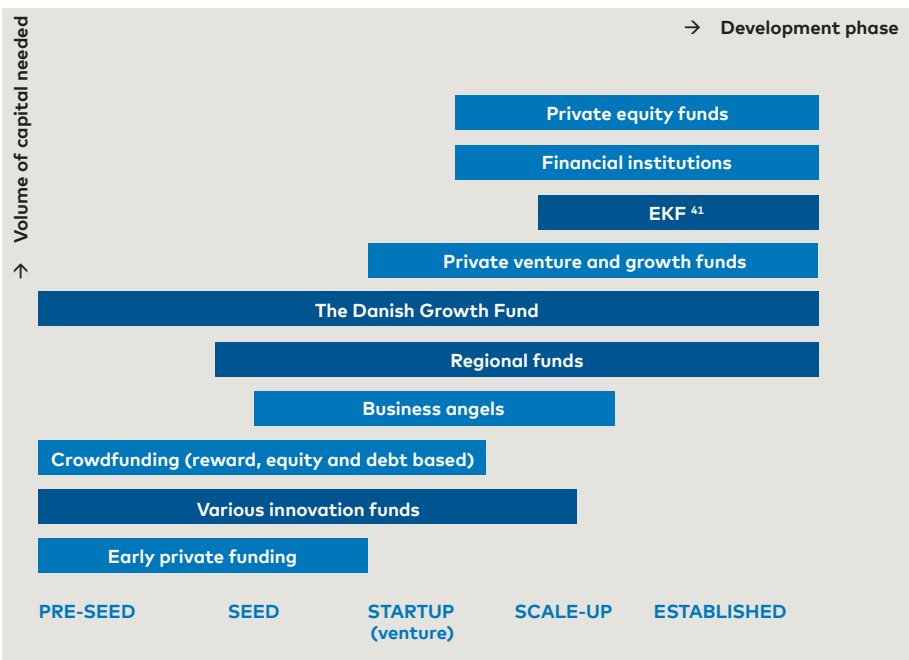
The study is primarily based on a number of meetings with key stakeholders and experts, as well as analyses and reports which have been deemed relevant to the study's purpose. The study is therefore largely based on qualitative methods, as the context is quite well known in each country and those interviewed have been able to provide relevant and useful information based on existing analyses, experience and their best judgement at the time.

Appendix II: Financing mechanisms in the Nordic countries

To provide an overview of the national financial instruments and mechanisms, the following are figures based on material received from the respective ministries and/or institutions. As no standard framework or definitions exist, placing instruments in various categories is a subjective assessment. Furthermore, various categories and instruments can operate in different segments in relation to the need for capital and the phase of development. Consequently, reservation should be made, as the following graphics are intended to give an overview of the national systems and should not be regarded as absolute facts. The numbers/amounts are provided by individual ministries and/or institutions.

Figure 1: Denmark
Overview of selected financing mechanisms in Denmark covering different life-cycle phases

- Private
- Public



Scheme	Instrument	Public limit for financing (DKK)	Expiration date
Growth loans, growth guarantees and other loans	State guarantee borrowing limit. No loss limits.	Total 6 billion	End of 2020
Loan guarantee	Loss limits. No state guaranteed borrowing loan limit.	3.8 million annually	End of 2020
Match financing	Loss limits. Possibly supported with state guarantee limit.	8.5 -80.9 million annually	2019-2022
Danish Growth Capital II	The Danish Growth Fund is authorised to take a loan from pension funds for 2/3 of maximum 3 billion DKK which is subsequently injected as equity in Danish Growth Capital II.	2 billion	The investment period for Danish Growth Capital II is from 2016 until 2020.
Fund investments	The Danish Growth Fund's overall activities	–	Evergreen
Direct investments	The Danish Growth Fund's overall activities	–	Evergreen
Accelerator financing	State guarantee borrowing limit	0.5 billion	2030

Table 1: Denmark
Overview of The Danish Growth Fund's instruments and financing

Source: *The Danish Growth Fund*

Figure 2: Finland

Overview of selected financing mechanisms in Finland covering different life-cycle phases

- Private
- Public

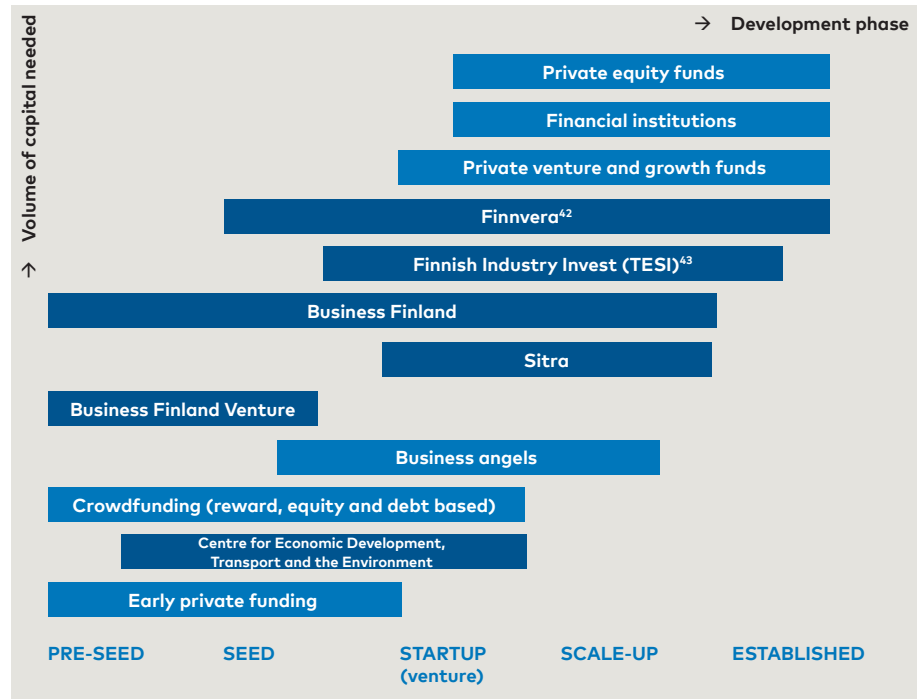
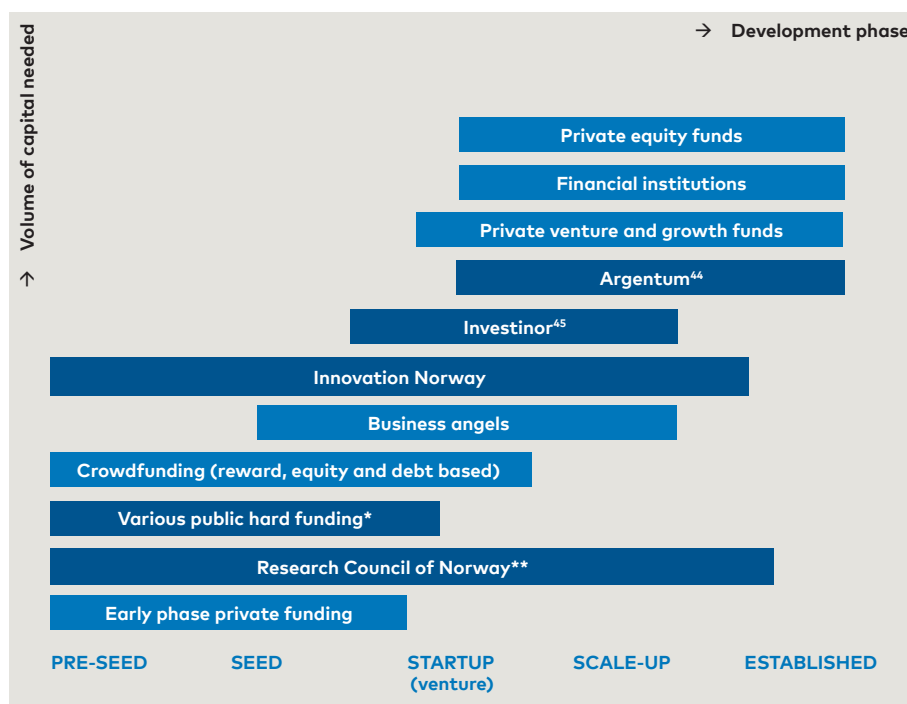


Table 2: Finland

Overview of Business Finland instruments and financing

Source: Business Finland

Financing service	Funding EUR, 2017
Production incentive for the audiovisual industry	9,505,357
Digiboost	8,872,088
Energy Aid	23,485,202
Explorer – Grant	1,377,593
Innovation clusters – Grant	3,278,200
Innovation Voucher	7,268,512
Innovative public procurements	1,398,350
Into – Grant for buying innovation expertise	551,390
Kiito - Grant	29,522,046
Young innovative companies – Grant	14,495,637
Young innovative companies – Loan	5,135,000
Tempo – Grant for startup companies	21,488,485
Trade fair – Grant	2,391,339
Research, development and piloting – Grant	97,517,015
Research, development and piloting – Loan	177,196,868
New business from research ideas	21,233,495
Funding for research organisations	85,491,094
Total	510,207,671



Instrument (NOK mio.)	2014	2015	2016	2017
Grants to startups – Phase 1	68	92	73	40
Grant to startups – Phase 2	177	288	292	242
Startup loans	-	-	-	108
R&D contracts	390	365	294	298
Other grants	2,014	1,950	2,000	2,224
Pre-seed	-	40	100	50
Guarantee for working capital	12	26	26	20
Guarantee for growth	-	-	-	142
Innovation/risk loans	574	869	991	1,352
Low risk loans	2,362	1,958	2,486	2,498

Table 3: Norway

Overview of Innovation Norway's instruments and financing

Source: Innovation Norway

Figure 4: Iceland

Overview of selected financing mechanisms in Iceland covering different life-cycle phases

- Private
- Public

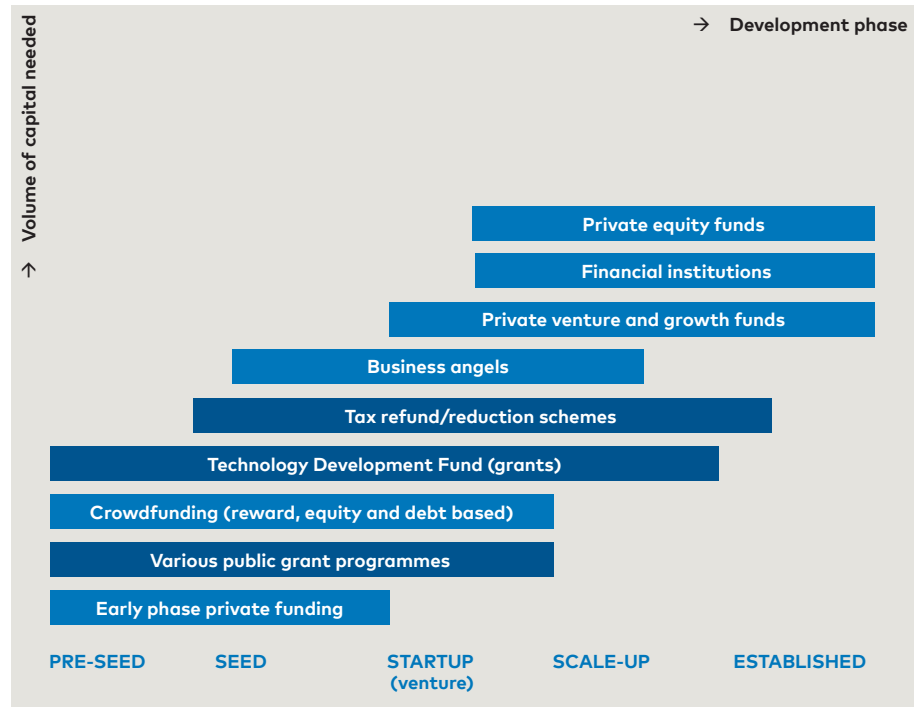


Table 4: Iceland

Financing of selected instruments in Iceland

Information on existing private venture capital funds not available

Source: Icelandic ministry of industries and innovation

Organisation/ Instrument	Type of financing	Financing in state budget 2018 (ISK)	Comments
Technology Development Fund	Grants	2,378,000,000	Applied research, product development and marketing.
Tax refund – R&D	Tax refund/ deduction	2,335,000,000	Enhance corporate R&D
Regional funding schemes	Grants	1,111,000,000	Regional development
Various smaller funds	Grants	686,000,000	Sector and regional focus
Contribution to EU funds		1,789,000,000	Programme participation
Other governmental support of innovation		430,000,000	Sector and regional focus
Icelandic research fund	R&D grants	2,470,000,000	Basic research Enhance private investments in innovative firms
Tax reduction-invest in startups		14,000,000	

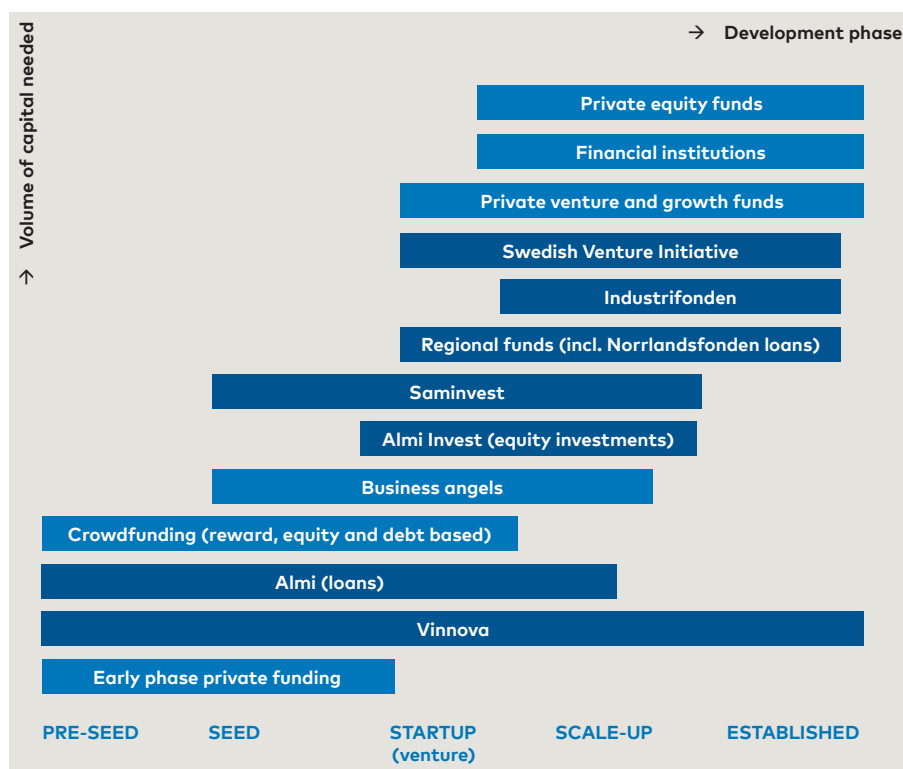


Figure 5: Sweden

Overview of selected financing mechanisms in Sweden covering different life-cycle phases

- Private
- Public

Organisation	Type of financing	Financing in 2017 (SEK)	Comments
Almi AB	Loans and grants	2,559,000,000	New loans to companies
Almi AB	Grants	23,000,000	Verification of innovation projects
Almi Invest AB	Risk capital	181,000,000	Risk capital investments
Saminvest AB	Risk capital	440,000,000	Fund in funds investments
Industry Fund	Rsk capital	346,000,000	Direct equity investments
Norrlands fund	Loans	328,000,000	Loans provided in North Sweden
Vinnova	Grants	78,000,000	Verification and commercialisation of projects
Tillväxtverket	Risk capital (via EIF)	388,000,000	Amount planned invested in the period 2017-2023 (fund in funds investment)

Table 5: Sweden

Financing of selected instruments in Sweden

Various export support and credit schemes are not included in this summary (such as Svensk export credit, Swedfund and Business Sweden)

Source: Swedish Ministry of Enterprise and Innovation

Appendix III: Investments in the Nordic countries

Looking at the most recent numbers from 2017, Sweden and Finland are attracting the most venture investments. Furthermore, it is interesting to observe that in Sweden, well over 60 per cent of venture investments come from abroad, mainly from other Nordic countries and Europe. On the other hand, in Norway, the majority of investments are domestic.

Figure 1
Venture investment into Danish portfolio companies (EUR million)

■ Domestic Denmark
■ Nordics to Denmark
■ Europe to Denmark
■ Rest of the World to Denmark

Source: Invest Europe

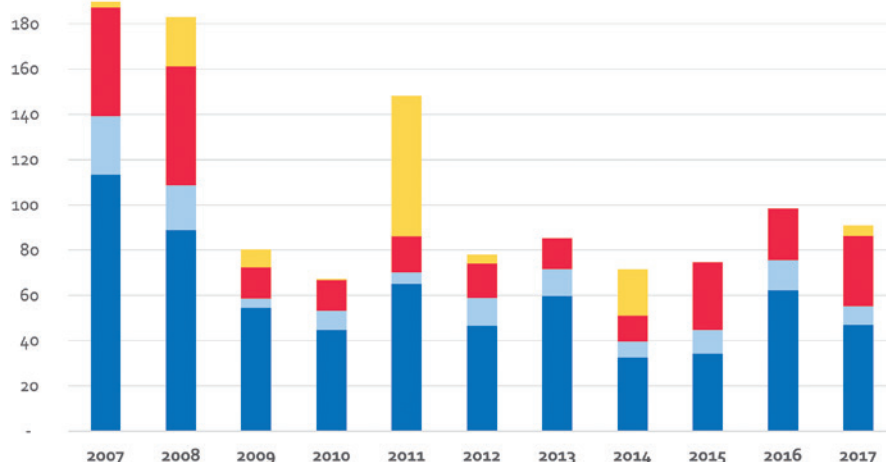
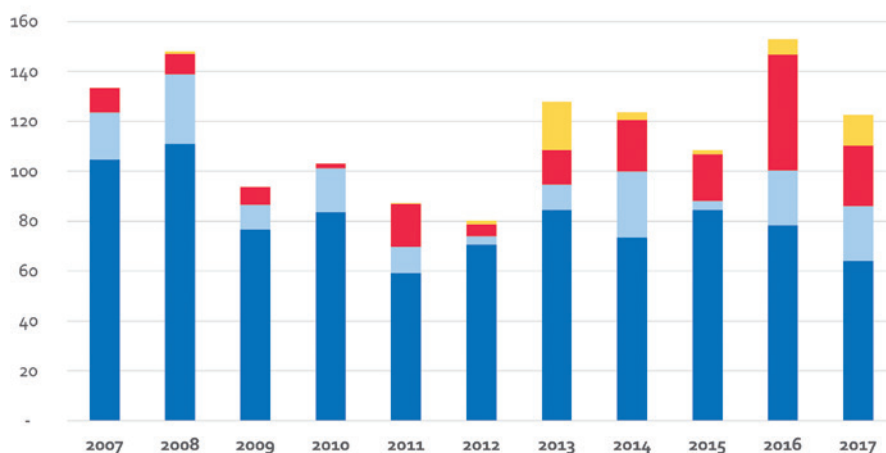


Figure 2
Venture investments into Finnish portfolio companies (EUR million)

■ Domestic Finland
■ Nordics to Finland
■ Europe to Finland
■ Rest of the World to Finland

Source: Invest Europe



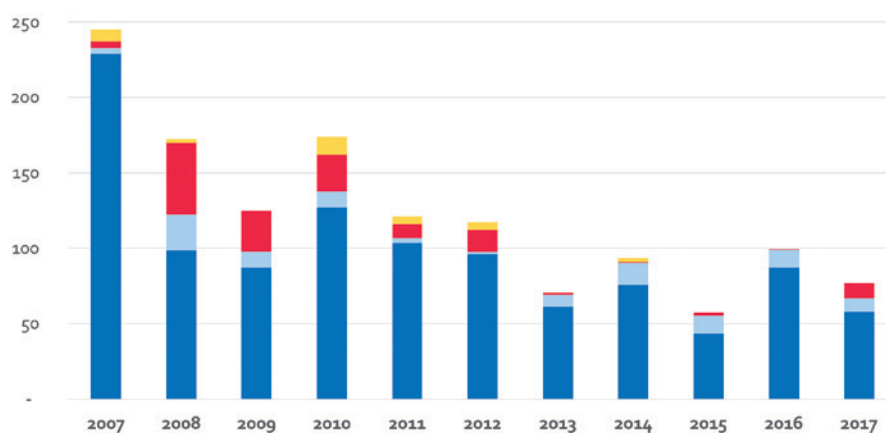


Figure 3
Venture investments
into Norwegian port-
folio companies (EUR
million)

■ Domestic Norway
■ Nordics to Norway
■ Europe to Norway
■ Rest of the World to
Norway

Source: Invest Europe

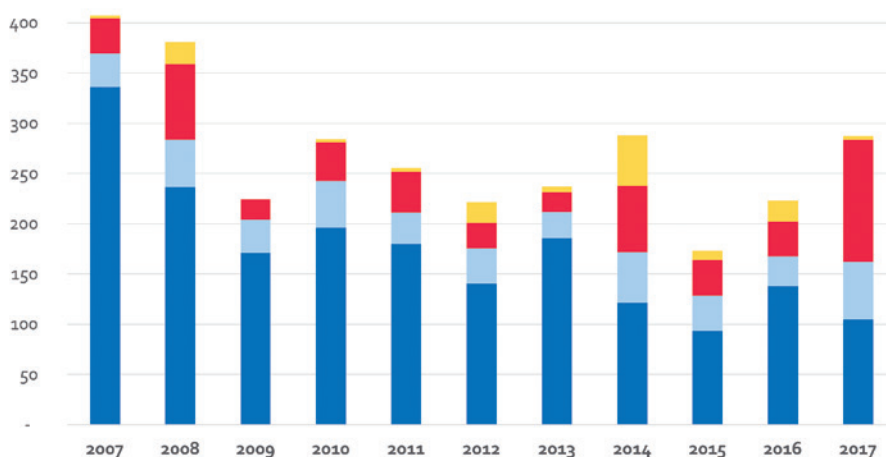


Figure 4
Venture investments
into Swedish port-
folio companies (EUR
million)

■ Domestic Sweden
■ Nordics to Sweden
■ Europe to Sweden
■ Rest of the World to
Sweden

Source: Invest Europe

An interesting observation can be made by comparing buyout investments in the Nordic countries. Although there are fluctuations between years during the period, the graphs indicate that the presence of domestic investors decreases substantially in the buyout phase, apart from in Sweden. These numbers are consistent with the study's finding that Nordic growth companies experience difficulties accessing financing within the Nordic region for further expansion, apart from those in Sweden.

Figure 5
Buyout investments
into Danish port-
folio companies (EUR
million)

■ Domestic Denmark
■ Nordics to Denmark
■ Europe to Denmark
■ Rest of the World to
Denmark

Source: Invest Europe

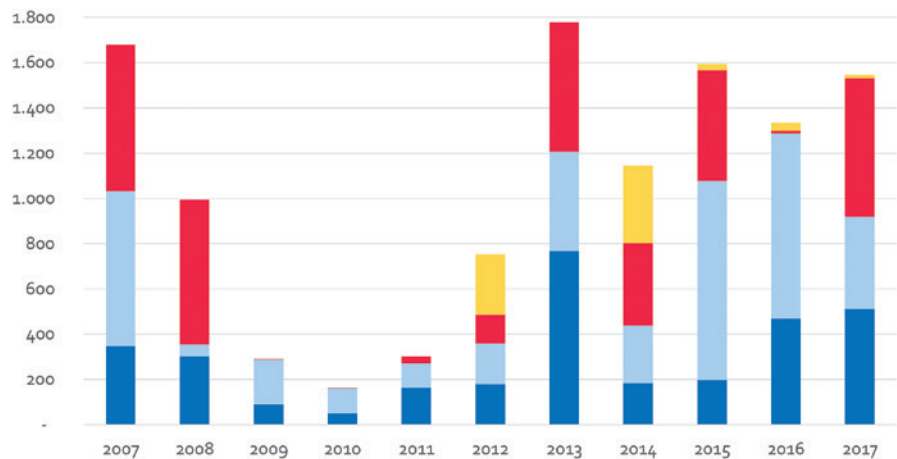
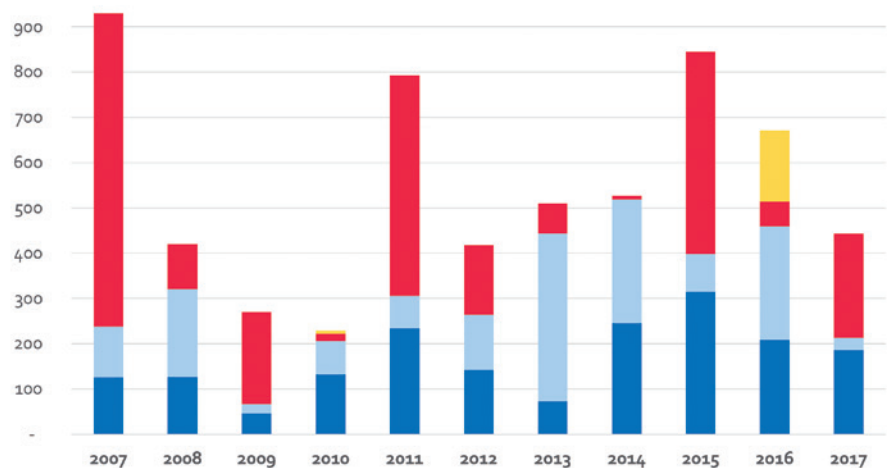


Figure 6
Buyout investments
into Finnish port-
folio companies (EUR
million)

■ Domestic Finland
■ Nordics to Finland
■ Europe to Finland
■ Rest of the World to
Finland

Source: Invest Europe



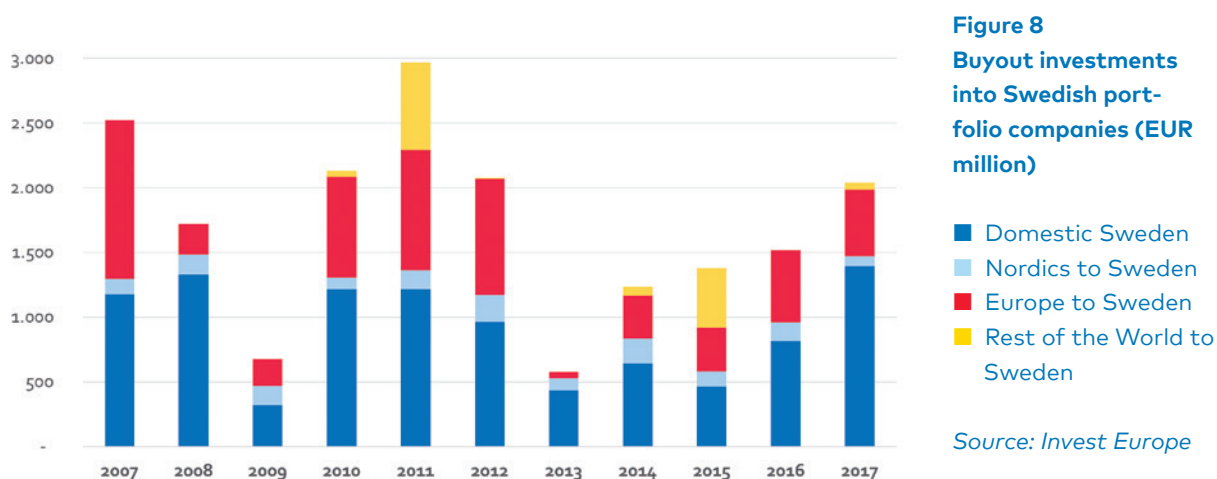
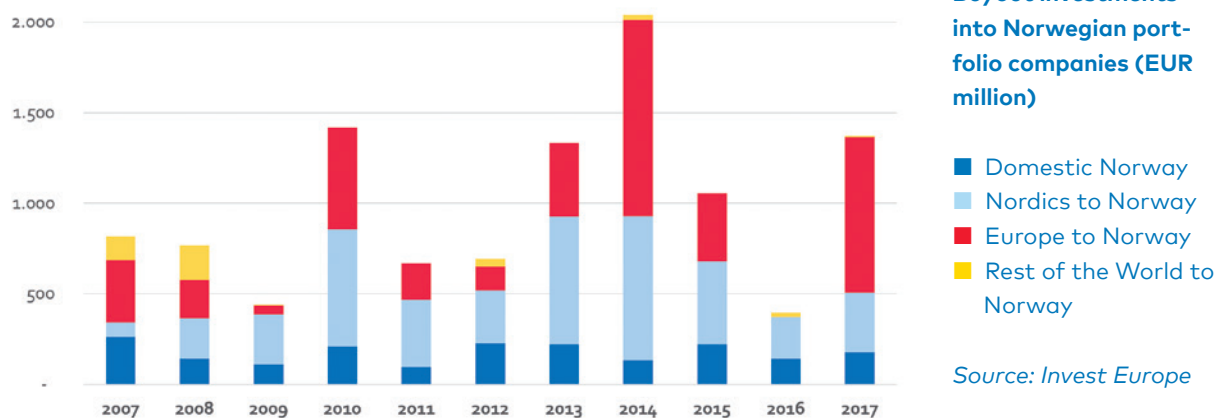


Table 1
Cleantech investments
into portfolio
companies located
in the Nordics

Investment stage:
Venture capital

Amounts in EUR
thousands

* No status available
for these investments
and portfolio compa-
nies

Source: Invest Europe

	Information unknown*	No cleantech	Cleantech	Grand total
2007	535	919,927	55,271	975,733
2008		787,822	97,051	884,873
2009	10,759	395,077	117,283	523,120
2010	9,179	479,553	140,261	628,993
2011	7,195	518,197	87,528	612,919
2012	5,770	428,253	62,941	496,963
2013	1,359	456,346	63,190	520,894
2014	1,037	533,894	42,028	576,959
2015	4,573	370,451	39,690	414,714
2016	71,102	480,613	22,774	574,489
2017	70,290	481,737	32,535	584,562

Table 2
Cleantech investments
into portfolio
companies located
in EU 28

Investment stage:
Venture capital

Amounts in EUR
thousands

* No status available
for these investments
and portfolio compa-
nies

Source: Invest Europe

	Information unknown*	No cleantech	Cleantech	Grand total
2007	479,424	4,143,162	381,470	5,004,056
2008	450,893	4,254,045	513,855	5,218,793
2009	361,172	2,312,200	464,665	3,138,027
2010	360,032	2,375,953	379,259	3,115,243
2011	423,822	2,528,010	436,724	3,388,555
2012	399,794	2,226,262	330,927	2,956,983
2013	370,779	2,601,901	317,709	3,290,388
2014	405,683	2,670,888	330,750	3,407,320
2015	659,353	3,210,022	135,534	4,004,910
2016	892,239	3,381,828	188,570	4,462,637
2017	1,736,424	4,206,615	147,576	6,090,616

	Biotechnology	Healthcare	Grand total
2007	69,211	159,122	228,333
2008	33,778	109,299	143,077
2009	20,632	70,977	91,610
2010	18,765	73,401	92,166
2011	17,955	82,207	100,163
2012	25,791	72,413	98,204
2013	8,476	96,319	104,795
2014	54,988	93,437	148,424
2015	18,538	78,714	97,252
2016	24,422	102,510	126,933
2017	52,342	98,559	150,901

Table 3
Life science investments into portfolio companies located in the Nordics

Investment stage:
Venture capital

Amounts in EUR
thousands

Sectors may be subject
to future data restatements

Source: Invest Europe

	Biotechnology	Healthcare	Grand total
2007	225,817	507,120	732,938
2008	165,200	595,214	760,414
2009	129,672	395,978	525,650
2010	168,777	347,944	516,721
2011	157,855	447,150	605,004
2012	158,151	317,747	475,898
2013	151,764	449,001	600,765
2014	239,984	440,504	680,488
2015	234,057	464,807	698,864
2016	351,469	562,025	913,494
2017	478,184	626,319	1,104,503

Table 4
Life science investments into portfolio companies located in the EU 28

Investment stage:
Venture capital

Amounts in EUR
thousands

Sectors may be subject
to future data restatements

Source: Invest Europe

Glossary

The following definitions are from Invest Europe, the European Investment Bank's advisory hub and the European Banking Authority publication on Fintech.

General definitions

Startup: A startup is an entrepreneurial venture which is a newly emerged business venture in the first stage of its operations. A startup aims to meet a marketplace need or problem by developing a viable business model around products, services, processes or platforms. A startup is designed to effectively develop and validate a scalable business model. Due to limited revenue or high costs, most of these small-scale operations are not sustainable in the long term without additional funding from venture capitalists.⁴⁶

Scale-up: There is no consensus on the definition of scale-ups internationally and it can vary between ecosystems and public policy initiatives how scale-ups are defined. According to OECD, a scale-up (company) is a company which has an average annualised return of at least 20% in the past 3 years with at least 10 employees in the beginning of the period. A recent Nordic initiative (Nordic Scalors) defines scale-ups as companies that: have a minimum turnover of € 2 million, have been generating revenue in the preceding 3 years, have a minimum personnel of at least 10 people, and have grown at least 20% in the preceding 1-3 years. Unlike startups, which typically have very little revenue, scale-ups have proven their business model by achieving reliable revenue.⁴⁷

Seed capital: Seed Capital is the financing provided to study, assess and develop an initial concept. The seed phase precedes the startup phase. The two phases together are called the early stage.

Startup capital: Capital provided to enterprises for product development and initial marketing. Enterprises may be in the process of being set up or may exist but have yet to sell their product or service commercially.

Venture capital: Investment in unquoted enterprises by Venture Capital firms who, acting as Principals, manage individual, institutional or in-house money. In Europe, the main financing stages included in Venture Capital are early-stage (covering seed and startup) and expansion. Strictly defined, Venture Capital is a subset of private Equity. Venture capital is thus professional Equity co-invested with the entrepreneur to fund an early-stage (seed and startup) or expansion venture. Offsetting the high risk the investor takes is the expectation of a higher-than-average return on the investment.

Equity: Provision of capital to a firm, invested directly or indirectly in return for total or partial ownership of that firm and where the equity investor may assume some management control of the firm and may share the firm's profits.

Debt instrument: Individuals, businesses and governments use common types of debt instruments, such as loans, bonds and debentures, to raise capital or generate investment income. Debt instruments essentially act as an IOU between the issuer and the purchaser. In exchange for a lump sum payment, the borrower guarantees the purchaser full repayment of the investment at a later date. The terms of these types of contracts often include the payment of interest over time, resulting in cumulative profit for the lender.

Fund raising: The process by which venture capital firms raise money to create an investment fund. These funds are raised from private, corporate or institutional investors, who make commitments to the fund which will be invested by the general partner.

Guarantee: A written commitment to assume responsibility for all or part of a third party's debt or obligation or for the successful performance by that third party of its obligations if an event occurs which triggers such guarantee, such as a loan default.

Mezzanine: Mezzanine financing consists of a mix between debt financing and equity. A distinction can be made between equity mezzanine – i.e. forms of mezzanine that have many elements of equity – and debt mezzanine – i.e. forms of mezzanine that have many elements of debt financing. Mezzanine financing is usually unsecured and subordinate (so-called 'junior') to normal debt financing (so called 'senior loans').

Private equity: Investment of equity capital in firms not quoted on a stock market. Venture capital is strictly speaking a subset of private equity, which also includes replacement capital and buyouts.

Size of companies: SME: small or medium-sized enterprise as defined in EU law: EC recommendation 2003/361: Enterprise which has fewer than 250 employees and an annual turnover not exceeding EUR 50 million or an annual balance-sheet total not exceeding EUR 43 million.

Fund stage focus

Buyout fund: Funds acquiring companies by purchasing majority or controlling stakes, financing the transaction through a mix of equity and debt.

Early-stage fund: Venture capital funds focused on investing in companies in the early stages of their lives.

Growth fund: Funds that make private equity investments (often minority investments) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Later-stage fund: Venture capital funds providing capital for an operating company which may or may not be profitable.

Mezzanine fund: Funds using a hybrid of debt and equity financing, comprised of equity-based options (such as warrants) and lower-priority (subordinated) debt.

Venture fund: Venture capital funds focused on both early and later stage investments.

Types of investors

Business angel: A business angel is an individual investor that directly invests its own money predominantly in seed or startup companies with no family relationships, invests with a medium to long-term timeframe, makes own investment decisions and is financially independent, and is ready to provide, on top of their investment, strategic support to entrepreneurs from investment to exit.

Corporate investor: Corporations manufacturing products or delivering non-financial services.

Family office: An entity that provides services to one or more affluent families, including investment management and other services (accounting, tax, financial and legal advice etc.).

Foundations: A non-profit organisation through which private wealth is distributed for the public good. It can either donate funds and support other organisations, or provide the sole source of funding for their own charitable activities.

Fund of funds: A private equity fund that primarily takes equity positions in other funds.

Pension funds: A pension fund that is regulated under private or public sector law.

Investment stages

Seed: Funding provided before the investee company has started mass production/distribution with the aim to complete research, product definition or product design, also including market tests and creating prototypes. This funding will not be used to start mass production/distribution.

Startup: Funding provided to companies, once the product or service is fully developed, to start mass production/distribution and to cover initial marketing. Companies may be in the process of being set up or may have been in business for a shorter time, but have not sold their product commercially yet. The destination of the capital would be mostly to cover capital expenditures and initial working capital.

Later-stage financing: Financing provided for an operating company, which may or may not be profitable. Late stage venture tends to be financing into companies already backed by VCs. Typically in C or D rounds.

Growth: A type of private equity investment (often a minority investment) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Buyout: Financing provided to acquire a company. It may use a significant amount of borrowed capital to meet the cost of acquisition. Typically by purchasing majority or controlling stakes.

Other definitions

State aid: State aid is defined as an advantage in any form whatsoever conferred on a selective basis to undertakings by national public authorities. Therefore, subsidies granted to individuals or general measures open to all enterprises are not covered by this prohibition and do not constitute State aid (examples include general taxation measures or employment legislation). To be State aid, a measure needs to have these features:

- There has been an intervention by the State or through State resources which can take a variety of forms (e.g. grants, interest and tax reliefs,

guarantees, government holdings of all or part of a company, or providing goods and services on preferential terms, etc.).

- The intervention gives the recipient an advantage on a selective basis, for example to specific companies or industry sectors, or to companies located in specific regions – competition has been or may be distorted.
- The intervention is likely to affect trade between member States.

Despite the general prohibition of State aid, in some circumstances government intervention is necessary to secure a well-functioning and equitable economy. Therefore, the Treaty leaves room for a number of policy objectives for which State aid can be considered compatible.

Regulatory sandbox: Although there are no commonly used definitions of the term “regulatory sandbox” they are typically regarded as “safe spaces” in which innovative products, services, business models and delivery mechanisms can be tested without being subject to the full set of regulatory supervisory requirements that would otherwise apply.

Fintech: “FinTech” is defined at the EU and international standard setting levels as “technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services”.

Healthtech: Health technology is the application of organised knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problem and improve quality of life.

Cleantech: Clean technology refers to any process, product, or service that reduces negative environmental impacts through significant energy efficiency improvements, the sustainable use of resources, or environmental protection activities. Clean technology includes a broad range of technology related to recycling, renewable energy (wind power, solar power, biomass, hydropower, biofuels, etc.), information technology, green transportation, electric motors, green chemistry and more.

Endnotes

1. Nordic Council of Ministers (2018). *State of the Nordic Region 2018*.
2. E.g. European Innovation Scoreboard, World Economic Forum, Gender Equality Index, Ease of Doing Business ranking, Human Development Index.
3. Nordic Council of Ministers (2018). *State of the Nordic Region 2018*.
4. According to global indices such as the IMD World Digital Index, World Economic Forum, the Digital Economy and Society Index, the Global ICT Development Index, the UN E-Government Survey and more.
5. Nordic Council of Ministers (2018). *State of the Nordic Region 2018*.
6. OECD (2014). *Science, Technology and Industry Outlook*.
7. Nordic Innovation (2016). *Nordic Entrepreneurship Check 2016*.
8. Nordic Council of Ministers (2018). *Trust – the Nordic Gold*.
9. Nordic Council of Ministers (2017). *Nordic Co-operation Program for Business and Innovation Policy*.
10. Norwegian Ministry of Trade and Industry (2018). *Kapitalutvalget: Kapital i omstillingens tid*.
11. Finnish Venture Capital Association (2018).
12. Nordic Innovation (2016). *Nordic Entrepreneurship Check 2016*.
13. Norwegian Ministry of Trade and Industry (2018). *Kapitalutvalget: Kapital i omstillingens tid*.
14. Rydstad (2015). *En fondsstruktur för innovation och tillväxt*.
15. Iværksætterpanelet (2018). *Anbefalinger til regeringen*.
16. KPMG (2016). *Financing environment of startup companies*.
17. InnovFin Advisory was set up as a joint EIB-European Commission initiative under Horizon 2020 to assist eligible public and private counterparts to improve the bankability and investment-readiness of large, complex, innovative projects that need substantial long-term investments.
18. In 2009, the European Union identified Key Enabling Technologies (KETs) as instrumental in strengthening the pace of innovation and addressing major societal challenges. The term encompasses a group of six technologies: micro-/nano-electronics, nanotechnology, industrial biotechnology, advanced materials, photonics, and advanced manufacturing systems. These technologies were viewed as key contributors to future economic growth and development.
19. European Investment Bank (2018). *Financing the Deep Tech Revolution: How investors assess risks in Key Enabling Technologies (KETs)*.
20. OECD (2018). *Financing SMEs and Entrepreneurs 2018: an OECD scoreboard*.
21. UK Department for Business, Energy and Industrial strategy (2017). *Industrial Strategy: Life Sciences Sector Deal*.
22. The information contained in this report was produced by Invest Europe, based on data collected as part of the European Data Cooperative (EDC) and other third-party information. While Invest Europe has made every effort to ensure the reliability of the data included in

-
- this report, Invest Europe cannot guarantee the accuracy of the information collected and presented. Therefore, Invest Europe cannot accept responsibility for any decision made or action taken based upon this report or the information provided herein.
23. Nordic Innovation (2017). *Handbook to Nordic Startup Investor Market: Unleash the Full Potential of Nordic Startups*.
24. Jorma Ollila (2017). *Nordic Energy Co-operation: Strong today – stronger tomorrow*.
25. A fund of funds (FOF) – also referred to as a multi-manager investment – is an investment strategy in which a fund invests in other types of funds. This strategy invests in a portfolio that contains different underlying assets instead of investing directly in bonds, stocks and other types of securities.
26. The Danish Growth Fund (2018).
27. Tine Sundtoft (2018). *The Nordic countries in the green transition – more than just neighbours*.
28. ec.europa.eu/growth/single-market/public-procurement/rules-implementation_en
29. tem.fi/en/article/-/asset_publisher/innovatii-visten-julkisten-hankintojen-toimenpideohjelma-on-valmistunut
30. European Commission (2017). *Effectiveness of tax incentives for venture capital and business angels to foster investments of SMEs and start-ups*.
31. Nordic Innovation (2017). *Handbook for Nordic Startup Investor Market*.
32. European Commission (2017). *Effectiveness of tax incentives for venture capital*.
33. Nordic Innovation (2017). *Handbook for Nordic startup investor market*.
34. European Commission (2017). *Effectiveness of tax incentives for venture capital and business angels to foster investments of SMEs and start-ups*.
35. www.businessfinland.fi/en/do-business-with-finland/work-in-finland/startup-permit/
36. Nordic Innovation (2016). *Nordic Entrepreneurship Check 2016*.
37. Norwegian Ministry of Trade and Industry (2018). *Kapitalutvalget: Kapital i omstillingens tid*.
38. ec.europa.eu/competition/state_aid/overview/index_en.html
39. europa.eu/rapid/press-release_IP-18-4041_en.htm
40. IMF (2018). *World Economic Outlook 2018*.
41. EKF issued new export credits, working capital guarantees and loans worth DKK 11.5 billion in 2017, bringing EKF's total administered portfolio to just under DKK 71 billion with equity amounting to DKK 7.6 billion.
42. Finnvera Key figures 2017: Export guarantees and special guarantees offered € 7,512 million. SME and Midcap Financing offered: € 962 million.
43. Finnish Industry Invest (TESI): New Investments in 2017 EUR 149 million. Investments under management at the end of 2017, EUR 1.2 billion.

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44. Argentum (fund investor) investment portfolio consists of 118 active private equity funds by the end of 2017 and committed capital is NOK 13.7 billion, of which 4 billion comes from external investors.
 45. Investinor manages NOK 4.2 billion (EUR 470 million) and invests on the same terms and conditions as private investors, with a clear exit strategy for all investments. Investments in 2017 were NOK 310 million with partner investors investing NOK 628 million.
 46. Information gathered from Investopedia (investopedia.com), Nordic Scalers (nordicscalers.io) and reports from OECD and Eurostat manual on Business Demography Statistics.
 47. Information gathered from Investopedia (investopedia.com), Nordic Scalers (nordicscalers.io) and reports from OECD and Eurostat manual on Business Demography Statistics.





Slush has grown from a 300 person assembly to a world-renowned event, now spreading globally. The philosophy behind Slush has remained the same: to help the next generation of great, world-conquering companies. Held during the darkest time of the year in Helsinki, Finland, Slush has always been characterized by a unique energy and enthusiasm. The very core of Slush is to facilitate founder and investor meetings and to build a world-wide startup community.

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