



Nordic Entrepreneurship Check 2016

Final report



Nordic Entrepreneurship Check 2016

Technopolis Group

Jari Romanainen, Jelena Angelis, Derek Jan Fikkers,
Reda Nausedaite, Emma Årenman, Karolina Henningsson,
Katre Eljas-Taal, Johanna Vallistu, Frederic Maier, Kerli Müürisepp

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Coverphoto: FHinterior, LFA

Nordic Innovation
Stensberggt. 25
NO-0170 Oslo
+47 47 61 44 00
www.nordicinnovation.org



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Contents

Introduction	9
Methodology	11
Overview of the entrepreneurship ecosystem in the Nordic region	17
The Nordic entrepreneurial ecosystem in numbers and volume	18
Policy context	21
Key support schemes	22
<i>Government funding</i>	22
<i>Venture capital and private investors</i>	22
<i>Other support</i>	26
Access to markets	27
Entrepreneurial culture	27
Future outlook	29
Observations concerning the role of specific actors	31
Unicorns	31
Business angels and venture capital funds	32
Accelerators, incubators, co-working spaces, and other entrepreneurial environments	33
<i>Incubators</i>	33
<i>Accelerators</i>	34
<i>Co-working spaces</i>	35
<i>Other environments – the Nordic hackathon tradition</i>	36
Crowdfunding platforms	36
Universities, public research and higher education institutes	38
Conclusion	39
Benchmarking of the Nordic countries with leading European entrepreneurial ecosystems	42
Definition and demarcation of the benchmarked ecosystems	43
Descriptions of the benchmark ecosystems	46
Cultural contexts	50
Venture capital and business angels in the benchmarked ecosystem	52
Key support schemes in the benchmarked ecosystems	58
The Nordic entrepreneurship ecosystem compared with the benchmarked countries	64

Observations based on overview and benchmarking	69
Features of the Nordic region	69
Culture	70
Education and training	72
Access to competences and workforce	73
Regulatory framework	74
Access to finance	74
Access to markets	76
Support mechanisms	77
Identified key challenges and barriers	78
Key challenges of the Nordic entrepreneurship ecosystems	81
Access to finance	82
Access to competences	84
Taxes (and other framework conditions)	86
Access to international markets	87
Fragmentation	89
Policy recommendations	91



Appendix	103
Appendix A Country case study Denmark	104
Appendix B Country case study Finland	118
Appendix C Country case study Iceland	131
Appendix D Country case study Sweden	142
Appendix E Country case study Norway	157
Appendix F Benchmark with Amsterdam	172
Appendix G Benchmark with Berlin	184
Appendix H Benchmark with London	194

Contents

Tables and Figures

Tables

Table 1	Global Entrepreneurship Index 2016 ranking	
	Top 15 European countries	18
Table 2	Examples of Nordic unicorn start-ups	32
Table 3	London unicorn start-ups	49
Table 4	London start-up funding (millions of USD)	57
Table 5	Key observations regarding access to finance in the Nordic countries	83
Table 6	Summary and categorisation of policy recommendations and how they address the key challenges	98

Figures

Figure 1	Components of an entrepreneurial ecosystem with potential high impact on company growth over the next 3-5 years	12
Figure 2	Stages of innovative business development from idea generation into international growth	13
Figure 3	Number of enterprise entries in Denmark, Finland, Iceland, Norway and Sweden 2009 – 2015. Index: 2007=100	18
Figure 4	Percentage of the population in Finland, Norway, Sweden and Denmark who are involved in entrepreneurial activities, between 2009 and 2014	19
Figure 5	Country performance	20
Figure 6	Distribution of Amsterdam start-ups over the domains	46
Figure 7	Allocations of funds raised by Dutch venture capital private equity funds (totals over 2011-2014)	53
Figure 8	Sources of funds raised by Dutch venture capital private equity funds (2011-2014)	54
Figure 9	Position of the Amsterdam ecosystem in the regional distribution of VC and PE investments in the Netherlands (in mln €)	55
Figure 10	The funding sources used by start-ups in Germany: significant importance of own capital and friends and family	56
Figure 11	Access to venture capital: Berlin outperforms other German ecosystems	56
Figure 12	Source of funding for innovation in the UK and the USA (2013)	57

Figure 13	UK venture capital investments in 2007-2013 (millions of GBP/number of deals)	58
Figure 14	UK business angel investment by sector in 2012-2013 (millions of GBP)	59
Figure 15	Federal support funds for start-ups and for VCs	62
Figure 16	Country performance	65
Figure 17	How easy is it to find/recruit people with the desired competencies? Response in percentage	85
Figure 18	What could be done to improve access to competences (finding/recruiting skilled people)?	85
Figure 19	What could be done to improve exit opportunities? Response in percentage	87
Figure 20	Global Entrepreneurship Index of Nordic countries	91



Photo: Tobias Selmer / Markussen

The Nordic countries are innovative economies with a skilled and well educated population.



Introduction

Nordic countries are among the most developed economies in the world. However, they face several challenges, particularly due to globalisation. Multinational large industries are relocating their activities globally. The Nordic welfare model is under financial pressure. Nordic countries need to find ways to revitalise industries and to seek new sources of economic growth.



The Nordic countries are innovative economies with a skilled and well educated population. Consequently, they find it natural to focus on new innovative companies seeking to grow on international markets. However, this is not without its challenges. The entrepreneurship culture has traditionally not been a strong feature in the Nordic countries. It has been strengthened over the last decade, but is still behind the best performing countries. There are also significant systemic and competence challenges related to accelerating growth in young companies and to fully realise their global potential.

It is therefore not a surprise that policy makers in the Nordic countries today are focused on promoting high growth companies. These companies are thought to drive productivity growth, create new employment and increase innovation. In developing new technology solutions, start-ups and scale-ups are considered to have a significant role to play, partly because SMEs are known to foster innovation and be flexible in adapting to change. Subsequently, the Nordic countries have over the last decade been able to improve the entrepreneurship framework and the countries are good at starting new companies (above OECD average), which can be seen in the relatively high level of start-up activity.

As noted, there are barriers for the successful development of companies (including start-ups and SMEs as well as larger companies). Main barriers to the development of high growth SMEs are, for example, market failures, access to foreign markets, and difficulties in recruiting qualified and skilled staff. As a result, public policy has an important role regarding market development. Access to public funding provides benefits for SMEs and start-ups, both regarding to undertake R&D, as well as to attract venture capital. Public investment can support product development as well as increase the investors' confidence (by taking the early investment risks).

This study focuses on mapping the Nordic entrepreneurship ecosystem and offers policy recommendations for strengthening the ecosystem through motivating companies to collaborate, export and innovate in order to increase the Nordic countries' competitiveness. In the **first section** we describe the methodology we used for the analysis. The **second section** looks into the Nordic ecosystems on the basis of desk research – we analyse the ecosystems' policy contexts, key support schemes, cultural contexts, as well as key challenges and barriers identified in earlier studies. Country specific descriptions are provided in Annexes A-E. The **third section** complements the first section by discussing the role of specific actors in the entrepreneurship ecosystem. In the **fourth section** we benchmark the Nordic ecosystem against the leading European ecosystems – London, Berlin and Amsterdam. All country benchmarks are presented in Annexes F, G and H. The **fifth section** presents the main observations and conclusions based on sections 2-4. The **sixth section** identifies and discusses further the key challenges in the Nordic entrepreneurship ecosystems. In the last section we present our policy recommendations for strengthening the Nordic entrepreneurship ecosystems.

As a result of the study, main features of the Nordic entrepreneurial ecosystems are mapped and analysed. A comparison of Nordic ecosystems with some of the leading European ecosystems provide further insight into potential areas of improvement. A number of key conclusions are drawn and selected recommendations are given in order to increase Nordic collaboration and competitiveness.



Methodology

The aim of the study was to analyse the Nordic entrepreneurship ecosystem and recommend further activities to improve the ecosystem and collaboration on the Nordic level. We started with mapping the existing ecosystems in Finland, Sweden, Denmark, Norway and Iceland and complemented the study with benchmarking analysis of the best ecosystems in Europe – London, Berlin and Amsterdam. For the whole analysis we used elements of **ecosystem sensitivity analysis**. It allowed us to recognise how serious particular barriers and challenges are for the development of the ecosystem, and how potential key policy instruments should be designed and resourced to be able to have a significant or desired impact.

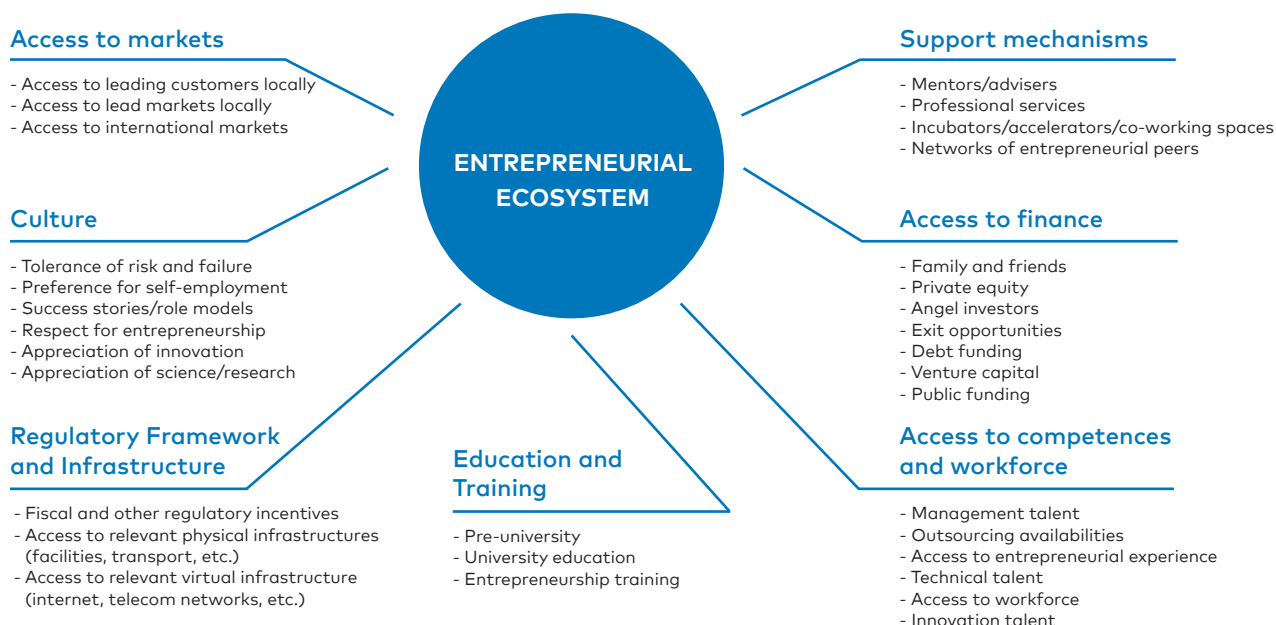
Our approach was based on a conceptual framework which let us address the objectives of the study in the following manner (see Figure 1):

- We described the current landscape and highlighted the needs from companies and organisations in developing Nordic ecosystems. Also, we investigated how different Nordic countries could better cooperate and make use of the national initiatives on a general level.
- We documented and mapped the Nordic countries' entrepreneurship ecosystems, public schemes, public-private initiatives and practices and organisations in supporting entrepreneurs and scaling growth businesses. The documentation covered competence building activities, improved access to finance, attracting talent, private capital, co-working spaces/incubators/accelerators and other relevant instruments. We also reviewed instruments that bring companies in different phases to customer and markets.
- We selected and modelled the best practices, systems and organisations into recommendations for policy makers / decision makers and market actors in the Nordics, in order to accelerate the growth of Nordic entrepreneurs and start-ups and recognition globally.
- We looked at the current entrepreneurship ecosystem from a bottom-up perspective by investigating the perception of key target groups, e.g. entrepreneurs, investors, supporting organisations, policy makers. This approach was emphasised during validation workshops and interviews.

Several conceptual frameworks have been developed to describe and analyse entrepreneurial ecosystems¹. The difference between these frameworks can be mostly explained by the emphasis that has been placed on specific **key dimensions**. However, the dimensions themselves remain the same. For the purposes

¹ E.g. Isenberg, D. (2013) *Worthless, Impossible, and Stupid: How Contrarian Entrepreneurs Create and Capture Extraordinary Value*; Mazzarol, T. (2014) *Growing and sustaining entrepreneurial ecosystems: What they are and the role of government policy*, White Paper WP01-2014, Small Enterprise Association of Australia and New Zealand (SEAAANZ).

Figure 1 Components of an entrepreneurial ecosystem with potential high impact on company growth over the next 3-5 years.



Source: Adapted from World Economic Forum, 2012² by the authors.

of this study the conceptual framework depicted in Figure 1 was followed during the analysis.

In addition, the conceptual framework of public and private mandates and how they are and perhaps should be changing in each dimension were looked into. These dimensions described above were used in looking into the **process from generating innovative ideas into successful internationally scalable businesses** through the steps depicted in Figure 2.

The study process was divided in the following tasks:

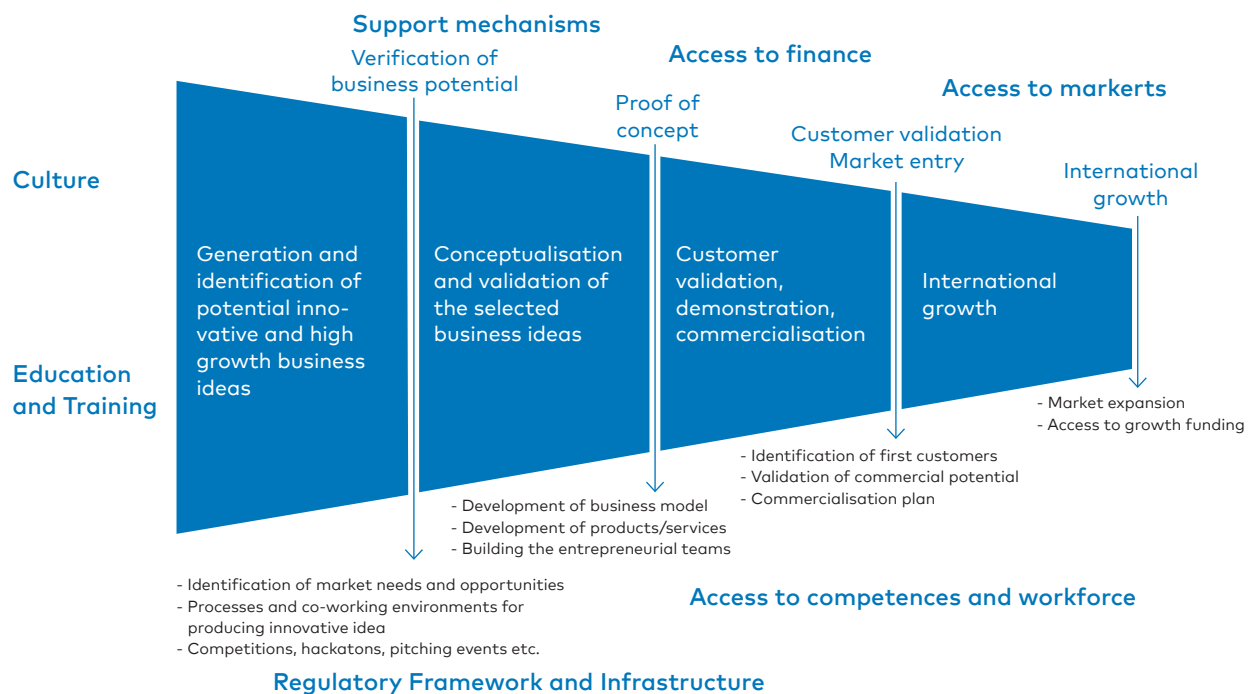
Task 1: Desk research

- Analysis of existing reports containing relevant data, observations and recommendations regarding entrepreneurship ecosystems in the Nordic countries and the Nordic region;
- Analysis of national and Nordic policies and instruments targeting entrepreneurial ecosystems in Nordic countries and the Nordic region.

The desk research looked into key policy documents in Nordic countries and in the Nordic region. Also, reflections on EU policy landscape were looked into. We identified key policy measures targeting the entrepreneurial ecosystems, provided comparative analysis of policies, policy mixes and support measures in the Nordic region. The results of desk research contributed to country fiches and final conclusions and recommendations.

² <http://reports.weforum.org/new-models-for-entrepreneurship/section-1-focus-of-the-report-and-information-sources-underlying-the-analysis/>

Figure 2 Stages of innovative business development from idea generation into international growth.



Source: Technopolis Group, 2015

Task 2: Survey focused on views, impressions, identified barriers, and other observations of key actors in the entrepreneurial ecosystems. We identified and analysed existing additional data sources containing relevant quantitative and qualitative information about Nordic entrepreneurial ecosystems. Analysis of survey and other data using the conceptual framework helped us to identify strengths, weaknesses and barriers for future development.

The purpose of the survey was to get insight into perceptions, ideas, views and experiences of the key beneficiaries operating in the Nordic entrepreneurial ecosystems. The survey was implemented electronically over the internet using SurveyMonkey during February-March 2016.

Task 3: A validation workshop and web analysis. The validation workshop took place on April 12 2016. It was used for presenting and validating preliminary conclusions and recommendations.

The target group for the survey consisted of people that are often burdened with several other surveys, interview requests and studies. To manage the risks related to response rates we complemented the survey and validation workshop with web scraping. The purpose of this analysis of news and social media was to further explore the insights of particularly of entrepreneurs and investors.

Task 4: Benchmarking the Nordic entrepreneurial ecosystems with leading European ecosystems. Suggested ecosystems for benchmarking were London, Berlin and Amsterdam. We gave an overview of about the same parameters as the country analysis in the Nordics – policy contexts, key support schemes, cultural contexts, key challenges and barriers and future outlook, but also key success



Photo: Flickr / Nordic Innovation



Photo: flickr

This study was complemented with benchmarking analysis of the best ecosystems in Europe – London, Berlin and Amsterdam.



Photo: unsplash.com

factors of the benchmarking regions. The aim was to learn what the European leading ecosystems do differently in order for the Nordic countries to learn from them. We have incorporated their 'lessons learned' into our recommendations for further strengthening the Nordic entrepreneurial policies.

Task 5: Final analysis, where we conclude findings of the study and give recommendations for policy improvements. In addition, in order to strengthen our findings and recommendations we provide additional interviews with key players in each Nordic country. The interviews were aimed to complement results of web scraping and survey.



Photo: Flickr / Nordic Innovation



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The Nordic countries represent "a good to excellent level of innovation performance" compared to other European countries.



Photo: Flickr / Nordic Innovation

Overview of the entrepreneurship ecosystem in the Nordic region

The Nordic countries are among the most developed economies in the world and the Nordic region has maintained its strong positions in relation to the EU average when it comes to economic development. Today, the Nordic countries are innovative economies with a well educated and skilled population and they find it natural to focus on new innovative companies seeking to grow on international markets. The Nordic economies are often described as robust, but in several countries, the productivity growth has somewhat stagnated. However, from a European perspective, the Nordic countries are still performing well. According to the European Commission's Innovation Union Scoreboard 2015, Denmark, Finland and Sweden are three of the top performing countries.³ The Nordic average expenditure in R&D was 4.2% of GDP in 2013, compared to EU average of 2%. The average employment rate was 73.4% in 2014, while EU average was 64.9%.⁴

In addition, the Nordic business sectors score high in different rankings of innovation activity. Currently, the Nordic countries represent "a good to excellent level of innovation performance" compared to other European countries. In the 2016 Global Entrepreneurship Index⁵ ranking, the Nordic countries all rank in the top 20 globally. Denmark is ranked as the fourth most entrepreneurial economy globally, Sweden as number five and Iceland as number seven (see Table 1). However, Finland and Norway rank as number 18 and number 20, far below the other Nordic countries.⁶

Today, the Nordic countries face several challenges, for instance due to globalisation. Multinational large industries are relocating their activities globally, and the so-called Nordic welfare model, characterised by a large public sector, a high level of social security and economic equality, is under pressure. The Nordic countries need to both find new ways to revitalise their industries as well as seek new sources of economic growth. In this light, entrepreneurs and start-ups play a significant role.⁷

³ Dølvik, J. et al. (2014). *The Nordic Model towards 2030. A new Chapter?* NordMod2030 Final report. Fafo-report 2014:46. Napier, G. et al. (2012). *The Nordic Growth Entrepreneurship Review 2012*. Nordic Innovation Publication 2012:25. Hollanders, H. et al. (2015). *Innovation Union Scoreboard 2015*. European Commission

⁴ Grunfelder, J. et al. (2016). *State of the Nordic Region 2016*. Nordregio report 2016:1. Fagerberg, J. & Fosaas, M. (2014). *Innovation and innovation policy in the Nordic region*. NordMod subreport 13. Fafo report 2014:26. Oslo: Fafo.

⁵ <http://www.gemconsortium.org>

⁶ <http://thegedi.org/global-entrepreneurship-and-development-index/>

⁷ Mason, C. and Brown, R. (2014). *Entrepreneurship Ecosystems and Growth-Oriented Entrepreneurship*, Report for the OECD LEED Programme. OECD (2013). *An international benchmarking analysis of public programmes for high-growth firms*, OECD LEED programme. OECD (2014). *Entrepreneurship at a Glance 2014*, OECD Publishing. Söderblom, A., et al. (2015) *Inside the black box of outcome additionality: Effects of early-stage government subsidies*. Research Policy 44(8), 1501-1512. Rannikko H. Autio E. (2015). *The impact of high-growth entrepreneurship policy in Finland*. Science & Business Publishing. Autio, E., Rannikko, H. (2015). *Retaining Winners: Can Policy Interventions Facilitate High Growth Entrepreneurship?* In Research Policy Volume 45, Issue 1, February 2016, Pages 42–55. OECD (2008). *Removing Barriers to SME Access to International Markets*. Napier, G. et al. (2012). *The Nordic Growth Entrepreneurship Review 2012*. Nordic Innovation Publication 2012:25.

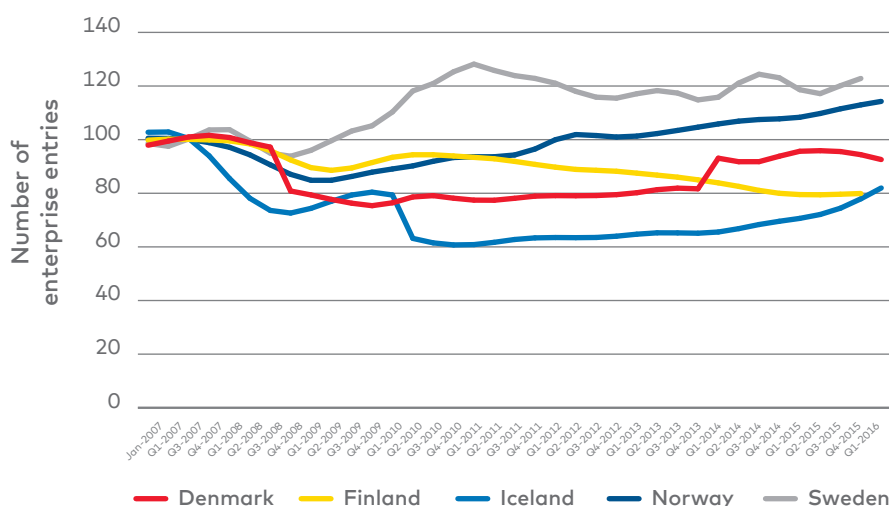
Table 1 Global Entrepreneurship Index 2016 ranking.

GEI rank	Country	ATT	ABT	ASP	GEI
1	USA	84,4	84,8	89,5	86,2
2	Canada	78,1	81,3	79,0	79,5
3	Australia	75,2	81,8	77,0	78,0
4	Denmark	71,1	87,1	69,9	76,0
5	Sweden	77,3	79,9	70,4	75,9
7	Iceland	70,2	69,8	66,8	68,9
8	Switzerland	63,4	68,9	71	67,8
9	UK	70,9	73,3	58,8	67,7
10	France	58,3	73,4	67,4	66,4
11	Singapore	49,2	71,8	76,9	66,0
12	Ireland	59,0	71,3	66,6	65,6
13	Netherlands	71,7	66,4	58,2	65,4
14	Germany	60,1	67,4	66,2	64,6
15	Austria	64,5	63,7	60,6	62,9
16	Chile	74,9	47,9	63,4	62,1
17	Belgium	53,4	62,4	70,4	62,1
18	Finland	72,1	52,5	60,7	61,8
20	Norway	69,9	68,3	45,1	61,1
22	Estonia	56,5	57,2	58,3	57,3
23	Luxembourg	44	65,7	62	57,2

The Nordic entrepreneurial ecosystem in numbers and volume

Data on shares of new companies, more recent indices over enterprise entries, and percentage of the population involved in entrepreneurial activities shows that the Nordic countries are generally good at starting new companies. However, there are differences in the start-up activity across the region.

Figure 3 Number of enterprise entries in Denmark, Finland, Iceland, Norway and Sweden 2009 – 2015. Index: 2007=100.



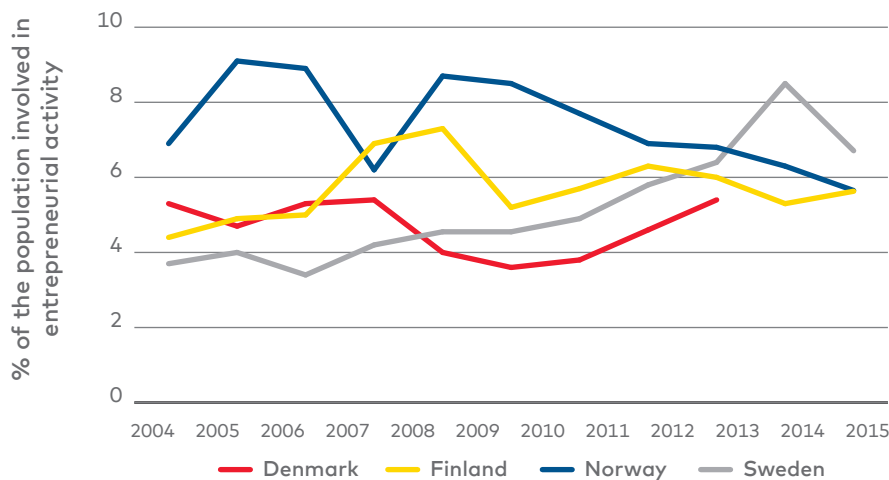
Source: OECD stat. Timely Indicators of Entrepreneurship (ISIC4)



According to the Nordic Growth Entrepreneurship Review 2012, Norway had the highest share of start-ups among their enterprises in 2009, followed by Denmark. Finland was the country with the lowest share. In 2009, Iceland, Sweden and Finland were all below OECD average.

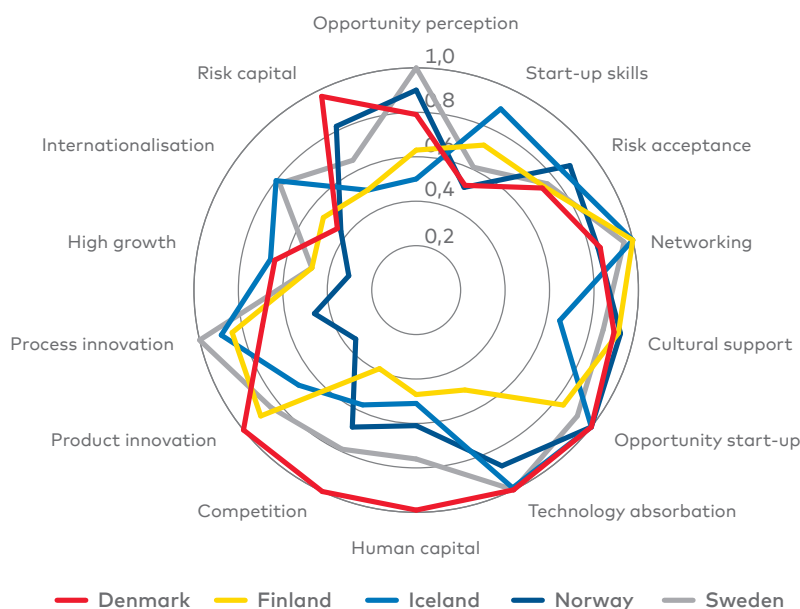
Figure 3 shows that the number of entries has increased in all Nordic countries since 2011, except from Finland. Sweden was quickest to come back from the 2008 financial crisis. One of the reasons was an increase in the availability of start-up funding and support. Sweden was followed a little later by Norway, which has shown consistent growth over the last years. Denmark and Iceland still remain below pre-crisis levels, but are gradually improving. Iceland especially is showing good progress recently, at least partly due to targeted entrepreneurship policy measures. Despite relative strong developments in the start-up ecosystem, Finland is showing declining performance in overall entrepreneurship. This is at least partly due to the on-going global economic downturn and simul-

Figure 4 Percentage of the population in Finland, Norway, Sweden and Denmark who are involved in entrepreneurial activities, between 2009 and 2014.



Source: GEM. No data regarding Iceland.

Figure 5 Country performance.



Source: GEDI(2016), Data explorer. Available at: <http://thegedi.org/tool/>

taneous restructuring of especially the ICT industry. However, it should be noted that the number of new enterprises grew by almost 50% between 2002 and 2007, and that 2007 saw the highest number of new enterprises in two decades in Finland.

Figure 4 shows that the percentage of the population involved in different entrepreneurial activities has increased in all countries, except in Norway (and Sweden in 2014). When comparing the share of gazelles across the Nordic countries with the OECD average, it is noted that there is a fairly high level of gazelles in the Nordic region. The share of gazelles in Norway and Sweden is above the OECD average, followed by Finland, Denmark and lastly Iceland. In 2012, Iceland's share of gazelles only reached about half of the Norwegian level.

According to the report *Leveraging Entrepreneurial Ambition and Innovation: A Global Perspective on Entrepreneurship, Competitiveness and Development*, Sweden, Finland and Denmark show inverse correlations with high entrepreneurial employee activity (entrepreneurship)⁸ and low early-stage entrepreneurial activity. For instance, Denmark has few early-stage entrepreneurs, but a high proportion of them are innovative.⁹

According to the data from the 2016 Global Entrepreneurship Index (GEDI accumulates both quantitative data on the infrastructure and qualitative data on the entrepreneurial attitudes, abilities and aspirations within the country), Denmark has a strong entrepreneurial economy. The country's Global Entrepreneurship Index ranking is steadily at the top, which is displayed in Figure 5. The

⁸ Entrepreneurial employee activity is measured as the proportion of the working-age population that has, in the previous three years, led the development of new activities for an employer, such as developing or launching new goods and services, setting up a new business unit, or establishing a new subsidiary.

⁹ World Economic Forum (2015). *Leveraging Entrepreneurial Ambition and Innovation: A Global Perspective on Entrepreneurship, Competitiveness and Development*.

data suggests a strong all-around performance. However, the score regarding start-up skills could be (more or less) improved in all Nordic countries. Furthermore, internationalisation is still a weak point for several Nordic countries, especially Denmark and Norway.

The small size of the Nordic countries results in entrepreneurial activity focusing around the capital cities. On the other hand, there are examples of strong regions outside the capital cities such as Oulu in Finland and Lund in Sweden (for more information, see the different case studies).

Policy context

Innovation is high on the political agenda in the Nordic region. The Nordic countries are considered to be similar, however, their national policies and systems differ in some aspects. This has to do with, for instance, historical background and cultural contexts which has influenced how entrepreneurial policies subsequently developed. Denmark and Sweden have developed innovation and entrepreneurial systems where universities play a significant part. In Finland and Norway, public research institutes have developed in close connection with both industries as well as new companies. Thereafter, they became important actors both in the overall innovation system but also in the entrepreneurial ecosystem.

Entrepreneurial policy is a relatively new term in all Nordic countries and it emerged after the increasing emphasis on innovation. The growing attention to entrepreneurship is today leading towards the development of new theoretical frameworks, as well as national entrepreneurship ecosystems, including different initiatives in the Nordic countries.¹⁰

Today, policy makers in the Nordic countries are focused on promoting high growth companies and SMEs. These companies are thought to, for instance, drive productivity growth, create new employment and increase innovation. In developing new technology solutions, start-ups are considered to have a significant role to play, partly because SMEs are known to foster innovation and be more flexible in adapting to change.

Subsequently, the Nordic countries have over the last decade been able to improve the entrepreneurship framework. This can be clearly seen in international rankings. Nordic countries are above average in OECD rankings for framework conditions for entrepreneurship and at starting new companies. The World Bank Doing Business report¹¹ ranks Nordic countries in top 20 (out of 189) globally, with Denmark at 3rd, Sweden, Norway and Finland at 8th, 9th and 10th, and Iceland at 19th place. In the GEM global report 2015/2016, data on government policies: taxes and bureaucracy, shows that Finland ranks as number 9 (with 4.9 where 1 equals highly insufficient and 9 equals highly sufficient), followed by Norway (24, 4.3), and Sweden (30, 3.9). There is no data regarding Denmark and Iceland.¹²

¹⁰ Fagerberg, J. & Fosaas, M. (2014). *Innovation and innovation policy in the Nordic region*. NordMod subreport 13. Fafo report 2014:26. Oslo: Fafo.

¹¹ <http://www.doingbusiness.org/rankings>

¹² Kelley, D. et al. (2016). *Global Entrepreneurship Monitor 2015/16 Global Report*.

However, the terms entrepreneur and/or start-ups do not receive much focus alone in different policies across the Nordic countries. Both entrepreneurs and start-ups are rather just a part of different kinds of SME strategies, and overall, entrepreneurs and start-ups are targeted through different business and innovation policies.

Key support schemes

Government funding

The Nordic countries are supporting the overall entrepreneurial ecosystem in different forms. A number of policy initiatives targeted at facilitating entrepreneurship, start-ups (and high growth companies) have been implemented in the Nordic countries, for example through soft loans, R&D grants and tax incentives. For instance, Norway has less regulatory barriers of product market regulation than most other OECD countries, and the Norwegian government has made several efforts in reducing the barriers for entrepreneurship and start-ups. One arrangement is the introduction of SkatteFUNN (see Annex H: Norway).¹³

According to the Global Entrepreneurship Monitor, Finland scores better than the other Nordic countries regarding the overall governmental support for entrepreneurship. The overall emphasis of enterprise policy in Finland has shifted to start-ups and high-growth companies over the last few years. This also applies to Denmark, where entrepreneurship policies have been prioritised during the last ten years. The Icelandic government supports innovation, entrepreneurship and start-up activities in several different ways, for example grants, incentives for foreign direct investment and 20% discount of companies' R&D costs.¹⁴ In Sweden, entrepreneurship has come to be recognised as an important factor behind economic growth, innovation and employment, and the Swedish government has an important role in funding. On the other hand, Swedish SMEs (start-ups included) lack tax incentives as the ones in Norway and Iceland.¹⁵

Venture capital and private investors

The venture capital market plays an important role in the development of new companies in the Nordic countries. Venture capital has been identified as an important way of financing growth for start-ups as well as high-growth companies. It can also help to attract international capital.¹⁶ The global trend is that only a few countries spend more on venture capital investment in 2014 compared to 2007 (i.e. before the global financial crisis 2008-2009), and the venture capital supply has decreased by 56% since 2007. Venture capital all over Europe have suffered from the crisis, and the venture capital markets in European countries are somewhat fragmented, with limited European cross-border venture

¹³ Innovation Norway (2014). *Årsrapport 2014*. OECD (2014). *OECD Economic Surveys: Norway 2014*. OECD Publishing. OECD (2014). *OECD Economic Surveys: Norway 2014*. OECD Publishing. Ministry of Trade, Industry and Fisheries (2012). *Små bedrifter – store verdier Regjeringens strategi for små og mellomstore bedrifter*. OECD Science, Technology and Industry Outlook (2012). Science and Innovation: Norway.

¹⁴ Stefna og aðgerðaaætlun. *Vísinda- og tækniráðs 2014-2016*. Stenholm, P. et al. (2013). *Global entrepreneurship monitor – Finnish 2013 Report*. Turku School of Economics, University of Turku. Ministry of Education and Culture Ministry of Employment and the Economy (2012). *Growth through expertise. Action plan for research and innovation policy*. Hollanders, H. et al. (2015). *Innovation score board 2015*. European Commission

¹⁵ OECD (2014). "Sweden", in *OECD Science, Technology and Industry Outlook 2014*. OECD Publishing. World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment*.

¹⁶ Bjørne, H. C. et al. (2010). *Creating Nordic Success Stories*.

¹⁷ Grimsby, G. et al. (2014). *Nordic Venture Capital: Cross Border Investments*. Menom Publications no. 20/2010. See also World Economic Forum (2014). *Enhancing Europe's Competitiveness Fostering Innovation-driven Entrepreneurship in Europe*. Insight report.

capital investments. On the other hand, recent data suggests that several countries have managed to improve their entrepreneurial finance. The Nordic region appears to be more integrated, and has shown an increase in attractiveness for foreign investors. Foreign direct investments to the Nordic countries have grown about 50% faster than the EU average over the last ten years.¹⁷ Regarding 2014, start-ups in Norway only raised money from British based investors outside of Norway. This differs from Denmark, Finland and Sweden, that have been rather active in attracting higher amounts of investment from, for example other countries in Europe, the United States or Asia. In addition, Sweden is the only Nordic country where domestic investors are not the primary source of investment. Furthermore, recent data shows that venture capital is growing at a faster year on year rate than for example the United Kingdom. In 2015, the Nordic countries together raised \$1.82 billion.¹⁸

The number of Finnish start-up companies receiving venture capital investment has risen over the last years. In the same period, this number has decreased in other Nordic countries. Denmark has experienced a downward trend in investments in venture capital since 2009, and invested around DKK 603m on venture capital (approximately 0.25% of GDP) in 2014. The same year, Norway spent approximately NOK 1.4b on venture capital investments, which is above the OECD average. Venture capital investment as a share of the Swedish GDP is at the top of the OECD middle range, and in 2014, venture capital investments reached SEK 2,6b (an increase from a previous year). For Iceland, one limitation on entrepreneurship is the lack of venture capital, early stage venture capital included.¹⁹

More than half or even as much as 80% of venture capital activity is in the capital regions in the Nordic region. Both in Finland and Sweden, data indicates that the Oulu region (Finland) and the Gothenburg region respectively are the main other hot-spots of start-up activity, with the second highest VC investment volume in the country. In Norway, Oslo is the hotspot. However, other regions have some activity too (see more in country fiches in Appendixes).

However, there are some barriers regarding access to venture capital. One area that is especially challenging in the Nordic region is access to venture capital at the expansion stage. In order to stimulate economic growth and productivity of companies, there is a need for a greater focus on not only start-ups but high-growth entrepreneurship policy in general. In the Nordic countries, the supply of private capital for the very early stage (seed stage) of venture capital has been limited. Overall, the challenges in the early stages include, for instance, lack of private financing in the seed stage, difficulties for venture capital funds to secure new funding for the expansion stage, and lack of focus in publicly funded initiatives. In this light, the governments have chosen different ways of supporting seed and venture capital in the Nordic countries. Today, the majority of ven-

¹⁸ *Where is each Nordic Country getting their funding from?*, article in The Nordic Web Blog, see <http://www.thenordicweb.com/blog/where-is-each-nordic-country-getting-their-funding-from> Also see *A Comprehensive Guide to Who is Actively Investing in Nordic Startups* (Members Article)

¹⁹ Rannikko H. et al. (2015). *The impact of high-growth entrepreneurship policy in Finland*. Science & Business Publishing. OECD (2015). *Entrepreneurship at a Glance 2015*. OECD Publishing, Paris. OECD Science, Technology and Industry Outlook (2012) *Science and Innovation: Norway*. OECD (2014). Sweden, in OECD Science, Technology and Industry Outlook 2014. OECD Publishing. World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment*. OECD (2015). *Entrepreneurship at a Glance 2015*, OECD Publishing, Paris. OECD Science, Technology and Industry (2014). Denmark. OECD (2015). *OECD Economic Surveys: Iceland 2015*. Grimsby, G. et al. (2014). *Nordic Venture Capital: Cross Border Investments*. Menom Publications no. 20 /2010

ture investments are made by national funds located in the respective Nordic country. There is also some cross-border interaction between the Nordic countries. However, that is quite limited.

As stated in the report *Creating Nordic Success Stories - Enhancing cooperation on the Nordic seed capital market* it is important that policy makers in the Nordic countries also encourage Nordic cross border investment. If the venture capital market is going to be more efficient in terms of promoting start-ups, there is a need for it to function as a clear system for innovation funding. In addition, a well-functioning Nordic venture capital market needs to be attractive to the private sector. Recommendations from the report include, for example:

- Create incentives to enhance the attractiveness of early stage investing, thus increasing the supply of capital for start-up companies
- Ensure that publicly funded schemes are in tune with market needs and practice patience and consistency to enable the emergence of experienced fund managers
- Formulate policies with the aim of promoting a long-term, well-functioning and self-sustainable venture capital market
- Create models for bringing management experience into start-up companies both at operative and at board level e.g. by fostering co-entrepreneurship.²⁰

The authors of the report *Obstacles to Nordic Venture Capital Funds* give a number of recommendations regarding obstacles. For example, the authors recommend the Nordic Council of Ministers to support each Nordic country by continuing the work of removing obstacles to Nordic based venture capital funds in order to enhance the conditions of the common Nordic venture capital market, and move from the fact finding and benchmarking phase into that of presenting tangible proposals for the removal of existing obstacles.²¹

As mentioned above, there are some Nordic joint venture capital networks. Nordic Venture Network (NVN) is a network of eleven technology venture capital companies in the Nordic region. The members include for example Alliance Venture, Creandum, Frumtak Ventures, SEED Capital and Viking Venture. NVN focuses on strategic relationship building between its members and international financial and industrial actors. In addition, NVN is a forum for joint issues between the members and major Nordic private equity investors. NVN has a number of sponsors, such as Argentum, Finnish Industry Investment, Industriefonden, SEB Venture Capital and Vaekstfonden.²²

The importance of business angels to the equity capital industry has grown in recent years. However, the amount of business angels and business angel networks in the Nordic countries differ from country to country. Lately, there have been joint Nordic undertakings. Founded in late 2015, NordicBAN is a Nordic

²⁰ Nordic Innovation Centre (2010). *Creating Nordic Success Stories - Enhancing cooperation on the Nordic seed capital market*.

²¹ Johansson, E. et al. (2011). *Obstacles to Nordic Venture Capital Funds*. Nordic Innovation Publication 2011:03

²² <http://www.nordicventure.net>

²³ <http://www.nordicban.org>



Photo: Tobias Selnes Markussen



Photo: Flickr / avoinGLAM

Recommendations from the report include, for example create models for bringing management experience into start-up companies both at operative and at board level.



Photo: Tobias Selnes Markussen

cooperation project with Connect organisations in Denmark, Norway and Sweden, the Finnish business angel network Fiban and Startupbootcamp, a global network of industry focused start-up accelerators. Early-stage companies with a high potential can seek investments on a Nordic level. NordicBAN aims to build a Nordic business angel network that will present the best start-up investment cases from all Nordic countries.²³

Other support

The Nordic countries have a number of incubators and accelerators and several new incubators and accelerators (as well as incubator and accelerator networks and programmes) have been established in the last years. Today, Sweden has the most incubators in the Nordic region, followed by Norway. Most incubator activities are more or less regionally based but there are some differences between the countries. As for Sweden and Denmark, most large incubators are mainly publicly funded. In Sweden and Denmark most incubators are affiliated with universities and closely linked (co-owned) by the regional or municipal authorities. In Norway, all incubators are national, but each incubator has a regional focus and is supported by a local university or industry. In Finland, most incubators have a regional focus. They are mostly owned entirely by the municipalities or in cooperation with local universities. Iceland has, unsurprisingly, the least number of incubators and accelerators. They are national, but with a focus on the capital Reykjavik.²⁴

There has been an increasing interest in the Nordic region to establish acceleration programmes during the recent years. Mapping of support programmes reveals that most of the acceleration programmes are private initiatives, although there are also public ones. Many acceleration programmes have been established quite recently and some by international actors. This would further indicate the increasing international interest towards the Nordic region.

Under the last years, crowdfunding in the Nordic region has been growing at quite a fast pace. The majority of the platforms are still both small and young companies. They tend to specialise in reward-based crowdfunding and to a smaller extent donation-based crowdfunding. Finland is the only Nordic country that has issued a formal stance on equity crowdfunding, as the country classifies such crowdfunding platforms as financial service providers (in need of obtaining licences to operate as investment companies). There are no significant regulatory constraints with respect to reward-based crowdfunding in the other countries.²⁵

In comparison to other European countries the Nordic countries are not on the top ten list regarding number or share of crowdfunding platforms. The United Kingdom has the largest number of platforms that focus primarily or solely on the internal market, accounting for 28% of the EU total number of platforms (143 platforms). The United Kingdom is followed by France (77 platforms), Germany (65 platforms), and the Netherlands (58 platforms). Denmark and Sweden have seven platforms each, while as Finland has six platforms. However,

²⁴ An older study is for instance Cleantech Scandinavia (2009). *Nordic Science Parks+ Incubators*.

²⁵ Wardrop, R. et al. (2015). *Moving Mainstream. The European Alternative Finance Benchmarking Report*. University of Cambridge and EY 2015.

²⁶ Wardrop, R. et al. (2015). *Moving Mainstream. The European Alternative Finance Benchmarking Report*. University of Cambridge and EY 2015. European Commission (2015). *Crowdfunding: Mapping EU markets and events study*. European Union, 2015

Nordic platforms, such as FundedByMe (Sweden), Boomerang (Denmark) and Invesdor (Finland), are often ranked as the most important crowdfunding platforms in Europe.²⁶

Despite the recent growth, crowdfunding is still a relatively new concept to the public in the Nordic countries. In this context the region has seen the emergence of associations dedicated to issues regarding information about crowdfunding, for example the Nordic Crowdfunding Alliance. The Nordic Crowdfunding Alliance is a partnership of key players in the Nordic crowdfunding scene committed to developing an ever more crowdfunding friendly Nordic region while empowering and facilitating entrepreneurial growth.²⁷

Access to markets

As globalisation proceeds, it has become increasingly important for new companies to penetrate foreign markets. For companies in the Nordic countries, small domestic markets have been a major motive for internationalisation. According to data from Creandum, the Nordic countries create a relatively large number of unicorns, driven by early global expansion. However, a large share of new and young companies in the Nordic countries have no sales at all outside their domestic markets. Within the Nordics, Sweden is the dominant market, contribution to about 50% of the Nordic exit value. The Nordic countries represent 2% of global GDP, however, the Nordic region represents almost 10% of all global BUSD exits.²⁸

As stated previously, internationalisation is still a rather weak point for several Nordic countries (see Figure 5). As reported in *Nordic opportunities in emerging markets – status, challenges and room for action*, fast growing emerging economies represent great opportunities for Nordic businesses and constitute important fields for economic growth. In order to grasp these new opportunities, companies and policy makers need to adopt a global mindset. When SMEs were asked to state their perception of challenges in terms of emerging market entry and strategy in the report the three main challenges Nordic companies came up with were: access to market information, lack of skilled staff with local insight and lack of innovation support. This illustrates the need of different internationalisation initiatives, for instance information activities and innovation programmes targeted at entrepreneurs and start-ups in order to increase the Nordic companies' capacity and competitiveness when responding to the needs in markets outside the domestic market. Different support services to develop concepts for new markets are highly valued by early-stage born global companies and small high-growth companies with international potential.²⁹

Entrepreneurial culture

The GEM ranking of reasons for business exits shows that problems with finance is not a strong motive in Sweden or Finland. However, new data shows that problems with finance seems to be a bigger problem in Norway.³⁰

²⁷ <http://www.nordic-crowdfunding.com>

²⁸ Adenfelt M. et al. (2015). LEVEL UP *Internationaliseringsfrämjande av företag med hög tillväxtpotential - en kartläggning av initiativ och program i Norden*. Entreprenörskapsforum.. Braunerhjelm, P. et al. (2015). *The Entrepreneurial Code – A comparative study of entrepreneurial dynamics in China, Europe and the U.S.* Swedish Entrepreneurship Forum, 2015. Creandum Nordic Exit Analysis 2015

²⁹ Dalberg Research (2012). *Nordic opportunities in emerging markets - status, challenges and room for action*. Nordic Innovation publication 2012:09

³⁰ Kelley, D. et al. (2016). *Global Entrepreneurship Monitor 2015/16 Global Report*.

According to the Global Entrepreneurship Index, entrepreneurial attitudes are defined as the general attitude of a country's population towards recognising opportunities, knowing entrepreneurs personally, attaching high status to entrepreneurs, accepting the risks associated with a business start-up, and having the skills to successfully launch businesses, and are important because they express a country's population overall feelings toward entrepreneurship. Figure 5 (see page 20) shows that the cultural support is rather high in all Nordic countries. Globally, the United States leads the Entrepreneurial Attitudes Index, followed by Canada, Australia, Sweden, Finland, Chile, Norway, Iceland, the Netherlands, and United Kingdom.³¹

Regarding the entrepreneurship culture, the Nordic region scores high compared to the best-performing countries and entrepreneurship is generally well-perceived across the Nordics. However, and as stated in *Nordic Growth Entrepreneurship Review 2012: Understanding growth in young Nordic firms*, entrepreneurship culture takes time to change. In addition, culture can be and/or is influenced by the policy attention that entrepreneurship has received in several Nordic countries. One could say that the Nordic entrepreneur is a product of the Nordic countries and their societal and economic characteristics, and the Nordic welfare model is an important factor. The Nordic Entrepreneurship Survey 2015 shows that the majority of the Nordic entrepreneurs feel that their local municipality or region supports them in the future development of their business. This is most significant when it comes to access to skilled labour and infrastructure, where 64% and 46% of the entrepreneurs find the public supportive, respectively. However, only 25% state that their region is supportive when it comes to regulations and the public service to their business.³²

Culture is important in promoting successful entrepreneurship in a country and the cultural context affects individuals in their attitudes towards entrepreneurship and how likely they are to start their own company. Entrepreneurship is in general well-perceived, a notion that has likely been influenced by policy attention across the Nordic countries. The entrepreneurial culture has traditionally not been a strong feature in the Nordics and the region is behind the best performing countries such as the United States, Canada and Australia. However, the entrepreneurial culture has been strengthened over the last decade. According to *Nordic Growth Entrepreneurship Review*, a good development of entrepreneurial culture reflects some of the recent initiatives in the Nordic countries. For instance, Finland and Iceland have been able to develop a stronger entrepreneurial culture compared to the other Nordic countries. Iceland's ecosystem began to become globally competitive following the 2008 financial crisis, and the country has been able to develop a stronger entrepreneurial culture compared to its Nordic neighbours as stated in several reports. For instance, immediately after the financial crisis, a number of grassroots initiatives were launched.³³

Norwegians, in comparison to individuals in other European countries, think that there are good opportunities for entrepreneurship in Norway (according to data

³¹ Ács, Z. et al. (2015). *Global Entrepreneurship Index 2016*. GEDI.

³² EY (2015). *Nordic Entrepreneurship Survey 2015*. Kelley, D. et al. (2016). *Global Entrepreneurship Monitor 2015/16 Global Report*.

³³ OECD (2015). *Entrepreneurship at a Glance 2015*, OECD Publishing, Paris. Napier, G. et al. (2012). *The Nordic Growth. Entrepreneurship Review 2012*. Nordic Innovation Publication 2012:25. Stenholm, P. et al. (2013). *Global entrepreneurship monitor – Finnish 2013 Report*. Turku School of Economics, University of Turku.

³⁴ OECD (2014). *OECD Economic Surveys: Norway 2014*, OECD Publishing. Global Entrepreneurship Monitor (2014). *Global Entrepreneurship Monitor 2014 Global Report*.

from 2016). However, they still have the second lowest score among European countries regarding their intentions of starting an enterprise within the next three years. On the other hand, Norway has the second highest score on the perception of high status towards successful entrepreneurs. This also applies, more or less, to Denmark.³⁴ While Sweden does not rank high in terms of viewing entrepreneurship as a desirable career option, the combined results do not suggest considerably negative attitudes toward entrepreneurship. The perception of social prestige attached to successful entrepreneurs is slightly above the OECD average. In addition, Sweden has the highest proportion of population who consider themselves to identify good business opportunities among the innovation driven countries³⁵.

A difference in the character of entrepreneurship is primary motivations behind starting a company. A necessity-driven entrepreneurship relates to entrepreneurs being pushed into starting a business out of necessity (i.e. because they have no other options). Opportunity-driven entrepreneurship means that individuals start businesses because they recognise business opportunities and choose to pursue them (the pull effect). Entrepreneurs in innovation-driven economies tend to be primarily driven by opportunity-motivated entrepreneurship. This concerns all Nordic countries.³⁶ In the global GEM report from 2016, Sweden ranks as number one regarding self-perceived entrepreneurial opportunities (among 60 countries). Norway ranks as number three while Finland today is ranked as number 21. However, regarding fear of failure, Sweden ranks as 29, Norway as 37 and Finland as 41.³⁷

Future outlook

Technological development (for instance through digitalisation, biotechnology, robotics and increased automation) will strengthen the need for new innovative activities and more expertise in using both new products, tools, methods and services. This development is a good opportunity for many entrepreneurs. As stated in the NordMod report, it is important that the Nordic countries carry on stimulating creativity, risk-taking and innovation from below through entrepreneurship schemes, etc. In addition, it is important to develop more effective, strategies for R&D and innovation policies.³⁸

The Norwegian government has released a statement that aims to increase the share of women as entrepreneurs. In reaching the objective, the Norwegian government has made new guidelines to publicly funded organisations that support innovation and entrepreneurs (such as Innovation Norway). The Swedish Institute has a similar programme selecting business ideas of women.³⁹

Future outlook in the respective Nordic countries is further discussed in Appendixes A-E.

³⁵ OECD (2013). *OECD Reviews of Innovation Policy: Sweden 2012*, OECD Publishing, Paris. See also OECD (2015), *Entrepreneurship at a Glance 2015*, OECD Publishing, Paris. Braunerhjelm P., et al. (2012). *2012 Entreprenörskap i Sverige – Nationell rapport*. Entreprenörskapsforum and GEM. Kelley, D. et al. (2016). *Global Entrepreneurship Monitor 2015/16 Global Report*.

³⁶ Braunerhjelm, P. et al. (2015). *The Entrepreneurial Code – A comparative study of entrepreneurial dynamics in China, Europe and the U.S.* Swedish Entrepreneurship Forum, 2015.

³⁷ Kelley, D. et al. (2016). *Global Entrepreneurship Monitor 2015/16 Global Report*. No data on Denmark and Iceland

³⁸ Dølvik, J. et al. (2014). *The Nordic Model towards 2030. A new Chapter?* NordMod2030 Final report. Fafo-report 2014:46

³⁹ Meld. St. 7 (2015–2016) Likestilling i praksis – Like muligheter for kvinner og menn. A report by Statistics Norway pointed out that less than 20 per cent of the entrepreneurs were women under the period 2001–2011, see Fjaerli, E. et al. (2013). *Facts about entrepreneurship in Norway - Who become entrepreneur and how do they perform*. Statistisk sentralbyrå. <https://eng.si.se/areas-of-operation/leadership-programmes-and-cultural-exchange/she-entrepreneurs/>



Photo: Lærke Andersen



Photo: Lærke Andersen

The appearance of unicorns is an expression of a country's start-up culture and environment and reflects as well as encourages the entrepreneurial mindset.



Photo: Lærke Andersen

Observations concerning the role of specific actors

Unicorns

Unicorn is the common name for start-ups valued over one billion US dollars. In the start-up world the unicorns represent companies which are characterised by a very large growth and high market potential. While the start-ups may still not be profitable, the company and its investors project its eventual success and put maximum effort in scaling the company's activities to gain the largest market share possible.

Unicorns grow aggressively, so they definitely need a supportive entrepreneurial environment and framework conditions. In addition to favourable framework conditions, the founders' will, existence of forward-thinking investors and competent ambitious teams are cornerstones for rapid growth. The main difference between unicorns and 'normal' start-ups is typically that they want to change the world. This is something, which cannot be supported directly. Therefore, the existence of unicorns should be regarded as evidence of the quality of the entrepreneurial ecosystem – one unicorn may be a coincidence, but the better the ecosystem is, the higher is the number of unicorns it can produce.

Due to the business activity in Nordic unicorn companies characterised by lower labour intensity, the effect and benefit the unicorn companies have on the countries they operate in has to be measured in areas other than just the economic benefit. The appearance of unicorns is an expression of a country's start-up culture and environment and reflects as well as encourages the entrepreneurial mindset. The appearance of unicorn companies can play a major role in shifting the entrepreneurial landscape towards less risk aversion and training the new generation of entrepreneurs.

These positive effects of the unicorn companies have been noticed also in the Nordic countries, especially in Stockholm which has one of the highest per-capita rate of unicorns among different start-up regions (6.3 billion dollar companies per one million people). Skype, Spotify, King, Mojang and Klarna are examples of Swedish unicorns which have emerged during past 10 years⁴⁰. The appearance of the unicorn companies in Sweden has been encouraged by the Swedish previously existing entrepreneurial know-how on marketing and the accompanying internationally oriented mindset. While Sweden as a market is small in size, it is technologically well advanced and has a good technological infrastructure, for example the government subsidised the acquisition of computers by households in the 1990's.⁴¹ As such, Sweden has positioned itself as a good testing ground for novel ICT solutions from where companies are able to grow internationally after their initial testing phase has proved successful.

⁴⁰ Skog, A., et.al (2016). *Chasing the Tale of the Unicorn. A Study of Sweden's misty meadows*. Stockholm School of Economics

⁴¹ <https://next.ft.com/content/e3c15066-cd77-11e4-9144-00144feab7de>

Table 2 Examples of Nordic unicorn start-ups.

Country	Name of the company	Focuses on
Sweden	Spotify	Streaming media
Sweden	Klarna	Mobile payments
Sweden	Mojang	Video-game developer (Minecraft)
Sweden	Skype	Online voice call and video chat service
Sweden	King	Video-game developer (Candy Crush Saga)
Denmark	Zendesk	Cloud-based customer support platform
Denmark	Justeat	Online food ordering service
Denmark	Unity	Multiplatform game engine
Finland	Rovio	Gaming and entertainment producer
Finland	Supercell	Gaming and entertainment producer

This success and the emergence of unicorns has also helped to gain the attention of investors internationally. This does not benefit only the unicorns themselves but has also put other tech start-ups in spotlight in Sweden but also in other Nordic countries. The five listed unicorns have now already started to invest in the ecosystem themselves, reproducing the culture of success⁴².

Business angels and venture capital funds

Business angels and venture capital funds play a major role in defining the opportunities of start-ups in any country. A well-functioning venture capital market is a prerequisite of establishing new businesses and attracting foreign resources in the country. Various organisations represent business angels and venture capital funds in the Nordic countries. Across Nordics, the Nordic Venture Network represents 11 largest technology venture capital funds in the region. Also, Nordic Business Angel Network brings together active business angels in the Nordics and liaises them with early-stage start-ups from Nordic countries and Baltic countries seeking growth and investment opportunities. Other major networks from Nordic countries include Stockholm Angel Investors, Danish Venture Capital and Private Equity Association, Finnish Venture Capital Association, Finnish Business Angel Network etc.

In the past five years the incremental amount of investment raised in the Nordics has grown steadily and reached 7.8 billion euros in 2015. The sovereign wealth funds comprised 21% and corporate investors 2% of this investment in the Nordics. Of all private equity investments made in the Nordic countries, the majority (0.8billion) were directed towards growth activities of companies, 0.2 billion went towards start-up investments and 0.1 billion was meant for financing later-stage ventures. Finland was on the first place out of all EU countries in terms of venture capital investments as % of GDP, Sweden was on the third place and Denmark was also above average while Norway fared slightly below the EU average. (Source: EVCA)

The investment environment in the Nordics can also be characterised by the total amounts of exists. The Nordic Tech Exit Report⁴³ states that while the Nordics represent only 3% of Europe's population, it has managed to make more

⁴² <http://www.technologist.eu/sweden-the-land-of-unicorns/>

⁴³ Creandum, The Nordic Tech Exit Report, 2016, <http://www.creandum.com/the-nordics-in-context-the-creandum-exits-report/>

than 50% of billion dollar exits in the region since 2005. The most successful year this far was 2014 when the total sum of exits was 13,4 billion dollars. When comparing the Nordic exit value between 2000-2015, Sweden has undoubtedly generated the largest share of exit value. With its 59% of total exit value in the Nordics it is prevalently on the leading position, with Denmark being the second (22%), followed by Norway (12%) and Finland (7%).⁴⁴

The Nordic countries have adopted a uniform approach to tackle the common issues regarding VC funds and activities of business angels. The first report on "Obstacles to Nordic Venture Capital Funds" was published in 2006 and updated in 2007, 2009 and 2011. The latest report⁴⁵ states that the main issues are perceived to be related to the legal and tax issues of transnational investments. However, the legislative changes have even moved in the opposite direction in some cases. For example, Finland recently ended the angel tax deduction model and has seen a decline in startup investing activity⁴⁶. The problems are also perceived regarding spreading the know-how on investing and involving people who have successfully sold their companies in business angel activities⁴⁷. One of the problems is the small size of the Nordic countries which limits the pool of local investors able to invest large sums. Therefore, the companies are often acquired by foreign investors (notably from the United States) often resulting in moving away from their original country. This in turn means the loss of jobs and tax revenue for the original country. The lack of local investors together with tax impediments on transnational investments can pose a threat towards the growth opportunities of Nordic start-ups willing to expand.

Accelerators, incubators, co-working spaces, and other entrepreneurial environments

Incubators

The Nordic entrepreneurial environment is best characterised by a distinctly high number of incubators operating in the region. Incubators in the Nordic countries display a rather strong national and an even greater regional focus as most are operated by either municipalities or by universities. Nordic incubators have also been highly successful in facilitating business-industry cooperation in their respective countries. The public-led Nordic incubators are perhaps the biggest strength and the biggest weakness of the Nordic entrepreneurial environment.

Strong governmental support for incubators fosters entrepreneurship and allows for new businesses to succeed on a national level. At the same time, the Nordic incubators are of little significance when taken out of national context and presented in the Nordic context (let alone international context). During the past few decades with the responsibility of establishing and maintaining incubators being relegated to municipalities and universities has allowed for entrepreneurial activities and indicators to flourish in a regional and national context; yet, at the same time, these indicators do not offer international success stories. This is not a concrete rule however, as there are examples within the Nordic region of shifting policies regarding incubators. Iceland presents a case where

⁴⁴ <http://www.creandum.com/the-nordics-in-context-the-creandum-exits-report/>

⁴⁵ Nordic Innovation, 2011, "Obstacles to Nordic Venture Capital Funds"

⁴⁶ <http://www.fiban.org/news/the-year-for-finnish-business-angels-the-decline-of-finnish-public-startup-investing-support-and-the-ending-of-the-angel-tax-deduction>

⁴⁷ <https://www.quora.com/How-can-we-make-Sweden-a-better-place-for-startups>

the government has supported establishing incubators clustered by sector, rather than connecting them to a region. This mindset has resulted in positive spill-overs between sectors and has facilitated a national network of incubators, instead of the incubators operating in separate regions and having little contact with one another⁴⁸.

Another recent trend is that the strong public support for incubators is slowly experiencing a shift, with more privately-led incubator activities emerging in the region; however, “emerging” is the key word in this development.

Accelerators

While incubators are a common trait across the Nordic countries, accelerators are an entirely different subject. The size of the accelerator network in the region is comparatively much smaller than the incubator network. However, accelerators represent new opportunities for entrepreneurship in the Nordic region and have very positive outlooks for the future of regional innovation.

The most defining difference between accelerators and incubators in the Nordic region is that accelerators have a much larger focus on the international context and global markets. This focus is reflected in one of two operating methods. Some accelerators still maintain their focus on national entrepreneurship but they are designed to prepare the entrepreneurs to enter global markets. The Chalmers University of Technology operated accelerator “Born Global” represents this model. Born Global is an accelerator programme for Swedish start-ups that aspire to become global businesses and selected start-ups are guided towards a verified and scalable business model⁴⁹. The Danish Startupbootcamp provides accelerator programmes with a focus to help start-ups scale globally by providing access to a network of partners, investors and mentors in their respective sector.

The Finnish operated VIGO Accelerator Programme (run by the Ministry of Employment) was set up as a measure to connect innovative business ideas that have international potential, with internationally experienced business professionals and private and public growth finance⁵⁰. The VIGO Programme supported VIGO accelerators, private firms that invest in and help manage high-potential growth ventures, with the overall aim of facilitating the emergence of an accelerator industry in Finland. In this regard, Finland presents a good example of a public-private partnership where a public programme is set up to introduce new private firms to the ecosystem. The mid-term evaluation is in general positive about the VIGO programme achieving its goals and there is some evidence that VIGO-accelerators are helping to solve a seed-stage funding gap in Finland. The report brings some criticism mainly about the management fees and the power that the accelerators hold over their portfolio companies. Both issues are about finding a right balance level of accelerator’s management fees and power over its portfolio companies (which in some cases tend to be a bit too high and may deter new companies to join). However, the report observed that the management fees worked well in the most cases and provided the intended incentive at broadly the right level⁵¹.

⁴⁸ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing.

⁴⁹ <http://bornglobal.se/the-born-global-program>

⁵⁰ <https://vigo.fi/program>

⁵¹ <http://arcticstartup.com/article/vigo-releases-midterm-report/>

The second method allows both national and foreign entrepreneurs to participate in the accelerator programmes and can also present opportunities to meet international investors. The Finnish Start-up Sauna Foundation best represents this method as an accelerator which admits the most promising start-ups from the Nordic region, Eastern Europe and Russia. Start-up Sauna Foundation focuses on three core activities: a five-week programme for the most promising start-ups; start-up and investor conferences; and an international internship programme⁵².

An interesting example is the StartupReykjavik accelerator found in Iceland because, besides mentorship and chances to pitch ideas to investors (which can be considered the "traditional" accelerator activities in the region), StartupReykjavik also offers participating entrepreneurs a working space, effectively merging their activities with those of a co-working space. This is a poignant aspect because, as will be discussed further, co-working spaces are one of the least developed and available entrepreneurial support measures in the Nordic region.

Accelerators in many ways are the flagships of the regional interest to enter global markets and the facilitator for international investors to enter the Nordic innovation scene. However, when compared to the well-established network of incubators, accelerators are still only an emerging trend, though one which offers very positive future prospects if Nordic countries will place greater importance on their role in developing entrepreneurship and innovation in the region.

Co-working spaces

Co-working spaces are the least visible and available form of entrepreneurial environment in the Nordic region. Denmark and Iceland offer entrepreneurs the most co-working spaces with Norway coming in behind them. However, in general co-working spaces are the least supported and least available of what can be considered traditional entrepreneurial environments.

Co-working spaces are in many ways the untapped potential for the region as they can provide new ways to engage entrepreneurs with a one-stop-shop for entrepreneurial activities. Perhaps the best Nordic example of this is the Nordic Innovation House in Silicon Valley – a co-working space which also hosts different programmes for start-ups (e.g. TINC, Scaleit Ignite boot camp, Business boot camp), which have an interest of entering the USA market. Nordic Innovation House offers start-ups in the early stage of development incubator programmes and boot camps specific to each Nordic country. Nordic Innovation House is a prime example of how a co-working space can be expanded to include incubator and other kind of programmes.

In the end, co-working spaces are a weak point of the Nordic entrepreneurial environment which can perhaps be explained by the historically high focus on relying on incubators as the prime support measure for entrepreneurship in the region. With accelerators only emerging in their importance to the entrepreneurial scene it is perhaps no wonder that co-working spaces are also only trying to find their footing in the Nordic region.

⁵² <http://startupsauna.com/about/>

Other environments – the Nordic hackathon tradition

Hackathons have been a Nordic tradition in every country of the region. While some countries host more hackathons and more famous hackathons, in general the Nordic region has taken good advantage of this entrepreneurial support measure especially regarding the flexibility hackathons provide - being scalable in accordance to the needs of the organisers.

However, what is most noticeable is that, while differing in scale and scope, hackathons are organised in every Nordic country which should be considered another defining trait of Nordic innovation tradition.

Crowdfunding platforms

Crowdfunding, though an emerging activity in the Nordic countries, has still a modest role in the entrepreneurial ecosystem of the region, to date. In comparison to other European countries, there are relatively few crowdfunding platforms in the Nordic region – none of the Nordic countries is on the top ten list regarding the number or share of crowdfunding platforms. Furthermore, the majority of crowdfunding platforms in the Nordic region is still both small-scale as well as recently established companies having their focus on national or local level. Existing companies tend to specialise mostly in reward-based crowdfunding, and to a smaller extent in donation-based crowdfunding.

However, in recent years, crowdfunding in the Nordic region has been growing at a rather fast pace and has become a more important source of funding. For instance, in Sweden more attention has been given to crowdfunding mechanisms in order to make them more attractive for entrepreneurs as well as prominently featured and disseminated in the society at large. Despite the low number of crowdfunding platforms in general, several of them, such as FundedByMe (Sweden), Boomerang (Denmark) and Invesdor (Finland), are often brought out as the most prominent crowdfunding platforms in Europe.⁵³ According to the survey among key actors in the Nordic entrepreneurial ecosystem, it is expected that crowdfunding platforms as exit opportunities will gain a more important role in the future.

Crowdfunding is, despite the recent growth, still a relatively new and unknown concept to the Nordic society at large. Moreover, one of the barriers for developing (cross-border) crowdfunding activities within the Nordic region is the fragmented regulatory regime in each country, as well as uncertainty about how the actors relate to the regulation. In order to disseminate information about crowdfunding to the general public and to develop a crowdfunding friendly Nordic region, some region-wide associations have been founded in recent years. For example, the Nordic Crowdfunding Alliance, officially established in 2014, is a partnership of key players in the Nordic crowdfunding scene.⁵⁴

In conclusion, crowdfunding can be regarded as an increasingly important source of private funding and market scoping for companies in the Nordic region. Nevertheless, the future growth of crowdfunding activities depends largely on how flexible and harmonised the regulatory regime in the Nordic region will be.

⁵³ Wardrop, R. et al. (2015). Moving Mainstream. *The European Alternative Finance Benchmarking Report*. University of Cambridge and EY 2015.
European Commission (2015). *Crowdfunding: Mapping EU markets and events study*. European Union, 2015

⁵⁴ <http://www.nordic-crowdfunding.com>



Photo: Lærke Andersen



Photo: unsplash.com / Karsten Wurth



Photo: unsplash.com / Clark Young

Hackathons have been a Nordic tradition in every country of the region.

Universities, public research and higher education institutes

Universities, public research and higher education institutes as educators and sources of innovative new technologies and knowledge play a significant role in the overall innovation system, but also in the entrepreneurial ecosystem of the Nordic region. The well-established educational systems and, therefore, the well-educated population in the Nordic countries offer a good basis for developing innovative businesses. Furthermore, one of the features of the Nordic region is a relatively strong collaboration between science and industry, which has been consistently developed and supported by research and innovation policies for already several decades.

Traditionally, the Nordic countries have had their policy emphasis on big industries, however, the importance of entrepreneurship and new companies has been gradually recognised in recent years. As a result, research and innovation policies increasingly address academic entrepreneurship and entrepreneurship education is being introduced.

The approach to entrepreneurship education and training taken in the Nordic region follows its traditions of high appreciation of formal education, i.e. entrepreneurship education is being introduced at all levels of formal education. Universities offer dedicated entrepreneurship curricula and there is an increasing interest towards entrepreneurship among students. Although entrepreneurship education is mostly theoretical, the importance of learning-by-doing is also being increasingly valued. Trainings are often carried out in the context of incubators and integrated into other start-up support services. As a consequence, the trainings are usually relatively limited in duration and content-wise. According to key actors in the Nordic entrepreneurial ecosystem, the availability and quality of entrepreneurship education and training is in general considered to be at the same level or improving in the region.

However, finding competent workforce with entrepreneurial and start-up skills is still a challenge for many start-ups. Lack of entrepreneurial capabilities, such as skills needed for launching products and services into international markets and scaling up the business, may result in difficulties in attracting later-stage venture capital. As real entrepreneurial skills and competences can only be gained through practice, it is essential to develop more experience-based learning practices in the education systems of the Nordic countries. For instance, in Norway further training programmes are regarded to be necessary for both future and existing entrepreneurs, especially related to customer interaction, product support, marketing and international markets. In Sweden, it has been highlighted that a more comprehensive understanding on product support is needed, as well as how supply works in a business. The Finnish regard that the most important parts of training are related to customer validation. Until now, experience-based learning is being more introduced via various third parties, such as Junior Achievement – Young Enterprise at schools, Technology Transfer Offices and incubators at universities, and Design Factory-type environments. Another example is the Stockholm School of Entrepreneurship which focuses on three key areas: academic education, hands-on training activities and inspirational events regarding applied entrepreneurship.

Conclusion

The key findings showcase that the Nordic region offers a very diverse entrepreneurial landscape. Unicorns in many ways represent the positive underpinnings of a start-up culture and the Nordic environment can boast about a number of unicorn successes which have achieved world-wide fame. As success stories, they are instrumental in driving a positive entrepreneurial message to the society which in turn affects the number of people who are willing and desire to enter the entrepreneurial landscape. The importance of unicorns is also in attracting international investors to the Nordic region.

Business angels and venture capital funds have traditionally played the role of defining the opportunities for start-ups in a country. The Nordic region has demonstrated upward trends of investment and have also produced high total amounts of exits, of which Sweden accounts for more than half (approx. 60%). A concern regarding investment is a lack of local investors who could invest large sums into local businesses. This has created a situation where companies demanding large investment are more often acquired by foreign investors and has in the past led to such companies being moved out of the Nordic region. Thus, the lack of local investors poses a threat for Nordic start-ups willing to grow and expand globally. A possible option exists in facilitating the emergence of more cross-border investments and cooperation platforms (Nordic Innovation House is a good example of a co-working space providing programmes for companies from all Nordic countries) between the Nordic countries.

A positive note is that the Nordic region has established both Nordic Venture Network and Nordic Business Angel Network which bring together active venture capital funds and business angels respectively, operating in the Nordic region. This is important because while individual Nordic countries have their separate funds and angel investors, region-wide networks represent an emerging environment that can be called Nordic.

Incubators and accelerators are at the opposite ends in the Nordic region. Incubators have historically been the traditional support measure used for start-ups and they have come to represent the fragmentation of the entrepreneurial environment. On the opposite scale, accelerators are an emerging support measure which has allowed for more consolidation and better funding opportunities for entrepreneurs with regional and global ambitions. Public funding for incubators and accelerators has been the norm in the Nordics with privately operated incubator and accelerator activities forming only a fraction of the incubator and accelerator network in the region.

Co-working spaces are an untapped potential for entrepreneurial activities as the Nordic countries generally have very little to offer. Some positive examples exist but overall, co-working spaces have barely begun to be seen in the region. However, the Nordics have very strong traditions in hackathons which, while differing in the scope and number on a country-by-country basis, are organised across the region and are an excellent and flexible method of offering entrepreneurs an event to engage with other's working in their field. The Nordic entrepreneurial environment has the potential to further capitalise on the success of hackathons as they have gained not only national-regional but also international recognition and visibility.

Another rising potential is found in the crowd funding platforms, operating in the region. Most crowd funding platforms in the Nordics are still small-scale in their operational activities and their focus currently is on national or local level. At the same time, the entrepreneurial environment has come to recognise the opportunities crowd funding offers and these platforms have been rapidly gaining more visibility and importance to the entrepreneurs. However, to grow beyond national border, these platforms face the barrier of fragmented regulatory systems in each country which has kept individual crowd funding platforms to develop across the region.

Universities, public research and higher education institutes play a significant role in the overall entrepreneurial environment. A particularly noteworthy fact is that the region has historically had strong collaboration between science and industry with research and innovation policies recognising and consistently supporting this trend.

Generally, entrepreneurship education and training in the Nordic regions has been characterised by formal and highly theoretical learning with entrepreneurship being introduced into all levels of education. However, while the scope of training and education is a definite positive for the region, the education is also described as limited in duration and content. Introducing experience-based learning is the current challenge presented to the Nordic region as entrepreneurs are experiencing increasing difficulties in finding workforce with the practical knowhow of working in a start-up or another entrepreneurial environment.



Photo: Lærke Andersen



Universities, public research and higher education institutes play a significant role in the overall entrepreneurial environment.



Photo: unsplash.com

Benchmarking of the Nordic countries with leading European entrepreneurial ecosystems

In the following section the European leading entrepreneurial ecosystems in Amsterdam, Berlin and London are discussed. **The Netherlands** in general is an interesting benchmark for many start-up ecosystems. One might wonder what it is, but it is clear that something good is being done in the Netherlands. Entrepreneurship in the Netherlands has increased dramatically in the past ten years. In 2005 the country was lagging behind vis-a-vis the benchmark group. Ten years later the situation has changed significantly. The Netherlands has become a forerunner in the field of entrepreneurship. Nowhere has the increase of early-stage entrepreneurship activities been so significant. The Amsterdam ecosystem (made operational as the *Metropoolregio Amsterdam*) has been the clear focal point of this development. Facilities were set up, and the volume of investments increased significantly over the past few years.

Start-up activities in **Germany** have been modest since 2004 and it appears that this is still the case. At this point in time, the relative volume of activities in Germany more or less equals that in Finland, Denmark, and Norway. Nevertheless, there are three clear reasons to include Berlin in the benchmark - Berlin has several of such success stories. *First*, there is the recent growth of available venture capital in the Berlin ecosystem⁵⁵. *Second*, yet related to that, is that the Berlin start-up ecosystem has strongly matured in the past few years. One should be aware that the ecosystem is only a quarter of the age of the other benchmark ecosystems. Until 2013 there was no significant venture capital (VC) fund available in Berlin.⁵⁶ This ecosystem growth has gone hand in hand with the growth and motorisation of several of its start-ups. Zalando was founded in a Berlin flat eight years ago and was valued €6.2b after its 2014 IPO. Soundcloud moved to Berlin in 2007 and was valued \$700m in 2014. *Third*, besides the success stories, Berlin start-ups in general also grow faster than start-ups in many other German ecosystems, including ecosystems that are generally perceived to be successful such as the Munchen/Bayern ecosystem. The Berlin success translates in high growth of both start-ups younger than 12 months, and for more mature start-ups.

The UK in the past few years has been recovering from a drop in entrepreneurial activities, but since 2013 these activities are on the rise again. The rise of entrepreneurial activities in 2013 happened around the same time when there was a noticeable increase of start-ups in the London metropolitan area. Since 2013 the start-up ecosystem began to boom and resulted in London becoming one of the largest European start-up ecosystems and is currently characterised by a growing number of venture capital and business angel investments. London is also the most diverse start-up ecosystem in the world with a total of 53% of foreign employees and 18% of female founders.

⁵⁵ Compass (2015). *The Global Startup Ecosystem Ranking 2015*

⁵⁶ The Guardian, *Berlin's startup scene is knuckling down to business*, 22 October 2015



Definition and demarcation of the benchmarked ecosystems

The **Amsterdam start-up ecosystem**, like most ecosystems, is demarcated in different ways. The most often used consensus is that of the so-called *Metropoolregio Amsterdam*. That demarcation includes the municipality of Amsterdam, the somewhat smaller agglomerations of Haarlem and Almere, as well as the ports of IJmuiden, and Schiphol Airport. Within this particular area, a set of 33 municipalities and two provinces coordinate their economic policy. The Municipality of Amsterdam operates as a *primus inter pares*. The Municipality of Amsterdam has its own *Amsterdam Economic Board* (AEB) which is very much inspired by the Singapore model. Decisions of the AEB feed into the Metropoolregio policy.

About 2.4m people live in the Metropoolregio of which about 1m live in the Amsterdam agglomeration.

About 2.4m people live in the Metropoolregio of which about 1m live in the Amsterdam agglomeration. Total surface is 2,500km². Total GDP in the Metropoolregio is about €123b⁵⁷, which is about 19% of Dutch GDP. Since 2008 economic growth in the Metropoolregio has constantly outnumbered that in the rest of the country.

The Amsterdam ecosystem officially focuses on eight different clusters, which are defined by the Amsterdam Economic Board. The clusters and their prominence are presented below (in the alphabetic order):

- Creative industries
- ICT/e-Science
- Financial and business services
- High tech materials
- Horticulture and agri food
- Life sciences and health
- Logistics
- Tourism and conferences

⁵⁷ TNO, Vrije Universiteit (2015). *Economische Verkenningen MRA 2015*. Extrapolations: Technopolis Group



The selection of clusters has not changed over time. The decision of the Amsterdam Economic Board (and thus of the Metropoolregio) to focus on these specific eight clusters is often perceived in the public debate as a non-decision as so much is covered. The most important clusters in employment terms are the financial and business services, as well as life sciences and health. ICT/ e-science is becoming increasingly important as a horizontal cluster that succeeds in attracting research infrastructures (particularly the FOM Institute ARCNL on nanolithography) and companies (such as ASML and Cisco).

**Total surface of Stadt Berlin is about 800km².
Total population is about 3.5mln.**

Unlike, for example, the Amsterdam ecosystem, the start-up ecosystem in **Berlin** is not so clearly demarcated geographically.⁵⁷ For the purpose of this study we demarcate the Berlin start-up ecosystem as the Stadt Berlin. Total surface of Stadt Berlin is about 800km². Total population is about 3.5mln.⁵⁹

The Berlin ecosystem is widely considered Germany's capital for entrepreneurs. Berlin Partner, a private-public partnership (PPP) that offers business and technology support for companies, investors and academia in Berlin, estimates that over 44,000 new companies or spin-offs are launched each year. Berlin Partner uses a rather loose demarcation. More conservative estimates (e.g. by Compass) result in a total of 1,800-3,000 active start-ups in Berlin. Major investments in infrastructure and public support measures have resulted in such numbers, mainly in the service innovation industry.⁶⁰ Berlin distinguishes between five important clusters (see also Appendix Berlin):

- Healthcare industries
- ICT, media and creative industries
- Transport, mobility and logistics
- Energy technology
- Photonics

⁵⁷ TNO, Vrije Universiteit (2015). Economische Verkenningen MRA 2015. Extrapolations: Technopolis Group

⁵⁸ Berlin Partner (2016). Ihr Standort: Berlin

⁵⁹ Amt für Statistik Berlin-Brandenburg

⁶⁰ Fischer, Thomas (2011). Regional Innovation Monitor: Regional Innovation Report (Berlin), Technopolis Group

The **London** start-up ecosystem has been subject to various mapping attempts to produce an accurate representation of the ecosystem's demarcation. However, these attempts have been marked by differences because of the scale of data collected and the time period which the maps attempt to represent. In general, it is agreed that the Central (or inner) London area has the largest concentration of start-ups in the entire London metropolitan area.

About 8.6m people live in the city of London. Total surface area is 1,572 km² with a population density of around 5,432/km². While London contains roughly 12.5% of the total UK population, the capital generates 22% of UK GDP.⁶¹

According to Compass⁶² the start-up ecosystem in London contained between 3,200 to 5,400 start-ups in 2015. These start-ups are supported by 12 incubators and 24 accelerators and around 70 co-working spaces.⁶³ The start-ups are divided into six major hub areas, that have the highest concentration of start-ups.

In 2015 London was ranked as Europe's largest start-up ecosystem and the second fastest growing start-up ecosystem in Europe, only taken over by Berlin in this regard. The ecosystem, while characterised by a considerable drive for tech-related businesses, nonetheless lacks a clear specialisation, covering industry sectors both related and not related to technologies. It is estimated that 60% of the job positions in the start-up ecosystem are not technology based.

About 8.6m people live in the city of London. Total surface area is 1,572 km² with a population density of around 5,432/km².



⁶¹ Kelly J (2015). London-centric. Available at: <http://www.bbc.co.uk/news/resources/idt-248d9ac7-9784-4769-936a-8d3b435857a8>

⁶² Compass (2015). *The Global Startup Ecosystem Ranking 2015*

⁶³ Reback G. (2015). *London v. Berlin: Which startup ecosystem will lead Europe?* Available at: <http://www.geektime.com/2015/11/19/london-v-berlin-which-startup-ecosystem-will-lead-europe/>

Descriptions of the benchmarked ecosystems

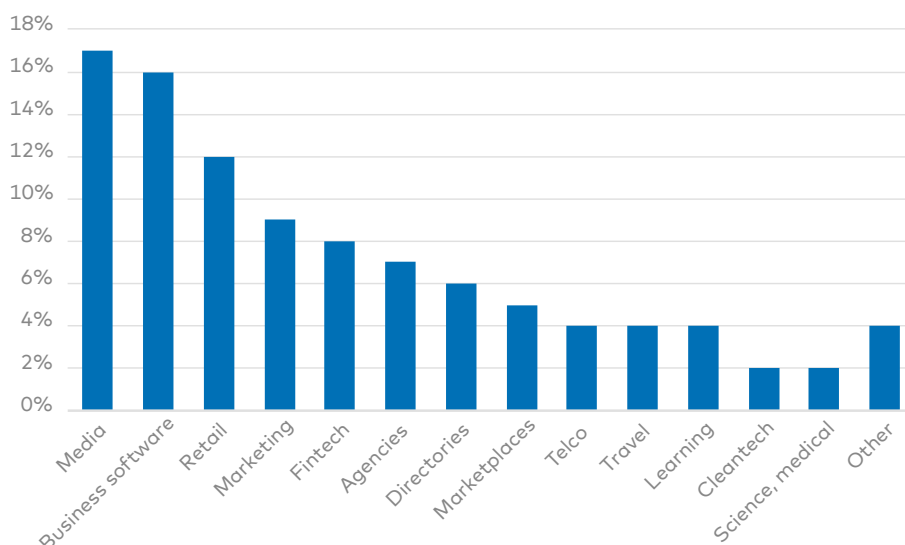
The Metropoolregio estimates that **the Netherlands** hosts over 3,000 start-ups, of which more than 1,000 are situated in the Metropoolregio Amsterdam. Figure 6 below shows what domains they are in. Domains are based on the internal Amsterdam categorisations. It is fair to say that the Amsterdam ecosystem is relatively scattered in terms of domains. Apart from the rather broad domains 'media' and 'business software' none stand out quantitatively. High-tech domains (such as cleantech, science, life sciences) can be found at the right end of the figure.

The Metropoolregio Amsterdam houses two universities, several research institutes, most of the largest Dutch MNCs, research organisations, investors, accelerators, incubators, and semi-public service providers.

The two universities in Amsterdam (*Vrije Universiteit* and *the Universiteit of Amsterdam*) have similar portfolios and each has about 30,000 students. Both have large medical centres and large science faculties that are about to merge into one Amsterdam University Medical Centre and one large science faculty. The latter is supposedly the largest of its kind in Europe. In addition to the two universities, the ecosystem has a number of universities of applied sciences, most notable the Hogeschool van Amsterdam, and the Hogeschool InHolland, and a recently founded branch of MIT focusing on sustainability issues in large cities. There are also significant research institutes in the Amsterdam Metropoolregio, focusing on mathematics and ICT (CWI), and physics of biomolecular systems and nanophotonics (AMOLF).

The ecosystem also hosts several large MNCs, such as KLM, Heineken, ABN Amro, ING, Philips, Reed Elsevier, ASML TomTom and Ahold and the R&D facilities of Royal Dutch Shell. Even though these companies have their headquarters or main R&D facilities in the Amsterdam Metropoolregio, this does not per se imply a significant impact on the start-up ecosystem.

Figure 6 Distribution of Amsterdam start-ups over the domains.



Source: Metropoolregio Amsterdam, calculations: Technopolis Group⁶⁴

⁶⁴ [https://app.startupamsterdam.org/#/companies/map?q=locations\(Amsterdam,Netherlands\)](https://app.startupamsterdam.org/#/companies/map?q=locations(Amsterdam,Netherlands))

Significant public and semi-public accelerators and incubators are relatively scarce in the Amsterdam ecosystem. Public and semi-public incubator and accelerator facilities are offered by, for example, ACE Venture Lab of the two Amsterdam universities, New Energy Docs, that focuses on 20 eco-innovation start-ups. All take a share in the start-ups, which is a common business model for Dutch university accelerators and incubators as well.

Large-scale privately owned accelerator capacity is very scattered over the domains. There is no particular focus on specific technologies or domains. Privately owned accelerator capacity is offered by, for example, Rockstart (particularly in the fields of life sciences and health, web and mobile applications, and energy) that has helped 58 start-ups graduate, and whose graduates have raised €29m in total; Venture Lab of the two Amsterdam universities; and Start-upbootcamp. Other accelerators identified by StartupDelta include zorgInc (a healthcare focused accelerator), Haarlem Valley (no specific focus), Waag Society (social innovation start-ups), W Ventures (ICT), Village Capital (no specific focus), TTY (no specific focus), The Grounds (airports services), the SUN Amsterdam (legal), Holland Startup (no specific focus), Investment Ready (social enterprises), Open-House (entertainment industry), Impact Hub (no specific focus), Vectrix (no specific focus), Bitcoin Embassy (supports bitcoin companies), Circle Economy (circular economy), Clever Clover (traditional industries) and Appsterdam (ICT).

There are several active private investors in the ecosystem. In 2014 Dutch private equity and VC firms invested €1.9b in domestic and foreign businesses. This is an 80% increase vis-à-vis the previous year, which is mainly due to investments in the upper SME segment.⁶⁵ VC investments were made in 386 companies that year (see also appendix F: Amsterdam).

The **Berlin** ecosystem, according to Compass, hosts 1,800 to 3,000 start-ups. No data are available on the domains and the technologies that they are in. Compass however states that "start-ups in the Berlin ecosystem have historically been successful in markets like eCommerce, gaming, and marketplaces, with new start-ups showing potential in other verticals such as SaaS and adtech".⁶⁶

The Berlin ecosystem houses four universities. The Technical University (*Technische Universität Berlin*) has a total of 26,000 students, which makes it Germany's largest technical university. It offers rather broad programmes, that also include social sciences and humanities. The Free University (*Freie Universität Berlin*) has approximately 34,000 students, which makes it one of Germany's largest universities. It has a strong track record in humanities, social sciences, natural sciences, and medicine. The Humboldt University (*Humboldt-Universität zu Berlin*) is Berlin's oldest university. Like the Free University it is one of Germany's largest universities. The University of the Arts (*Universität der Künste*) is Germany's largest college of arts. In addition to its universities, Berlin has seven other institutions of higher education, the so-called Fachhochschulen. They specialise in a range of fields, and combine practice-oriented research with innovation and technology transfer.

⁶⁵ NVP (2015). *THE DUTCH PRIVATE EQUITY AND VENTURE CAPITAL MARKET IN 2014: ENTERPRISING CAPITAL*

⁶⁶ Compass (2015). *The Global Startup Ecosystem Ranking 2015*

The number of large MNCs in Berlin is small, which is a legacy of the past. Berlin's top-employers are all public or semi-public organisations. The top-4 consists of Deutsche Bahn (headquarters in Berlin, private joint-stock company (AG), with the Federal Republic of Germany being its single shareholder), Charité (university hospital), Vivante (hospitals), and Berliner Verkehrsbetriebe (public transport). Siemens is the first non-public company at number 5.⁶⁷ Disposable income is below the national average. In August 2015, the unemployment rate in Berlin was 10.7% against the national rate of 7.4% (EURES data).

According to Berlin Start-ups, Berlin has as total of six accelerators and eight incubators. Accelerator services are offered by Berlin Startup Academy (no specific focus), Berlin 42 (high-tech), Founder2be (no specific focus), Hardware.co (hardware start-ups), Startupbootcamp (no specific focus), and Stepinto.us (tech focus, US oriented). Incubators include EPIC Companies (no specific focus), Found Fair Ventures (no specific focus), German Start-ups Group (Internet start-ups), HitFox Group (Big Data, Advertising, and FinTech), hub:raum (owned by Deutsche Telekom), Team Europe Management (no specific focus), and YOU IS NOW Startup-Incubator (focus on real estate, mobile and social media). The Technische Universität Berlin has its own incubator, the Centre for Entrepreneurship.

A total of €2b was invested by VCs in Germany in 2015, which ranked Berlin #2 in Europe. Key VC firms include BDMI (focus on digital media), Earlybird (focus on health tech), E.Ventures (focus on consumer Internet, media, mobile), Pertech (focus on digital media, information technology), and Point Nine (focus on SaaS, eCommerce, mobile, marketplaces).

The 2015 Compass report indicates a growth rate of 3.3 which is the second highest in Europe. The report indicates that **London** start-ups come from a diverse background and the expectations were that they would create around 10,000 new jobs in 2015.

The start-ups have a density of 0.25%–0.4% of the business density in London. The start-up ecosystem is valued between £27.5b to £33.7b and makes up £583b of the entire London metropolitan area GDP.

The significance of start-up growth in London is demonstrated by the fact that out of the total 17 unicorn start-ups (start-ups that have exceeded USD 1b in value) 12 are located in London (see Table 3).

Internationalisation has been acknowledged as a major success factor of the ecosystem with foreign employees making up 53% of the total number of people employed in the ecosystem and foreign clients making up 50% of the start-up clientele. Industry experts have noted that this internationalisation is caused by both London being a cultural melting pot and a common area for foreign entrepreneurs and investors to set up their first international business venture.⁶⁸

The start-up ecosystem is characterised by a large amount of co-working spaces (in 2015 it was estimated that there were more than 70 such spaces in

⁶⁷ IHK Berlin (2012). *Berlin's economy in figures*

⁶⁸ TechCrunch (2014). *London's Startup Ecosystem Explained*

Table 3 London unicorn start-ups.

Start-up	Description
ASOS	Online retail platform for fashion and beauty products for men and women
JustEat	The leading business worldwide in online takeaway ordering
Skrill	E-commerce platform that facilitates online transactions for businesses and individuals
Wonga	An online payday lender offering short-term cash loans to UK consumers
Zoopla	Provides accurate house price estimates available in the UK market.
Farfetch	Provides a wide selection of boutique brands and styles
Transferwise	Money transfer service
Shazam	Media engagement company
Funding Circle	World's leading online marketplace for business loans
Markit Group	Financial information services company
Powa	International commerce specialist specialising in technologies that integrate the physical and digital world
Rightmove	Property website for home movers to find details of available properties in the UK

Source: RiseHigh (2016). *An Introduction: London Startups 2016*

London metropolitan area⁶⁹). The co-working spaces are meant to act as facilitators for start-ups and professionals to meet and collaborate by providing common working grounds. The co-working spaces are also reported as a key feature in increasing the networking capabilities of start-ups.⁷⁰ Among the most prominent co-working spaces are Huckletree (leans towards the tech industry); Google Campus (over 40,000 registered users); Rainmaking Loft (international workspace); and WeWork (one of the largest in London with five locations).

In 2014 the London start-up ecosystem maintained 36 programmes (12 incubators and 24 accelerators) that had been influential in increasing the number of startups each year.⁷¹ As of 2016 the total number of programmes has increased to 58 (with 22 incubators and 36 accelerators).⁷² The London start-up ecosystem houses around two thirds of all the incubators and accelerators located within the UK. It is reported that these programmes raise an average of £68,000 for participating start-ups and London start-ups that take advantage of accelerators or incubators have a 92% survival rate as opposed to 72.5% for businesses that opt not to use the services of these programmes. In the past the incubators tended to target digital and technology driven start-ups, but have now expanded to other sectors, further increasing the diversification of the London start-ups.

VC invested a total of €1.1bn in London start-ups in Q1 and Q2 of 2015.⁴⁸ Key VC firms include Atlas Venture (technology and life science sectors); Balderton Capital (e-commerce, consumer internet and software); Earlybird (tech and health-tech sectors); Episode 1 (software); Forward Partners (e-commerce); Index Ventures (e-commerce, marketplaces, cloud and big data); Mercia Fund (no specialisation); Notion Capital (no specialisation); Passion Capital (digital media and technology); and Playfair Capital (technology).

⁶⁹ RiseHigh (2016). *An Introduction: London Startups 2016*

⁷⁰ Gani F. (2015). *London Startup Ecosystem*

⁷¹ The Telegraph (2014). *All of London's startup accelerators and incubators*

⁷² TechLondon (2016). *Incubators & Accelerators*



Cultural contexts

In general, the **Dutch** business culture does not differ that much from the Nordic culture. The Dutch are slightly more hierarchy oriented than most Nordic peoples, especially the Danes. They are significantly more individualistic than the more collectivist Nordic business culture. The Dutch tend to avoid risks more than the Danes and the Swedes do and they are similar to the Finns and the Norwegians.⁷³

In general, the Dutch business culture does not differ that much from the Nordic culture.

Even though the Dutch are risk avoidant they do tend to have a very positive attitude towards start-ups. This positive attitude has grown significantly in the past few years.⁷⁴ At this point in time, entrepreneurship is considered a desirable career choice by no less than 79% of the adult population in the Netherlands. Apart from post-Lehman economic turndown it is difficult to identify clear drivers that changed the Dutch start-up attitude over the past few years. The status of successful entrepreneurs has not changed over the past ten years⁷⁵, while media attention paid to entrepreneurship has decreased.⁷⁶ Start-ups in the Netherlands find it harder to get into contact with business angels than four to five years ago.⁷⁷

Amsterdam is considered the focus point of entrepreneurship culture in the Netherlands. The attitude towards entrepreneurship and start-ups is relatively positive in the west of Netherlands (that roughly includes the Amsterdam ecosystem and a 30km strip south of that ecosystem, including Rotterdam and The Hague) is more positive than in the other parts of the country.⁷⁸

⁷³ See for example: Suzanne van Veen (2015). *Communiceren & onderhandelen in de Nordics Een onderzoek naar de zakelijke culturen van Denemarken, Finland, Noorwegen & Zweden door de ogen van de Nederlandse ondernemer* Utrecht University

⁷⁴ See also: Global Entrepreneurship Monitor

⁷⁵ See also: Global Entrepreneurship Monitor, KN.A.19

⁷⁶ See also: Global Entrepreneurship Monitor, KN.A.21

⁷⁷ Tornado Insider (2016). *Nederlands investeringsklimaat voor Technostarters: 9-meting.*

⁷⁸ Tine Holvoet, Niels Bosmaa, en Hans Crijnsa (2015) *ONDERNEMERSCHAPSMENTALITEIT IN VLAANDEREN Landschapstekening*

KfW Bankengruppe stated in 2014 that “entrepreneurial spirit in **Germany** still qualifies as too low: in 2012, the number of persons entering into self-employment even reached a new record low. At best, there are the beginnings of a sustainable entrepreneurial culture with widespread effects”.⁷⁹

The GEM2014 Report was also sceptical about the cultural context in Germany: “Germany has a relatively low level of entrepreneurial activity, even when compared with other industrialised economies. This is not due to a lack of government support – rather, it is due to a lack of entrepreneurial spirit among the majority of the population”. In addition to that, GEM 2014 states that “total early-stage entrepreneurial activity (TEA) rate of young people (below 25) in Germany has decreased permanently”. KfW⁸⁰ distinguishes between *Chancen-gründer* and *Notgründer*. The latter are forced to start-up. The first do so voluntarily. The distribution of the two does not seem to change much over time.

At this point in time, entrepreneurship is considered a desirable career choice by only 51% of the adult population in Germany.⁸¹ This has decreased slowly since 2004. The status of successful entrepreneurs has not changed since 2007⁸², while media attention paid to entrepreneurship has slowly increased since 2005.⁸³

Berlin is currently considered the main node of entrepreneurship culture in Germany. Yet data to distinguish the culture context in Berlin from that of other parts of Germany are not available.⁸⁴

The GEM2014 Report notes continuing positive trends in entrepreneurship in the UK: “It was previously suggested that 2011 was somewhat of a “break-out” year in terms of early-stage entrepreneurial activity in the UK: the year in which the TEA rate moved above its long run stable rate of around 6% to 7.6%. The TEA rate in 2014 of 8.6% further confirms the higher long-term trend in early-stage entrepreneurial activity in the UK”. In 2014, 20% of working adults were either engaged in entrepreneurial activities or were thinking of starting their own business, which is a higher number than the one reported in 2010.⁸⁵

The report indicates that the current culture of entrepreneurialism in the UK remains strong with non-entrepreneurial individuals displaying positive attitudes towards opportunities for new businesses. However, those seeking to engage in entrepreneurial activities rate their start-up skills as being lower than in the pre-2008 crisis period.

The London start-up ecosystem has a number of cultural characteristics. London has recently become the start-up capital of the UK (some might argue even the capital of Europe) because London has focused on evolving a network of support measures that directly and indirectly accommodate start-up founders

⁷⁹ Matthias Bittorf (2014). *Germany's entrepreneurial culture: strengths and weaknesses*

⁸⁰ KfW Bankengruppe (2014). *Gründungsgeschehen auf dem Tiefpunkt – kein Anstieg in Sicht; KfW Bankengruppe (2014). KfW-Gründungsmonitor 2015*

⁸¹ See also: Global Entrepreneurship Monitor, KN.A.17

⁸² See also: Global Entrepreneurship Monitor, KN.A.19

⁸³ See also: Global Entrepreneurship Monitor, KN.A.21

⁸⁴ Cf. Michael Fritsch and Michael Wyrwich (2012). *The Long Persistence of Regional Entrepreneurship Culture: Germany 1925 – 2005. Deutsches Institut für Wirtschaftsforschung*

⁸⁵ Hart M. et al. (2015). *Global Entrepreneurship Monitor United Kingdom 2014 Monitoring Report*

and employees. These support measures for start-ups include not only accelerator, incubator and VC access but also events specifically aimed at the start-up community. Many organised events facilitate networking processes for start-ups. Some of the most prominent events in 2015 were the Europas, aimed at connecting technology start-ups, investors and media; the Noah Conference which focused on connecting investors with innovative start-ups; and Seedcamp Week London had the aim to connect the best web-tech, mobile, software talents with entrepreneurs, developers, experts and investors.⁸⁶

There has been increasing media attention given to the start-up scene in London from portals such as StartupBlink, StartUs Magazine, RiseHigh and others. These websites offer information that is geared towards providing a one-stop-shop for people just starting out in the start-up world.

An interesting case was the Startup Institute which provided an 8-week-long programme aimed at boosting employee skills and allowing participants to establish themselves as part of the start-up community. The Startup Institute was an exported concept with roots in the USA (with offices and regular events organised in Boston, New York and Chicago). The Startup Institute demonstrates two major cultural elements of the London start-up ecosystem. First, there is a heavy emphasis towards community building and being a start-up employee is understood as not only a career choice but a lifestyle as well. This is accentuated by the existence of cafes and clubs that act as meet-up places for start-up talents.⁸⁶ Second, the concept of start-ups is still highly American and the London start-up scene is reported to lack authenticity and an entrepreneurial spirit, which is compensated by the high number of international employees working in London start-ups.

Venture capital and business angels in the benchmarked ecosystems

The €1,402m total investments in venture capital and private equity in the **Netherlands** were distributed as presented in Figure 7 below.

Most of the investments (49% in 2014, €680m) were allocated to private equity buyout funds. It is fair to say that these funds have not been of much use directly to high-growth firms. About 13% (€183m) of the investments were allocated to generalist's funds that either have a stated focus of investing in all stages of private equity investment, or that have broad area of investment activity. About 28% (€388m) were allocated to balanced venture capital funds that focus on both early stage and development with no particular concentration on either. About 8% of the investments were explicitly allocated to early stage venture capital funds. Venture capital shortages, in particular in the early stage, are a main concern to many in the ecosystem.⁸⁷

A significant part of VC in the Netherlands comes from abroad. This share had risen to 42% in 2014. The number of active foreign VCs in the Netherlands was 61 at that time. Proximity is important: most foreign VCs in the Netherlands were Belgian. The large majority of foreign venture capital in the Netherlands focuses on later stage.

⁸⁶ Birlea T. (2015). *London Startup City Guide*

⁸⁷ H Technopolis Group (2016). *Knelpunten bij de doorgroei van academische start-ups*.

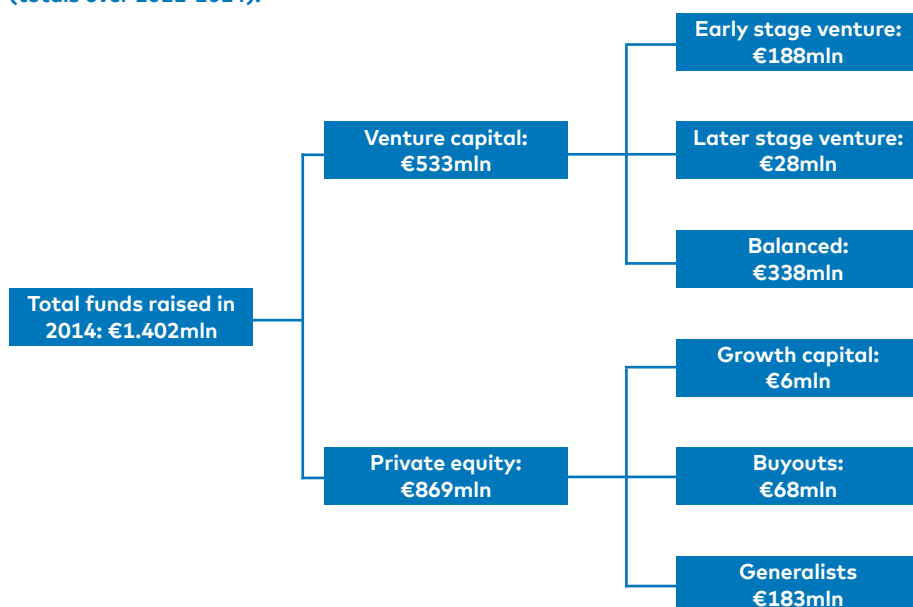
Little is known about angel investors in the Netherlands. A clear consequence is that only 3% of the post 2012 high-tech start-ups in the Netherlands have tried to access business angels' funds. This percentage has decreased significantly in the past few years. Business angels in the Netherlands still do not yet seem to have a very significant role in the ecosystem, which is a concern.⁸⁸ The large majority of requests (88% in 2015) were approved.

Even though *investments in early stage venture capital* seem low, one should be aware that there has been a significant growth in the years before 2014. In 2012, for example, investments in early stage venture capital summed up to €24m.

Figure 8 below shows the sources of venture capital and private equity in the Netherlands between 2011 and 2014. Three important observations can be made. First, funds raised have decreased significantly between 2011 (€2,257m) and 2013 (€804m). In 2014 the first signs of recovery were seen (€1,402m). Second, most of this decline was due to banks, fund of funds, and especially pension funds pulling out of the market. Family offices⁸⁹ remain a constant source of VC. Third, the decline was somewhat compensated by a more than doubling of government investments in VCs portfolios (up to €284m in 2014, which is significantly more than pension funds and banks invested in the Dutch VC and private equity portfolios).

The Amsterdam ecosystem is by far the most important target ecosystem in the Netherlands for venture capital and private equity. Between 2012 and 2014 the investments in the Amsterdam ecosystem increased from €303.7m (22% of the total Dutch volume) to €1,204m (40% of the total Dutch volume). This, how-

Figure 7 Allocations of funds raised by Dutch venture capital private equity funds (totals over 2011-2014).



Source: Technopolis Group calculations: NVP (2015)

⁸⁸ Tornado Insider (2016). *Nederlands investeringsklimaat voor Technostarters: 9-meting.*

⁸⁹ Non-professional private investors, such as friends and family

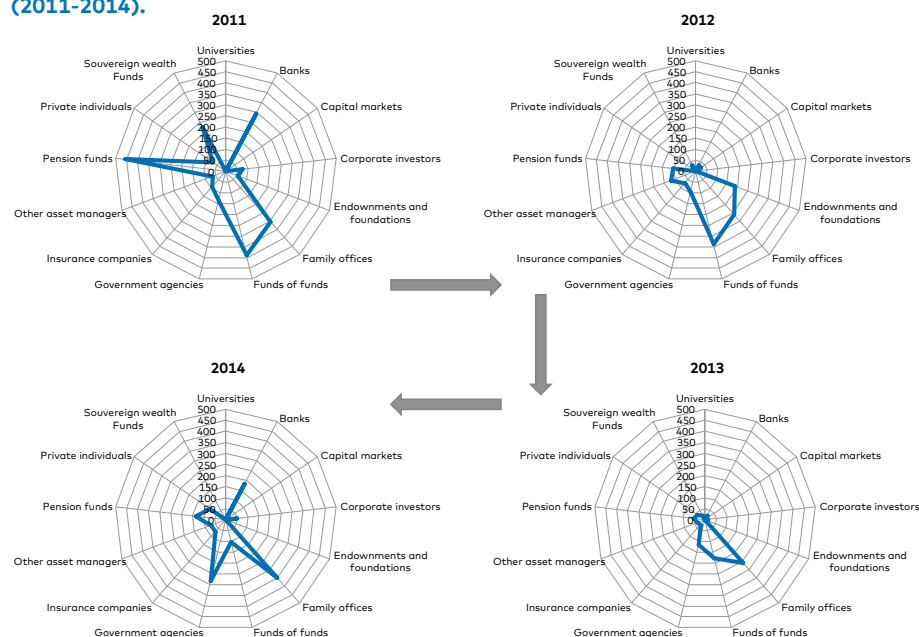
ever, masks the uncomfortable fact that most of these additional investments concerned private equity investments. Annual venture capital investments in Amsterdam decreased steadily from €86.6m in 2012 to €49.6m in 2014. All figures are presented below in Figure 9.

The figure above shows that the availability of early-stage risk finance is problematic in the Amsterdam ecosystem. In 2014, the OECD showed that “venture capital investment as a percentage of GDP – including early-stage – is roughly on par with some comparator countries in the EU but is far behind the leading countries. Banks, pension funds and insurance companies face obstacles for investing in private equity funds. This may negatively affect the pool of financial resources and may be at least partially responsible for the relatively small size of the venture capital market, especially for the seed and early stages.”⁹⁰ This was also made clear in the 2015 Global Startup Ecosystem Report⁹¹ that stated that “the lack of seed and growth capital impedes entrepreneurial success, especially with regards to later-stage start-ups” in the Amsterdam ecosystem.

Figure 10 below shows the respective funding sources for **German** start-ups in general. It shows that own funding is by far the most frequent funding source for start-ups in Germany. Slightly less than 80% of start-ups in Germany use own private capital. Angel investments and venture capitalists are used less frequently. Three out of ten start-ups in Germany are (partially) funded by business angels, while two of out ten are (partially) funded by venture capitalists.

Venture capital and angel investments in the Berlin ecosystem however differ significantly from other parts of Germany (see Figure 11). The share of start-

Figure 8 Sources of funds raised by Dutch venture capital private equity funds (2011-2014).

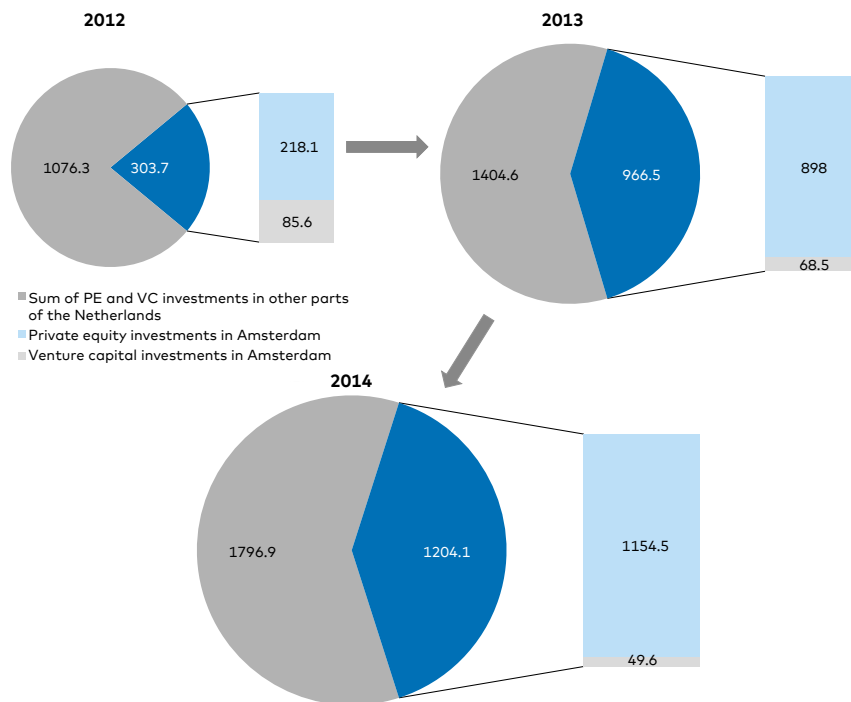


Source: Technopolis Group calculations: NVP (2015)

⁹⁰ ECD Reviews of Innovation Policy. NETHERLANDS: Overall Assessment and Recommendations

⁹¹ Compass (2015). *The Global Startup Ecosystem Ranking 2015*

Figure 9 Position of the Amsterdam ecosystem in the regional distribution of VC and PE investments in the Netherlands (in mln €).



Source: Technopolis Group, NVP (2015)

ups that depend on own savings is significantly smaller in Berlin (10.6%) than it is in Germany (18.7%). The share of start-ups that have access to venture capital in Berlin is over 30%, which is 1.5 times the German average. Other notable German ecosystems such as Hamburg (13.6%), München (20.5%), and Stuttgart (8.3%) are significantly below the Berlin average.

The large majority of available *venture capital* (77.1%) is German. In Berlin this percentage is a bit smaller (69.9%) indicating a more international ecosystem. Berlin is especially successful in attracting venture capital from the UK and the US. Venture capitalists from these two countries focus almost entirely on Berlin and Hamburg.⁹²

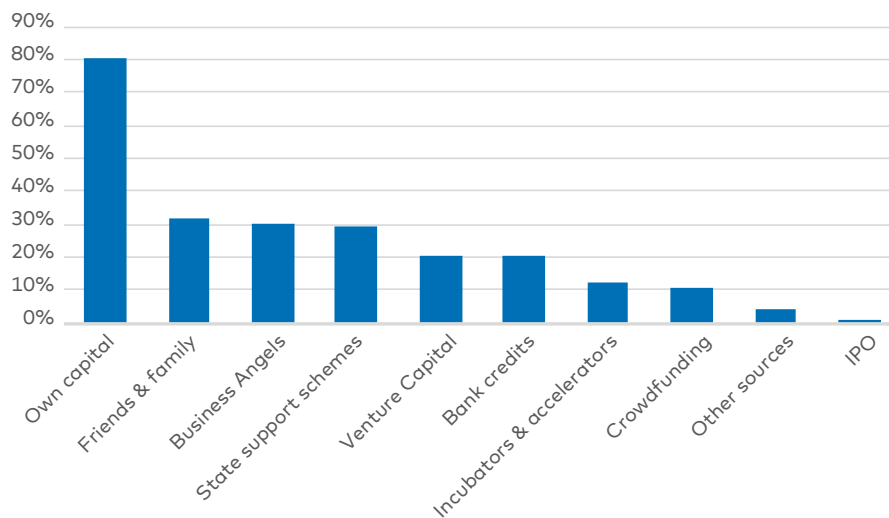
Venture Capitalists in Germany can fall back on three public co-financing sources: ERP/ EIF Dachfonds, European Angels Fund, and the INVEST Programme. Each is described in detail in Appendix G: Germany. *Venture capital investments* have grown significantly in the past years. In 2014 a total of €2.2b was invested by VCs in Germany, which ranked Berlin #2 in Europe. 2015 Q1 saw around €771mln of venture capital flow into Berlin, more than triple the sum of the 2014 Q1.⁹³ Even though this has led to much enthusiasm in Berlin, one should be aware that this amount was raised by a few rapidly scaling start-ups and should not lead to the conclusion that Berlin's funding landscape has fully matured. The weak local exit market makes it hard to raise late-stage funding in Berlin, which is considered a serious threat in Berlin.⁹⁴

⁹² Bundesverband Deutsche Startups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany (2015) *Deutscher Startup Monitor 2015*

⁹³ The Local (2015). *Cash influx sets Berlin up to overtake London*

⁹⁴ Die Welt (2015). *Warum London das angesagte Berlin fürchten muss*

Figure 10 The funding sources used by start-ups in Germany: significant importance of own capital and friends and family.

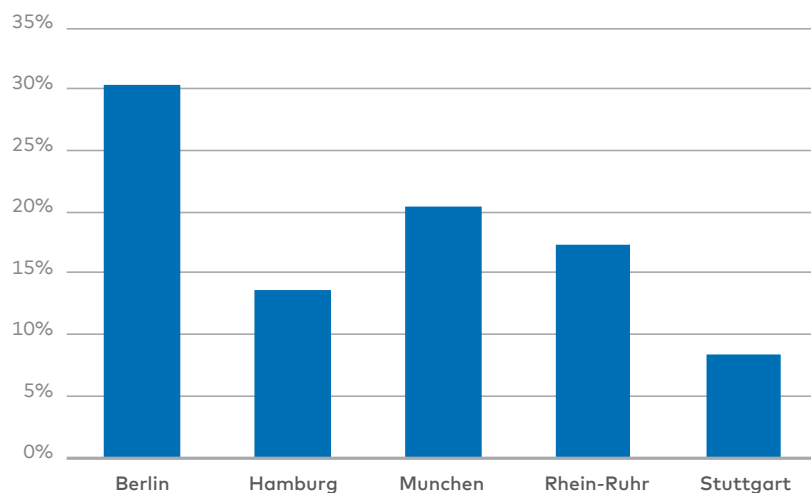


Source: Bundesverband Deutsche Start-ups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany: *Deutscher Startup Monitor 2015*

Silicon Valley Bank produces an annual evaluation of businesses working with innovations in the UK and the USA. Their 2014 report demonstrated the dynamics of how these businesses are funded, based on the data of 2013 (see Figure 12).

Venture capital and angel investors remain the most prominent sources of financing businesses working with innovation. In particular, the report pointed out that angel investors were becoming an increasingly important part of the financing community. The report named them as a particular strength of the UK innovation economy investing in very early-stage start-ups.⁹⁵ (see also Appendix H: London). However, that same report has drawn attention to the fact that entrepreneurs, who participated in the data gathering process, were interested

Figure 11 Access to Venture capital: Berlin outperforms other German ecosystems.

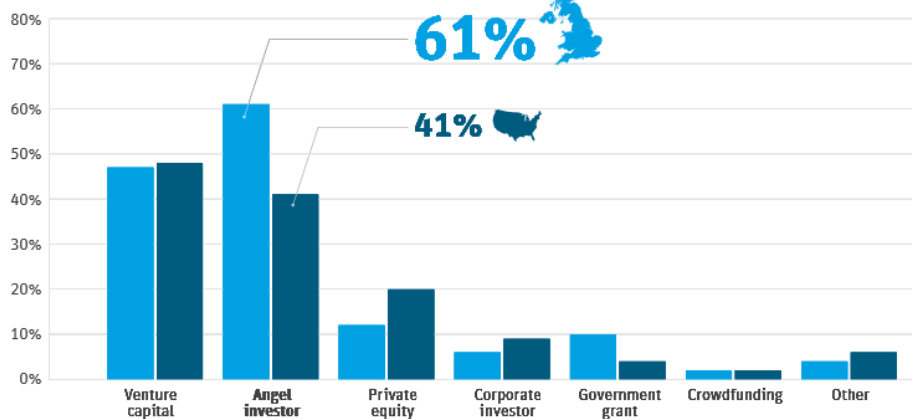


Source: Bundesverband Deutsche Start-ups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany: *Deutscher Startup Monitor 2015*

⁹⁵ Silicon Valley Bank (2014). *Innovation Economy Outlook UK*

Figure 12 Source of funding for innovation in the UK and the USA (2013).

Source of funding in 2013



Source: Silicon Valley Bank (2014). Innovation Economy Outlook UK

in reducing the reliance of businesses on angel investors and were of the opinion that start-ups should make more use of venture capital available in the UK.

The London start-up ecosystem has been receiving an *increased amount of funding* ever since 2010. The occurring trends in the investments have demonstrated higher investment intensity in Q1 of each year and slowing down during Q2 and Q3. Subsequently, each year Q1 has been the best investment period for London-based start-ups (see Table 4).

Figure 13 below demonstrates the dynamics of the venture capital funding in the UK in terms of the amount invested and the number of deals made.

When comparing the period 2007 – 2013 a shift in dynamics between investment and the number of deals can be observed. Since 2007 the number of deals has been declining, reaching its lowest mark in 2013. The opposite is true for investments which, while fluctuating, are higher for the 2010-2013 period than they were for the 2007-2009 period. The investment dynamics indicate a shift in the mentality of venture capitalists – while in the past the investments tended to be smaller and aimed for quantity, since 2010 fewer but higher profile deals are being made.

Table 4 London start-up funding (millions of USD).

	2010	2011	2012	2013	2014	2015
Q1	43.55	139.68	168.39	232.94	411.0	682.5
Q2	10.2	86.2	92.15	115.56	320.15	
Q3	13.94	25.44	45.17	214.82	207.64	
Q4	33.02	50.18	166.82	193.52	411.62	
Total	100.71	301.5	472.53	756.84	1350.41	682.5

Source: Lunden I. (2015). *London's Startups Hit A High Of \$682M In VC Funding In Q1 2015*

Unlike venture capital, which has been steadily gravitating towards technology, *angel investors* in the UK and London are slightly more diverse in their funding, although businesses working with technologies still make up the majority of the beneficiaries. In particular businesses working with consumer services rank as the second highest beneficiaries of angel investment in the UK. Internet and media take the first and third positions respectively. This is due to the number of successful Internet based businesses (15 of the London's unicorn start-ups are based online), a trend which has been shifting more attention towards digital services (see Figure 14).

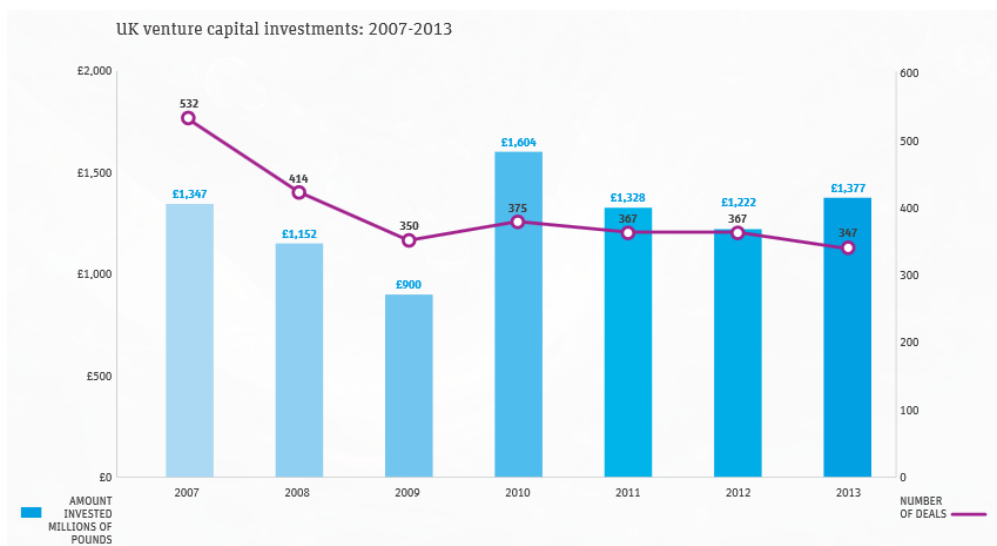
It is evident that angel investors have the heaviest concentration in London with only the sector of consumer electronics having more angel investor in the rest of the UK than in London. This high concentration further demonstrates that the London ecosystem is expanding in terms of not only new businesses but investors as well (see also Appendix H: London).

Key support schemes in the benchmarked ecosystems

Within the Amsterdam ecosystem, the general Dutch start-up instruments are of course available. Most of these are grants or fiscal measures. These schemes include:

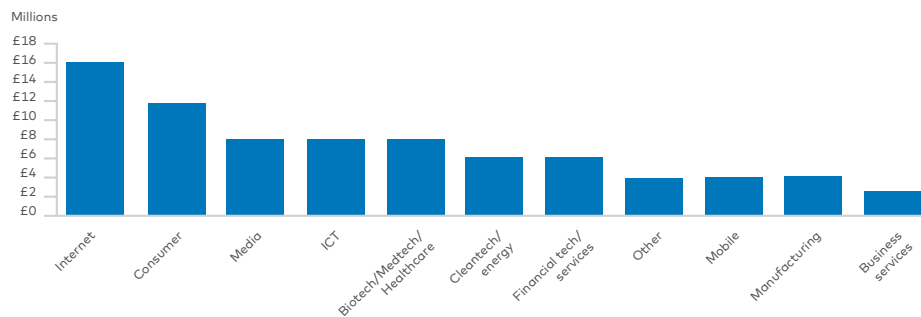
- **The Zelfstandigenaftrek and the Startersaftrek (€1,840m in 2016).** The best accessible support schemes are the tax relief for entrepreneurs ('zelfstandigenaftrek') and the tax relief for start-ups ('startersaftrek'). The first one is a tax relief for entrepreneurs that have less than five years of experience as an entrepreneur. It allows for an artificial decrease of the taxable income, and thus of the taxes paid. The second tax relief comes on top of the first under specific conditions. Combined they can result in about €4,000 tax relief per year. There are constant rumours in Dutch politics about stopping this particular instrument as the impacts are small. It is known to be beneficial particularly to low growth start-ups. Preliminary research of the Court of Auditors in The Netherlands (2016) indicates that the negative consequences are limited.

Figure 13 UK venture capital investments in 2007-2013 (millions of GBP/number of deals).



Source: Silicon Valley Bank (2014). *Innovation Economy Outlook UK*.

Figure 14 UK business angel investment by sector in 2012-2013 (millions of GBP).



UK Business Angels Association (2014). *Taking the pulse of the angel market*.

- **The WBSO (€794m in 2016).** More mature start-ups with a focus on R&D can make use of the R&D Tax Credit ('WBSO'). The WBSO is the most important Dutch scheme to promote private R&D. With the WBSO, companies can lower the wage costs for R&D and other R&D costs and expenditures, such as prototypes or research equipment. The companies and self-employed individuals can set off their tax benefit in their tax return to the Dutch Tax and Customs Administration. Companies pay less income tax and national insurance contributions and self-employed individuals can make use of a fixed deduction.⁹⁶ Formally this measure is open to start-ups. However, to benefit from this R&D tax relieve, a company needs to be profitable. That limits the measure's added value to start-ups.
- **The Borgstelling MKB-kredieten (€425m in 2015).** Another important support scheme that is also open to start-ups is the Borgstelling MKB-kredieten. This is a government guarantee to go with a bank loan of an SME. At this point in time, pilots are undertaken to test if the measure should also be applied on non-bank loans. The 2011 evaluation of this was positive.⁹⁷ The Court of Auditors is however sceptical and indicates that the added value of the instrument should be made clear.⁹⁸
- **The Innovatiekrediet (€41m in 2016).** The Innovation Credit measure is a max €5m loan of the Dutch Ministry of Economic Affairs to companies that work on R&D. This loan covers between 35% and 50% of the costs of an R&D project. The 2013 evaluation of this measure found a multiplier of 1.82.⁹⁹
- **STW Take-off Loans.** The STW Take-off Loans are funded by the national government, and managed by the Technology Foundation STW. They cover proof of concept (PoC) research and early stage trajectories for start-ups in the technical sciences. Individual inventors can use them as long as the inventors have an affiliation with a university. These loans are generally used for academic start-ups.¹⁰⁰

⁹⁶ Source: RVO

⁹⁷ Carnegie Consult (2011). *BMKB Beleidsvaluatie 2005 - 2010*

⁹⁸ Dutch Court of Auditors (2015). *Opvolging aanbevelingen (peilmoment augustus 2015)*

⁹⁹ ARP (2013). *Evaluatie Uitdagingskrediet en Innovatiekrediet*

¹⁰⁰ See also: Birch Consultants (2013). *Proof of Concept Fund Onderzoek en aanbevelingen op basis van een analyse van de STW Valorisation Grant*. Conceptrapportage

- **Small Business Innovation Research Programme (€7mIn in 2015).** Inspired by American successes, the Dutch government started its own Dutch SBIR programme in 2005. The Dutch Government uses its procurement power to mobilise the innovative capacity of Dutch companies to solve societal challenges, such as mobility, sustainability, safety and health. The instrument also aims to promote innovation, especially in SMEs.^{101/102}
- **SEED Capital measure (sum invested in 2014: €250mIn).** Unlike the previously mentioned schemes, this scheme does not address start-ups directly. Under this measure, the Ministry of Economic Affairs leverages privately owned seed funds under specific conditions (including max 50% leverage, no management fees, specific sectors). The 2014 evaluation of the Seed funds clearly showed the success of the funds, although dilution of public shares is a concern.
- **Dutch Venture Initiative (DVI) (fund size: €202mIn).** Dutch Venture Initiative is a fund of funds set up in 2012 and specialising in venture capital and private equity investments in later, early and development stage small and medium sized businesses. The fund targets high technology, ICT, cleantech, medtech, renewable energy, life sciences sectors, emerging and converging technologies. It seeks to invest in the Netherlands. It seeks to hold its investments for a period of five years. The DVI is funded by the Ministry of Economic Affairs, Regional Investment Agencies in the Netherlands (outside Amsterdam) and the EIF.¹⁰³ DVI intends to build a balanced portfolio of venture capital and growth funds that are able to demonstrate a strong investment focus on the Netherlands. DVI supported Fund Managers need to focus on companies in either an early or a development stage.

In addition to the above-mentioned schemes, Amsterdam aims to set up instruments under the new StartupAmsterdam initiative. These instruments include an online StartupJobs platform that helps start-ups attract the right talent; an online coding academy that aims to improve coding skills of the 8-12 years old; coding classes at school; a corporate partner programme that aims to strengthen the involvement of 25 Amsterdam-based corporations in the Amsterdam ecosystem; and several global start-up events.

There are several support schemes that are only available in the Berlin ecosystem. The six most significant ones are identified below.¹⁰⁴ In general they are young, relatively small in volume, given the size of the Berlin ecosystem, and oriented at SMEs or newly found companies in general:

- **Berlin Kredit Innovativ.** The Berlin Kredit Innovativ is a credit line that supports the financing of capital goods in Berlin clusters. The scheme is available for start-ups and for SMEs that have either a headquarters or a branch in Berlin. Credits can range from €100,000 to €1m. The Investitionsbank Berlin (IBB) manages the scheme.

¹⁰¹ Ministry of Economic Affairs (2010). *SBIR The power of public procurement: innovative solutions to societal challenges*

¹⁰² Ministry of Economic Affairs (2015). *Vaststelling begroting Ministerie van Economische Zaken en Diergezondheidsfonds 2015*

¹⁰³ See also: Bloomberg

¹⁰⁴ Inventory based on <http://www.foerderdatenbank.de>

- **Berlin Start.** A loan scheme under friendly conditions for companies that want to invest in capital goods, or in takeovers. The maximum loan size is €250,000.
- **Coaching BONUS.** Berlin supports the coaching of young entrepreneurs in the high tech industries and in the creative industries under the Coaching BONUS programme. Young businesses outside these domains are also eligible, as long as they focus on either internationalisation or sustainability challenges. IBB Business Team GmbH manages coaching BONUS.
- **Coaching in der Vorgründungsphase.** Berlin has also got a programme that targets potential entrepreneurs that consider setting up their own start-ups. They are supported through various coaching trajectories, and assessments. ABG Arbeit in Berlin GmbH manages the programme.
- **Pro FIT.** Pro FIT stands for Förderung von Forschung, Innovationen und Technologien which implies that it promotes RTI. The Berlin Bundesland uses this scheme to promote cooperation between research institutes and enterprises in experimental research. The scheme is open to all SMEs in the Berlin region. This is a scheme that is very much oriented towards technology development. No more than 80% of total R&D expenditure can be covered under certain circumstances, up to a maximum of €400,000 (grant) or €1m (loan). The Investitionsbank Berlin (IBB) manages the scheme.
- **Microcredits and start-up loans from the Berlin SME Funds (total volume: €35m).** The Berlin SME Funds allows for microcredits (up to €25,000) and loans (up to €250,000) for enterprises younger than five years old. The Investitionsbank Berlin (IBB) manages the scheme. The Berlin SME Fund was set up in 2005 with a total volume of €35m¹⁰⁵, which has grown to €100m, while there are plans to further increase size to €140m.¹⁰⁶

Apart from that, there are 20 instruments that are available in all of Germany and that are managed at the federal level. These include grants, loans, VC instruments, and guarantees (see also Appendix G: Berlin).

The list above indicates that federal instruments in Germany focus very much on capitalisation and financing start-ups. Their combined size is significant. Moreover, Figure 15 below illustrates that cover both direct financial support to start-ups and to VC funds. In addition to that they cover the various early phase stages.

London start-ups benefit from a number of governmental grants¹⁰⁷ which are aimed at entrepreneurs:

- The Grant for Business Development (GBI) and selective Finance for Investment (SFI) schemes offer entrepreneurs (for ventures in select sectors) grants to acquire capital assets.

¹⁰⁵ IBB (2005). *IBB startet Kreditfonds für kleine und mittlere Unternehmen (KMU-Fonds)*

¹⁰⁶ Morgenpost (2015). *Investitionsbank braucht Geld für neue Aufgaben*

¹⁰⁷ ENT Magazine (2015). *Startup Initiatives*

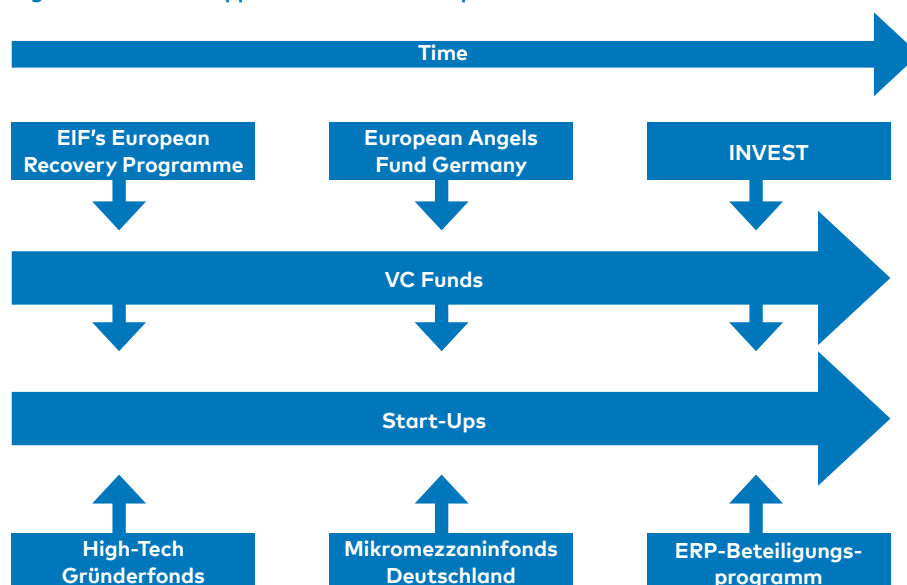
- The Small Business Research Initiative (SBRI) is designed to bridge the seed-funding gap which is experienced by many start-ups. The initiative supports economic growth and enables the development of innovative products and services, and their adoption by public sector.
- Export Credits Guarantee Department (ECGD) offers insurance schemes for entrepreneurs. ECGD also provides grants to facilitate participation in overseas exhibitions.
- The Mayor of London and the European Regional Development Fund (ERDF) has launched a funding scheme of £300mln that is specifically aimed to help small and medium businesses manage their carbon footprint.

The government also offers loans and loan assistance geared towards helping entrepreneurs with their ventures. The particularly interesting programmes are not the ones that offer direct financial assistance, but instead give indirect assistance in that they help to either raise funds or offer help for entrepreneurs who were denied private loans:

- The Small Loans for Business Scheme provides small and medium businesses with loans of up to £50,000.
- The Enterprise Finance Guarantee scheme, which is managed by the Department for Business Innovation and Skills helps entrepreneurs who were denied loans by banks for want of collateral. The government also offers guarantee to lenders.

Beyond financial support the government also offers other support programmes that are designed to help entrepreneurs and start-ups. These schemes are primarily focused on training entrepreneurs in the necessary business skills they will need in their ventures.

Figure 15 Federal support funds for start-ups and for VCs.



Source: Monika Piegeler, Klaus-Heiner Röhl (2015). *Gründungsförderung in Deutschland: Ein Aktionsplan gegen sinkende Gründerzahlen*, Institut der deutschen Wirtschaft

- The Entrepreneur First scheme seeks 'fresh' university graduates who would be interested in starting their own businesses. The scheme offers a two-year programme that provides training and mentoring to the candidate, as well as giving them access to funding through a network of investors, free legal advice, free software, and a platform to network with other entrepreneurs.
- The Get Mentoring Scheme that is run by the Small Firms Enterprise Development Initiative (SFEDI) aims to bring entrepreneurs and mentors together. Mentors offer coaching and mentoring to both aspiring and new entrepreneurs to equip them with essential skills to operate their business.
- The Startup Visa (or entrepreneur visa) is a governmental initiative that is aimed at founders coming from outside the UK who wish to set up their business in the UK. The initiative makes it easier for start-up founders to set up in London and expand further into the UK and Europe. The founders have to have access to at least £50,000 of investment in order to be eligible for the visa.

There are also support schemes that are specifically designed for entrepreneurs working in London. Some of these schemes include:

- The Business Bootcamps scheme is an intensive training programme that provides the opportunity for around 1,000 new entrepreneurs to develop essential skills required to succeed in business. The scheme, with £275,000 worth of funds from the Royal Bank of Scotland and another £135,000 worth of funds from the EU's Interreg, focuses on sectors of digital technology, fashion, hospitality, entertainment, and bio-tech.
- The Gateway to Finance programme offered by The East London Small Business Centre (ELSBC) is specifically aimed at London. The scheme helps entrepreneurs in the 33 London Boroughs, particularly in East London, raise funds to start or expand their business.
- ELITE programme run by the London Stock Exchange is structured towards engaging, developing and supporting private companies through their next stage of growth. The programme hosts new applications every 6 months and the participants are offered a 3 step programme: training through engagement with industry actors; practical and technical workshops to reflect on company-specific issues; and access to new business opportunities and funding options.

The Nordic entrepreneurship ecosystem compared with the benchmarked countries

Figure 16 (see also Figure 5) shows that the Nordic countries, overall, are strong in several areas compared to the benchmarked countries/regions.

As mentioned in chapter 2, internationalisation is still, more or less, a weak spot for all the Nordic countries. Another weak spot is high growth. On the other hand, several Nordic countries perform better than the benchmarked countries, for example in areas as human capital, opportunity for start-up (see also chapter 2) and process innovation.

A number of key success factors from the benchmarked countries. Compared with the benchmarked countries, in which areas are the Nordic ecosystems lagging behind, and what can policy makers and other stakeholders learn from Germany, the Netherlands and the UK? This section highlights a number of good examples from the benchmarked countries.

AMSTERDAM

In June 2015 StartupDelta has asked several specialists in the field of start-ups to assess the Amsterdam and Dutch start-up ecosystem. The general consensus of the 150 experts was that the Dutch ecosystem in general (and Amsterdam specifically) owes its success to a conducive business environment, a very well-educated workforce that is generally fluent in English, and a good university base. Moreover, the government is fairly supportive; funding is to some extent available and well available beyond the early stage. These are considered the key success factors of the Amsterdam ecosystem.

BERLIN

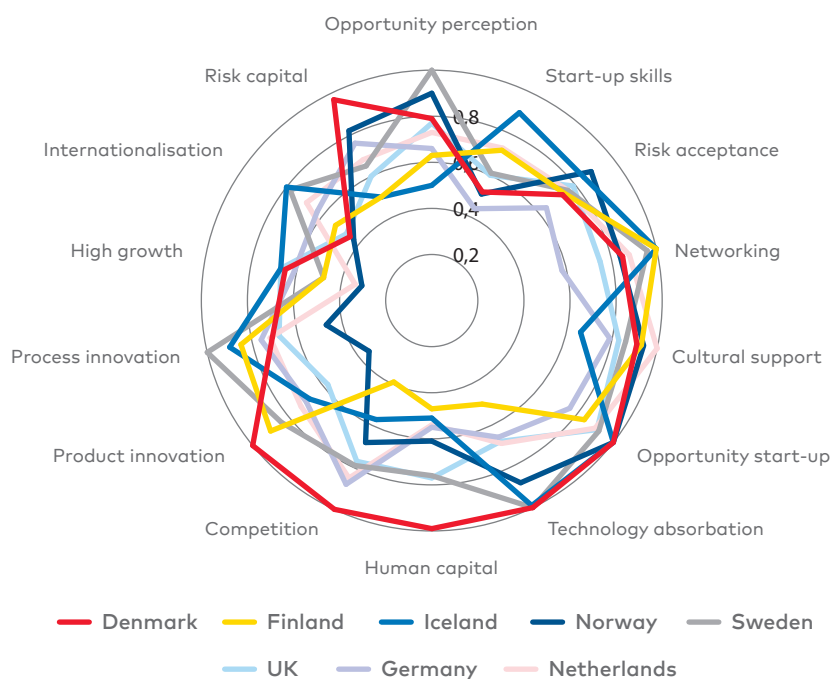
- There have been unprecedented transfers of funds from the old Länder to the new Länder, including Berlin. Start-ups have benefited from that and from other policies that benefit Berlin companies over non-Berlin companies.
- The Berlin population is young, and there is a strong creative scene. Low living costs have attracted a large number of national and international tech talents.
- The Berlin ecosystem is young, and has gone through a tremendous growth in the past few years. This growth is remarkable and draws attention from all over the world, but this is not a clear representation of the maturity of the ecosystem. Funding possibilities (especially later stage) are still limited, which also goes for potential positioning in value chains outside Berlin.

LONDON

- London has greatly benefited from international talent both in terms of bringing in fresh new talent and workforce to the city and because the start-up concept was taken in from abroad and made a part of the London business scene. In turn international talents and entrepreneurs value London because of its significance as a financial capital.
- There is a general enthusiasm about entrepreneurship and start-ups in London right now which was caused by the growing number of start-ups and has in turn contributed towards their growing number. Websites that present the start-up ecosystem act almost as tourist guides for the entrepreneurs wishing to experience the start-up community of London.
- The London start-up ecosystem is presented not just as a career path but as a way of life, both signifying a sense of freedom, a rejection of the old corporate mindset and a modern life choice. The media portrays start-ups as a fashion statement in the business world and working in a start-up could be considered trendy for the young talents entering the London scene. This is a key concept that London demonstrates very well.

Regulatory and legal frameworks can be major constraints on start-ups and entrepreneurs, and thus on growth. A policy and regulatory framework to tackle start-ups needs is an essential first step to creating a good business environment for entrepreneurs. In addition, entrepreneurs need a stable market environment in order to take risks. Furthermore, it is important to eliminate barriers to entry. The UK government has stated that it should be easy for individuals to

Figure 16 Country performance.



Source: Source: GEDI (2016), Data explorer. Available at: <http://thegedi.org/tool/>

establish and start their businesses. The regulatory frameworks have developed in the Nordics in recent years. However, there might be reason to focus on continue to eliminate barriers to entry in the Nordic countries as well (see page 78).

Regarding **access to finance**, there have been a recent growth of available venture capital in the several of the benchmarked countries. However, access to finance is still believed (by some, but not by everybody) as a big barrier to growth in the benchmarked countries, as access to capital is still the biggest barrier to growth in almost every country in the world. Consequently, this also applies for the Nordic countries. As stated in Appendixes A-E, the Nordic countries need to become better at attracting venture capital. Also stated, the venture capital markets are still relatively young. It is crucial to make sure that the entrepreneurs find the right investors, i.e. find an investor that can help and advise the business suitably. Here, the state can play an important role in helping start-ups find the right investor (both venture capitalists as well as business angels). Many Nordic start-ups want to meet investors, but they do not know where to start. One example from the Netherlands is the launching of a map of the Dutch venture capital ecosystem. The map, launched by Dutch Peak Capital¹⁰⁸, can be used as a starting point for start-ups in order to find the right investor(s). Another example from London is websites that present the start-up ecosystem, functioning as guides for the entrepreneurs. One idea is that an actor could provide information about the Nordic ecosystem (with information about Nordic cross border investments as well).

All of the Nordic governments have, just like the benchmarked countries, several **support schemes and mechanisms** targeted at SMEs, start-ups and entrepreneurs, such as grants and loans. Some of these schemes focus on different sectors, such as life science and cleantech. In this chapter (and in Appendix F, G and H), several support programmes designed to help entrepreneurs and start-ups are mentioned. Several of these are focused on training entrepreneurs in the necessary business skills they will need in their ventures. These schemes seem to be effective and are also requested in the Nordic countries (see chapter 2). There is, of course, a need for financing, but there is also a need for more training.

Stated above, support mechanisms in Germany focus on capitalisation and financing start-ups. Moreover, they cover various early phase stages. Here, the Nordic countries can take inspiration as several of them lack sufficient support in the early start-up phase (although several governments have expressed that new initiatives are underway, see Appendixes A-E).

In the UK, the government offers up to 72% tax relief for start-up investors. The Dutch Zelfstandigenaftrek and the Startersaftrek are examples of tax relief schemes for entrepreneurs and start-ups in the Netherlands. The biggest barriers for Nordic start-ups are related to the fiscal regime, such as high income taxes, corporate taxes and taxes on dividends. Schemes like the ones mentioned above could be useful in a Nordic context. However, several Nordic countries have started to review their tax schemes (see Appendix A-E).

Today, London is the most diverse start-up ecosystem in the world. However,

¹⁰⁸ Peak Capital launched a third fund (of €12m) in the summer of 2015. For more information, see <http://peak.capital>

today, London start-ups are facing challenging times as the government have tightened the control on immigration which is considered to be less advantageous, see Appendix H. Several Nordic countries, for example Sweden, have targeted support addressed towards women (see page 29). Nevertheless, there is a need for more focused efforts to ensure that the whole population have the same conditions. One example is support targeted at newly arrived immigrants with start-up ambitions. This is also important regarding **access to competences** and how the Nordic countries could be better at attracting competence and increase the availability of right kind of talent (see chapter 2).

Access to markets is of importance for all the Nordic countries. However, several Nordic countries are stronger than the benchmarked countries/regions (see Figure 5 and Figure 16). As stated previously in this chapter, internationalisation has been acknowledged as a major success factor of the ecosystem in London. Also stated, internationalisation seems to be caused by London being a cultural melting pot and a common area for foreign entrepreneurs and investors. The Nordic countries can be inspired to become better in using both foreign entrepreneurs coming to the region, as well as attracting foreign investors. It is of importance to continue to attract international investors as well as cross border investments.

Regarding **entrepreneurial culture**, the Dutch culture does not differ that much from the Nordic culture, and the entrepreneurial culture in Germany is still rather low. The entrepreneurial culture has been growing stronger and the Nordic countries can rather take lessons from each other. Several non-profit grassroots initiative have been initiated in order to, among other things, help bring entrepreneurs together, and motivate and inspire aspiring entrepreneurs, for instance in Finland and Iceland.

Entrepreneurship education and training has developed over the last 20 years and as stated in Annex A – E, there are today several programmes (both higher education and VET) targeted at inspiring entrepreneurial potential. The Nordic countries were lagging behind for a while but today, the countries are on the same level as equivalent countries.



Photo: Hirschi / avision



Photo: Nordic Innovation



Photo: Nordic Innovation

Observations based on overview and benchmarking

Features of the Nordic region

The Nordic countries have several strengths which support the development of entrepreneurial ecosystems. They all have good educational systems and as a result a well-educated population. The Nordic countries also enjoy a relatively strong innovation performance. This is based on relatively high level of investments in research and innovation activities by both public and private sectors which offers a good basis for developing innovative businesses. This is further supported by a strong science-industry collaboration which has developed as a result of several decades of consistent support from research and innovation policies.

While the Nordic countries haven't traditionally been strong in entrepreneurship, the situation is changing. Appreciation of entrepreneurship is improving, and so are attitudes towards entrepreneurship as a career option. Because of the extensive social security systems people in Nordic countries are typically not forced into entrepreneurship. Instead, entrepreneurship is mainly based on perceived opportunities.

There are, however, clear weaknesses in the Nordic region with respect to entrepreneurship. The on-going structural changes in big industries driven mainly by globalisation has affected the Nordic region. Many large companies no longer grow in the Nordic region. Combined with the recent and still on-going global economic crises this has resulted in stagnation of economic growth in the region. New growth must be sought outside the traditional large industries. As a result, the policies in Nordic countries have started to focus increasingly on innovative start-ups and SMEs with high growth potential in international markets.

The historical context of the Nordic region features policy emphasis on big industries, science-industry collaboration and technology transfer focused on commercialisation via existing companies, financial markets dominated by banks and traditional corporate funding instruments, most companies outside big industries focusing on local markets, the strong social security systems, etc. It is therefore not surprising that entrepreneurship has not flourished. Even with relatively fast developments in the Nordic entrepreneurial ecosystems, there is still a lack of entrepreneurial and start-up skills and willingness to take risks is relatively low. Given that the Nordic entrepreneurial ecosystems – especially with respect to high-growth innovative entrepreneurship – have started to develop only during the last decade and faster during the last years, there is still only a relatively limited number of business angels, venture funds and fund managers, and other private actors with strong start-up and scaling experience.

Ambition levels of entrepreneurs have also been traditionally rather modest in the Nordic countries. They are mostly content with building businesses for local markets and avoid risks related to scaling their businesses internationally. This might be at least partly related to the cultural context, which features relatively

homogeneous populations, lots of similarities in market conditions and behaviour across Nordic countries, etc., which might deter companies from attempting to access international markets outside the Nordic region.

As noted before, entrepreneurship policies are relatively new in Nordic countries, especially those focusing on start-ups developing high-growth innovative businesses for international markets. These policies have started to emerge during the last few years after the realisation that big and traditional industries no longer can be relied to provide the necessary economic growth. Policy focus is shifting gradually towards start-ups and high-growth SMEs, although due to the economic stagnation and concerns related to globalisation, big industries still remain also a focus area, mainly because of employment.

Recognition of the importance of entrepreneurship and new companies has gradually penetrated most policies. Entrepreneurship education is being introduced at all levels of education. Research and innovation policies increasingly feature start-ups, access to venture capital, business angels and mentors, academic entrepreneurship, etc.

However, there are several policy areas and public sector services where entrepreneurship has not been fully recognised. Rules and regulations covering the business environment recognise the specific needs of high-growth start-ups and entrepreneurs only to relatively small extent. Similarly, financial market regulations, fiscal systems and other rules and regulations hardly provide any support for angel and venture investments and investors. Labour market and immigration regulations don't recognise entrepreneurship or start-ups.

Policies supporting high-growth entrepreneurship and start-ups have been mostly focused on public funding. They feature various grants, loans and to some extent equity based instruments. Building on the existing policy culture, most of these have been direct measures targeted to individual start-ups and early stage SMEs. More indirect measures targeted to business angels, venture capital funds, mentor networks, etc. via fiscal incentives or other support measures have so far been less frequent. These actors have mainly been targeted by soft measures supporting match-making, networking, collaboration, etc.

However, there seems to be an increasing recognition of the fact that high-growth start-ups and early stage SMEs need more than just money. They need smart money, i.e. money that comes with complementary skills, competences and networks that are vital to the success of the company. Hence, there is an emerging shift towards channelling public support to high-growth start-ups and early stage SMEs increasingly through privately managed measures.

Culture

As referred before, historically the entrepreneurship culture has not been strong in the Nordic region. Career paths have mostly featured employment in large industries and other companies or in the public sector. However, the appreciation and interest towards entrepreneurship is improving. One of the indications is an increasing tolerance of "honest" failure, which means that entrepreneurs are not permanently labelled after they fail with one business idea as was previously often the case.

Of the benchmarked ecosystems, London has a relatively strong entrepreneurship culture. On the other hand, entrepreneurship culture in Amsterdam and Berlin haven't been so strong traditionally. However, there are specific features of these systems that encourage entrepreneurship, even though at the national level they don't differ so much from the Nordic region. One of these features is that all of the benchmarked ecosystems are multicultural with relatively high appreciation of arts and other creative activities. Each of these ecosystems is a combination of strong economic activity (London is an international financial hub, Berlin has enjoyed significant public investments, Amsterdam houses headquarters of several multinational corporations with high interest in innovation and start-ups) and continuous influx of new creative and innovative talent, both national and international.

Except for Stockholm and to some extent Copenhagen, Nordic ecosystems have not been so multicultural. Furthermore, the links between arts and creative industries with business have not traditionally been that strong. However, the importance of multiculturalism and linkages between business and creative activities are becoming increasingly evident. For example, the most vibrant part of the Helsinki ecosystem has been developing around Aalto University, which combines business, technology and arts. Stockholm's success may perhaps be partly attributed to its more multicultural character compared to other Nordic ecosystems.

One important thing that has had a significant impact on the appreciation of entrepreneurship and attitudes towards it has been the emergence of several internationally recognised success stories. Furthermore, the importance of success stories is not only in the visibility and recognition of entrepreneurship. Perhaps even more importantly, success stories produce role models and grow the much needed number of skilled and experienced entrepreneurs that can later act as serial entrepreneurs by setting up new companies, as co-entrepreneurs, mentors, etc. to help other start-ups and early stage growth companies, and as business angels and investors bringing smart money to these companies.

Preliminary results from the survey and other sources further support the observation that the attitudes towards entrepreneurship are gradually improving. However, the number of people aspiring to become entrepreneurs is still relatively limited.

The power of success stories can't be overestimated and is quite evident in the benchmarked ecosystems, especially in London and Berlin. These big and fast growing ecosystems feature several international success stories, which attract potential founders and talent also from outside the region.

Another key feature of successful entrepreneurial ecosystems is community. Traditional businesses, industries and science-industry collaboration are often based on contracts and other formal networks and collaborative arrangements. While these have their role also in the entrepreneurial ecosystems, the core of the ecosystems is the community. The strength of the community is evident in all successful ecosystems from Silicon Valley to London, Berlin and Amsterdam. In London, the importance of community has also been clearly indicated as a policy level objective across all measures. In Berlin and Amsterdam communities are featured, but they are less explicitly featured in the support measures.

Entrepreneurial communities in the Nordic region are emerging, perhaps most notably in the Stockholm and Helsinki, and also in Copenhagen. Emergence of entrepreneurial communities is somewhat supported by various networking and collaboration initiatives, but for the most part they are driven by entrepreneurs, investors and other market actors. This follows similar mechanisms that have been observed in Silicon Valley, London, Berlin and Amsterdam. The community can't be built from the outside or driven by the public sector. These are communities of entrepreneurial actors, which can only be driven and active because of the actors themselves. Policies may only facilitate the creation and development of entrepreneurial communities.

What the benchmarks and developments, especially in Stockholm and Helsinki, clearly show is that these communities are local and international at the same time. Local in the sense that the community is vibrant and continuously interacting on various platforms ranging from frequent one-to-one discussions and meetings to online platforms, events and co-working environments. Actors can easily and quickly recognise relevant partners and contact them. However, these communities are also international via various networks and links to international actors. These actors include both investors and potential founders and talent to ensure access to skilled workforce.

One of the key differences between the benchmarked ecosystems with the Nordic ones is the size. Success doesn't necessarily correlate with the size of the ecosystem. Often communities are quicker and easier to build in smaller ecosystems. However, high-growth entrepreneurial ecosystems rely heavily on both the quality and quantity of potential high-growth business ideas, as well as on competences and skills to realise them into international growth businesses. While the Nordic capitals will undoubtedly be able to eventually develop their own entrepreneurial ecosystems, development of these ecosystems in the Nordic region would most likely benefit significantly from closer integration between these local ecosystems.

For one, larger size of the ecosystems facilitates specialisation, which is vital for accessing the necessary international level networks and talents. Small ecosystems often lack focus and try to facilitate all potential businesses with limited local resources. This is why especially smaller regional incubators, accelerators and venture funds are often less successful. To ensure both high level international competences and experience as well as sufficient volumes and quality of deal-flow, the ecosystem needs to have a critical mass. London, Berlin and Amsterdam all have this critical mass. Whether each of the Nordic capital regions are able to develop critical mass alone is not certain. With policies still keeping at least partly to the Nordic tradition of supporting every region within every country to have the same facilities and initiatives, resources are spread thin. This doesn't support the necessary concentration into most promising ecosystems. This is likely to lead into loss of some potential start-ups, which won't have timely access to necessary competences and funding.

Education and training

The Nordic approach to entrepreneurship education and training follows Nordic traditions of high appreciation of formal education. The policy focus has been in introducing entrepreneurship at all levels of formal education. Entrepreneurship training has typically been introduced in the context of incubators, where the

training is often integrated into other start-up support services. While these are integrated into start-up life, they are often relatively limited in duration and content.

In the benchmarked ecosystems, the focus is more on entrepreneurship in higher education. Furthermore, typical support measures include extended support and training for academic entrepreneurs (see e.g. Berlin). Both the benchmarked and Nordic ecosystems feature various measures to support mentoring and coaching for entrepreneurs and start-ups.

According to the preliminary insight collected from the ecosystem actors, the quality and availability of entrepreneurial education and training seems to be improving in the Nordic region. However, there is still lots of room for improvement, especially with respect to the quality of training and education.

While it makes sense to introduce entrepreneurial skills to all students at all levels of education, real entrepreneurial skills and competences can only be gained through practice. In terms of future policy action, the essential question is whether to wait for the educational system to enhance the basic understanding of entrepreneurship and experiences to gather through increasing number of start-ups, or strengthen support measures targeted towards the most promising potential entrepreneurs. The latter could take the form of extended training support to individuals and teams developing their business ideas or already established start-ups.

Access to competences and workforce

While the Nordic countries have a well-educated population, the challenge with most start-ups is in finding competent workforce with entrepreneurial and start-up skills. Technological skills are often available, but the skills needed in launching products and services into international markets and scaling up the business are more limited.

The benchmarked ecosystems feature more talent with connections to international markets. Furthermore, the local markets are bigger and people with the necessary competences are more readily available.

Similarly, finding partners – other companies with complementary competences – is often more challenging in the Nordic region. Internationalisation and scaling up businesses often benefits from international partners. However, public support schemes focus mostly on national or regional level networking and collaboration encourage searching local partners. While there are measures that encourage also international partnering, these are often not as attractive than local ones, at least in terms of financial support available.

Access to international talent and workforce is also often hampered by immigration regulations and limited networks and connections of investors and mentors. The former has also been identified as a potential future bottleneck in the benchmarked ecosystems. Relaxing immigration regulations could give a boost to access to competences and talent, but only if the ecosystem is attractive enough.

When the start-up ecosystems started to develop in the Nordic region, the first investors typically came from the financial sector. Many people active in the ecosystems still have this background, which may not always be sufficient in understanding the specific needs and opportunities of high-growth innovative start-ups. Hence, finding lead investors may often prove difficult as many investors and funds may be interested in investing, but not taking the role of lead investor.

Similarly, there is a relatively limited number of serial high-growth entrepreneurs in The Nordic region. Many people in mentor and coaching networks have a background in traditional industries and large corporations. While they may have excellent knowledge of international markets and customer demand, they often lack specific skills and competences of relating to the day-to-day needs of start-ups. This may also be the case with some business angels coming from the same background.

Regulatory framework

As indicated before, policies targeted towards entrepreneurship and start-ups have mostly featured funding and various support services and networks. The regulatory framework has received only limited attention so far. Changes have been made to simplify regulations for start-ups or encourage them to employ and/or grow, but for the most part, these have not been specifically designed to the needs of high-growth start-ups.

The biggest barriers identified by the ecosystem actors are related to the fiscal regime and labour market regulations. High income taxes, corporate taxes and taxes on dividends are among the most criticised. Labour market regulations are also seen as too restrictive for the needs of start-ups.

All benchmarked ecosystems enjoy some forms of fiscal incentives targeted to start-ups and/or private investors. These range specific deductions and reliefs targeted to start-ups in their early years to generic tax incentive schemes for innovative activities. Nordic countries offer little or no fiscal support for start-ups and generic tax incentive schemes are also relatively rare.

As to the other regulations and infrastructure, these are for the most part satisfactory or good in the Nordic region. Specific business sectors might have some concerns with specific regulations, but in general the regulatory environment is seen as neutral. However, the Nordic region doesn't offer anything in terms of the regulatory framework or infrastructures that would specifically support high-growth start-ups or provide any competitive advantage to the region. With the history of the NMT and the subsequent international success of the mobile communications sector in mind, this might be worth looking into.

The benchmarked ecosystems seem to place more emphasis on simplification and streamlining regulations concerning start-ups than the Nordic countries. This may be partly because some regulations have already been streamlined in the Nordic region, but most likely because of insufficient attention to the specific needs of start-ups.

Access to finance

Venture capital markets have been growing in the Nordic region, despite the current global economic downturn. The Nordic region is also attracting increasing amounts of international venture capital from outside the region.

However, the venture capital markets are still relatively young in the Nordic region. The biggest gaps in the markets can be found from early stage private capital and growth/expansion stage. Venture capital markets are mostly national and thereby also fragmented. Deal-flow volumes are still relatively small, especially because of fragmentation. This may not sufficiently support specialisation among VC funds. Furthermore, cross-border VC is limited, which given the fragmentation of the VC market could offer an area for high policy impact.

Exit opportunities are also somewhat limited in the Nordic region. IPOs are rare and most investors get their exit when start-ups are sold to larger companies. In fact, selling to other companies seems to be the preferred form of exit. Most likely this preference is related to what exit opportunities are realistically available within the desired timeframe, not to the exit opportunities in the ideal case. Exit opportunities are to some extent a European wide problem, which is visible also on Berlin and Amsterdam. However, in both of these places some later stage venture capital is available. London features also a relatively high number of IPOs. Later stage investors buying out earlier stage investors is not typical in Europe, and rare in the Nordic region.

Raising funds from founders and other private investors seems to remain the same or have slightly improved. Access to VC funding seems to have improved slightly. It seems that in general, the availability of funding is improving. However, the aforementioned gaps still remain.

There seems to be a shift in public venture capital from publicly managed direct investments into fund of funds and other financial vehicles where the public money is invested into privately managed funds. This trend is well in line with the practices in the benchmarked ecosystems, where public VC money is typically managed by private fund managers on market principles.

Business angel activity also seems to be strengthening, even though most Nordic countries offer very little support for them. The benchmarked ecosystems feature specific tax incentives and co-investment funds for business angels. This might be an area the Nordic countries should look more carefully into. The benchmarked ecosystems differ quite a lot with respect to business angel activity. Amsterdam and Berlin have more limited business angel funding, whereas the role in London is so prominent that some entrepreneurs have even become concerned about it and would prefer VC funds as investors.

Crowdfunding is an emerging phenomenon in the Nordic region. It has been growing relatively fast, despite the obvious concerns of the financial market actors and regulators. However, future growth might depend on how flexible and harmonised the regulatory regime in the Nordic region is currently and in the future. It can already be seen that some companies select international and specifically US crowdfunding platforms, because they have access to a much larger potential investor and/or buyer population. While this is partly beneficial (e.g. in scanning the interest of potential buyer and markets), it may lead to some companies emigrating from the region even earlier than currently today. Fostering cross-border crowdfunding and Nordic crowdfunding platforms could help start-ups to access early stage private capital, and thereby address one of the current VC market gaps.

The benchmarked ecosystems are notably more based on private funding than their Nordic counterparts. Furthermore, public funds allocated to VC market are managed by private fund managers. Banks and institutional investors are also more in tune with start-ups in the benchmarked ecosystems. This is most likely because of better availability of experienced fund managers, accelerators, etc. with convincing track record. However, the overall economic conditions have a significant impact on the interest of banks and institutional investors.

The public sector should take care in addressing the gaps on the VC market. Too much public support, especially in the form of grants, loans and equity directly provided to start-ups from public schemes may crowd out private funding. Why take a business angel or VC fund as an investor and give them part of the company, if the same amount of funds is available from the public sector with better terms? Too much focus on much needed funds may often cloud the value of competences and skills that only a serial entrepreneur, business angel or VC fund manager with personal start-up experience can bring.

Access to markets

The benchmarked ecosystems offer better access to markets. This is partly because of the size of the local market and presence of large multinational corporations (except for Berlin), and partly because the ecosystem and surrounding industry has strong linkages to international markets (especially London).

Internationalisation remains as a challenge to many potential high-growth start-ups in the Nordic region. The historical linkages from Nordic countries to large international markets are relatively weak, although with the increasing international interest they are improving. Hence, public support for internationalisation is relatively high on the policy agenda in all Nordic countries.

Local markets are not very competitive for start-ups, nor seem to be the Nordic markets. On the other hand, local markets seem to offer little if any specific competitive advantages for companies aiming for the international market. In some specific areas large multinational corporations present in the Nordic region can be an exception.

Public sector in the Nordic countries is relatively large in size compared to the national economies. However, public sector has not shown much innovation or initiative to engage with the start-up ecosystem. All benchmarked ecosystems enjoy some form of public support, especially via procurement of innovation. This can be an effective way to encourage start-ups and innovation in SMEs and at the same time provide the much needed first commercial references or at least market visibility.

Large corporations can also link into the entrepreneurial ecosystem to enhance access to markets. This is particularly evident in Amsterdam and London, where specific measures are taken to foster this networking. Some signs of this is also visible in the Nordic region, where an increasing number of large companies and to some extent also the public sector has become interested and experimenting with hackathons, challenge competitions, and similar activities.

Support mechanisms

Majority of public support measures in the Nordic region focus on funding of individual companies (incl. start-ups) and on organising and providing various support services. Less emphasis has been given to supporting community building, although some individual measures can be supportive also in this respect (e.g. incubators, co-working spaces, events, networks etc.). There has also been less emphasis on indirect financial support such as tax incentives or support to early stage investors and VC funds. Little attention has also been put on start-up specific needs in the regulatory regime or linking public sector own activities to the entrepreneurial ecosystems.

Of the benchmarked ecosystems, London is most explicit in the attempt to build the ecosystem's core, i.e. the entrepreneurial community. Amsterdam features the StartupDelta and StartupAmsterdam, which are key ecosystem public-private platforms and indirectly also support the community. In all other benchmarks as well as in the Nordic countries communities are supported by various indirect measures, such as incubators, accelerators, co-working spaces, events, networks, etc.

The emphasis in public start-up funding in all benchmarked ecosystems is on financial instruments, i.e. loans and equity, compared to the Nordic region, where the role of grants is more prominent. The recent trends would indicate that the Nordic countries will move closer to the benchmarks in this respect as new start-up funding is increasingly based on financial instruments.

Incubators and more recently also accelerators and similar support activities are available both in the Nordic region and in the benchmarked regions. However, most of these seem more professionally operated than their Nordic counterparts in general, especially the ones funded with public money. For example, in Amsterdam incubators take shares in their companies and thereby are more motivated by the success of the companies. There are professionally managed incubators and accelerators also in the Nordic region, some even with excellent track record. However, the overall average picture is not so convincing, despite the continuous public funds allocated to these.

As the start-up ecosystems have developed, an increasing number of privately owned and privately managed accelerators have emerged in the Nordic countries. Although it is still early to make any final conclusions of how these will impact the ecosystem, early indications are quite positive (e.g. evaluation of the VIGO-programme).

There is a number of active business networks in the Nordic countries offering support for enterprises. However, the amount of business networks in the Nordic countries differ from country to country. The importance of networks as business support structure cannot be underestimated – they help start-ups to create new contacts, find investors, get advice, rising their profile, increase confidence as well as create positive influence. The importance of networking lies on building a community of individuals which are of crucial importance for young entrepreneurs.

Co-working spaces offer excellent opportunities for creating networks and they can act as physical platforms for communities. They are relatively new phenom-

ena and are becoming more and more popular among not just newly established companies, but also for scaling-up companies. When incubators have a rather formal arrangement – they host certain number of companies, offer certain services or have set up fixed subsidised rents for hosted companies – co-working spaces are typically much more flexible in their arrangement. Co-working spaces can help build networks and boost business success. Companies working in co-working spaces are more likely to be motivated and have higher levels of interaction.

There is a number of co-working spaces available in the Nordics. These include e.g. SUP46, Epicenter, Things and Impact Hub in Stockholm, MESH Coworker and Gründergarasjen StartupLab in Oslo, and Hub13, Regus and Helsinki Think company in Helsinki. Co-working spaces typically offer a physical space (short term office rent, meeting rooms, restaurant a.s.o), but they may also offer or act as a platform for other actors to offer a variety of business support services (coaching, legal advice, events a.s.o). Popular co-working spaces are often managed by private owners and are typically specialised either by sector (like ICT, media) or by stage of company (like start-ups, internationalisation/export companies).

The trend of joining with co-working spaces can also be supported by increasing popularity of sharing economy companies (mostly start-ups with an aim to share unused resources). Here the main idea is flexibility (legal format of a company, but without the pressure to maximise short term profits or grow the valuation), which is nicely supported by the co-working spaces. These trends lead us to the observation that it seems that co-working spaces have step by step started to replace incubators - companies seem to prefer the flexibility, fluent access to networks and hands-on support, and the often more creative and innovative environment. These features that make the best co-working spaces so attractive and successful should be regarded as good practice and adopted by other co-working spaces. These practices should also be considered by incubators as they develop their business models and activities in future.

Nordic countries should consider how the entrepreneurial support services should be organised in the future. Given that most often the best advisers are entrepreneurs and not public officials, and that the start-up ecosystem thrives on strong selectivity and competition, perhaps the emphasis should be on concentrating the support on creating stronger ecosystems at national or even at the Nordic level, rather than supporting similar and mostly less effective initiatives in all regions.

Identified key challenges and barriers

There are a number of barriers to the development of start-ups as well as high growth SMEs. As a result, public policy has an important role in stimulating and support entrepreneurship. Identified barriers in the Nordic countries based on earlier studies and our observations include:

- **Access to finance.** Access to public funding provides benefits to SMEs and start-ups. Furthermore, public investment can support product development as well as increase the investors' confidence (by taking early investment risks). However, there is a need for funding in the right phase, and previous studies show that it is not an easy task for a start-up to find funding.

In several Nordic countries, this is generally not seen as a problem. However, seed-stage capital is still rather limited, for example in Sweden.¹⁰⁹ A recent study conducted by the Swedish Federation of Business Owners indicates that 90% of the Swedish SMEs want to grow, but the difficulty to obtain external financing is a major obstacle. One explanation, among others, is less access to venture capital. For example, there is a lack of venture capital necessary for the growth of start-ups also in Iceland.

- A couple of assessments of the research and innovation system in Iceland have pointed out that the **system is fragmented and ineffective**. The problem is lack of efficiency due to, for example, excessive administrative costs resulting from the system being overly complex or fragmented. In addition, there is a need for more collaboration between public and private actors, for instance in Sweden and Norway.¹¹⁰
- **Taxes** directed toward labour with higher incomes are a possible barrier to the economic growth in Denmark. In addition, both Sweden and Norway has a high level of taxes that can limit incentives in choosing a career as an entrepreneur. Different tax incentives can promote entrepreneurship.
- The **size of the market and/or access to foreign markets** limits the growth potential. In this context, it is crucial for SMEs and entrepreneurs to aim for international markets. However, as an example, only 11% of Finnish early-stage entrepreneurs have strong international orientation. This means that there is still a need for more internationalisation initiatives in the Nordic countries, or even a joint Nordic initiative. According to the report *Entrepreneurial Ecosystems Around the Globe and Early-Stage Company Growth Dynamics* major differences in entrepreneurial ecosystems exist from one region to the next. When entrepreneurs consider expansion opportunities beyond their country, there is a potential alignment issue with governments that often adopt a strong so-called *within country focus* in their entrepreneurial ecosystem policies.¹¹¹ This also applies for the Nordic countries.
- Entrepreneurial capabilities is a key feature regarding market entry (and in the success of a new company). **Lack of entrepreneurial capabilities**, which seems to relate to the lack of experienced management teams in young companies, can result in difficulties in attracting later-stage venture capital. One question is how entrepreneurship skills can be taught most effectively in order to encourage innovative entrepreneurship. What role can entrepreneurship education and training play in the future?
- In the Nordic Entrepreneurship Survey 2015 ¹¹², 61% of the Nordic entrepreneurs agree or fully agree that the biggest challenge was **difficulties in locating and recruiting qualified and skilled staff**. 76% of the Nordic entrepreneurs believe that locating and retaining key employees will be their biggest challenge when they develop their business. 30% of Norwegian entrepreneurs say finding the right employees was a challenge.

¹⁰⁹ | Renstig M. (2015). *Världsklass – men hur ska världen få veta?* A study assigned by Teknikföretagen.

¹¹⁰ See for instance Fagerberg, J. & Fosaas, M. (2014). *Innovation and innovation policy in the Nordic region*. NordMod subreport 13. Fafo report 2014:26. Oslo: Fafo.

¹¹¹ World Economic Forum (2014). *Entrepreneurial Ecosystems Around the Globe and Early-Stage Company Growth Dynamics*

¹¹² EY (2015). *Nordic Entrepreneurship Survey 2015*.



Photo: Flickr / Nordic Innovation



Photo: Flickr / Nordic Innovation

Access to international markets is one key challenge.



Key challenges of the Nordic entrepreneurship ecosystems

The previous sections of the report have illustrated that several strengths which support the development of entrepreneurial ecosystems in the Nordic countries exist, but also that clear weaknesses appear in this respect. There is a consensus regarding the effects of the recent economic trends for the Nordic regions, which have led policy makers to focus on new growth solutions outside of the traditional big industries' sectors, thus focusing on innovative start-ups and SMEs with high growth potential in international markets.

In that sense, several policy areas and public sector services have started to recognise the importance of new companies and entrepreneurship, however there are still many areas where entrepreneurship has not been fully recognised and where further policy measures need to be implemented. As noted before, rules and regulations only recognise the specific needs of high-growth start-ups and entrepreneurs to a small extent, financial market regulations, fiscal systems and other rules and regulations hardly provide any support for angel and venture investments and investors. Also, labour market and immigration regulations do not recognise entrepreneurship or start-ups. These are just evidences among others of barriers and gaps where further regulatory improvements are needed in order to fully boost the Nordic fast-growth companies.

This section of the report presents the main identified barriers and obstacles to entrepreneurship based on the results of the work carried out in chapters 3 and 4, the survey results, the verification interviews, the Nordic Innovation Workshop, the social media analysis (conducted via Meltwater) and observations from the benchmarking exercise. The aim of the chapter is to narrow down the challenges identified across the Nordic entrepreneurial ecosystems to 5 main focus challenges, presenting evidence of specific problems identified via the several stakeholders' contribution exercises. The main identified key challenges and barriers are:

- **Access to finance**, especially early stage private capital and funding for growth, internationalisation and scaling.
- **Access to competences**, both entrepreneurial as well as skilled and experienced staff.
- **Fiscal and regulatory regimes**, which are not supportive of entrepreneurship and private start-up and scale-up investment.
- **Access to international markets**, opportunity exit as there is especially limited local demand, fragmented Nordic regional markets, etc.
- **Fragmented Nordic entrepreneurial ecosystems**, with e.g. cross-border barriers, plethora of uncoordinated public measures, etc.

Access to finance

When looking at the social media trending topics related to Nordic entrepreneurs (in Denmark, Sweden, Norway, and Finland), there is an undeniable unanimity on the appearance of buzz words such as: “*Capital*”, “*Investing*” and “*Funding*”¹¹³. Access to funding seems to be by far the main concern in the Nordic entrepreneurs’ ecosystems, and is often followed by specific criticism related to the form under which it is granted, its availability and/or even its visibility, among others. The survey results show that professional investors (incl. funds), own profits and business angels represent the most important sources of funding for the companies¹¹⁴. However, when asked about the difficulty to raise funds, most respondents (41%) point out that there is a **lack of competent investors and funding sources**. Moreover, 33% of respondents believe that the difficulty of raising funds is related to the risk averseness behavior of most investors. We present below some of the main concerns regarding access to finance in the Nordic entrepreneurs’ ecosystems.

As noted in previous chapters, policies supporting high-growth entrepreneurship and start-ups have been mostly focused on public funding. Many direct measures under the form of grants, loans and to some extent equity based instruments are targeted to individual start-ups and early stage SMEs. However, indirect measures targeted to business angels, venture capital funds, mentor networks, etc. via fiscal incentives or other support measures have so far been less frequent. There seems to be an increasing recognition of the fact that high-growth start-ups and early stage SMEs need **smart money**, i.e. money that comes with complementary skills, competences and networks that are vital to the success of the company. Hence, there is an emerging shift towards channelling public support to high-growth start-ups and early stage SMEs increasingly through **privately managed measures**.

The general context of the public and private funding in the Nordic entrepreneurial ecosystems is ruled by a traditional use of public grants to support companies in general - culture to support the weak and give everyone a chance. This approach is also highly controversial as it is not in line with growth entrepreneurship thinking, which is based on **selecting and supporting only the companies with highest potential to succeed**. An appropriate role of public funding in entrepreneurial ecosystems should look further into:

- optimising/maximising leverage (max impact on private funding);
- avoiding crowding out private investors, but instead attracting them; and
- playing a small role of the overall entrepreneurship policy, which must entail other tools focusing on framework conditions and the functioning of the ecosystem.

The results from the Nordic Innovation Workshop have supported the belief that **generous public support for early stage companies has the potential to crowd out private investors**. First, because public money does not typically require reducing ownership and second, because it may push expectations and valuations to unrealistic levels. While public support is clearly needed by companies

¹¹³ Nordic entrepreneurs: Meltwater analysis “*Social media monitoring & text analysis*”. Filter September 2015 - May 2016

¹¹⁴ Survey responses Q59 “What are the most important sources of funding for the company during the next 12-24 months? Please select max 3 most important”

Table 5 Key observations regarding access to finance in the Nordic countries.

COUNTRY	NATIONAL SPECIFICITIES RELATING TO ACCESS TO FINANCE
Finland	Access to finance described very positively, noting high international visibility and positive experiences with smart money and angel investors.
Norway	Troubling aspect of their ecosystem. In part this is linked to the taxation system, which is portrayed as a barrier instead of facilitator for young entrepreneurs. Access to international investment is a concern, especially regarding angel investors. However, the largest problem appears to be the way in which funding is distributed for new start-ups, with questions being raised over the validation process and whether the right entrepreneurs are receiving funding – this question is linked to the apparently high rate of failure by new companies to get products to the market.
Sweden	Traditional funding mechanisms appear to be adequate, if still difficult. However, the discourse in Sweden now shifts towards new funding sources, with particular notice being given to crowdfunding mechanisms both being more available for entrepreneurs and being more prominently featured and disseminated in the society as an option of taking part in the Swedish ecosystem.
Denmark	Access to early stage funding has been a problem, but the situation has started to improve. Business angel sector still limited and many growth companies seek later investment rounds internationally. Aggressive taxation is argued to be a hindrance for growth.
Iceland	Specific policy measures have been introduced recently to improve access to early stage finance. The volume of the VC and angel investment market is still relatively limited.

Source: Verification interviews

and also appreciated by private investors in early stages, **successful ecosystems seem to favour more indirect support**, earlier introduction and emphasis on financial instruments and market oriented management of public support by private actors.

Another problem related to public support in Europe and in the Nordic region in particular is the cautious approach typically used in public support measures. Money is given in **small instalments over longer period of time**. This doesn't sufficiently push start-ups to grow, but rather promotes lifestyle entrepreneurship. While the policy approach in the Nordic region is clearly changing, there are still clear signs of this traditional approach.

Finally, investors and companies in the Nordic region also suffer from the **lack of exit opportunities**. IPOs are rare and most investors get their exit when start-ups are sold to larger companies, in fact, selling to other companies seems to be the preferred form of exit. This can lead into companies leaving the region (international investors, being bought by other companies, etc.), or it may stifle their growth (limited growth funding available). Investment readiness is also sometimes a problem, as start-ups seeking investors are not ready to be invested in.

Table 5 above summarises additional key findings regarding access to finance in the Nordic countries.

When comparing the general findings of the Nordic countries with the benchmarks, several differences are worth mentioning. The table below gives a snapshot of characteristics related to access to finance in the Nordic countries and benchmark ecosystems.

NORDIC COUNTRIES

- Growing venture capital and business angel activity
- Increasing international interest towards 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 favours traditional investment options (real estate, 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 the Nordic ecosystems
- 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 ecosystems, partly depending on exit opportunities, partly on the role of various investors
- Banks and institutional investors are more in tune with the start-up ecosystem in London, Berlin and Amsterdam compared to Nordics, partly because of experienced VC funds with track record; interest varies according to overall financial markets
- Larger deal flow in London, Berlin and Amsterdam allows for specialisation among investors
- Exit opportunities are to some extent a European wide-problem, which is visible also in Berlin and Amsterdam

Access to competences

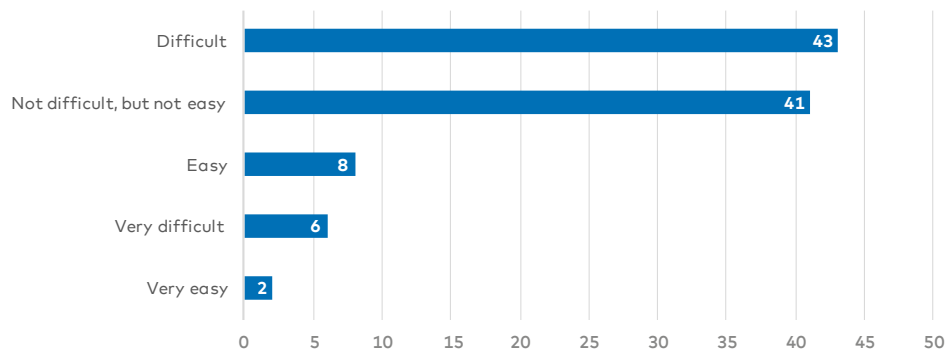
Access to competences is a cross-regional challenge in the Nordic entrepreneurship ecosystems. It is known that the Nordic countries have a well-educated population, where entrepreneurship is introduced at several levels of formal education. Although no consensus is established regarding the optimal use and/or methods of instructing entrepreneurship education, the main focus of the identified barriers within this challenge purely lays on issues related to access to competences and skilled workforce (i.e. the availability of the right kind of talent for a company), beyond education and training aspects.

As Figure 17 illustrates, finding/recruiting people with the desired competences is considered a difficult task for 43% of the survey respondents.

Moreover, Figure 18 shows that improving access to competences is not only linked with more and better education and training, but with further aspects that are given equal or more importance, such as fiscal regulations and immigration regulations.

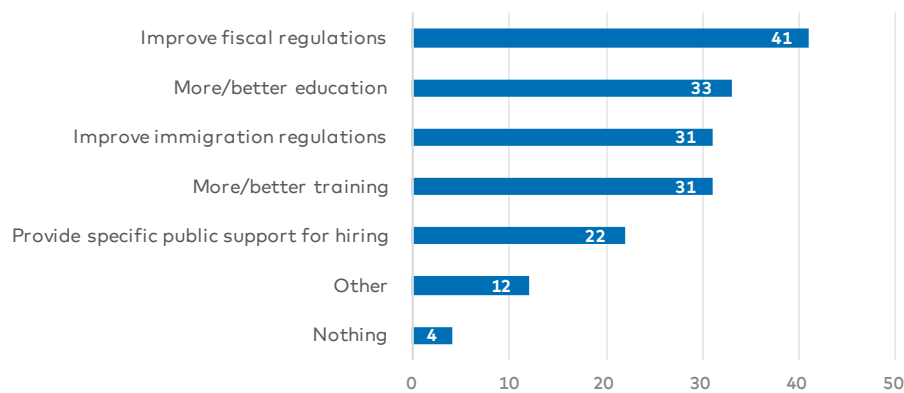
If we look into the outputs of the verification interviews, many statements reinforce the belief that access to competences is a key factor in the Nordic entrepreneurship ecosystem. Respondents from Norway addressed the barriers for entrepreneurs, linking failures of new businesses due to **lack of available competences**. Danish respondents recognise the importance of facilitating access to

Figure 17 How easy is it to find/recruit people with the desired competencies?
Response in percentage.



Source: Survey responses

Figure 18 What could be done to improve access to competences (finding/recruiting skilled people)?



Source: Survey responses

competences for entrepreneurs, especially in light of the **higher risks associated with entering a position in a start-up** as opposed to a job in a well-established company. The Swedish respondent took an even broader look, placing **human capital as among the most important factors that determine whether start-up fail or thrive**.

The work carried out via the desk research and social media analyses, enabled to identify a series of key barriers that hinder access to competences in the Nordic countries, namely:

- high income taxes, relatively high employment cost;
- high living cost (e.g. housing prices) and unattractive climate;
- rigidities of labour market (difficulties/costs in laying off and replacing people);
- immigration regulations (e.g. difficulty for foreign students to stay and become entrepreneurs after graduating). Nordic countries have relatively homogeneous societies except for Sweden and Denmark who have been more open towards immigration.

NORDIC COUNTRIES

- Lack of entrepreneurial capabilities
- Difficulties in locating and recruiting skilled staff
- Cost of living, language, attractiveness of multinationals, uncertainties, high taxes, lack of visibility, immigration are among identified barriers
- Strong startup communities and proven track record attract

BENCHMARKS

- International, multicultural and creative environments attract international talent
- Skilled workforce is supported, but immigration remains a problem

From all the above-mentioned barriers, immigration regulations have been identified as a particularly serious barrier in the benchmarked countries as well as in the Nordic countries, especially with the recent events due to the European refugee problem. The UK has introduced the Startup Visa and the EU Commission is promoting it at the European level.

When comparing the general findings of the Nordic countries with the benchmarks, several differences are worth mentioning. The table below gives a snapshot of the main dissimilarities.

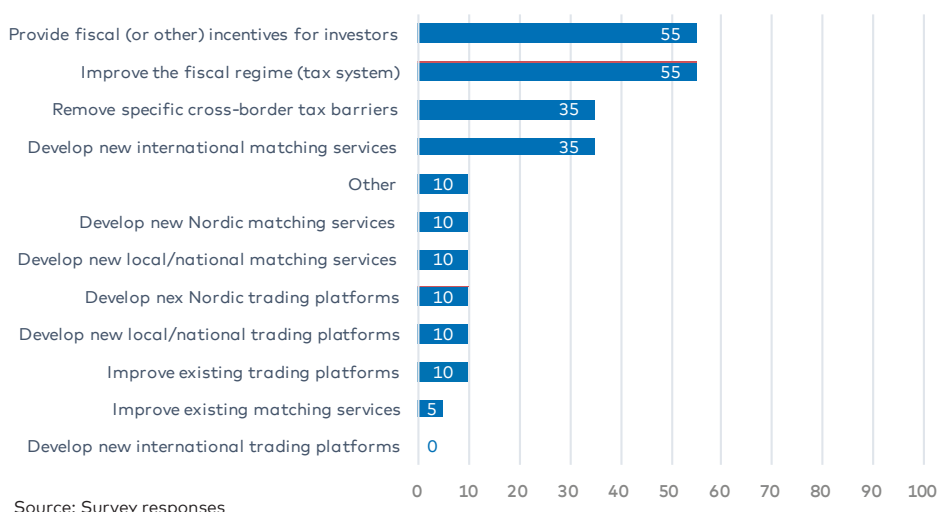
Taxes (and other framework conditions)

As noted earlier in the report, the biggest barriers identified by the ecosystem actors are related to the fiscal regime and labour market regulations. High income taxes, corporate taxes and taxes on dividends are among the most criticised. Labour market regulations are also seen as too restrictive for the needs of start-ups. Moreover, the Nordic labour market, social security, pension, etc. systems are still based largely on the needs of the industrial economy. Becoming an entrepreneur often means dropping between or outside the “normal” systems, which reduces the interest to become an entrepreneur.

The verification interviews showed that tax regimes across Nordic countries offer some notable differences that are worth mentioning. The regulatory framework and infrastructure for Finnish start-ups is perceived as very satisfactory, facilitating the various aspects of establishing new businesses. A stark contrast can be found in Norway, where respondents were highly critical of their infrastructure, with especially strong criticism directed towards the political system which “punishes” successful entrepreneurs by heavy taxation. Denmark also reports a need for further improvements in the taxation of start-ups to provide a lower barrier of entry for new entrepreneurs.

The analysis of the survey results also illustrates that national tax regime has a strong impact in terms companies exit opportunities. As Figure 19 presents, 55% of respondents believe that an improvement in the fiscal regime (tax system) and the removal of specific tax barriers discouraging investments is needed in order to improve exit opportunities for the Nordic companies. Moreover, 55% believe that fiscal incentives for investors to invest more in start-ups and early stage companies are needed to grow the size of the venture capital

Figure 19 What could be done to improve exit opportunities? Response in percentage.



market. Finally, 35% of respondents highlighted that cross-border tax barriers discourage investments, and thus must be removed.

Furthermore, when asked about the features of the fiscal regime (tax system) that most hinder growth, respondents point out corporate tax, labour taxes (income tax, social security payments, pension fees, etc.) and opportunity to pay salaries as shares. Over 50% of the respondents believe that labour taxes and opportunities to pay salaries with shares should be improved. Also, respondents were asked to assess whether an improvement by 10% of the fiscal regime (e.g. corporate tax reduction from 20% to 18%) would impact on faster growth or earlier maturity. 77% of the respondents indicate that this measure would bring higher growth and 51% believe that exit maturity would be reduced by several months.

Looking at the benchmarked ecosystems, all enjoy some forms of fiscal incentives targeted to start-ups and/or private investors. These range specific deductions and reliefs targeted to start-ups in their early years to generic tax incentive schemes for innovative activities. In addition, London, Berlin and Amsterdam put more emphasis on simplifying and streamlining rules and regulations. Nordic countries offer little or no fiscal support for start-ups and generic tax incentive schemes are also relatively rare, therefore, there is room for improvement in that area in comparison to benchmarked ecosystems.

Access to international markets

Access to international markets remains one of the main challenges to any high-growth start-up in the Nordic region. The Nordic local markets are too small and not relevant enough for high-growth companies, they present none of little competitive advantages for companies aiming for international markets. The desk research carried out has shown that historical linkages from Nordic countries to large international markets is relatively weak, although international interest has improved and a number of success stories have emerged (e.g. mobile telecom industry with NMT), the Nordic markets have not been able to repeat similar market dynamics, or at least in larger scales. In that sense, internationalisation is among the policy agenda priorities in all Nordic countries and public support has improved in that area.

NORDIC COUNTRIES	BENCHMARKS
• Fragmented Nordic (and European) markets • Many born globals and unicorns, still most start-ups are domestic • Challenges in accessing and growing in international markets • Increasing policy emphasis and several public measures for supporting internationalisation (crowding out?)	• London, Berlin and Amsterdam offer better access to international markets (larger local markets, large multinational corporations, international investors, etc.) • Specific emphasis on collaboration between existing companies and start-ups in Amsterdam and London • London, Berlin and Amsterdam feature public sector support for innovation also through procurement

Also, international interest towards the Nordic region has been increasing over the recent years. It was initially originated from US and Europe, but now also from China. It is important to look into how this interest can better benefit the Nordics, as interest among international investors is a two-edged sword. It can bring much needed money and competence as well as support in accessing international markets, but may lead into companies leaving the region (if the ecosystem is not competitive enough, especially at later stages, i.e. when the company really starts to grow).

The responses from the verification interviews also attest the importance that Nordic countries give to internationalisation. In Finland, access to markets is a key concept of the business culture. While not directly linked by the respondents it is apparent that true success for a start-up is measured by how well it is performing on international markets. In Norway, there is a noticeable push for other Nordic countries acting as the example of good entrepreneurial ecosystems. In Denmark, internationalisation is a high concern and high priority area as the current ecosystem demonstrates low international exposure and low international investment – both areas are regarded as in need of immediate attention.

As mentioned in previous chapters, the benchmarked ecosystems offer better access to markets. This is partly because of the size of the local market and presence of large multinational corporations, and partly because the ecosystem and surrounding industry has strong linkages to international markets (especially London). Large corporations can link into the entrepreneurial ecosystem to enhance access to markets, this is particularly evident in Amsterdam and London, where specific measures are taken to foster this networking. Some signs of this is also visible in the Nordic region, where an increasing number of large companies and to some extent also the public sector has become interested and experimenting with hackathons, challenge competitions, and similar activities. The table below presents additional evidence on main significant differences between the Nordic and benchmarked ecosystems.

Fragmentation

A successful ecosystem, attractive for investors and talented people, requires critical mass, i.e. sufficient volumes of high quality deal-flow. Individual Nordic countries may not be able to reach critical mass, but the combined Nordic region already has it. However, the Nordic region is diversified, has different currencies, languages and contains borders, thus it is not a home market. Hence, many potential high-growth companies leave the Nordic region and become unicorns elsewhere, adding to the attractiveness to the other region. This fragmentation represents a main challenge for the Nordic entrepreneurship ecosystem, and it can be shown in several ways:

- Small size of local markets, Nordic region not very relevant for high-growth companies;
- Limited access to high quality support, support tends to be local and doesn't scan for the Nordic deal-flow;
- Relatively small size VC funds, limited specialisation among VC funds, follow-up investors do not specialise at specific stages and thereby do not allow exits for earlier investors. The Nordic VC market is still not fully developed;
- Duplicated national efforts, i.e. similar efforts in several countries, but little learning or collaboration;
- Nordic networks (business angels, crowd funding, VC, mentors) developing, but activities are still mostly national or local;
- Little cross-border activities (investments, etc.);
- Difficulty to operate for international investors and other actors due to fragmentation (especially because of differences in regulatory and fiscal regimes).

The Nordic entrepreneurial ecosystems have not been able to brand themselves as a unique market region, like e.g. London, which aggregates not only London based actors, but covers most of UK. The results from the Nordic Innovation Workshop have shown that communication, branding and marketing was recognised to be important. For example, a study made of London indicated that the entrepreneurial ecosystem is not as coherent as its apparent image. The image is significantly shaped by good marketing, which draws from the whole of UK rather than London alone. As a comparison, the image of the Nordic region is perhaps even more fragmented than what it is in reality. Branding #NordicMade seems to be a step in the right direction.



Photo: Flickr / avoinGLAM



Photo: Flickr / Nordic Innovation

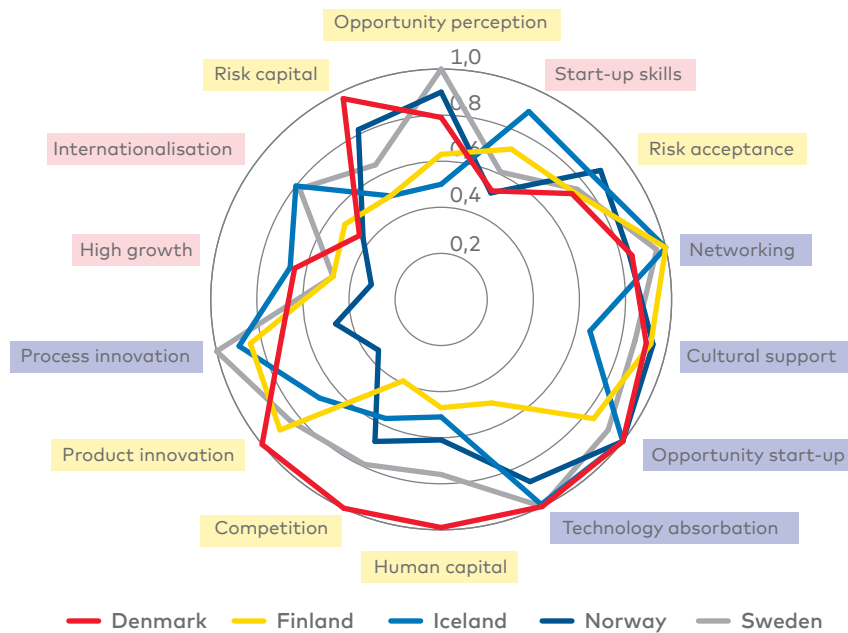
As international comparisons and our findings indicate, the Nordic region has several features that support the entrepreneurial ecosystem.



Photo: Flickr / Nordic Innovation

Policy recommendations

Figure 20 Global Entrepreneurship Index of Nordic countries.



Source: Source: GEDI (2016), Data explorer. Available at: <http://thegedi.org/tool/>

As international comparisons and our findings indicate, the Nordic region has several features that support the entrepreneurial ecosystem (see Figure 20). Similarly, there are areas where the ecosystem could be significantly improved.

To tackle the weaknesses and build on the already existing strengths, we propose the following policy recommendations to improve the Nordic entrepreneurial ecosystems:

Recommendation 1. Promote the development of professional revenue and success driven support for entrepreneurs, start-ups and scale-ups

Shift from direct public support towards professionally managed for-profit support measures. Many of the more recent new activities in the Nordic entrepreneurship ecosystems have been privately launched or managed. This has also been the case in the benchmarked ecosystems. Especially acceleration seems to be an activity where privately managed for-profit business models thrive.

Even in the case of traditionally publicly managed incubators, for-profit privately managed business models are emerging internationally. For example, in Amsterdam, the model is based on a flat rate success fee received from a successfully incubated company. While there is still public support in the form of subsidised incubation fees or a grant for an incubated company to pay for the incubation

service, the success based revenues of the incubator ensures that only the companies with the highest potential are selected. In summary, the ownership of an incubator, accelerator, co-working space or any other entrepreneurial environment or support measure is not that important. However, what is important is that it is professionally managed and that the revenues are based mainly or entirely on the success of the activity, i.e. success of the companies.

Part of the revenues may come as payment for the incubation, acceleration or other support services. However, if and when public funding is offered, it should be given to the "paying customer", who can select which support service to use, and thereby, promote competition between incubators, accelerators, and other support service providers. Further revenues may be collected as success fees from successful companies. This can take the form of a flat rate fee, royalty, equity stake, etc. As this revenue stream will take some time to develop, payment for services may be complemented e.g. by attractive loans for service providers (incubators, accelerators, etc.) in case these may be needed.

Instead of for-profit, the models can also be non-profit, i.e. all profits are further invested in improving and expanding the services and providing bonuses for the managers, i.e. no revenues for the owners. This may be valid for cases, where the owners are public sector organisations, universities or other typically larger organisations, which for various reasons want to support the activity.

This recommendation is valid and should be considered at all levels: regional, national and Nordic.

This addresses the following key challenges: Access to finance (indirectly), Access to competences (indirectly), Access to international markets (indirectly).

Recommendation 2. Focus on facilitating private entrepreneurial and early stage investment activity through indirect public support measures

Successful entrepreneurial ecosystems, especially those focusing on growth entrepreneurship are highly competitive and based on market selection. Public funds and policies should be directed at facilitating and encouraging growth entrepreneurship and not crowd out private funding and market selection.

While access to funding is still one of the key challenges in the Nordic entrepreneurship ecosystems, the answer is not to increase public funding. Instead, entrepreneurial policy focus should be on attracting more private funding into the ecosystem. This can be done in several ways ranging from regulations to fiscal incentives to fund of funds type arrangements.

When examining ways in which to measure how well the country facilitates growth entrepreneurship, the balance between public and private funding for entrepreneurial activities is perhaps the most important aspect to consider. With regards to public funding, the main objective and success indicator should be the leverage of public funds, i.e. how much private funds can be attracted to the supported companies compared to the public funds allocated. Given that loans and equity are reimbursable, they have a greater potential for high leverage. Hence, the balance of public funding should favour reimbursable instruments.

As easy access to direct public funding will eventually reduce the interest to look for and engage private investors, direct public funding should always be limited as not to distort valuations or private early and growth stage investment markets in general. However, more important than absolute amounts of public funding available is the way it is introduced into the market. The money should primarily be allocated to the market in a way that strengthens the private market mechanisms.

The most important of these mechanisms is the selection of target companies. In the private market, this is done by investors and customers. In the first case, support should therefore be allocated to the investors. This can be typically in the form of fiscal incentives or co-investments managed by the investors. In the latter case, the public support can take the form of public procurement (public sector as the client), challenge competition (public sector as a facilitator predicting future market demand) or fiscal or other support for the clients (e.g. environmental regulations or taxes, or investment subsidy or tax deduction e.g. in case of adopting new clean tech solutions).

While this recommendation is obviously most relevant at the national (and regional) level (as most of the public funding is national or regional), it should also be considered at the Nordic level (e.g. by considering public cross-border fund of funds or other similar co-investment schemes).

This addresses the following key challenges: Access to finance (indirectly), Access to competences (indirectly), Fragmentation (indirectly); Growth entrepreneurship (directly).

Recommendation 3. Foster the development of entrepreneurial communities

Encourage and support the development of entrepreneurial communities. Communities are the core of any successful entrepreneurial ecosystem. These communities must be driven by entrepreneurs and investors themselves.

The support can take the form of financial allocations, but these should be time limited and focus on the launch stage. Later on these communities will either develop critical mass and thrive on their own or disappear.

To further support the communities, the governments should establish a systematic dialogue with these communities. The main purpose of the dialogue should be to identify barriers and obstacles and find ways to address them.

This dialogue should be established in all entrepreneurial ecosystems and at the national level. Furthermore, to tackle cross-border barriers, it would be recommendable to establish a similar dialogue also at the Nordic level.

This addresses the following key challenges: Access to finance (indirectly), Access to competences (indirectly), Access to international markets (indirectly), Fragmentation.

Recommendation 4. Enhance access to a talented workforce by removing labour market, fiscal and immigration barriers

Many of the identified barriers in the Nordic entrepreneurship ecosystems are related to talented workforce in one way or another. While the barriers related to talent are most severe for start-ups, they may also hinder the development of scale-ups.

Even though the population is well educated in the Nordic region, attracting foreign talent is important. Through it the ecosystem becomes more multicultural and international, which may support companies especially accessing international markets.

Policy measures should be taken to systematically address the identified barriers to access talents. Immigration and labour market rules and regulations should be reformed to be more in tune with entrepreneurial ecosystem. Similarly, support measures for attracting talent such as increasing numbers of foreign students, etc. could be considered. Startup Visa should be introduced, learning from the example from UK and other countries.

Consider introducing tax incentives for start-ups. These should be time limited and can be based on revenues e.g. no corporate tax for the first three years from launch or from first profitable year, or they can be based e.g. on employment (e.g. no employer or social tax for employees during the first 3 years from launch). Other viable models may be designed, but the main purpose is to lower the barrier and cost for hiring people for start-ups.

While this recommendation is targeted mostly at the national level, there is high potential to enhance it further through Nordic collaboration. For example, a Nordic Startup Visa might be worth considering. Collaboration between Nordic countries to establish (and promote) simplified and coherent immigration regulations for the whole region would be recommendable.

This addresses the following key challenges: Access to competences, Access to international markets (indirectly), Fiscal and regulatory regimes.

Recommendation 5. Strengthen the Nordic market enhancing the demand for innovation

Introduce or strengthen schemes enhancing networking and collaboration between start-ups, scale-ups and existing companies. Interest among large companies towards start-ups and scale-ups has already increased. This should be further encouraged, e.g. by providing support for challenge competitions, hackathons, corporate venturing and other similar activities.

Introduce public procurement of innovation targeting start-ups and innovative SMEs. While the procurement directive doesn't directly allow these types of limitations, the size and character of these schemes and especially if combined with start-up funding schemes (such as SBRI in the UK and US) could be effective in providing visibility and access to markets, as well as support innovation in public sector.

This recommendation is valid and should be considered at all levels: regional, national and Nordic.

This addresses the following key challenges: Access to finance (indirectly), Access to international markets (indirectly), Fragmentation.

Recommendation 6. Make start-ups and scale-ups more attractive for private investors

Introduce guarantees and other incentives for attracting institutional investors and banks to engage more in VC and start-up funding. These are often seen as too risky investments and sometimes too small. This type of indirect support might provide the necessary incentive. Especially guarantees could be very effective in attracting institutional investors to invest in start-ups and early stage scale-ups, which normally fall outside their investment portfolio. Venture capital co-investment schemes managed by private management companies should also prove effective once they develop sufficiently attractive track record.

Consider introducing tax incentives for investors. These seem to be a feature in the benchmarked ecosystems and given the relatively high taxation, could also have been quite high potential in the Nordic region. Nordic countries should collaborate in establishing similar tax incentive schemes, even though fiscal systems are somewhat different which means that the schemes may also need to be different in their detail.

The fiscal schemes could be designed in the form of delayed taxes, i.e. taxes are not paid until profits are taken out of the entrepreneurial ecosystem. As long as profits are invested into other early stage or growth VC funds, or start-ups and scale-ups, they are not taxed. Tax incentives may also be in the form of special deductions related to start-up and/or scale-up investments (or funds investing in these).

Enhance exit opportunities in the Nordic region by establishing a Nordic trading platform or platforms for early stage investments (incl. aftermarket for equity based crowdfunding). This may be accomplished e.g. by encouraging Nordic crowdfunding networks to establish one alone or in collaboration with business angels and/or VC funds and/or stock market actors (NASDAQ).

The relevant policy action should be taken at the national level. However, Nordic collaboration can create high added value, especially with respect to exit opportunities.

This addresses the following key challenges: Access to finance, Access to international markets (indirectly), Fiscal and regulatory regimes, Fragmentation.

Recommendation 7. Remove cross-border barriers, especially for private investments

Most of the fragmentation of the Nordic entrepreneurial ecosystem is a result of existing cross-border barriers. Some of these are real (regulatory, fiscal, etc.), while some are merely a result of lack of awareness and collaboration. The first ones require policy action and collaboration at Nordic level between the governments, while the latter can be addressed via collaboration between ecosystem actors themselves.

Establish a common Nordic VC market either by removing cross-border barriers or by establishing a separate legal entity at the Nordic level. The latter would

in practice mean a piece of legislation that would offer one set of regulations and fiscal model for funds (and investors) operating in the common Nordic VC market (regardless of specific Nordic country). It would have to be introduced into the legislative framework of each Nordic country, but it would not otherwise require harmonisation of regulations or fiscal systems. The former is most likely a longer process and requires harmonisation. In both cases, developments should follow the European common VC market development to ensure compatibility over time. However, Nordic countries could take leadership and thereby have a significant impact on wider European VC market by moving faster than the rest of Europe.

Support Nordic VC funds e.g. via a Nordic co-investment scheme (joint public funding model for Nordic VC funds). This could also make use of European funding, which is available for such cross-border fund of funds. Even though earlier attempts to establish these may have failed, further effort should be taken, since these funds can not only provide additional cross-border funding in the region for VC funds, but may also attract further international investors into the region.

Continue supporting the development of Nordic networks and platforms for crowdfunding, business angels, VC funds, accelerators, incubators and other ecosystem actors. Establish a systematic staged model for support starting from awareness raising and progressing via joint projects to establishing self-sustainable networks.

Enhance the visibility of Nordic deal-flow by encouraging the development of Nordic online platform(s). These should be launched, developed and maintained by the ecosystem actors and communities themselves. Governments may provide time limited funding for establishing these, but the platforms should eventually provide sufficient added value to ecosystem actors to allow a self-sustainable business model to cover maintenance and further development costs. These activities should be done at the Nordic level with strong support from national governments.

This addresses the following key challenges: Access to finance, Access to competences, Access to international markets (indirectly), Fiscal and regulatory regimes, Fragmentation.

Recommendation 8. Enhance international promotion of the Nordic region

Foster international visibility of the Nordic region instead of Nordic countries and cities separately. Capitalise and build on the increasing international interest towards the Nordic region. Focus on attracting both investors and talent.

There is ample national and regional promotion in the Nordic countries. However, alone these can show only limited deal-flow and visibility to the wider Nordic region. Recognising that all promotion will inevitably not be Nordic and that national and regional promotion will continue, Nordic promotion should be highly focused and selective to begin with and not compete with the existing national and regional ones. Instead, Nordic promotion should focus on highlighting the best in the Nordic region and add value to national and regional promotion activities.

Therefore, consider enhancing Nordic promotion by encouraging Nordic entrepreneurship ecosystem actors to establish their own joint private promotion activity. Consider offering time limited funding for ecosystem actor networks to establish such a promotion strategy, facility and processes.

This is obviously a viable recommendation at the Nordic level.

This addresses the following key challenges: Access to finance (indirectly), Access to competences (indirectly), Access to international markets, Fragmentation.

Table 6 shows a summary of all policy recommendations and how they address the identified challenges. It also categorises the recommendations based on potential impact, estimated time and difficulty to reach the impact. Category 1 includes recommendations with medium impact potential, which is relatively easy and fast to reach. Category 2 represents recommendations with high impact potential, but is more difficult and slower to reach. Category 3 lists recommendations, which although with medium to high impact potential, are difficult to reach and will most likely take longer time.

Many of the recommendations may seem complex, overly difficult or long term at first. However, there may be political windows of opportunity that may significantly change this and allow the necessary decisions and actions to be taken much faster and easier than in other conditions. To facilitate the use of these political windows of opportunity, an important precondition is that the relevant policy makers are sufficiently aware of the possibilities and potential impact of various decisions and actions.

The categorisation doesn't therefore necessarily indicate which recommendations should be prioritised over others. Instead, it indicates which types of action is likely to be appropriate. Category 1 recommendations can be addressed immediately with specific changes and targeted policy measures. There are no fundamental barriers for making decisions or taking action, apart from obvious opposition from those actors that perceive that the changes in policy will eventually weaken their position.

While category 2 recommendations can in some cases be addressed similarly to category 1 recommendations (such as a Startup Visa), more often they require a more holistic approach consisting of several parallel policy measures. This makes addressing these recommendations more challenging, but on the other hand, these are areas with highest potential policy impact. Prioritisation of category 2 recommendations and subsequent actions should be based on the awareness, insight and readiness of policy makers to make the necessary decisions. If the sense of urgency is sufficiently high to overcome the obvious opposition and the objectives of different policy domains are reasonably aligned, there can be room to move forward in a holistic way. Otherwise, progress often takes place in smaller steps policy measure by policy measure. In case it is not possible to take action at all, these recommendations should be addressed similarly to category 3 recommendations. In either case, policy makers should be kept aware of the holistic view, i.e. how does the ecosystem change as a result of changes in specific policy actions or the introduction of new policy actions.

Category 3 recommendations are rarely addressed holistically. Instead, if they are address at all, it happens through small steps. In some cases, multinational institutions (EU, WTO, OECD, etc.) can make decisions which require action related to these recommendations. This may lead into significant changes, but more often happens slowly and also in smaller steps. The priority actions here are to maintain sufficient awareness of the potential of addressing these recommendations, what are the possible practical ways to address them and what are the potential barriers, difficulties and costs related to optional policy actions.

Table 6 Summary and categorisation of policy recommendations and how they address the key challenges.

RECOMMENDATION	KEY CHALLENGE					CATEGORY
	Access to finance	Access to competences	Fiscal and regulatory regimes	Access to international markets	Fragmentation	
1. Promote the development of professional revenue and success driven support for entrepreneurs, start-ups and scale-ups	○	○		○		1
2. Focus on facilitating private entrepreneurial and early stage investment activity through indirect public support measures	○	○			○	1
3. Foster the development of entrepreneurial communities	○	○		○	●	3
4. Enhance access to talented workforce by removing labour market, fiscal and immigration barriers		●	●	○		2
5. Strengthen the Nordic market enhancing the demand for innovation	○			○	●	2
6. Make start-ups and scale-ups more attractive for private investors	●		●	○	●	2
7. Remove cross-border barriers, especially for private investments	●	●	●	○	●	3
8. Enhance international promotion of the Nordic region	○	○		●	●	1
● = direct impact ○ = indirect impact						

Proposed actions for Nordic Innovation

Based on the recommendations described above, we propose that Nordic Innovation considers taking the following action. As this list of actions covers all recommendations and possible actions, given the limited resources available at Nordic Innovation, and that the political window of opportunity may be open for some actions while not for others, which of these Nordic Innovation will eventually select to implement should be chosen carefully. However, even though some of these actions may be regarded as quite difficult or even impossible, they may also contain such a high potential for Nordic added value, that they should be attempted even if the probability of immediate impact might be very low.

- **Establish a Nordic Entrepreneurship Policy Platform.** Nordic Innovation could act in the beginning as the initiator inviting policy makers and ecosystem actors together and later act as the secretariat to this platform. The purpose of the platform would be to discuss ecosystem barriers and identify how to address them. The platform would allow national policy makers to discuss directly with Nordic ecosystem actors, inform them of upcoming policy initiatives, get immediate feedback and identify potential existing and predicted problems. Ecosystem actors would be able to express their opinions and have a more direct interaction with policy makers and potentially an impact on future policies. This action can build on the existing and previous Nordic Innovation activities in the area of entrepreneurship. Besides acting as the secretariat, Nordic Innovation can also support this by launching studies, collecting and analysing relevant data and/or supporting ecosystem actor networks. The platform should not remain only as an annual event, but should launch taskforces focusing on specific relevant practical issues with reports and recommendations to the Platform.
- **Launch a process with the objective of discussing the feasibility of establishing a common Nordic VC market featuring a marketplace for early stage investments.** Initiate the discussion first separately at two levels: policy makers and ecosystem actors. Policy makers should be invited to discuss the feasibility of establishing common Nordic market regulations and a single fiscal model for Nordic VC funds (and other similar investment vehicles). Ecosystem actors should be invited to discuss the feasibility of establishing a common Nordic marketplace for early stage investments. Although these discussions may be difficult, take time and may not lead into practical results any time soon, they should nevertheless be attempted because of high potential Nordic added value. The discussion among policy makers could be implemented as a practical activity of the Nordic Entrepreneurship Policy Platform.
- **Launch a taskforce with the objective of identifying and recommending practical Nordic level action to attract talent to the Nordic region.** This should be a joint activity between policy makers and ecosystem actors, especially start-ups and scale-ups, facilitated by Nordic Innovation. This may also be implemented as a Nordic Entrepreneurship Policy Platform taskforce.
- **Launch a taskforce with the objective of recommending how to establish a Nordic Startup Visa.** This should be a joint activity between policy makers facilitated by Nordic Innovation. The same taskforce may also discuss common immigration principles. This may also be implemented as a Nordic Entrepreneurship Policy Platform taskforce.

- **Launch a call for proposals to establish a privately managed facility for the promotion of the Nordic entrepreneurship ecosystem.** This should include a clear promotion strategy, appropriate virtual facilities (website, social media, etc.) and a business model which ensures longer term added value and sustainability. The promotion facility should build on already existing private and relevant public initiatives and facilities, including those initiated by Nordic Innovation.
- **Promote the use of public procurement for innovation, challenge competitions, hackathons and similar instruments across all Nordic Innovation activities.** Build on the already gained experiences and expand the use of these instruments. Enhance the promotion and visibility of these through better communication. Consider collecting and offering bigger awards to ensure better visibility. Focus only on Nordic level joint activities. Establish these in collaboration with public organisations, but also large multinational companies active in the Nordic region.
- **Promote Nordic excellence internationally in selected targeted Nordic measures.** Identify areas and activities, where pooling Nordic resources has a potential for high Nordic added value. Encourage entrepreneurs, start-ups, scale-ups and private early and growth stage investors, as well as professional accelerators, incubators, co-working spaces, mentors, coaches, and other professional service providers to establish and develop jointly sustainable privately managed Nordic activities supporting entrepreneurship in the region. Build on experiences gained from earlier entrepreneurship activities, but strengthen the activities and their international visibility. This is especially important when providing any support measures or funding for ecosystem actors, e.g. start-ups, scale-ups, business angels, VC funds, crowdfunding platforms, accelerators, incubators, national or regional authorities, etc.

The first four proposed actions are related to addressing category 2 and 3 recommendations. Interaction between policy makers and private actors in the entrepreneurial ecosystem is important in increasing the awareness on both sides and identifying how best to move forward into practical decisions and actions. For this approach to work, policy makers and private ecosystem actors have to be sufficiently committed to the policy platform. It may therefore be valid to start with one or more of the practical taskforces (proposed actions 2, 3 and 4) and establish the policy platform after the results from the taskforces demonstrate the added value of this type of interaction. On the other hand, political commitment may require a high level policy platform. Otherwise taskforce activities may lead into reports and recommendations which will eventually not be implemented, thus destroying this approach.

The rest of the proposed actions can be launched by Nordic Innovation alone or preferably in collaboration with the ecosystem actors and the appropriate national agencies. Promotion (proposed action 5) can build on existing activities, but the ambition has to be to raise it to the next level, i.e. much higher more (and focused) Nordic and internationally visible. Nordic Innovation has already experimented and actively promoted the use of challenge competitions. This activity should be strengthened and extended to Nordic level cross-border public procurements (especially procurement of innovation), hackathons, etc. This can be done separately or in connection to other thematic programmes managed

by Nordic Innovation, or even in the context of national programmes, especially when national agencies jointly manage programmes with cross-border activities.

The last one of the proposed actions refers to establishing specific targeted Nordic level activities, which are aimed at the best Nordic companies and can provide a clear added value and complementarity with national or other programmes and activities. These should be managed by the ecosystem actors themselves and aim for long term sustainability, this ensuring the added value. The planned Nordic Innovation activity to support scale-ups can be regarded as an example of this approach.

For the sake of long term impact, Nordic Innovation should prioritise the establishment of the policy platform (proposed action 1). This is because many of the current weaknesses and challenges of the Nordic entrepreneurial ecosystem can only be addressed or addressed with much higher added value at the Nordic level. Most of the other challenges can and should be addressed at the national level, in which case the added value or Nordic Innovation remains at promoting the exchange of experiences and good practices. However, the real high added value of Nordic Innovation is at the Nordic level, hence the suggested emphasis on the policy platform.

As noted earlier, the order in which the policy platform and the taskforce activities that it could launch should be established, depends on the awareness, ambition and readiness of both policy makers and ecosystem actors. Both approaches – platform first and taskforces later, or taskforces first and platform later – are basically viable.

The other proposed actions are closely linked to existing Nordic Innovation activities. Therefore, their practical implementation may require some level of re-thinking and re-design of Nordic Innovation current and/or planned activities. This should be done in the context of Nordic Innovation strategy and – based on it – the action plan of Nordic Innovation for the coming years.



Appendix A

Country case study Denmark

Appendix B

Country case study Finland

Appendix C

Country case study Iceland

Appendix D

Country case study Sweden

Appendix E

Country case study Norway

Appendix F

Benchmark with Amsterdam

Appendix G

Benchmark with Berlin

Appendix H

Benchmark with London

Appendix A

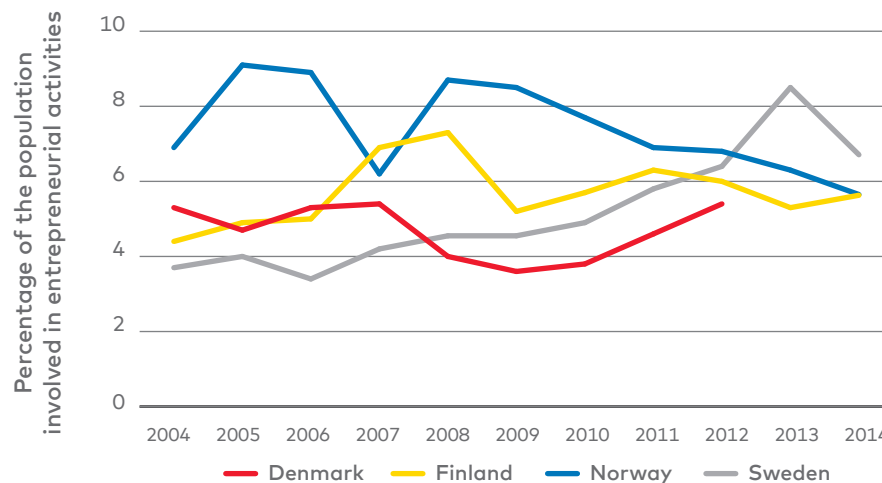
Denmark

1.1 The entrepreneurial ecosystem in numbers and volume

For several years, Denmark has been ranked among the top ten most innovative countries in the world and the country is ranked second most innovative country in the EU. The Danish ecosystem has improved over the last decade and today the entrepreneurial ecosystem in Denmark is considered to be one of the most supportive in the world.¹ In the Entrepreneurship Index published in 2016, Denmark ranks as number four (compared with number ten in 2012). Denmark scores above average in four out of five indicators in the index (regulation, access to finance, market conditions, and creation and diffusion of knowledge). Entrepreneurship policies have been prioritised in Denmark during the past decade, and the Danish government is working to ensure that their investments on innovation and entrepreneurship create more jobs and increase the growth.

Figure 1 shows the percentage of the population in Denmark who were involved in entrepreneurial activities between 2004 and 2014.

Figure 1 Percentage of the population in Finland, Norway, Sweden and Denmark who were involved in entrepreneurial activities, between 2004 and 2014 (for Denmark there are only data available between 2004 and 2012).



Source: GEM.

¹ The Bloomberg Innovation Index, see: <http://www.bloomberg.com/graphics/2015-innovative-countries/>, and Innovation Union Scoreboard 2015 and The Global Innovation Index 2014. OECD. Science, Technology and Industry (2014). *Denmark*. Mason, Colin & Ross Brown (2013). *Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship*. OECD.

The figure shows that the percentage of the population involved in entrepreneurial activity in Denmark was more or less the same in 2012 as in 2004. The figure shows a drop in the percentage of the population involved in entrepreneurial activities in 2007 and a slow increase from 2009 and onwards. Between 2008 and 2012 Denmark was the country with the smallest share of the population involved in entrepreneurial activities compared to Finland, Norway and Sweden.

Today, SMEs (start-ups included) represent more than 95% of all Danish companies. After some years of declining numbers of newly started enterprises, the figures for 2012 stabilised at around 18,000 newly started enterprises, which is higher than before the financial crisis.²

At national level, there is much focus on the Greater Copenhagen region, as well as the Øresund region (Malmö, Helsingborg and Lund in Sweden included). For instance, the Øresund region has several activities, ranging from incubation activities to many creative co-working spaces. The startup scene is also growing in Aarhus with communities for all kind of entrepreneurs. Aarhus has also a student incubators (Aarhus University Student Incubator and VIA Student Incubator) as well as other events like Startup Weekend Aarhus and CareWare Innovation. There are also various initiatives related to other universities such as the University of Southern Denmark. IDEA House is a so called pre-incubator, linked to the university, that holds free courses in innovation and entrepreneurship.

1.2 Policy context

1.2.1 National policy

The aim of the Danish innovation and entrepreneurship policy is to support the development of a self-sustaining ecosystem through, for example grants and sub-ordinated loans.

The main goal with the current business and growth policy in Denmark is to ensure that the growth conditions are right for citizens and enterprises. The Danish government works to support growth, competitiveness and that the conditions for businesses are good. The government has also stated that it is important to adapt Danish policies to meet the demands due to globalisation. The vision of the Danish government is to create the best growth conditions in Europe for enterprises. The strategy from 2012, *Denmark – A nation of solutions*, aims to increase the growth and job creation in Denmark. It is an attempt to ensure that public investments in innovation, education and research are resulting in more jobs and higher growth.³ One change in the new strategy was to adjust the Danish innovation policy to be more demand-driven, which refers to an innovation policy that is prioritising solutions toward societal challenges. Areas in need of new solutions are energy production, health care, environmental and climate challenges, and access of clean water. These areas are prioritised since they are areas that are assumed to provide enterprises with new opportunities to export and, in this context, support Denmark's growth.⁴

² Ministry of Science and Education (2012). *Denmark - a nation of solutions. Enhanced cooperation and improved framework for innovation in enterprises*. The Danish Government. OECD. Science, Technology and Industry (2014) Denmark.

³ Ministry of Science and Education (2012). *Denmark - a nation of solutions Enhanced cooperation and improved framework for innovation in enterprises*. The Danish Government. Since then, there have been no major revisions to the innovation strategy.

⁴ Ministry of Science and Education (2012). *Denmark - a nation of solutions Enhanced cooperation and improved framework for innovation in enterprises*. The Danish Government.

Danish policymakers have for several years worked to strengthen the innovation capacity of Denmark. One aim is to make the innovation scheme more user-friendly in order to decrease the resources spent by enterprises when applying for different support. In addition, the Danish government aims to create the right conditions for enterprises in order to make them grow.⁵

Danish policy is also targeted to increase the innovation skills of the Danish population by ensuring that innovation is an integral part of the Danish education system. For instance, innovation will be promoted through innovative learning in primary school. Innovation will also be promoted among younger adults through courses in entrepreneurship.⁶

1.2.2 Entrepreneurial infrastructure

Danish business and growth policy rests on three principles:

- Promote good framework conditions in general for all entrepreneurs and SMEs
- Remove barriers to growth, and support reallocation of resources from less productive to more productive business activities
- A focused effort for key sectors, i.e. enhance the opportunities for firms to develop and spread new technologies and solutions (not least in key sectors where Denmark has particular potential to be top performing)

As stated above, in Denmark the public policy plays an important role in creating the right conditions for entrepreneurs to run their businesses. The purpose of public-sector actions targeting entrepreneurs is:

- to provide a general view of and continuity in the system's many available provisions so that entrepreneurs and SMEs can find relevant provisions which can help them
- to provide assistance in clarifying needs for know-how and guidance relating to starting and running an enterprise
- to offer free, impartial charting of enterprises' growth potential and refer them to specialised private-sector consulting
- to ensure that entrepreneurs have access to venture capital for operating an enterprise and generating growth⁷

In Denmark, the Danish Business Authority works to develop the entrepreneurship policy. As stated by the Business Authority, a country's entrepreneurship activities depend on a number of factors affecting the possibilities of starting an enterprise, for instance public regulations, a strong entrepreneurship culture and access to capital. In addition, Denmark must be able to offer good framework conditions for entrepreneurship and growth, as these are the prerequisites for the ability to create new enterprises capable of contributing new solutions, challenging existing enterprises and creating jobs. This applies to areas where Danish enterprises are already succeeding internationally and areas with development and market potential.

⁵ Ministry of Science and Education (2012). *Denmark - a nation of solutions Enhanced cooperation and improved framework for innovation in enterprises*. The Danish Government. See also Regeringen (2015). *Vækst og udvikling i hele Danmark*.

⁶ Ministry of Science and Education (2012). *Denmark - a nation of solutions Enhanced cooperation and improved framework for innovation in enterprises*. The Danish Government.

⁷ The Danish Business Authority, see <https://danishbusinessauthority.dk/company-and-business>

The Danish Business Authority develops initiatives aimed at strengthening Denmark's business promotion system, with the aim to make it easier for entrepreneurs and SMEs to obtain qualified assistance for start-up and growth. The Danish Business Authority is involved in entrepreneurship activities in different areas. For example, the authority publishes the Entrepreneurship Index which analyses Denmark's framework conditions for entrepreneurship. In addition, the authority prepares analyses, manages initiatives such as Regional Business Development Centres (*Væksthus*), Entrepreneurship Week (GEW) and Early Warning, develops new initiatives to promote entrepreneurship and growth in (SMEs) and strengthens Danish entrepreneurship through international forums such as Nordic cooperation and the EU. Furthermore, the Danish Business Authority works to highlight entrepreneurship and inform individuals about the possibilities available for starting enterprises. The authority is focused on developing initiatives aimed at strengthening and increasing the awareness of entrepreneurship among young, future and newly started entrepreneurs.

1.2.3 Taxes

The tax that directly affects firms in Denmark is the corporate income tax. Relevant indirect taxes are, for example, VAT, transfer tax, and real estate tax. The tax rules do not cover the Faroe Islands and Greenland. Denmark has a tax treaty network with the aim to eliminate double taxation and provide for reduced rates of withholding tax on dividends, interest and royalties.

Danish enterprises have tax incentives regarding R&D investments. The R&D tax credit scheme is part of the government's growth plan for Denmark, which was proposed in April 2013. The goal with *Skattekreditordningen* is to promote and strengthen the growth of the private sector. *Skattekreditordningen* is targeted to loss-making R&D firms. Indirectly, this supports young and small enterprises. The idea is that the negative tax option will strengthen the liquidity of firms in the start-up phase, i.e. when different R&D activities have not yet generated any income. The R&D tax credit is volume-based and applies to all R&D expenditure that is targeted at developing significantly improved or new products, mechanisms, systems or services. The refund can be received on losses made in the same year. Along with the introduction of *Skattekreditordningen* and other measures, the Danish government has planned to gradually decrease the corporate tax rate from 25% to 22% in 2016 (regards all companies). This rate is below EU average.⁸

Recently, the Danish government stated that its main priority is to make it easier to run a business in Denmark. The aim is to decrease fees for enterprises with around DKK 3 billion until 2020. In a recent attempt to increase opportunities for enterprises in Denmark to grow, a number of potential barriers have been removed, for instance a reduced PSO-fee. The reduced PSO-fee will enable Danish enterprises in the productivity sector to reduce their costs on electricity consumption.⁹

The Danish government is planning to introduce new tax deductions which favour start-up investors as a part of the country's 2020 plan.¹⁰ A new tax deduction will make it easier for small firms to obtain venture capital by making the com-

⁸ Finansministeriet (2012). *Vækstplan DK, Stærke virksomheder, flere job. 2012/13:18*. Copenhagen.

⁹ Regeringen (2015). *Vækst og udvikling i hele Danmark*.

¹⁰ The Danish Government (2010). *Denmark 2020. Knowledge > Growth > Prosperity > Welfare*.

pany more attractive for investors (in the project proposals and business plans). Today, entrepreneurs and start-ups are spending a lot of time on pitching their ideas to different investors. The Danish government wants to change make it easier for start-ups and entrepreneurs. The tax law will allow start-up investors to withdraw up to DKK 650,000 in tax credits per year. The proposal is assumed to provide tax deductions of approximately DKK 300m per year.

1.2.4 Education and training

The Danish government has put effort in including entrepreneurship in the education system. This includes developing the innovative thinking of students in primary school, secondary schools well as direct entrepreneurship programmes and courses at the Danish universities.¹¹ Entrepreneurship education has been highlighted policy agenda for more than twenty years, and appeared in a policy strategy from 1995, which emphasised the importance of promoting entrepreneurship teaching (at all levels). Today, the country has a well-established platform supporting the introduction of entrepreneurship education, and the education system in Denmark is a central tool "to stimulate the ability of students to innovate, see opportunities and convert ideas into value, in other words to be entrepreneurial".¹²

Partnership for Education in Entrepreneurship was established by The Ministry of Science, Innovation and Higher Education, The Ministry of Culture, The Ministry of Children and Education and The Ministry of Business and Growth. To further support the implementation of the government's vision regarding entrepreneurship education, as set out in the *Strategy for Education and Training in Entrepreneurship*, a Foundation was set up. The Danish Foundation for Entrepreneurship, is a joint effort that supports the development of entrepreneurship education at all levels, funds entrepreneurial projects, and undertakes research and analysis in the field. Schools, teachers and pupils have the opportunity to engage with a large number of different initiatives, programmes and projects, due to the significant emphasis put on entrepreneurship education and on entrepreneurial attitude and skills at the policy level in Denmark.

One part of the Foundation is Young Enterprise and is the national knowledge centre for the development of teaching entrepreneurship in Denmark. The foundation was set up by the Danish government with the motto from *ABC to PhD*. The goal is to include access to entrepreneurship education from primary education to tertiary level. The Foundations' three overall objectives are to spread entrepreneurship education for pupils and students, to meet entrepreneurship at least once at every education level and to enhance the quality of entrepreneurship education and to catalyse activities. The Foundation sets significant emphasis on the development of material and advises on the implementation of entrepreneurship in teaching. It also facilitates cooperation and networking around entrepreneurship education. Furthermore, it provides models for entrepreneurship education, education tools and enables networking for teachers and teacher training. Since the Foundation was launched, it has developed several programmes, such as the StartUp programme, Next Level and Project Edison. The Start Up programme is a flagship programme of Junior Achievement – Young Enterprise (JA-YE). The initiative involves teachers, students and

¹¹ Ministry of Science and Education (2012). Denmark - a nation of solutions Enhanced cooperation and improved framework for innovation in enterprises. The Danish Government.

¹² Danish Ministry of Higher Education and Science 2015

business representatives to work together and explore how the entrepreneurial mind-set can be developed and promoted. NextLevel targets the 8th and 10th grade (secondary school) with the aim to provide an opportunity for the participants to develop their entrepreneurial skills through a learning-by-doing methodology. Project Edison is an inventor competition that is offered to secondary education pupils in the 6th and 7th grades. Through the programme, students will gain theoretical and practical knowledge and develop their creativity and ability to work independently. In addition, the programme puts major emphasis on skills development through offering students the possibility to experience idea creation, teamwork, concept and product development.¹³

The evaluation report *Impact of Entrepreneurship Education in Denmark – 2011* was published in 2012 and highlights that entrepreneurship in the Danish educational sector has been strengthened. The results from the evaluation suggests that:

*Training in entrepreneurship at this level of education focuses on getting young people to understand how they can practically apply and combine their knowledge from different fields to create value as well as getting them to understand the importance of taking responsibility for their learning process. This will equip the young people well for further education, which will focus more on concrete and real entrepreneurial activities.*¹⁴

Regarding higher education, Denmark today has over five master programmes in entrepreneurship, for instance at Aalborg University, Copenhagen Business School and Roskilde University.

1.3 Key support schemes

1.3.1 Government funding

Danish public policy supports Danish enterprises through grants, co-financing and subordinated loans. The Danish Growth Fund is a publicly financed investment fund that supports enterprises, in particular SMEs, with high-growth potential, and supports entrepreneurs with subordinated loans and SMEs through loan guarantees, export guarantees (see section 1.4) and access to venture capital.

Denmark organises activities to scaling growth businesses through Innovation Centre Denmark (ICDK), a partnership between the Ministry of Higher Education and Science and the Ministry of Foreign Affairs. ICDK has a number innovation centers abroad and a number of programmes designed to meet the companies' different needs in different stages. For example, ICDK help companies find partners, funding, and scaling opportunities through meetings, seminars, and networking with key players. Furthermore, ICDK assists companies in managing their start-up business, raising capital, accessing research and knowledge, and adapting their technology and business model to a foreign market. The organisation offers several programmes for SMEs, for example Entrepreneurship and innovation camp, Innovation Growth and Science and Technology Scouting programme.

¹³ http://www.schooleducationgateway.eu/downloads/entrepreneurship/Denmark_151022.pdf, prepared by Technopolis Group with contribution from 3s, DTI and ICF as part of the *Entrepreneurship 360 - Promoting entrepreneurial learning in primary and secondary education and in vocational education and training project* commissioned by the European Commission, DG Education and Culture.

¹⁴ The Danish Foundation for Entrepreneurship – Young Enterprise (2012). *Impact of Entrepreneurship Education in Denmark – 2011*.

The Ministry of Foreign Affairs and the Ministry of Higher Education and Science have conducted the first evaluation of the innovation centres. The evaluation shows that the innovation centres have succeeded in creating added value and growth, as well as raising international awareness of Danish companies and higher education institutions. In addition, the centres facilitate stronger partnerships between Danish and local researchers, higher education institutions and companies.¹⁵

The Danish Innovation Fund works to promote innovation and research in Denmark and promotes the interaction between research and Danish enterprises. The Fund is considered to be the largest distributor of project funding to business related innovation and research. The Danish Innovation Fund has three projects that promote interaction between research and enterprises. Large Projects is the common name of projects between knowledge institutions and enterprises for more than DKK 5 million. Innobooster is an initiative that supports cooperation projects between knowledge institutions and SMEs up to DKK 5m per project. Another initiative is Talent support. The projects are business oriented and works to promote graduates to choose a career as an entrepreneur. The Entrepreneurial Pilot is an opportunity for new graduates wanting to develop their innovative business idea. The scheme is designed to help newly graduated to become innovative entrepreneurs and aims to strengthen knowledge-based entrepreneurship, both short and long-term. Participants of The Entrepreneurial Pilot receive personal mentoring and a monthly grant of approximately DKK 14,470 for up to twelve months.

The Market Development Fund is another initiative. The Fund co-finances testing and adjustments of new products before they have reached the market and helps the developer of a product to faster introduce its product on the market and by that increase the conditions for growth and employment. During 2016, the Market Development Fund was given DKK 58m.

To support innovation in Danish enterprises, five so called *vaeksthus* (growth centres) that support entrepreneurs with knowledge and counselling, have been established: *Væksthus Nordjylland*, *Væksthus Midtjylland*, *Væksthus Syddanmark*, *Væksthus Sjælland* and *Væksthus Hovedstaden*. The centres often work as an initial contact between entrepreneurs and public policy. In addition, there are regional growth forums, so called *regionale vækstfora*, that support the contact between enterprises and knowledge institutions. The growth forums also support SMEs through initiatives to create cluster organisations that increase the innovation capacity and promote access of highly educated to the SMEs. On a national level, innovation is promoted through GTS institutes, innovation networks and innovation environments. The GTS institutes produce and distribute technological knowledge to enterprises, mostly to SMEs (including start-ups).

The 22 Danish innovation networks enable enterprises to have contact with other enterprises and authorities in the same business sector. The innovation environments are enabling venture capital and counselling to innovative entrepreneurs. The innovation environments are investing, through public funds, in new innovative businesses¹⁶

¹⁵ Oxford Research (2015). *Evaluation of the Danish Innovation Centres*.

¹⁶ Regeringen (2015). *Forsknings- og innovationspolitisk redegørelse 2015*. See also <http://ufm.dk/forskning-og-innovation/samspil-mellem-vi-den-og-innovation/fa-hjaelp-til-kommercialisering/innovationsmiljoer>

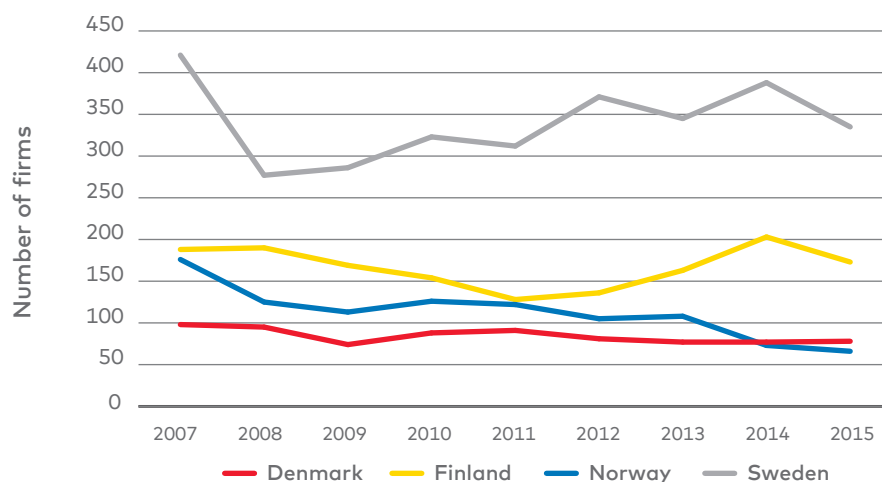
The Danish government also enables credits to enterprises. Today, credit guarantees are a quite established method of enabling enterprises to meet the demands of the lenders. In Denmark *Vækstgaranti* works with bigger loans towards established enterprises that are expanding or making bigger investments. The system is managed by the Danish Growth Fund. The guarantee cover loans and credits for up to DKK 2m (and cover up to 75% of the bank's loss after collateral and other guarantees). All Danish SMEs in all industries can apply for a guarantee. In an evaluation of the fund, it was concluded that the investments on venture capital toward SMEs in Denmark support the development of the SMEs. For instance, the Danish Growth Fund indirect investments through funds and fund of funds have drawn private capital. However, the same evaluation criticised the direct venture capital investments made by the Danish Growth Fund. Direct venture capital investments had a limited effect and were too small to have an impact.¹⁷

Vækstlån is a loan granted directly to the company. It is an integral part of a complete financing solution that includes financing from banks and other financial institutions. Minimum threshold for a loan is DKK 2m (and is subordinated in relation to a bank loan). The loan is targeting established SMEs. Loans for entrepreneurs are targeting young, established companies that have products and customers, but whose short history and track record makes it difficult to obtain financing to accelerate growth. The minimum amount of a loan for entrepreneurs is DKK 2m. The company can use the loan when their collateral no longer is adequate for regular financing from the bank. Loans for entrepreneurs are subordinated in relation to the loans and credits from banks and other secured creditors. Loans for entrepreneurs carry with them a higher risk than regular bank loans and subsequently the interest rate on the loan is higher than for regular financing.

1.3.2 Venture capital

In comparison to 30 other countries (mostly members of OECD), Denmark's investments on venture capital are in the low to middle range.¹⁸ In comparison

Figure 2 Number of start-up firms receiving venture capital funding between 2007 and 2015, Denmark compared to other Nordic countries



Source: EVCA, 2016.

¹⁷ Damvad (2014). *Evaluation of the Danish Growth Fund*.

¹⁸ OECD (2015). *Entrepreneurship at a Glance 2015*, OECD Publishing, Paris. http://dx.doi.org/10.1787/entrepreneur_aag-2015-en

to the private investments on venture capital, the public spending on venture capital is low in Denmark. However, the public spending on venture capital has focused on investments toward start-ups and through seed money, which are investments with higher risks. The main aim of the public investments in venture capital is to create a sustainable venture capital market that is mainly funded by private investments.¹⁹ Figure 2 shows the development in a number of start-up firms receiving venture capital financing between 2007 and 2015 in Denmark, Finland, Norway and Sweden.

Data from EVCA 2015 confirm the OECD data and show that the number of firms receiving venture capital in Denmark has been quite steady with a slight decreased since 2007.

Venture capital from The Danish Growth Fund (VF Venture) is direct equity investments from the Danish Growth Fund to innovative Danish companies who have ambitions of expanding beyond borders. Direct equity investments from The Danish Growth Fund are targeting innovative Danish companies who have ambitions of expanding beyond borders.

Other venture capital funds include, for example SEED Capital, Creandum, Sunstone Capital, Northcap NorthZone, Novo Ventures, Lundbeckfond Ventures. Most of these venture capital funds are targeted at IT, medtech and/or life sciences. SEED Capital is the largest venture fund within the pre-seed and seed segment, and specialises in identifying and developing new and innovative technology companies. SEED Capital manages both private venture capital and

Figure 3 Amount of venture capital investments and number of companies receiving the investments for different stages of companies in Denmark the years of 2012, 2013, 2014 and 2015. Amount in thousands of euro.



¹⁹ Tillväxtnalys (2015). *Offentliga finansieringsinsatser En jämförelse av erfarenheter från Danmarks och Kanadas system för riskkapital och kreditgarantier*. Myndigheten för tillväxtpolitiska utvärderingar och analyser.

public funds through DTU Symbion Innovation. SEED Capital manages approximately DKK 1.8b and has about 65 companies in its portfolio.

Figure 3 shows amount of venture capital investments and number of companies receiving the investment for different stages of companies in Denmark the years of 2012, 2013, 2014 and 2015. Seed represents financing provided to research, assess and develop an initial concept before a business has reached the start-up phase. Start-up Financing represents financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially. Finally, Later-stage venture represents financing provided for the expansion of an operating company, which may or may not be breaking even or trading profitably. Later-stage venture tends to finance companies already backed by venture capital firms.

1.3.3 Business angels

The investments of business angels in Denmark are considered to be low. In 2009, 7% of Danish entrepreneurs had support from business angels. Denmark has not put a lot of effort in financing activities of business angels, and previous studies has shown that the Danish government should consider a formal Danish support for business angels.²⁰

DVCA, the Danish Venture Capital Association, organises both Danish venture funds and Danish business angels. DVCA has more than 200 members representing the whole investment chain from business angels through venture capital and private equity to institutional investors and associate members. DVCA aims to strengthen its members' business, networks and skills through a variety of activities and committees focusing on specific areas.

There are also four large regional consortia of business angels in Denmark with focus on different regions: Business Angels Copenhagen, Switzr Midt/Nordjylland, BAN InVest Östjylland and BA-Syddanmark.

1.3.4 Incubators and accelerators

Denmark has several incubators and one of the largest is CSE Lab, which is a part of Copenhagen Business School. Another incubator is the Growth Factories that was launched by Business Link Zeeland. The business link organisations work to promote growth companies through guiding entrepreneurs in their ambition to develop their enterprises. The regional business link organisations work together with both private and public actors.²¹ Other incubators in Denmark are Symbion Incubator, Foundershouse, 5TE and Incuba Science Park.

In addition, four incubators (Pre-Seed Innovation, CAPNOVA, Syddansk Teknologisk Innovation and Borean Innovation) provide professional counselling, pre-seed and seed capital for entrepreneurs and new innovative enterprises through a so called innovation incubator scheme. The innovation incubators operate at the earliest stage of the investment chain, where venture capitalists and other private investors are reluctant to engage. The innovative incubators can engage financially three stages: pre-investigation, primary project funding and second-

²⁰ Damvad (2014). *Evaluation of the Danish Growth Fund*

²¹ Berg Jörgensen, Sören (2014). *Business Incubators and Incubatees. A study of the entrepreneurs inside the Growth Factories*. Roskilde University, Business and Management, Department of Communication, Business and Information Technology.

ary project funding. On behalf of the Danish government, the incubator in this stage can invest a maximum of DKK 2,5m in the form of loans or equity, provided that a supplementary private investment is raised to 60% or more of the total secondary investment. The scheme is financed by a national budget grant of DKK 200m per year.²²

Accelerators are quite common in Denmark. The two largest accelerators in Denmark are Startupbootcamp and Accelerace. Startupbootcamp is a network of industry-focused start-up accelerator programmes, helping start-ups scale globally by giving them direct access to a network of partners, investors and mentors in their sector. Accelerace is an internationally focused business development accelerator that supports start-ups who have a unique products or service and the ambition to take their business further. Trial and Error KPH is an accelerator/growth programme for start-ups that combines teaching, practical testing, and individual objectives as well as mentorship.

In addition, there are many co-working spaces and different networks (grass root initiatives) in Denmark, especially in Copenhagen. Furthermore, there are several non-profit organisations and student-driven NGOs in Copenhagen.

1.3.5 Other support

Entrepreneurship Week (GEW) is a political initiative relating to entrepreneurship. The Danish Business Authority hosts and serves as the secretariat for Entrepreneurship Week, that is part of the Global Entrepreneurship Week campaign for entrepreneurship. The authority work together with over 30 private and public organisations, which work with entrepreneurship and growth. The events held during Entrepreneurship Week are intended to promote Denmark's entrepreneurial culture and are aimed at all entrepreneurs – from prospective entrepreneurs to high-growth start-ups.

Governmental initiatives to promote crowdfunding have been made in Denmark.²³ In a report from 2015, it is stated that the biggest barrier for crowdfunding in Denmark is estimated to be uncertainty about how the actors relate to the regulation. It is not believed necessary to create large public programmes for promoting crowdfunding in Denmark. The Market Development Fund can provide matchfunding for crowdfunding projects and provide a guarantee to give the buyer of an innovative solution peace of mind. Entrepreneurs can apply for funding from the Market Development Fund to test whether a prototype/concept works in a realistic environment or a prospective customer's site, and to adapt the prototype/concept to strengthen the solution's commercial potential. Three examples of crowdfunding actors in Denmark are Kickstarter, Indiegogo and Boomerang.²⁴

The Danish Business Authority has established the portals *Virk Startvækst* and *Virk vækstguiden* with the aim to boost continuity and provide a general view of the business promotion system. Both portals are aimed at entrepreneurs and enterprises. The portals provide knowledge, consultancy options and public-sector offerings.

²² <http://ufm.dk/en/research-and-innovation/cooperation-between-research-and-innovation/commercialisation-and-entrepreneurship/the-innovation-incubator-scheme>

²³ Erhvervs- og Vækstministeriet (2015). *Crowdfunding i Danmark*

²⁴ Erhvervs- og Vækstministeriet (2015). *Crowdfunding i Danmark*.

Denmark also has different events like hackathons (these are not only linked to the capital region). Denmark has not, however, the same event volume as Finland.

1.4 Access to markets

For a small country with limited sales potential in its domestic market, such as Denmark, international trade opens the doors to a larger market. International trade constitutes one of the most important keys to higher productivity and greater prosperity for Denmark. In 2013, Danish exports of goods and services totalled approximately DKK 1b, equivalent to roughly 55% of Denmark's GDP. Around one in four jobs in Denmark is directly or indirectly linked to the export sector.

The policy maker's in Denmark promote export and internationalisation by supporting Danish firms in the global market. The Productivity Commission in Denmark has stated that the main aim of the Danish export policy should be to address market failures and spill-overs.

Denmark's SMEs often depend on the ability to make their first international forays in local markets. To ensure that a greater number of SMEs internationalise and increase their exports, the Danish government will launch four initiatives: SME programmes with a focus on value creation through long-term collaborations, strengthened preliminary sector advising and export preparation of SMEs, heightened focus on medium-sized companies and strengthened international innovation cooperation through innovation networks.

The Danish Trade Council is the governmental export and investment promotion organisation under the Ministry of Foreign Affairs. The organisation comprises all governmental activities designed to promote Danish export and foreign investment in Denmark. The Trade Council focuses on offering Danish companies individual advice on all issues important for their international activities.²⁵

1.5 Cultural context

As stated in section 1.1, Denmark ranks as number ten among the OECD countries in terms of the framework conditions for entrepreneurship. Regarding entrepreneurial culture, Denmark is behind all top ten countries.²⁶ In the Global Entrepreneurship Index 2015, Denmark's score regarding cultural support was below the other Nordic countries. Among the top 25 countries in entrepreneurship, Denmark has the lowest score regarding cultural support.²⁷

A 2014 OECD report states that Denmark needs to work more to incorporate Danish SMEs in the global market to better ensure a stronger entrepreneurial culture.²⁸ However, in a report by the European Commission, it appears that Denmark are characterised by a powerful entrepreneurial culture. One initiative by the public policy to strengthen the entrepreneurial culture is Entrepreneurship Week, see section 1.3.5, a campaign that promotes the entrepreneurial culture in Denmark. The campaign is directed towards entrepreneurs in all sectors. The events held during Entrepreneurship Week are intended to promote Denmark's entrepreneurial culture and are aimed at all entrepreneurs (from prospective entrepreneurs to high-growth start-ups).

²⁵ The Danish Government (2014). Government Strategy on Export Promotion and Economic Diplomacy. More Trade. New Jobs.

²⁶ Junge, M. et al. (2103). Attitudes, Motivations and Entrepreneurship in Denmark.

²⁷ Acs, Zoltan J, Laszlo Szerb & Erkkö Autio (2015). Global Entrepreneurship Index, GEDI.

²⁸ OECD (2014). OECD Economic Surveys: Denmark, 2014, OECD Publishing.

1.6 Currently identified key challenges and barriers

The general situation regarding entrepreneurship in Denmark is good with high rankings in entrepreneurship indexes. In general, barriers for entrepreneurship are considered to be low in Denmark.²⁹ However, there are a couple of barriers against entrepreneurship in Denmark. For instance, the taxes toward labour with high income have been mentioned as a possible barrier toward the economic growth in Denmark.³⁰

Denmark has also scored low in comparison to other comparable countries regarding entrepreneurial skills and capabilities.³¹ This is a possible barrier regarding the access of skilled labour. It could also result in that fewer people feel that they have the right skills to start an enterprise.

According to an evaluation of the Danish Growth Fund by Damvad one of the aims of the public investments through venture capital are to support and develop a venture capital ecosystem that is self-sustaining. Hence, it is problematic that much of the investments are through public subsidies.³² Another barrier is that, even though Denmark scores high on friendly business regulations towards enterprises,³³ some regulations have been criticised to be too comprehensive. For instance, enterprises in the environmental sector have experienced many regulations that could prevent the creation of new enterprises in the sector.³⁴ The enterprises in Denmark, like enterprises in most countries, are often challenged by a difficult bureaucratic process and this could be a barrier for the growth of enterprises.³⁵

1.7 Future outlook

As stated above, a new scheme (under the Innovation Fund Denmark), Entrepreneurial Pilots was initiated in 2014. The scheme provides financial support and coaching for young individuals who want to create a start-up.

In 2015, the Danish government released the report *Vækst og udvikling i hele Danmark*. Denmark is going to improve the conditions for running businesses. The report includes over 100 initiatives that will strengthen growth and development. The initiatives in the report are going to increase the growth of enterprises and to ensure that enterprises all around Denmark have the right conditions to grow. The Danish government are going to spend DKK 9b in the period of 2015-2019 on these initiatives.³⁶

The Danish government has allocated DKK 909m in 2016 to strengthen the innovation of Danish enterprises through the access of technological benefits, test facilities and experts. The funding is going to be managed by the GTS institutes.³⁷

The Danish policymakers have been working on solutions toward the barriers that the Danish entrepreneurial ecosystem faces. For instance, initiatives have

²⁹ OECD (2014). *OECD Economic Surveys: Denmark, 2014*, OECD Publishing.

³⁰ OECD (2014). *OECD Economic Surveys: Denmark, 2014*, OECD Publishing.

³¹ Damvad (2014). *Evaluation of the Danish Growth Fund*.

³² Damvad (2014). *Evaluation of the Danish Growth Fund*.

³³ <http://data.worldbank.org/indicator/IC.BUS.EASE.XQ>

³⁴ OECD (2014). *OECD Economic Surveys: Denmark, 2014*, OECD Publishing.

³⁵ Ministry of Business and Growth Denmark (2012) *Denmark's Growth Market Strategy Danish solutions to challenge in growth markets*

³⁶ Regeringen (2015). *Vækst og udvikling i hele Danmark*.

³⁷ <http://ufm.dk/aktuelt/pressemeddelelser/2016/909-millioner-kroner-skal-styrke-innovation-i-danske-virksomheder>

been made to make the bureaucracy simpler regarding to write off investments in R&D. The initiative made by the former government was to adjust the write off rules so the enterprises can decide more for themselves when they are going to write off investments on R&D. Denmark also tries to find solutions to get more highly educated employed at SMEs and initiatives to strengthen entrepreneurial skills have been made.³⁸

Furthermore, Danish policymakers will further strengthen the innovation and knowledge centres. Two new centres have been established during 2016, *Food for Future and Added-value Manufacturing*.³⁹

The Danish Ministry for Higher Education and Science, and the Ministry of Foreign Affairs have decided to establish a so called innovation centre in Tel Aviv. Israel is the OECD country which invests most in research, innovation and entrepreneurship. Stated in a recent evaluation of the previous six innovation centres (Munich, New Delhi, São Paulo, Seoul, Shanghai, Silicon Valley), they play an important role in the internationalisation of Danish business, education and research. The innovation centre in Tel Aviv is expected to open in the autumn of 2016.⁴⁰

According to a new report (April 2016) from the European Commission, Denmark received the second greatest amount of funding per capita from the programme Horizon 2020 (Netherlands is number one). Danish SMEs have been successful at getting support for innovative businesses. In addition, the report states that Denmark performs well in the Marie Skłodowska-Curie researcher education and mobility programme.⁴¹

Denmark is one of the OECD countries that have experienced the lowest average productivity growth since 2004. For this reason, the government will, among other things, implement a business taxation reform to simplify Danish business taxation. This will, for instance contribute to attracting more foreign investments. The government will also reduce burdens for the private sector and ease the administrative burdens on the private sector by DKK 3b until 2020 (administrative burdens for start-ups).⁴²

³⁸ Finansministeriet (2015). *Bedre vilkår for investeringer og iværksættere*. Regeringen.

³⁹ <http://ufm.dk/forskning-og-innovation/tilskud-til-forskning-og-innovation/opslag/2016/opslag-om-nye-knowledge-and-innovation-centres-kic>

⁴⁰ <http://ufm.dk/en/newsroom/press-releases/2016/new-danish-innovation-centre-in-tel-aviv-israel>

⁴¹ <http://ufm.dk/en/newsroom/press-releases/2016/danish-businesses-successful-at-securing-eu-innovation-support>

⁴² The Ministry of Business and Growth (2016). Report on Growth and Competitiveness.

Appendix B

Finland

1.1 The entrepreneurial ecosystem in numbers and volume

The number of start-ups in Finland varies depending on statistics. Based on Startup100's research¹, there were around 850 start-ups in Finland in March 2015. However, according to the Finnish business angels network FiBAN, 400 start-ups applied to join the network in 2015, compared to 350 in 2013 and 200 in 2012. Tekes, the Finnish Funding Agency for Innovation, states that they have helped finance 660 start-ups in 2014. There were 4 unicorns (billion-dollar companies) in Finland in 2015, among which Rovio (USD 4b) and Supercell (USD 3b). There were 34 active business angels, 13 venture capital management companies and 19 accelerators and incubators making investments in start-ups in 2015.

In 2013 Finland had a total of 283,290 enterprises (excluding agriculture). Among these 98.9% were SMEs employing less than 50 people and 93.4% had fewer than 10 employees. The role of SMEs in Finnish employment and the economy is quite significant. Of all private-sector employees, as many as 65% work for companies employing fewer than 250 people. These enterprises generate about 50% of the combined turnover of all Finnish businesses and SMEs are responsible for more than 16% of Finland's export revenue.²

Since the financial crises in 2008 the recovery in Finland has been slow. While the Finnish SMEs in terms of value added have managed to expand their operations (gross value added in 2013 was estimated at 3% above the levels from before the crisis), the number of SMEs and employment in them not yet reached 2008 levels. In 2013 there were 550 less SMEs than in 2008 (-0.2%) and the number of employees in Finnish SMEs fell by almost 19,000 (-2.1%) to 890 254 between 2008 and 2013. The recovery from the crisis 2008 has thus been slow, particularly in terms of employment.³

In 2014, Finnish start-ups raised over USD 145m. 21 of these companies raised more than USD 1m. Figure 1 show these 21 companies, and their raised funds, divided into different sectors.

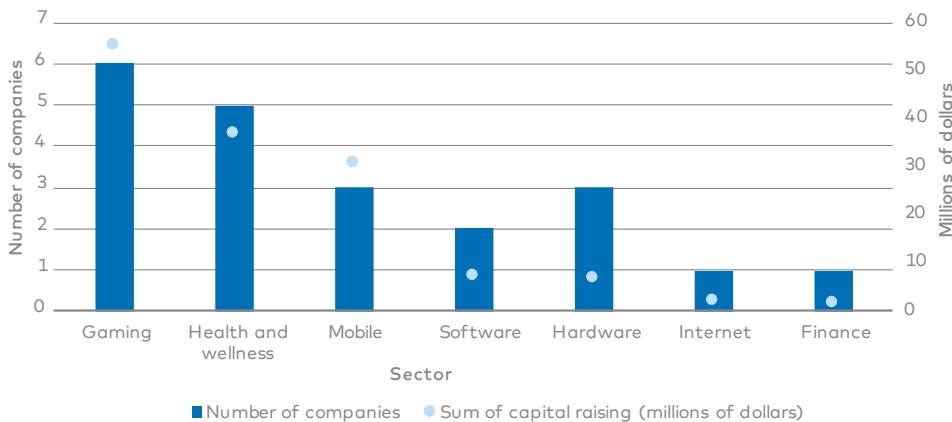
Figure 1 shows that six of the 21 companies were operating in the gaming sector, these six companies are also the ones raising most capital. On second and

¹ <http://startup100.net/>

² Statistics Finland, Business Register 2013

³ Small Business Act for Europe (SBA), Finland 2014

Figure 1 Number and sum of capital raising of the 21 start-up companies that raised over \$1 million in 2014, divided into different sectors.



Source: <http://www.geektime.com/2015/03/30/geektime-report-the-state-of-finlands-vc-and-startup-ecosystem/>

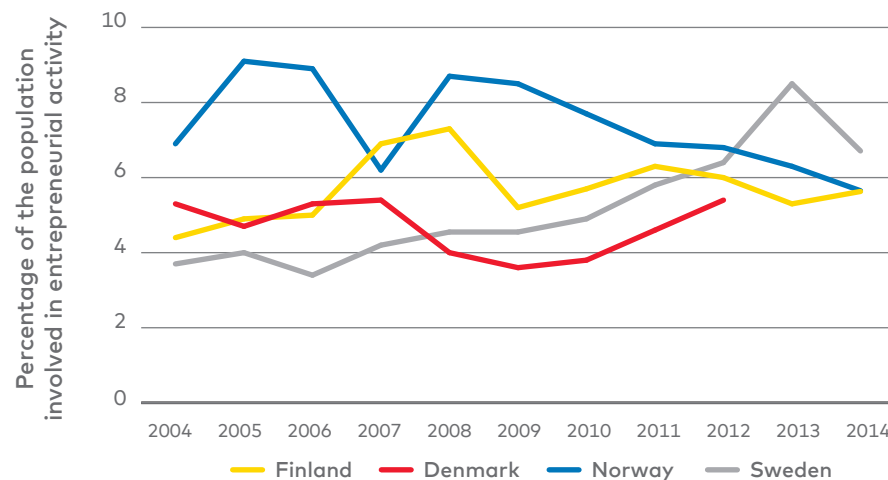
third place, both when it comes to number of companies and raised capital, we find the health and wellness sector and the mobile sector.

In Finland, the average new entrepreneur is more often male than female, more often middle-aged than young; even if the younger age group are now showing more interest in entrepreneurship than in previous years.⁴

Figure 2 shows the percentage of the population in Finland, Norway, Sweden and Denmark who are involved in entrepreneurial activities.

The figure shows that the percentage of the population involved in entrepreneurial activity in Finland has slightly increased since 2004, and has recovered from a drop after the financial crises in 2008. Compared to the other Nordic countries, Finland had the same share of the population involved in entrepreneurial activities as Norway in 2014.

Figure 2 Percentage of the population in Finland, Norway, Sweden and Denmark who were involved in entrepreneurial activities, between 2004 and 2014.



Source: GEM

⁴ <http://www.gemconsortium.org/country-profile/61>

According to data from Global Entrepreneurship Index (GEI), Finland's entrepreneurial ecosystem reached its lowest score in 2015.

Much entrepreneurial activity focuses on the Helsinki area. However, there are other important regions as well. One example is the Oulu region with events like Starttaamo Startup week and GameSpring. Starttaamo in Oulu is a non-profit operation run by entrepreneurs that provides peer-support, investors and large companies. In 2012, Oulu was selected in the list of Fortune's 7 Best New Global Cities for Startups'. In Finland, the region creates most innovations per capita. Most start-ups have been spin-offs from Nokia, VTT or the University of Oulu.⁵

1.2 Policy context

1.2.1 National policy

Policymakers in Finland have targeted SMEs and start-ups during the past 30 years. Over time, policy initiatives have grown in variety and scope, and much effort is today focused on enhancing co-ordination among different support initiatives over the new venture life cycle, to nurture entrepreneurship ecosystems.⁶

Finland has been very active in terms of creating a favourable business environment. In the 1990's Finland was a world leader in adopting a "systems of innovation" approach to innovation policy – a hugely successful approach that for example laid the foundations for Nokia's future success.⁷

SMEs as a driver of economic development has become even more important since the crisis in 2008, partly reflected in policy priorities. For example, the government has introduced a specific measure to reduce red tape for businesses and embarked on a reform of legislation on public procurement and state aid rules to help small and medium businesses in a better way. The financial instruments have improved the financing of entrepreneurship at an early stage. New instruments for risk financing and financing to high-growth companies have also been introduced in recent years.⁸

The Global Entrepreneurship Monitor (GEM) 2014 measures Entrepreneurial Framework Conditions (EFC). The report shows that Finland scores better than its peers in the overall governmental support for entrepreneurship. In Finland, the regulatory environment is perceived more suitable for entrepreneurship than in other EU member states. This is supported by the Ease of Doing Business index's results: Finland stands out as one of the best countries for running a business among the EU member states.

High-growth entrepreneurship has been increasingly drawn into the policy focus in Finland, as government has recognised that not all new firms contribute equally to the economy. This has contributed to increased interest in policy initiatives specifically targeted at facilitating high-growth entrepreneurship. Research from Aalto University, shows that Finnish high-growth entrepreneurship policy has helped selected new firms mobilise financial and managerial resources and achieve higher growth.⁹

⁵ Statistics from Foundation for Finnish Inventions

⁶ Autio, E. et al., (2014). *Analyses on the Finnish High-Growth Entrepreneurship Ecosystem*

⁷ <http://thegedi.org/finlands-flagging-entrepreneurial-potential/>

⁸ Small Business Act for Europe (SBA). Finland 2014

⁹ Rannikko, H. et al. (2015). The impact of high-growth entrepreneurship policy in Finland, Aalto University, Finland

1.2.2 Entrepreneurial infrastructure

Over the past two decades, Finland has made major investments in infrastructure supporting entrepreneurship. As a result, there are many healthy elements in the Finnish entrepreneurial ecosystem. Good infrastructure is the biggest enabler of entrepreneurship in Finland. The higher education system and good education levels create good opportunity-recognition mechanisms for business ideas. Constraints on entrepreneurship are few and those that do exist cannot really be considered constraints in the same way as they are in other countries.¹⁰

1.2.3 Taxes

According to the Strategic Programme of Prime Minister Juha Sipilä's Government (May 2015), the government's objective is to make Finland more competitive by reforming taxation of entrepreneurship, ownership and investment. The corporate income tax rate will be maintained at a competitive level. An entrepreneur deduction will be introduced for forms of company other than limited companies. Payment-based settlement of value-added tax will be facilitated for small companies. Succession will be promoted by easing inheritance tax, and other development needs will be assessed. The Government will study the possibility of a provision made from a company's taxable income to promote investment.

1.2.4 Entrepreneurship education and training

The Finnish development plan for education and research 2011 – 2016, adopted by the ministry of Education and Culture, emphasises that entrepreneurship education should be developed at all levels of education in Finland, to help improve relations between schools and employers.

Like many other countries, schools in Finland are autonomous institutions and implement entrepreneurship education in different ways. The ministry of education has published a set of guidelines to help support embedding entrepreneurial skills across the curricula. Examples of on-going initiatives addressing entrepreneurship education in Finland are:

- JA Finland. JA Finland's goal is to advance entrepreneurial attitude and an active lifestyle among Finnish youths by increasing their knowledge of entrepreneurship, providing entrepreneurial experiences, enhancing readiness for working life and financial management skills. JA aims to fulfil its goals by providing programmes supporting entrepreneurship and consumer education for 7- to 25-year-olds through schools, universities, and other educational institutions. The programmes are carried out as a part of the schools' own curricula.¹¹
- JA Start UP. JA Start-up Programme is an educational programme for Universities and Universities of Applied Sciences. Programme duration is one academic year, during which participants (Students) will establish their own JA Student company and participate in entrepreneurship education. JA Student company is a practice enterprise founded and formed by students, which is in operation for one year (one term or one calendar year). The goal of Student Companies is to teach skills needed in working life, attitude and methods necessary for running an enterprise during studies.¹²

¹⁰ <http://www.gemconsortium.org/country-profile/61>

¹¹ <http://nuoriyrittajyys.fi/en/junior-achievement-finland/>

¹² <http://nystartup.fi/en/about-2/>

- Aaltoes. Aaltoes organises networking events, trips, and a summer accelerator programme etc. in order to strengthen the Finnish start-up community. Aaltoes is a student initiative that was founded in 2009 by Aalto students who were inspired by their field trip to MIT. Today, Aaltoes arrange 131 events per year.¹³

1.3 Key support schemes and access to funding

According to the 2013 SME spring barometer¹⁴ every two SMEs in Finland have a loan from a bank or other financial institution. Viewed over a longer period, the prevalence of external funding remained stable at about 50%. Although the number of companies with payment difficulties has risen significantly compared with the period before the financial crisis, the share of SMEs that have used external funding remained almost unchanged. A bank loan is the most common form of financing and working capital is the most commonly intended use of the funding.¹⁵

According to the barometer, many SMEs have a tight cash position and payment difficulties are currently growing. The biggest change for the worse are for small SMEs. Of micro-enterprises, almost every fifth have payment difficulties. Companies with strong growth orientation has no more financial difficulties than other SMEs, which is unfortunate from the employment and economic growth point of view. The circumstances have led to that more and more businesses have been forced to take measures to adapt their business after the economic situation.

1.3.1 Government funding

When it comes to government funding of start-ups, there are two schools of thought. First, there are the free-market purists who believe that governments should not be in the accelerator business. Then, there are what you can call the start-up welfare states, among which Israel, South Korea and Finland are examples, whose governments spend hundreds of millions into loans, grants and investments in start-ups each year.

Finland offers generous government grants for start-ups, of which Tekes is responsible for a great share. Tekes has doubled their funding for start-ups in the last five years and provide some € 130m every year. The funding is in the form of grants and loans. Tekes does not take any equity ownership, which means the funding is non-dilutive for the entrepreneur and other investors. Tekes offers three different types of financing:

- Planning for global growth — a grant of 75%, maximum € 50 000. With this money the company can test its customer base, build a minimum viable product or service and increase the understanding of new markets.
- Funding for R&D, innovation and pilot projects. R&D funding is typically a grant, while funding for pilot projects is typically a loan that the company has to pay back. The loan level is 50-70% of the project. The companies can develop products, services a business model and through piloting also demonstrate the functionality of the solution with customers. If the business

¹³ <http://aaltoes.com/>

¹⁴ The 2013 SME spring Barometer is based on survey responses from over 4000 SMEs. It describes the comprehensive Finnish SME companies' perceptions of changes in the economic operating environment and the factors that affect the business and prospects.

¹⁵ <http://www.yrittajat.fi/fi-FI/suomenyrittajat/tutkimustoiminta/pk-yritysbarometri-1-2013/sammanfattning/>

is successful it has to pay back the loan, but Tekes does not take any share of the ownership. Payback starts typically after three years.

- Funding for young innovative companies. This type of funding is meant for the most promising start-ups with a scalable business model that are really capable of rapid global growth. There the funding is up to €1 25m. Private investors can leverage this.¹⁶

In the Finnish high-growth entrepreneurship policies, there are two key programmes from the past ten years: the NIY Programme of Tekes, which has been running since 2007, and the VIGO Accelerator Programme of the Ministry of Employment and Economy, which has been running since 2009. These policy programmes were introduced to address a number of perceived gaps in the Finnish high-growth venturing ecosystem: (1) insufficient number of new ventures with potential for high growth; (2) an equity funding gap in the region from approximately €20k to €200k; and (3) an insufficient experience and competence base in high-growth venturing.¹⁷

The NIY Programme of Tekes offers financial support for commissioning expert services for business planning, growth strategy development and strengthening firms' management competencies. Public funding of up to €1m can be granted in several instalments to develop the participating firms' organisational capacities in a hands-on fashion. As a bridging service, the NIY Programme facilitates active networking among its participants and the exchange of experiences and good practices. NIY also facilitates links with domestic and international venture capitalists. In itself, the NIY Programme operates as a branding mechanism that enhances the credibility of its participants.

A study from the Aalto University shows that between 2009 and 2011, 85 firms participating in the NIY Programme for young innovative firms increased their external funding from €56m to €112m. Evidence from the study suggests that this additional resource mobilisation has accelerated firm-level growth and that the NIY Programme's participants have outperformed their propensity score matched peers in sales growth.

The aim of the VIGO Accelerator Programme of the Ministry of Employment is connecting innovative business ideas that have international potential, with internationally experienced business professionals and private and public growth finance.¹⁸ The stated financial objective of the VIGO Programme was to attract €200m in equity funding into innovative start-ups from domestic and international sources during the programme's intended six-year lifespan. The central operating mechanism in the VIGO Programme has been the support for VIGO accelerators, with the purpose of facilitating the emergence of an accelerator industry in Finland. VIGO accelerators are private firms that invest in and help manage high-potential growth ventures. They provide experience, expertise and hands-on managerial support for their own portfolio firms. They are expected to invest their own funds to take equity stakes in their portfolio firms, in addition to helping raise further equity funding from other investors. To attract high quality accelerator teams to the emerging field, public-sector agencies have been committed to providing coordination services to VIGO firms as they seek support

¹⁶ <http://www.geektime.com/2015/06/01/welcome-to-finland-where-most-startups-get-government-funding-and-the-payoff-is-high/>

¹⁷ Heikki Rannikko and Erko Autio (2015) *The impact of high-growth entrepreneurship policy in Finland*, Aalto University, Finland

¹⁸ <https://vigo.fi/program>

(e.g., NIY support). In this way the NIY Programme and the VIGO Programme have been strongly connected to each other.¹⁹

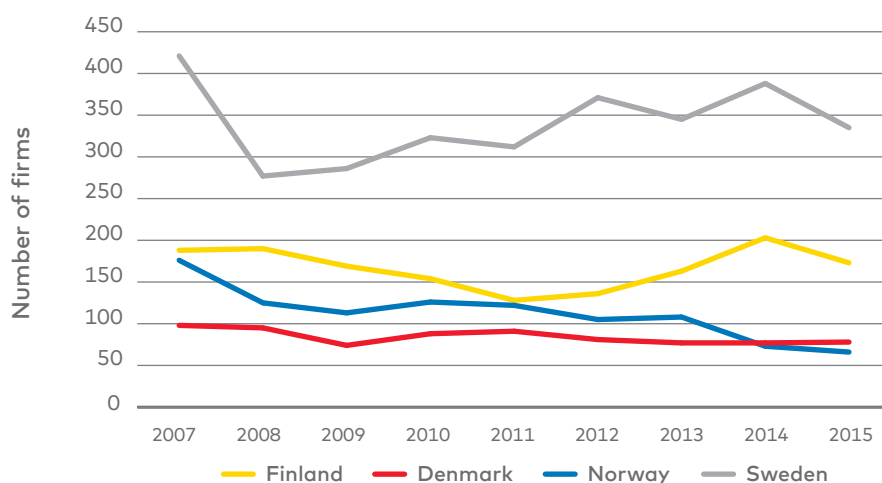
A recently introduced support scheme is the Tekes support programme for innovation activities in small and medium sized enterprise. The programme was introduced at the beginning of 2015. Funding is granted to SMEs for innovation activities, e.g. to help SMEs strengthen and protect their intellectual property rights, transfer highly qualified personnel from large companies or research organisations on a temporary basis and provide innovation advisory and support services. The programme is valid until 31 December 2020. The maximum budget for the programme is €250m and consists of loans and grants to assist SMEs in various ways and several sectors.

1.3.2 Venture capital

In 2015, there were 13 venture capital management companies in Finland. These include for example Inventure and the Industry Investment Ltd. Inventure is an early-stage venture capital company that invests in innovative and fast-growing companies. Industry Investment Ltd is a combination of fund-of-funds and direct investments. However, Industry Investment does not operate in early stages, but focuses on later stage growth companies (and also on some selected politically motivated investments).

Finnvera and Tekes Venture Capital are examples of public venture capital management companies. Tekes Venture Capital Ltd invests in venture capital funds, which invest in companies in Finland in their early stages of development. The purpose of the company is to develop Finland's venture capital market by fixing shortcomings that exist in the availability of funding for the initial stages of the operations of a company. Tekes Venture Capital Ltd is a state-owned company and its ownership steering is the responsibility of Tekes – the Finnish Funding Agency for Innovation.²⁰

Figure 3 Number of start-up firms receiving venture capital funding between 2007 and 2015, Finland compared to other Nordic countries.



Source: EVCA, 2016

¹⁹ Heikki Rannikko and Erko Autio (2015) *The impact of high-growth entrepreneurship policy in Finland*, Aalto University, Finland

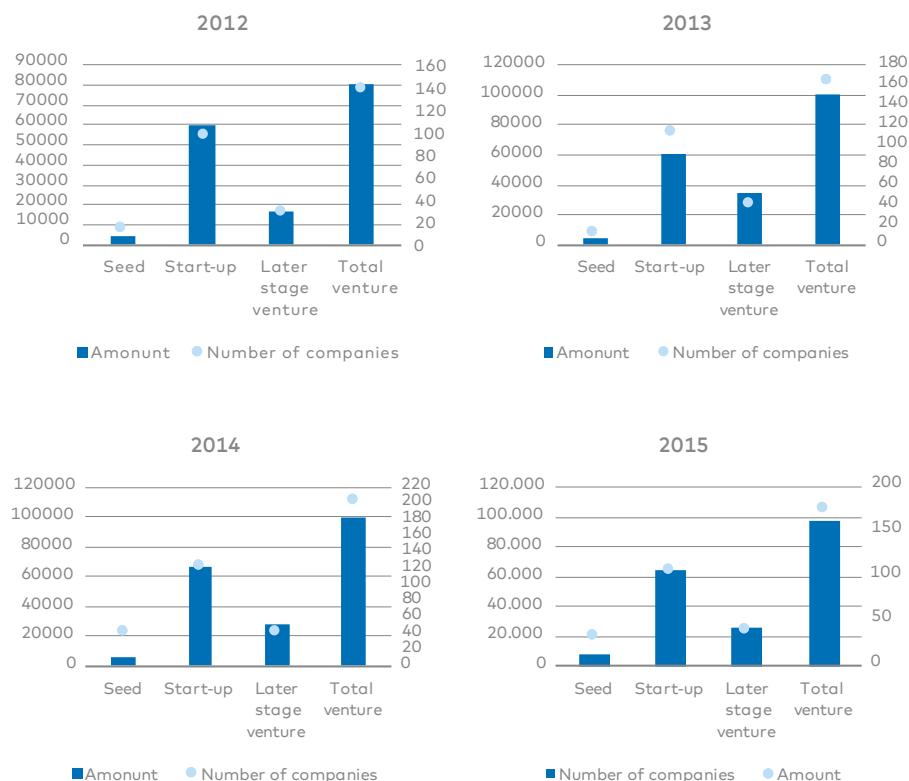
²⁰ <http://www.geektime.com/2015/03/30/geektime-report-the-state-of-finlands-vc-and-startup-ecosystem/>

Figure 3 shows the development in the number of start-up firms receiving venture capital financing between 2007 and 2015 in Finland, Denmark, Norway and Sweden.

Figure 3 shows that Finland has experienced the most positive development of the four countries during the last three years. While the number of Finnish start-up firms receiving venture capital investment has risen, for other countries the number has fallen. In Finland, 193 firms received venture capital finance in year 2007 and 201 firms in 2014. At the same time the number of start-up firms in Sweden receiving venture capital decreased from 399 in 2007 to 382 in 2014, in Denmark the drop was from 84 firms to 46 firms and in Norway from 169 firms to 73. These figures suggest that Finland might indeed be a positive outlier in terms of venture capital.²¹

Figure 4 shows amount of venture capital investments and number of companies receiving the investment for different stages of companies in Finland in the years of 2012, 2013, 2014 and 2015. Seed represents financing provided to research, assess and develop an initial concept before a business has reached the start-up phase. Start-up Financing represents financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially. Finally, Later-stage venture represents financing provided for the expansion of an operating company, which may or

Figure 4 Amount of venture capital investments and number of companies receiving the investments for different stages of companies in Denmark the years of 2012, 2013, and 2014 and 2015. Amount in thousands of euro.



Source: EVCA, 2016

²¹ Heikki Rannikko and Erko Autio (2015) The impact of high-growth entrepreneurship policy in Finland, Aalto University, Finland

may not be breaking even or trading profitably. Later-stage venture tends to finance companies already backed by venture capital firms.

1.3.3 Business angels

Finland had 34 active business angels in 2015. The angels are organised in three business angel networks. FiBAN, a non-profit network, is the largest network (also one of the largest in Europe). The first professional business angel network was established by Sitra in the late 1990's and remained active until 2007. The two other current networks are LEDI and Business Angels Finland (BAF).

FiBAN presented their survey data on Finnish business angel activity in 2014.²² With data collected from 200 angels, they concluded that in 2014, Finnish angels invested €21m in 238 start-ups. This is a record amount in comparison to 2013, when angels invested €11m in 164 start-ups. The total number of angel investments in 2014 was 307. In 2013 it was 234, and in 2012, just 235. According to the survey, the amount of early-stage investments is one of the highest in Europe. FiBAN's angels made 1.6 new investments on average in 2014, and the median angel investment was €25,000 and the average €69,000. Besides gaming, the most prominent sectors for early-stage investment were mobile (21%) and cleantech (14%). Investments in the mobile gaming sector cover almost one fifth of all the angel investments in Finland.²³

1.3.4 Incubators and accelerators

There are 14 incubators in Finland. Probably the best known of them is Start-up Sauna Foundation, an accelerator for the most promising start-ups from the Nordics, Eastern Europe and Russia. Currently 173 companies have graduated from Start-up Sauna since 2010, raising more than \$88m in funding.²⁴ The foundation focuses on developing three core activities:

- Start-up Sauna accelerator programme – a five-week program for the most promising start-ups from the Nordics, Eastern Europe and Russia.
- Slush conference – one of Europe's leading start-up and investor conferences, organised every November
- Start-up Life internship programme – sending the best students and graduates to different start-up hubs to intern at the best start-ups in the world.²⁵

Most incubators in Finland have a rather strong regional focus. They are mostly owned entirely by the municipalities or in cooperation with local universities.

1.3.5 Other support

The crowdfunding market in Finland covers donation and rewards-based crowdfunding as well as lending and investment-based crowdfunding. However, there is little data available about the crowdfunding market. One example is Invesdor, that works with equity based crowdfunding. In 2015, Invesdor raised €7 million. Other platforms include FellowFinance.fi launched in 2013 and the biggest marketplace lending platform in Finland, Vauraus.fi, launched in 2011 that works with equity and debt, and Mesenaatti.me, launched in 2012 (works with reward and donation based crowdfunding). The legal status on investment-based

²² <http://fiban.org/news/finnish-business-angel-activity-2014>

²³ <http://www.geektime.com/2015/03/30/geektime-report-the-state-of-finlands-vc-and-startup-ecosystem/>

²⁴ <http://www.investinfinland.fi/industries/rd-and-innovation/109>

²⁵ <http://startupsauna.com/about/>

crowdfunding is not clear. A law on investment-based crowdfunding (i.e. equity and debt) is on its way, and is likely to enter into force in Summer 2016.²⁶

Finland has several entrepreneurial activities, such as Slush mentioned above and hackathons as Junction hackathon, and much more grassroots activities than its Nordic neighbours.

1.4 Access to markets

Finland has a highly industrialised, largely free-market economy with per capita output almost as high as that of Austria, Belgium, the Netherlands or Sweden. Trade is important, with exports accounting for over one-third of GDP. Finland is historically competitive in manufacturing – principally in the wood, metals, engineering, telecommunications, and electronics industries. Finland, as all EU members, have a 1% average tariff rate. The Finnish government generally treats foreign and domestic investors equally.²⁷

Around the world, there are solid examples of partnerships of traditional large corporations and young, innovative growth companies across the world. The first pioneers are on the move in Finland as well. In Finland, in addition to differences of culture and scale, partnerships are hindered by the fact that established interfaces and operational models for cooperation are lacking. Tekes, together with Confederation of Finnish Industries, has collected examples with experiences and learnings of Finnish forerunners on their cooperation with start-ups.²⁸ The aim of the report is to encourage companies to engage in co-operation, but also to awaken the discussion about reforms, that are needed in Finland to give birth to a wider ecosystem for cooperation between big corporations and small growth businesses.

The report concludes that measures need to be taken, by both large companies, start-ups, investors and the government in order to increase cooperation between start-ups and large companies in Finland. One main conclusion is that decision makers have the power to influence innovation cooperation by changing regulations that are still an obstacle for cooperation. As an example, the procurement legislation are brought up, that are especially hindering for corporations serving the public sector and their partners.

The procurement legislation and its interpretation in Finland has been criticised as being strict. The Finnish alignments have been based on European competition legislation which may have sometimes discouraged the public sector from looking for innovative approaches. Also, cases have come up where there obviously has been lack of sufficient skills and knowledge of those in the public sector launching and leading the procurement process. The most important criterion in procurement has been the cheapest price and innovation or customer orientation has weighed less. The criteria have favoured traditional and big service providers. New innovations and modus operandi could be strengths of the young SMEs, but lack of resources or references may prevent them from becoming public service providers.²⁹

²⁶ For more information, see <http://www.crowdfundinghub.eu/current-state-crowdfunding-finland/>

²⁷ <http://www.heritage.org/index/country/finland>

²⁸ The Confederation of Finnish Industry and TEKES (2014) *The experiences of Finnish large companies with startups*

1.5 Cultural context

Cultural factors have an indirect influence on Finland's entrepreneurial ecosystem. The success of some new start-ups – particularly game companies like Rovio (Angry Birds) and SuperCell (Clash of Clans) – has an impact in terms of making younger people aware of the possibilities of entrepreneurship. This in turn changes cultural perceptions and expands horizons, promoting starting one's own business as a viable career path.³⁰

In Finland entrepreneurship is recognised as an important means to catalyse economic growth. In 2013, Finland ranked second in an international report that measures attitudes towards entrepreneurship. According to Amway Global Entrepreneurship Report³¹ 2013, 87% of Finns have a positive attitude towards self-employment. Attitudes depended on the age group, the up-to-thirties were especially positive about self-employment. The report includes more than 26 000 people in 24 countries worldwide.

Over the past years, Finland has enjoyed many great success stories in entrepreneurship and high-growth entrepreneurship has received much positive attention.³² In 2013, The Economist magazine wrote extensively about Finland's booming entrepreneurial culture as part of a special report on the Nordic countries. The article described the video gaming industry that is growing rapidly and has the potential to create a new generation of global champions. As an example, The Economist points to Rovio Entertainment which created the Angry Birds game that was downloaded more than 600 million times in 2011. According to the article, Rovio has successfully turned Angry Birds into a brand, making licensing agreements with other companies for creating a range of branded products from Angry Birds toys, chocolate and theme parks. Rovio had a turnover of €100m in 2011. Supercell, the maker of the game Clash of Clans, is another Finnish success story in the country's booming video games industry.

According to GEM 2014, the fear of business failure in Finland has slightly increased over the last couple of years. The share in Finland, however, can be considered to be relatively low when compared to the average of all EU countries. The fear of failure in Finland is however higher than the average in Nordic countries, where the share is lowest in Norway. The Finnish results show that fear of failure is strongly related to gender and age. The results suggest that the fear of failure is higher among women than men.

According to recent data from GEM, over 60% of the Finnish population see positive representations around entrepreneurship. Almost 85% states that entrepreneurs have high status in their country. However, only 33% would consider starting a company as a good career choice.³³

1.6 Currently identified key challenges and barriers

According to the GEM report (2015) the challenges facing European countries resemble each other, and yet, they are different. For Finland, one of the biggest challenges is to renew its major industrial sectors in the face of global competition. This is where new types of entrepreneurial activity come in.

²⁹ Comments paper – Finland, Peer Review on social entrepreneurship, Croatia 2013

³⁰ <http://www.gemconsortium.org/country-profile/61>

³¹ <http://globalnews.amway.com/amway-global-entrepreneurship-report>

³² <http://thegedi.org/finlands-flagging-entrepreneurial-potential/>

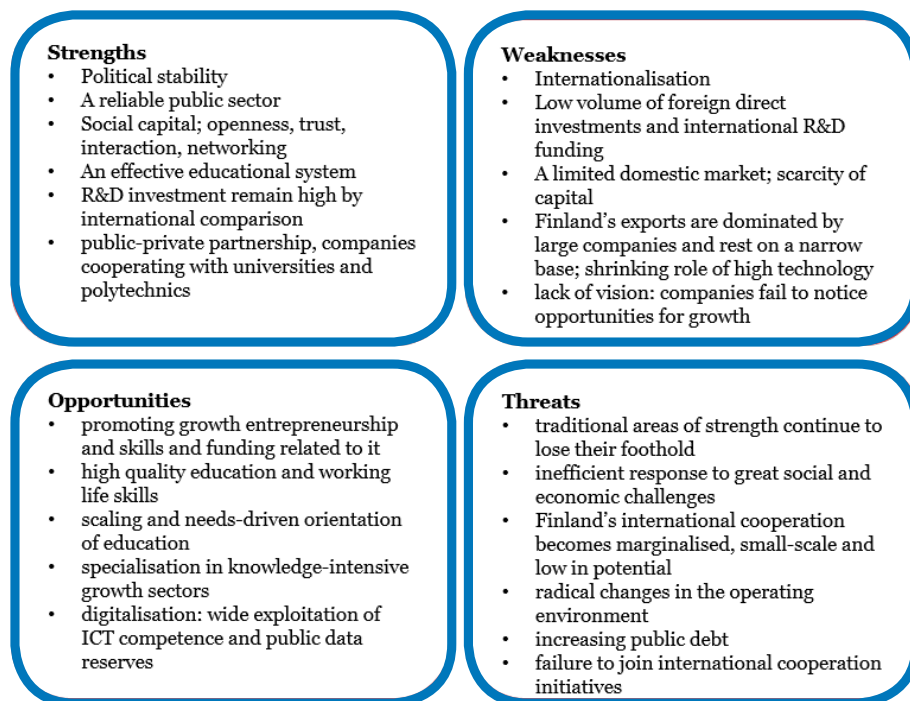
³³ Kelley, D. et al. (2016). Global Entrepreneurship Monitor 2015/16 Global Report.

The key elements of the entrepreneurial ecosystem (education, funding, support infrastructure etc.) are in good condition and do not need to be reshaped. However, as a small economy, Finland is highly dependent on global development, the development of its main export sectors, the development of countries within Europe and beyond, and internally, on its own ability to renew the economy.³⁴

Intensive exploitation of knowledge and expertise produced abroad is necessary – there is no such thing as a purely national operating environment. Internationalisation will be promoted as a part of all innovation system development. Incentives that support this aim must be created in Finland. Beyond just policy initiatives, internationalisation requires a shared view of extensive measures targeting the society that will promote openness and genuine internationalisation in everyday lives and the ways of acting and being creative.³⁵

According to SBA (2014) a future challenge for the Finnish entrepreneurial ecosystem is that coordination of policies related to small and medium-sized enterprises need to improve further. Today, government policy as a whole is not consistent. Despite new initiatives that have been implemented to support the financing, growth and internationalisation of primarily small and medium-sized enterprises, the focus needs to be directed more towards the small and medium businesses in general. Many decisions that are outside the specific economic development policy could focus in more detail on the implications for small and medium-sized enterprises, for example, changes in regulations and tax policies. The report further states that Finland need more initiatives in the financing area. The financial situation in general deteriorated in recent years. This is mainly due

Figure 5 SWOT-analysis of the Finnish innovation system.



Source: Reformativ Finland: Research and innovation policy review 2015–2020, The Research and Innovation Policy Council

³⁴ <http://www.gemconsortium.org/country-profile/61>

³⁵ Research and innovation policy council, Reformativ Finland: Research and innovation policy review 2015–2020

to the tightening of banks' lending policies during the recession as banks remain the main source of funding for Finnish small and medium-sized enterprises.

Public procurement and procurement policy in general also need to be improved. Despite the fact that public procurement is largely open to competition, the way it's currently handled is often making it difficult for small and medium-sized enterprises to compete on equal terms with larger companies and public sector organisations.³⁶

The Research and Innovation Policy Council has written a review of the Finnish innovation system: Reformative Finland: Research and innovation policy review 2015–2020. In the review, a SWOT-analysis of the innovation system in Finland is presented. In summary, Figure 5 presents the strengths, weaknesses, opportunities and threats for the Finnish innovation system that were identified in the review.

1.7 Future outlook

According to the Strategic Programme of Prime Minister Juha Sipilä's Government (May 2015), the Government's objective is to bring the Finnish economy to a path of sustainable growth and rising employment, and to secure the funding of public services and social security. In order to strengthening businesses, entrepreneurship and ownership, the government plan to implement measures that will impact the needs of start-ups, fast-growth companies, and change-of-generation businesses.

Business competitiveness and conditions for business activity will be strengthened by all decision-making. Industry's operating costs will not be increased by the Government during the government term. Market activity, free competition and opportunities for SMEs to participate in procurement processes will be promoted by reforming key legislation and removing sectoral regulation that prevents competition.³⁷

Due to the severe economic situation in Finland, the Strategic Government Programme has introduced budget cuts to public expenditure from 2016 and onwards. The government has shifted focus towards refundable funding (loans, guarantees and equity investments) and reduced the R&D grants for companies. The proposed cut in the R&D budget allocations (2015–2016) were approximately €157m. This cut affects both entrepreneurs and start-ups.

The Finnish government wants to build and strengthen the cross-governmental Team Finland services for enhanced collaboration and investments supporting the internationalisation and growth of SMEs. The Team Finland Growth Programmes will have €51.3m under 2015–2017. Several programmes are running or being prepared (under topics as, for instance, bioeconomy, cleantech, and ICT and digitalisation). The Finnish government has introduced a R&D tax incentive for companies. During the first year, approximately 600 companies used the R&D tax incentive. In addition, the government decided on a fixed-term tax credit for private individuals to invest in start-up companies. According to a recent report, the utilisation of this incentive fell short of expectations.³⁸

³⁶ Small Business Act for Europe (SBA), Finland 2014

³⁷ Finland, a land of solutions - Strategic Programme of Prime Minister Juha Sipilä's Government (29 May 2015), Government Publications 12/2015

³⁸ <https://rio.jrc.ec.europa.eu/en/country-analysis/Finland/country-report>

Appendix C

Iceland

1.1 The entrepreneurial ecosystem in numbers and volume¹

In the Bloomberg Innovation Index, Iceland is ranked as number 36, below the other Nordic countries. In the Entrepreneurship Index published in 2016, Iceland ranks as number seven (twelve in 2014), which is below Sweden, Denmark, but over Finland and Norway.² However, today, innovative SMEs have become more prominent in the Icelandic economy. SMEs provide 72% of all jobs in the so called non-financial business economy, and this is a higher share than the EU average. However, micro firms account for 27% smaller employment share than their equivalents in the EU. The sectors that rely most heavily on SMEs are accommodation and food services and professional activities, which provide employment of approximately 80% and 90% respectively. The recovery from the financial crisis is reflected in the relatively stable increase of business registrations compared with the years before the crisis. In 2014, there were 2,050 business registrations. This is an increase of 6% compared with 2013.³

Iceland is emerging steadily from the 2008 recession. Today, inflation is 2% and GDP growth 2014 was 1,9%. The growth is mainly driven by a large increase in the gross domestic expenditure.

In 2015, Iceland spent 2.19% of GDP on R&D⁴. This is below other equivalent countries and its Nordic neighbours. However, with BERD at 1.42% of GDP, Iceland is at the OECD median in terms of business R&D intensity as well as technological and non-technological output.⁵

According to data from 2015, the number of newly registered firms has decreased.⁶ However, Iceland has produced some successful start-ups under the last years, for instance Clara (acquired by Silicon Valley's Jive Software for \$9m), Data Market, Mint Solutions, Sólfar Studios and CCP Games. Stated by Startup Europe Partnership, Iceland is effective in producing fast growing companies: in 2015 15 scale-ups (start-ups that raised over \$1m in venture capital funding) raised approximately \$200m in Iceland (which is 4% of all Nordic scale-

¹ According to Startup Europe Partnership, data about Icelandic start-ups and their funding are not easily available, since systematic gathering of investment data for the Icelandic ecosystem was not initiated before 2015.

² The Bloomberg Innovation Index, see: <http://www.bloomberg.com/graphics/2015-innovative-countries/>
³ 2015 SBA Fact Sheet, Iceland

⁴ <http://www.statice.is/statistics/business-sectors/science-and-technology/rd/>

⁵ <https://www.innovationpolicyplatform.org/content/iceland>. Data from OECD.

⁶ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing. See also Central Bank of Iceland (2014). *Economy of Iceland*.

ups). Approximately 50% of the scale-ups were established after 2010. Three companies raised funding from \$20m to \$100m.⁷

1.2 Policy context

The policy environment in Iceland has changed in the aftermath of the financial crisis that occurred in 2008. On the 1st of September 2012, a final step was taken in merging the ministries responsible for industry and economy into The Ministry of Industries and Innovation. Another important element in the policy development is that funding for research-driven innovation was increased in terms of allocating funds to relevant support schemes.

The Science and Technology Policy and Action Plan for 2014-2016 was published in October 2014. The plan underlines the need to boost productivity and create an environment that stimulates innovation. The plan is also meant to provide support for a modern labour policy and a forward-looking education policy.⁸

1.2.1 National policy

Since 2008, the Icelandic government has introduced different supporting measures. Examples include the introduction of the National Curriculum Guide, and a programme that allows unemployed citizens to set up and develop their own business while receiving unemployment benefits for six months. In addition, The Ministry of Finance and Economic Affairs and the Icelandic Centre for Research have implemented an initiative that supports innovative organisations. The support involves tax deductions for innovative projects. The objective of the support is to promote R&D as well as improve competitive conditions for innovative companies.⁹

The Icelandic government has implemented a number of policy changes since taking office in 2013. Policy changes include, for example, fiscal prudence and changes to the tax system. Structural adjustments have been made to the VAT system. In addition, the commodity tax has been abolished. The measure was implemented by the Ministry of Finance and Economic Affairs. It aims at narrowing the gap between tax rates and broadening the tax base by reducing the number of exemptions granted. The objective is greater efficiency and equality among economic sectors, directly favouring SMEs.¹⁰

A number of major changes have been made to Icelandic regulatory framework as well as the fiscal system. Although most changes are recent, some have already showed to be effective. The Icelandic government has been working with a fiscal policy and in the 2015 budget, several initiatives to support growth and a switch towards indirect taxation were introduced.¹¹

Iceland has implemented seven different policy measures in 2014/2015. These addresses four of the ten principles in the Small Business Act¹². According to the European Commission, "The most important progress was achieved in the field of entrepreneurship and access to finance, since the country passed laws

⁷ Startup Europe Partnership (2016). *SEP Monitor. Iceland: A growing ecosystem full of potential.*

⁸ Prime Ministers Office (2014). *Science and Technology Policy and Action Plan 2014-2016.*

⁹ OECD (2015). *Economic Surveys: Iceland.* OECD Publishing.

¹⁰ OECD (2015). *Economic Surveys: Iceland.* OECD Publishing. See also Iceland Chamber of Commerce (2014). *The Icelandic Economy. Current State, Recent Developments and Future Outlook.*

¹¹ OECD (2015). *Economic Surveys: Iceland.* OECD Publishing.

¹² <http://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act/>

that involve incentives for initial investment and for the establishment of venture funds for start-ups and growth companies". However, the main goals of the Icelandic government have resulted in measures that address all businesses (from start-ups to large companies).¹³

According to OECD, Iceland should lower barriers to entry by, for example, removing legal barriers to entry in different sectors.¹⁴

In June 2016, the Icelandic Parliament passed the Innovation bill. The Innovation bill introduces various reforms to the tax code to lessen the tax burden on start-ups. The Icelandic Parliament proposes a change in taxation of convertible bonds and stock-options, and a tax break for foreign specialists (foreigners moving to Iceland get a 25% tax break). In addition, the Government proposes a tax-break for equity investments in small companies for individuals (i.e. business angels) and increased tax-refund for company R&D investments.¹⁵

1.2.2 Entrepreneurial infrastructure

As stated above, measures have been established in order to stimulate start-ups. The body responsible for formulation of policy in that area is the Technology Board of the Science and Technology Policy Council. The role of the Council is to support scientific research, science education and technological development in Iceland in order to strengthen the foundations of the Icelandic culture and increase the competitiveness of the economy.¹⁶

According to OECD, Iceland has a business-friendly environment. However, it still can be hard for new companies to enter markets. The Icelandic economy is small and in this context, it can be difficult to ensure strong competition. In addition, low skills in some of the labour force can also be a problem. There are still a number of administrative barriers to establishing a company in Iceland. Other barriers to entry are, for instance the complexity of regulatory procedures in the licensing and permitting systems. Regulatory protection of incumbents (particularly due to legal barriers) are high in comparison with other OECD countries. However, progress has been made lately to facilitate establishing a company using online tools.¹⁷

Responsive administration refers to public administration being responsive to the needs of the SMEs. In this area, Iceland scores above the EU average. Since 2008, the country has kept this position rather stable. Compared to 2014, only smaller changes occurred. Examples are the reduction of the required minimum capital from 10.5% to 9.3%, and the rise in costs for property registration from 2.4% to 3% of the property value. The main assets in this area are the efficient judicial system, and e-government. The government has also focused on new IT technologies to make the administration more efficient. Furthermore, an e-government initiative was adopted in 2013.¹⁸

1.2.3 Taxes

Corporate income tax rate is 20%. Capital gains are treated as ordinary income. The VAT rates in Iceland are 24% and 11%. Structural adjustments were made

¹³ 2015 SBA Fact Sheet, Iceland

¹⁴ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing.

¹⁵ <http://nordurskautid.is/index.php/2016/06/03/innovation-bill-passed-in-parliament/>

¹⁶ Nordic Innovation Report 2012:25 (December 2012). *The Nordic Growth Entrepreneurship Review 2012*.

¹⁷ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing.

¹⁸ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing, also see 2015 SBA Fact Sheet, Iceland.

to the VAT system when the commodity tax was removed. According to OECD, Iceland should further shift tax revenue from income taxes to VAT.¹⁹

One of the action points in the Science and Technology Policy and Action Plan 2014–2016 is to “use the tax system strategically to encourage private companies and individuals to invest in scientific research and innovation”. In this light, the government is now offering a tax deduction for research and innovation costs. The objective of the scheme is to improve and foster research and development. Under the scheme, companies that carry out research and development projects can apply for a tax credit to Rannís. There are several levels of reimbursement, depending on the size of company and type of R&D project, with the maximum amount of eligible project costs being around 1.260.000 Euros.

The total number of confirmed applications was 78 in 2010, 118 in 2011, 136 in 2012, and 140 in 2013. Most of the companies receiving confirmation are small; thus, 113 of the 140 companies receiving a confirmation in 2013 were small enterprises. According to information provided by Rannís, the majority of companies applying for confirmation, between 89% and 95% in the period concerned, are based in the capital region.²⁰

The Science and Technology Policy Council emphasises the importance of offering a tax deduction for research and innovation costs. Given the proven results of the current arrangement, this incentive should be promoted more extensively among companies and institutions across Iceland.²¹ The new Innovation bill, described in section 1.2.1) introduces a rise in the R&D tax return ceiling. Now, companies can get ISK 300m refund for R&D (previous figure was ISK 100m). As stated above, the bill introduces a tax refund for angel investors. The bill gives a tax refund for up to 50% of investments (least ISK 300 000). Also, foreign specialists will get a special tax discount.²²

1.2.4 Entrepreneurship education and training

There is real lack of direction and policy at the government level in terms of entrepreneurship education. That means that most efforts are from the grass-roots level, taking over a role that the government and schools should be leading. This is visible at all education levels - very small portion of students get entrepreneurship education.

Entrepreneurship courses can be found in adult education, for example integrated into management training and business studies. Icelandic universities provide a number of formal and informal term alternatives in the field of entrepreneurship education. Innovation Centre Iceland also provides a range of courses and support measures aimed at improving entrepreneurship skills and innovation capacity in all sectors. The Innovation Centre and the Ministry of Education, Science and Culture collaborate closely on entrepreneurship education in schools. The main focus of the collaboration is an annual nationwide entrepreneurship competition in Icelandic primary schools.

Reykjavik University is Iceland's largest private university and students at the University can enter the business development course Entrepreneurship and

¹⁹ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing

²⁰ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing, also see 2015 SBA Fact Sheet, Iceland.

²¹ Science and Technology Policy and Action Plan 2014–2016.

²² <http://www.althingi.is/altext/145/s/1382.html>

Starting New Ventures in their first year of study. In addition, students are encouraged to work on projects with industry that allows them to develop a better understanding of innovation processes and become future intra- and entrepreneurs. In addition, the university offers educational solutions to current and future entrepreneurs through its Open University. The University also engages in events and collaborative projects, designed to develop entrepreneurial skills and to support co-innovation. These events include private and public local stakeholders.²³

1.3 Key support schemes

According to the OECD Economic Survey 2015, access to both public support and private bank funding have improved in Iceland over the last couple of years. Public funding has been further increased in the latest budget.

1.3.1 Government funding

The Icelandic government provides financial supports for innovation, entrepreneurship and start-up activities in several ways, including grants, incentives for foreign direct investment and tax incentive (20% discount) for R&D. The public budget for competitive funds supporting R&D and R&D driven innovation has been rising from 2009 to 2013, and competitive grants and tax incentives are the most important instruments in the Icelandic policy mix for business R&D and R&D-driven innovation.²⁴

Rannís supports research, innovation, education and culture in Iceland. It cooperates with the Icelandic Science and Technology Policy Council and provide assistance in the preparation and implementation of the national science and technology policy. For the fiscal year of 2015, the budget for the funding operation was €50mln. Rannís administers competitive funds in the fields of research, innovation, education and culture, as well as strategic research programmes. One of these funds is the Technology Development Fund under the Ministry of Industries and Innovation. The Technology Development Fund supports research and development projects that lead to regeneration and improved competitiveness of Icelandic industry. These grants are open to individuals, companies, universities and research institutes. Individuals who are granted support must found a company before an agreement for project funding is signed.²⁵

As mentioned above, Innovation Center Iceland encourages innovation and promotes the advancement of new ideas in Icelandic economy by providing active participation and support to entrepreneurs and businesses. The organisation supports entrepreneurs through grants to individuals and SMEs in regional Iceland for implementation of innovative ideas.²⁶ Innovation Centre Iceland represents Enterprise Europe Network in Iceland. In this capacity, the centre promotes cooperation among Icelandic and European SMEs in wide range of international activities aimed at increasing economic competitiveness.

Promote Iceland is a public-private partnership established to improve the competitiveness of Icelandic companies in foreign markets and to stimulate economic growth through increased export. The aims of the partnership are to promote Iceland as a tourist destination, assist in the promotion of Icelandic

²³ <http://en.ru.is/collaboration/industry/research-innovation/entrepreneurship/>

²⁴ Stefna og aðgerðaaðætlun. *Vísinda- og tækniráðs 2014–2016*. <https://www.innovationpolicyplatform.org/content/iceland>

²⁵ <http://en.rannis.is/funding/research/technology-development-fund/>

²⁶ <http://www.nmi.is/support/grants-and-support-projects/>

culture abroad, and introduce Iceland as an attractive option for foreign direct investment. Promote Iceland also assists Icelandic companies seeking to grow internationally through competence building programmes as well as international events, such as trade fairs, press trips, and trade delegations. This is done in close cooperation with Icelandic embassies and consulates abroad, as well as bilateral chambers of commerce.

1.3.2 Venture capital and business angels

For Iceland, one of the important constraints on entrepreneurship is the lack of venture capital. The uncertainty surrounding capital controls is part of the reason. High risk premia associated with macroeconomic volatility also play a role, reinforcing the need for strong macroeconomic policy. Foreign exchange transactions have been subject to capital controls ever since the banking system collapsed in 2008.²⁷

Today, Iceland has four venture funds. NSA Ventures invests directly in seed and start-up companies with high growth potential. NSA focuses on finding companies with the potential to grow profitably on the international market, and has invested in over 145 companies since its inception in 1998. Currently, it has a portfolio of 39 companies. The majority of their direct investments are in technology and life sciences.²⁸

Frumtak was founded in late 2008. The objective was to invest in early stage growth companies that were post seed and had growth potential. At the close of Frumtak's investment period (end of 2012), the fund had invested in fifteen companies. Nine were still active in 2012. Frumtak 2 started in February 2015. The fund builds on the legacy of Frumtak and invests in early stage innovative companies that are post seed and show great potential for growth. Primarily, the fund invests in Iceland but it is also allowed to invest abroad. Frumtak 2 invests in companies where growth and sales in foreign markets are the primary objective. The fund is not targeted at a specific sector. In addition, Frumtak 2 emphasises the importance of co-operating with different stakeholders outside Iceland.²⁹ Since start, Frumtak 2 has made six investments (from ISK 50m to ISK 400m, total total ISK 1410m).³⁰

Eyrir Sprotar focuses on supporting promising ventures for international growth and value creation. The fund is operated in collaboration with Arion Bank. The investment strategy regards the stages from seed capital to funding early-stage companies. The fund is also involved in international growth.

The fourth venture fund, Brunnur, has recently been established in Iceland, designed to invest in 10-15 start-ups and growth companies in the next three to five years (three announced investments in 2016). It is meant to increase investors' interest in innovation and offer opportunities to diversify the Icelandic economy. The implementing bodies are Landsbréf and SA Framtak GP with an overall budget of €27m. SA Framtak GP is the General Partner of Brunnur. The Fund is in the ownership of Icelandic pension funds, Landsbankinn, SA Framtak

²⁷ Icelandic start-up roadmap

²⁸ <http://www.nsa.is/>

²⁹ <http://frumtak.is/>

³⁰ <http://nordurskautid.is/index.php/2016/03/03/frumtak-2-one-year-later-10-85-million-in-six-investments/>

GP and several other private investors. By March 2016, Brunnur had invested in two companies, ARK Technology (ISK 225m) and ATMO Select (ISK 200m).³¹

There are other examples as well. Thule Investments is a venture capital firm that invests in post-seed stage companies in Iceland, Europe and the United States. Thule manages two different funds: Bru Venture Capital and Bru II Venture Capital Fund S.C.A. SICAR. Brú Venture Capital hf. is a private equity and venture fund management company. Brú II Venture Capital Fund (Bru II) is a venture fund focusing on rapidly growing companies, in areas of bio-tech, high-tech, media and energy.

Virðing (merged with Auður Capital hf. in 2014) provides investment services such as Asset Management, Brokerage, Corporate Finance and management of private equity funds. Kjölfesta is another example, investing in SMEs and start-ups in Iceland. Volta Labs is a venture development company. In addition, several European VC funds invest in the Icelandic start-ups.

Today, it is rather easy for foreign investors to receive exemptions from the Icelandic Central Bank in order to invest in Icelandic start-ups. This can partly compensate the uncertainty caused by capital controls.

1.3.3 Incubators and accelerators

The Icelandic government has supported the creation of start-ups through incubators. The incubators are often clustered by sector, rather than having a regional foundation as is more common in other Nordic countries. The experience has been positive. The eight Icelandic incubators have attracted several entrepreneurs and according to OECD, numerous networks with universities have been established.³²

Innovation and Entrepreneur Services (IMPRA) at Innovation Centre Iceland assists entrepreneurs in the start-up, growth and management of SMEs. IMPRA operates an Incubator Center which offers support and facilities to start-up companies working on innovative business ideas. IMPRA offers extensive internet information services, workshops and courses for SMEs and the general public and publishes books and manuals on management, marketing, and more. IMPRA also runs a Enterprise Europe Network office (EEN) to encourage cooperation between Icelandic and European companies.³³

Innovation Center Iceland runs four Incubator Centers for entrepreneurs in Iceland. The aim of the Center is to provide entrepreneurs with facilities, a creative environment and professional advice in order to work on innovation, as well as the potential of developing a strong and powerful network of contacts with important parties in business and with other entrepreneurs who are going through the same process.³⁴

³¹ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing. See also <http://nordurskautid.is/index.php/2016/03/12/brunnur-one-year-later-3-2-million-in-two-investments/>

³² OECD (2015). *Economic Surveys: Iceland*. OECD Publishing.

³³ <http://nmi.is/support/>

³⁴ <http://www.nmi.is/support/beginning/incubator-centers/>

Innovation Centre Iceland also manages Nordic collaboration in start-up and scale-up related policy initiatives. The most important ones are the Icelandic participation in TINC³⁵ and Nordic Innovation House³⁶.

Iceland currently has three scaling programmes (also referred to as seed stage mentorship driven accelerator programmes or seed stage, mentor driven business accelerators) run by Icelandic startups (formerly Klak Innovit): Startup Reykjavik, Startup Energy Reykjavik and Startup Tourism (The first two are owned by Arion Bank and the third by Icelandic startups).

Startup Reykjavik is a mentorship-driven seed stage investment programme. The organisation runs a 10-week-long programme in Reykjavik once every year. Selected companies or ideas get USD 18,500 (ISK 2,400,000) in seed funding from the organisation against a 6% of the equity. Startup Reykjavik founders also get other support, such as a working space, ten weeks of mentorship, and the chance to pitch to angel investors and venture capitalists at the end of the programme. The opportunity to pitch to angel investors and venture capitalists at the end of the programme is provided during the so-called Investor and Demo Day. Startup Reykjavik is a member of GAN, a community of organisations that provide start-ups with the resources to create and grow their businesses. If accepted into a GAN accelerator, the start-up has access to a network of investors.

Startup Energy Reykjavik is a mentorship-driven seed stage investment programme with focus on energy related business projects. Startup Energy Reykjavik was founded by Landsvirkjun (the National Power Company of Iceland), Arion Bank, GEORG and Innovation Center Iceland in December 2013. The programme is facilitated by Icelandic Startups and Iceland Geothermal. Participating startups will receive ISK 5,000,000 and are provided with housing, internet, and connections with network as well as mentors for 8-10 weeks, in order to accelerate their Idea, in turn for a 10% stake of the Startup.

Startup Tourism is a mentorship-driven business accelerator for Icelandic companies in the tourism sector. The accelerator offers a ten-week programme in Reykjavik where start-ups can receive, for instance, guidance and assistance. It is aimed at supporting a sustainable, competitive, diverse and innovative tourist sector in Iceland. Íslandsbanki, Blue Lagoon, Vodafone, Isavia, Iceland Tourism and Icelandic Startups are the creators of the accelerator. The first programme was held in the beginning of February 2016.

The three programmes are mostly run on a national basis. However, today Icelandic startups focuses on international cooperation as well.³⁷ Approximately 80 companies had gone through the programmes by late 2015.

The Iceland Ocean Cluster's (IOC) mission is to create value and discover new opportunities by connecting entrepreneurs, businesses and knowledge in the marine industries. IOC provides different services and invests in marine spin-offs and projects. In 2016, IOC incubates over 25 start-ups.³⁸

³⁵ Originally a Norwegian initiative, which has later expanded into a Nordic programme operated under the Nordic Innovation House in Silicon Valley, <http://www.nordicinnovationhouse.com/tinc>

³⁶ <http://www.nordicinnovationhouse.com/>

³⁷ <http://www.icelandicstartups.com/about-us>

³⁸ <http://www.sjavarklasinn.is/en/services/>

1.3.4 Other support

In 2012, Startup Iceland was founded. Startup Iceland is an annual event in Iceland for start-ups, entrepreneurs and investors. Its agenda is "to build an antifragile entrepreneurial ecosystem through best practice tools, resources and advice for Iceland". From August 2016, Startup Iceland is a Stripe Atlas partner.³⁹

Karolina Fund, Iceland's first crowd funding and crowdsourcing platform, is a project management and funding platform for the creative industries that builds on crowdsourcing ideology. The platform offers access to finance, but it also aims at connecting crowd funding and crowdsourcing with effective project management. Today, Karolina Fund has surpassed Indiegogo and Kickstarter combined in terms of sums in the Icelandic context. From 2012 to July 2015, the platform has successfully funded 150 campaigns. It has a 70.9% success rate, compared to other members of the Nordic Crowdfunding Alliance that has a success rate between 35-42%.⁴⁰

Impact Iceland 2016 is crowdfunding Iceland's first conference on social entrepreneurship, together with Karolina Fund. The conference is the first in a series of conferences in Iceland focusing on social innovation as a profitable, sustainable, and impactful response to today's challenges.⁴¹

Another important actor in Iceland is Icelandic Startups (formerly Klak Innovit). Nýherji founded Klak as an incubator in 1999. Innovit was founded in 2007 and the two organisations merged in 2013. The name of the company was changed to Icelandic Startups in early 2016. Icelandic Startups has been working closely with some of the leading companies and institutions in Iceland. Since the early beginning, emphasis has been placed on international cooperation in order to continuously improve connections abroad. Icelandic Startups supports start-ups by accelerating their businesses and connecting them with different experts, investors and start-up hubs. The organisations services are free of charge and range from seed to the first or second round of funding.

In addition, and as the other Nordic countries, Iceland has a number of hackathons every year. One examples is Vodafone Startup Iceland Hackathon. Another one is Ultrahack. The aim is to bring together developers, start-ups and corporations to solve world-class challenges with the latest technologies. In 2016, Ultrahack expands to several cities, such as Reykjavik, Helsinki, Oslo and Copenhagen. Arion Bank was the first bank in Iceland to host a hackathon, FinTech party, in 2016.⁴²

Stökkpallurinn⁴³ is a programme launched by Startup Iceland and Vodafone. The programme is designed to help founders in Iceland that enables them to grow fast locally and hence scale globally. The first application deadline was May 2016.

Norðurskautið was founded in 2015. The goal is to increase the coverage and reporting about the Icelandic start-up scene, with the mission to "increase the

³⁹ For more information, see <https://startupiceland.com/2016/08/01/stripe-atlas-startup-iceland/> Stripe has also partnered with a number of start-up incubators and accelerators.

⁴⁰ Statistics from the Nordic Crowdfunding Alliance (NCA).

⁴¹ For more information, see <http://www.nordicstartupbits.com/2016/07/04/impact-iceland-2016-seeks-make-iceland-next-social-entrepreneurship-hub/>

⁴² <https://www.arionbanki.is/fyrirtaeki/frumkvodlar-og-nyskopun/fintech-party/>

⁴³ For more information, see <https://startupiceland.com/stokkpallurinn/>

quality and awareness of the Icelandic Startup Scene through reporting, analysis, and community building". Stated by the founder of Startup Iceland, "Iceland is a black box when it comes to business reporting in English". Norðurskautið provides information, not only to entrepreneurs but also to the interested general public.⁴⁴

In addition, several international conferences have been arranged under the last years, for example The Startup Iceland conference and Slush Play.

Furthermore, the number of co-working spaces has increased, mostly in Reykjavik. Examples include Hellirinn, FabLab, Orange, Iceland Ocean Cluster (which mission is to create value and discover new opportunities by connecting entrepreneurs, businesses and knowledge in the marine industries) and Innovation House. These co-working spaces are mostly private, but Innovation Center Iceland and StartupReykjavik also has a number of working spaces.

1.4 Access to markets

Iceland scores below the EU average regarding internationalisation, a position that have not changed since 2008. Policy wise, and compared to some of the other Nordic countries, this area has received little attention over the last years. Iceland's regulatory framework for product markets is at the OECD average. In this light, Iceland is similar to both Norway and Sweden, but more restrictive than Denmark and Finland. However, the Icelandic performance is poorer for regulations. According to OECD, this creates barriers to entrepreneurship, with the complexity of regulatory procedures noticeably more restrictive.⁴⁵

Scaling in a small country such as Iceland can be a challenge. The domestic market is small, and start-ups are almost forced to think in terms of going global directly. Having access to more "local" capital when a start-up enters the growth stage can make the fundraising process more effective and easier for the entrepreneur. A number of organisations mentioned above try to improve access to international markets through various efforts.

1.5 Cultural context

The framework conditions for start-ups and the businesses in general are considered to be rather favourable in Iceland. Furthermore, start-ups and entrepreneurs are seen as a valuable resource in building the Icelandic economy. Since 2008, Iceland has transformed into a place where entrepreneurs can build companies, and there seems to be a small-business optimism and a high level of trust in entrepreneurs in Iceland.⁴⁶ Iceland's ecosystem began to become globally competitive following the 2008 financial crisis, and the country has been able to develop a stronger entrepreneurial culture compared to its Nordic neighbors. How this development has affected the ecosystem has not been evaluated yet.⁴⁷

Since 2009, a number of start-ups in Iceland have made notable exits. Clara, a software company, was sold to Jive Technologies for a reported \$8m in

⁴⁴ <https://startuPICeland.com/2014/11/26/iceland-is-a-black-box/>

⁴⁵ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing.

⁴⁶ Napier, G. et al (2013). *Nordic Growth Entrepreneurship Review 2012*. <http://www.nordicstartupbits.com/2015/10/22/state-of-the-union-the-icelandic-startup-community/>

⁴⁷ OECD (2015). *Entrepreneurship at a Glance 2015*, OECD Publishing, Paris. Napier, G. et al. (2012). *The Nordic Growth. Entrepreneurship Review 2012*. Nordic Innovation Publication 2012:25. Stenholm, P. et al. (2013). *Global entrepreneurship monitor – Finnish 2013 Report*. Turku School of Economics, University of Turku.

2013. Modio, a 3-D printing app, merged with Autodesk earlier this year and re-launched officially as Tinkerplay. Also in 2016, Enzymatica AB acquired Zymetech to secure research know-how, patents and access to Penzyme® Technology and enzyme production capacity.

1.6 Currently identified key challenges and barriers, Future outlook

Much effort has been put into helping the Icelandic economy after the crisis in 2008-2009. The stabilisation programme, conducted with international support, was completed in 2011. Since then, economic activity has recovered and it is now returning to its pre-crisis level.

According to OECD, barriers to entrepreneurship still undermine productivity in the country. The OECD also highlight the importance of continuing to support innovation by encouraging links between companies and universities. The Icelandic government is addressing some of the barriers in their Science and Technology Policy and Action Plan 2014–2016.

In addition, the country needs to ease the access to funding, notably with public investment funds that can finance firm expansion. As stated in this case study, there is a lack of both venture capital as well as business angels. The venture capital market is still young and there are several gaps, especially regarding private early stage funding. Pooling risks in a country as small as Iceland is difficult. As stated in the OECD Economic Survey regarding Iceland, one approach is that the government pool risks. Another method to pool through involving foreign investors.⁴⁸

The venture capital market is young, but the market is growing. In 2015, ISK 12.5b was announced in venture capital funding. A robust investor ecosystem (including VC, business angels, etc.) takes time to build. However, data shows that Iceland is on its way. A strong start-up community can attract more funding. This also accounts for a good track record, something that Iceland is building at the moment.

The Icelandic government has supported the creation of small firms through innovation incubators. Experience so far has been positive.⁴⁹

A shift in attitudes towards entrepreneurship has been important for the start-up sector. Stated by the CEO of Icelandic Startups, "successful start-ups have become role models for the younger generation, and becoming an entrepreneur is considered an eligible career path".⁵⁰

⁴⁸ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing. See also Central Bank of Iceland (2014). *Economy of Iceland*. Central Bank of Iceland.

⁴⁹ OECD (2015). *Economic Surveys: Iceland*. OECD Publishing.

⁵⁰ <http://www.forbes.com/sites/alisoncoleman/2016/07/22/iceland-land-of-volcanoes-vikings-and-valient-entrepreneurs/#60e4a8691aaf>

Appendix D

Sweden

1.1 The entrepreneurial ecosystem in numbers and volume

After the economic crisis in 2008-2009, Sweden's economy has grown significantly faster than the economy of the OECD members as a whole, and over the last 6-7 years, Sweden has advanced in the ranking for innovation-driven economies. In order to secure Sweden's position as a future leader in research and innovation, the Swedish Government's Research and Innovation Bill 2013-2016 launched a more selective, quality-based funding approach, with a significantly increased government budget for R&D. The government prioritises on innovation, spending almost 4% of the GDP on research and development.¹ Today, Sweden has one of the highest rates of R&D investment globally. Its companies are among the most innovative and export-oriented in the world. In addition, Sweden has more scientific publications and patents per capita than most OECD countries, and it ranks among the top economies in global innovation indexes.² Sweden ranks as number five, just after Denmark, in the 2016 Global Entrepreneurship Index.³

Over the last decade, entrepreneurial activity has increased. Since 2010, the number of start-ups (early-stage entrepreneurship) has doubled. Each year, approximately 70,000 new businesses are founded in Sweden. For three years in a row, the British think-tank Legatum Institute has listed Sweden as number one on the subject of creating and providing entrepreneurs good opportunities to succeed. According to the Bloomberg Innovation Index, Sweden is on the top ten list over the world's most innovative countries. Furthermore, according to 2015 Global Women Entrepreneur Leaders Scorecard, Sweden is top four on the list of best countries for female entrepreneurs.⁴

Figure 1 shows percentage of the population involved in entrepreneurial activity in Sweden, Denmark, Finland and Norway between 2004 and 2014.

The figure confirms that the entrepreneurial activity has increased in Sweden during the last couple of years and shows that share of the population involved

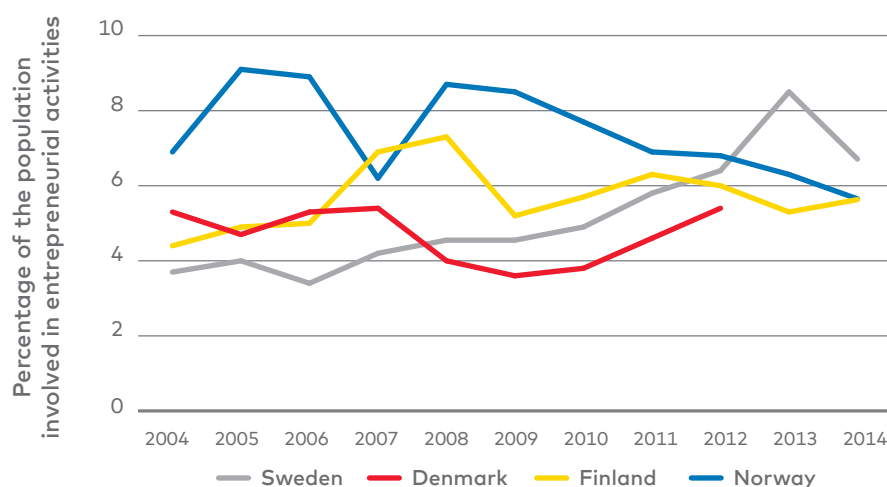
¹ Prop. 2012/13:30. *Forskning och innovation*. A new Research and Innovation Bill will be presented in autumn 2016.

² OECD (2014), "Sweden", in OECD Science, Technology and Industry Outlook 2014, OECD Publishing. International Bank for Reconstruction and Development/World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment*. See also Ministry of Enterprise and Innovation (2012). *Den nationella innovationsstrategin*.

³ <https://thegedi.org/global-entrepreneurship-and-development-index/>

⁴ <http://www.bloomberg.com/graphics/2015-innovative-countries>. See also Aidis. (2015). *The Global Women Entrepreneur Leaders Scorecard 2015: Country-level Five Category Scores*. Report, ACG Inc.

Figure 1 Percentage of the population involved in entrepreneurial activity between 2004 and 2014. Sweden compared to Denmark, Finland and Norway.



Source: GEM

in entrepreneurial activity has increased from right below 4% in 2004 to close to 7% in 2014.

Sweden has the most activity in the Stockholm region, as well as Stockholm Uppsala region (with focus on, for example medtech). However, there is activity in other larger cities, like Gothenburg and Malmö, as well as the Øresund region (Malmö, Helsingborg, Lund as well as other cities in the Øresund and Greater Copenhagen region). Lund has also a strong life science sector, with incubators as Lund Life Science Incubator. Incubators linked to the Lund University are, for example VentureLab (a student incubator) and Ideon Innovation (see section 1.3.4.).

1.2 Policy context

1.2.1 National policy

As stated in the national innovation strategy⁵, Sweden needs to continue to develop good conditions, incentives and framework conditions for entrepreneurship, promote positive attitudes to entrepreneurship and innovation in society, by e.g., highlighting good examples and role models and developing forms of mentoring, and continue long-term development of entrepreneurship throughout the educational system. The aim of the Swedish enterprise and industrial policy, introduced 2014, is to strengthen the competitiveness and create good conditions for more jobs in growing companies. The area includes conditions for entrepreneurship and enterprise, such as issues concerning regulatory simplification and supplementary funding, and developing and strengthening the innovative capacity of Swedish companies. Today, the government focuses on horizontal actions stimulating entrepreneurship. Examples of priorities areas are increased focus on young entrepreneurs and internationalisation. In comparison with its Nordic neighbours, Sweden still has few initiatives targeted at growth companies, companies with high growth potential or young innovative companies that promote internationalisation.

⁵ Swedish Ministry of Enterprise, Energy and Communications (2012). *The Swedish Innovation Strategy*.

The Swedish government argues that a well-functioning policy framework for capital supply is crucial for creating new firms and making them expand. The state's role is complementary to the market, particularly in areas where the private market is limited. These areas include early stages of development and commercialisation of innovative ideas.⁶ Since 2008, Swedish economic policy has been dedicated on addressing the economic crisis. Until today, the focus has rather been on SMEs than start-ups, and there is still a lack of government sponsored incentives for starting up.

The Swedish export strategy is to help achieve the Government's overall objective of Sweden having the lowest unemployment rate in the EU by 2020. The objectives in the strategy are to increase exports, both in absolute figures and as a proportion of GDP, increase Sweden's attractiveness for investments, expertise and tourists, increase the proportion of exporting enterprises, and increase Swedish enterprises' participation in the global economy. Stated in the strategy, "many of the export successes of the future will come from small and medium-sized enterprises, and this is where the majority of new Swedish employment opportunities will be created." Also stated in the report, there is a growing band of innovative entrepreneurs with the potential to contribute to sustainable solutions. However, start-ups often lack a domestic market and start exporting directly, and they require support at an early stage of the business development process in order to become exporters in the long-term.⁷

1.2.2 Entrepreneurial infrastructure

In order to ensure that the conditions for entrepreneurship and innovation in Sweden are efficient and internationally competitive, the government initiated a review of the regulatory framework regarding innovation and entrepreneurship promotion efforts. The aim of the review is to identify barriers and propose measures for the improvement and development of the innovation and entrepreneurship climate in Sweden. The review, *Utveckling av innovations- och entreprenörsklimatet*, initiated in February 2015, will study current conditions to start and run businesses and develop innovations. The study shall assess key framework conditions for entrepreneurship, innovation and adaptability, obstacles regarding mobility between different sectors and forms of employment, and opportunities to develop solutions to societal challenges through innovation and entrepreneurship. The study is expected to be finished in October 2016.⁸

1.2.3 Taxes

Swedish tax legislation is designed to support the objectives of economic policy and provide good conditions for business and investments. However, Sweden has the second highest personal income tax rates in the world (28%), and a corporate tax rate of 22%. The tax on dividends from corporate profits (dividend tax) – often referred to as double taxation – can also be of significance for a firm and its financing

For smaller companies in Sweden, there are special tax rules, the so called 3:12 rules. The 3:12 rules apply to active owners in corporations where four or less owners control at least 50% of the shares. Only dividends within the dividend

⁶ Prop. 2009/10:148. *Företagsutveckling – statliga insatser för finansiering och rådgivning*, see also <http://www.regeringen.se/regeringens-politik/naringspolitik/mal-for-naringspolitik> and The Ministry of Enterprise, Energy and Communications (2007). *A national strategy for regional competitiveness, entrepreneurship and employment 2007-2013*

⁷ <http://www.government.se/information-material/2015/09/swedens-export-strategy/>

⁸ Dir.2015:10. *Utveckling av innovations- och entreprenörsklimatet*.

allowance are taxed as dividend income. Dividends exceeding the dividend allowance are taxed as labour income. The 2006 reform of the 3:12 rules was intended to stimulate entrepreneurship and employment in family owned businesses. The tax rate on dividends within the dividend allowance was reduced. At the same time the dividend allowance was significantly increased. The design of these rules is considered to be important for the incentives to start, run and develop Swedish companies.⁹

Sweden scores high regarding direct support to R&D, but unlike the majority of the OECD countries, Sweden lacks tax incentives for R&D activity to supplement direct R&D subsidies. Sweden also lacks innovation- and patent box systems.¹⁰

However, access to other solid fundamentals, for example different public services and IT infrastructure, are positive factors for the enhancement of entrepreneurship.¹¹ For instance, Arbetsförmedlingen arranges meetings where individuals can introduce their business concepts for other entrepreneurs, and learn about how to start and run a business.

1.2.4 Education and training

In recent years, entrepreneurship has been given a greater scope in Swedish higher education and training. In addition, entrepreneurship education at lower education levels is gaining more attention. Sweden has a specific, nation-wide strategy regarding the implementation of entrepreneurship education in general education. The reform of 2011 of the national Swedish compulsory curriculum introduced entrepreneurship education in compulsory school.¹² Today, the compulsory curriculum states that the school should stimulate pupils' creativity, curiosity and self-confidence, as well as their desire to explore their own ideas and solve problems and that the school should contribute to pupils developing attitudes that promote entrepreneurship.¹³

Today, there are over ten master's programmes that are linked to entrepreneurship, including programmes at Chalmers University of Technology, the Royal Institute of Technology (KTH), Uppsala University, and the University of Gothenburg. In addition, there are a number of targeted entrepreneurship programmes, such as the Karolinska Institute's Master's Programme in Bioentrepreneurship, a programme that is tailored for students with a background in biomedicine, pharmaceuticals, biotechnology, healthcare or medicine.

Another example is the Stockholm School of Entrepreneurship. The school was founded in 1998 with the mission to increase interest and knowledge in interdisciplinary applied entrepreneurship at its member universities (the Royal Institute of Technology, Stockholm School of Economics, Karolinska Institutet, University College of Arts, Crafts and Design (Konstfack) and Stockholm University). Today, Stockholm School of Entrepreneurship has three key areas: aca-

⁹ SOU 2015:64 En fondstruktur för innovation och tillväxt. See also Alstadsæter A et al. (2012). Income Shifting in Sweden. An empirical evaluation of the 3:12 rules. 2012:4 ESO-report.

¹⁰ Svensson, R. (2014). *Patentboxar som indirekt FoU-stöd*. Näringspolitiskt forum Rapport #7.

¹¹ OECD (2014), "Sweden", in OECD Science, Technology and Industry Outlook 2014

¹² Eurydice (2012). Entrepreneurship Education at Schools in Europe: National Strategies, Curricula and Learning Outcomes. Education, Audio-visual and Culture Executive Agency, Brussels. See also van Dijk, T. et al. (2015). *Entrepreneurship Education in Swedish Compulsory Schools: The Perception and Implementation from an Educator's Viewpoint*. Lund University School of Economics and Management, Sweden. Dahlstedt, M. et al. (2012). *Schooling entrepreneurs: Entrepreneurship, governmentality and education policy in Sweden at the turn of the millennium*. Journal of Pedagogy, 242–262

¹³ Skolverket (2011). *Curriculum for the compulsory school, pre-school class and the recreation center*

demic education, hands-on training activities and inspirational events regarding applied entrepreneurship.

A question within entrepreneurial education is if entrepreneurship can be taught or not. However, entrepreneurship in education is still a rather new phenomenon in Sweden and due to this, no larger evaluations have yet been carried out.

1.3 Key support schemes

The two primary sources of funding for entrepreneurs in Sweden are soft loans from government agencies and equity financing (including venture capitalists, business angels and private individuals).¹⁴ Funding for entrepreneurs and start-ups has traditionally been debt-based or equity-based in Sweden. The Swedish government has an important role in funding, and Swedish companies, SMEs and start-ups included, have benefitted from different government and EU funded programmes that aim towards increasing the access to finance, allowing firms to expand their business operations and grow. Data collected by the Enterprise Surveys (by the World Bank) show that Swedish authorities have been successful in creating an environment conducive to private companies' getting access to credit.¹⁵

1.3.1 Government funding

Examples of government agencies that contribute to the promotion of SMEs ability to start or expand their businesses, and work with internationalisation promotion efforts, are Almi, Vinnova and Tillväxtverket (Swedish Agency for Economic and Regional Growth, including the network Enterprise European Network). These organisations provide support in an early stage, and the financial services can be in grants and loans.

Almi Företagspartner (including Almi Invest)¹⁶ is the major actor providing various financial instruments and support. Almi was founded with the aim of promoting the manufacturing sector. Today, the organisation stimulates growth and development in all sectors, but is still known best among companies in the manufacturing sector. Almi Företagspartner supports start-ups through SME loans and credits, co-financed by private banks. **The amount for loans for Almi Företagspartner is SEK 3.5b annually (to approximately to 3,000-4,000 companies).**

Furthermore, it offers advisory service and venture capital. The Innovation Loan provides funding to commercialise innovative projects. Loan terms vary depending on the financial situation and the project to be funded. Interest rates are slightly above bank interest rates.

Almi Invest is a subsidiary of Almi. Almi Invest invests in companies with "scalable business ideas and opportunities for long-term growth". Today, the Almi Invest portfolio consists of 400 growth companies in different industries. The invested amount is more than SEK 1b. Typically, the clients have fewer than 20

¹⁴ P Ingram, C. and Teigland, R. (2013). *Crowdfunding Among IT Entrepreneurs in Sweden: A Qualitative Study of the Funding Ecosystem and IT Entrepreneurs' Adoption of Crowdfunding*. Braunerhjelm P., et al. (2012). 2012 *Entreprenörskap i Sverige – Nationell rapport*. Entreprenörskapsforum and GEM.

¹⁵ OECD (2014), "Sweden", in OECD Science, Technology and Industry Outlook 2014, OECD Publishing. International Bank for Reconstruction and Development/The World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment*.

¹⁶ In 2013, the public Innovation Bridge Foundation was merged into Almi to develop a single public entity focused on early stage funding, e.g. by offering risk-bearing loans, seed and expansion capital, and advisory services and incubator funding, to entrepreneurs and SMEs.

employees. The success factors of **the organisation** is that the organisation has a long-standing reputation and various instruments. Furthermore, the organisation is adapted to meet regional requirements.¹⁷

Vinnova, Sweden's innovation agency, finances innovation projects and provides support in the form of networks, meetings and analyses. Several Vinnova funded programmes aim toward SMEs. Vinnova's programme for innovation driven growth in SMEs includes various forms of support for a total of SEK 400m per year. Vinnova's programme Innovation projects in companies (former Forska&Väx and VINN NU) is a key policy support measure.

Vinnova's programme for innovative SMEs continues to be a key policy support measure worth SEK 140m in 2013. In addition, Vinnova gives support via so called innovation vouchers (approximately SEK 100 000 per voucher, a total of SEK 30m per year). Vinnova is funding innovative projects in Swedish companies with a maximum of 250 employees (SMEs). Vinnova supports the early development of high-risk companies, and the financing is through grants. The agency supports companies either through full financing up to SEK 500,000. Companies that have been operating for up to five years can apply for 100% financing of a project, or 25-50% financing for up to SEK 5m. If the project needs more funding than SEK 500,000, or if the company has been around for more than five years, Vinnova can finance the project with up to 50%. Another example is the Vinnova programme Open innovation, that aims to recognise and encourage open and transparent innovation processes in the public sector, the business sector and among consumers or users. The programme provides support for strategic ways to use external expertise, resources and networks to develop innovations.

1.3.2 Venture capital

In 2014, venture capital investments in Swedish companies reached SEK 2.6b. In 2013, the corresponding figure was SEK 2b. The increase came from private funds, where total investments increased by 57% compared to the previous year. Simultaneously, the public funds decreased their investments by 16%. In 2010, there were 51 different Swedish private funds investing in Swedish companies. In 2014, there were only 20. Divided into development phases, the annual total venture capital investments show a shift towards investments in later stages. This shift has occurred at the expense of investments in companies in the start-up phase, which has decreased in recent years. While venture capital investment as a share of GDP is at the top of the OECD middle range, there are still gaps in the supply of business angel and early-stage venture capital.

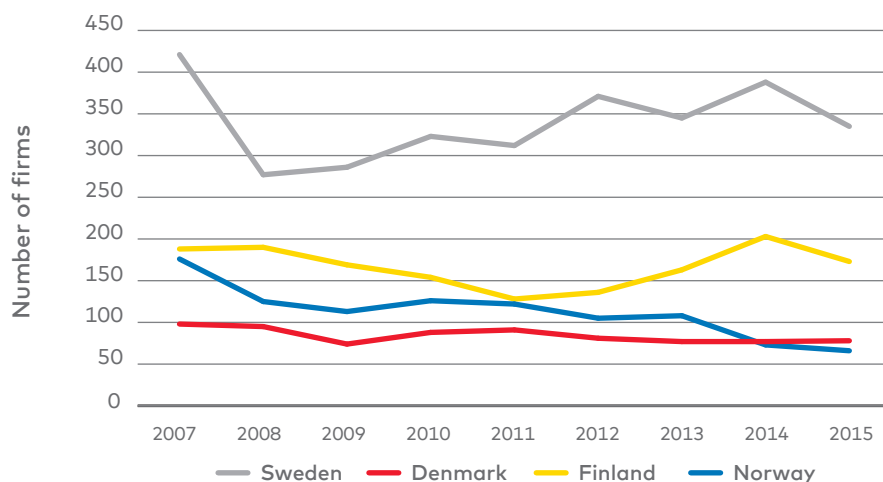
Figure 2 shows the number of start-ups receiving venture capital funding between 2007 and 2014 in Sweden, Finland, Denmark and Norway.

The figure shows that the number of start-up companies that receive venture capital in Sweden has decreased since 2007, from 421 in 2007 to 387 in 2014.

Sweden has several venture funds, for example Spintop Ventures, Creandum, Idenofonden, Schibsted Growth and MoorCap. In addition, there are a number of cluster organisations and industry associations, such as Swedish Venture

¹⁷ <http://www.almi.se/Almi-Invest/Om-Almi-Invest/>

Figure 2 Number of start-up firms receiving venture capital financing between 2007 and 2015, Sweden compared to other Nordic countries.



Source: EVCA, 2016

Capital Association and European Venture Capital Association. Their role is to carry out research, monitor the industry, and act as a lobby group.¹⁸

Several state owned venture capital companies and foundations work to improve access to capital for SMEs and start-ups. Fouriertransform and Industrifonden (The Industrial Development Fund) work with investments in the early stages. The venture capital comes at a stage where companies rarely have sufficient revenues, and are dependent on external capital.

Fouriertransform's mission in the automotive industry and other parts of the manufacturing industry and associated services is to invest in or finance companies involved in research, development and investment activity that will lead to commercially viable products or services and to conduct business consistent with this mission. Fouriertransform aims to strengthen and revitalise the Swedish industrial cluster. The investments are aimed at areas where there is particularly strong potential for the Swedish manufacturing industry to hold up well to the competition. Fouriertransform has an investment capacity of SEK 3b. Until 2016, Fouriertransform has invested in 28 companies, the smallest being around SEK 12m and the largest approximately SEK 332m. At the end of 2015, the portfolio consisted of three companies within the area of more efficient production, with the remainder within the area of sustainable vehicles. Three companies are in the start-up phase, six are at an early stage of development, and one is in an expansion phase. Fouriertransform works with private sector players and, for instance, the Swedish Energy Agency, Vinnova and Almi Företagspartner.

Industrifonden is one of Sweden's largest investors in growth companies, and provides venture capital to SMEs with high growth potential that are able to compete internationally. The fund offers capital, usually by investing in the equity of small and medium-sized Swedish companies with international growth potential. The fund usually invests in the form of equity capital in the company by participating in new share issues, but can also invest through convertibles that can later be converted to shares. The fund is an active minority investor

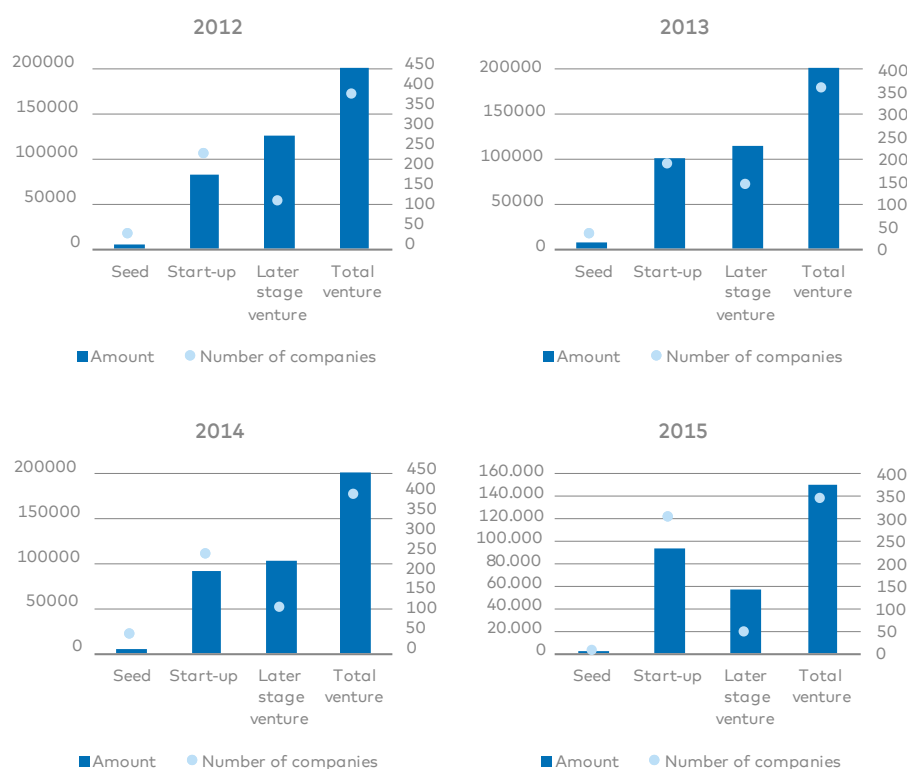
¹⁸ Tillväxtanalys (2015). *Risikkapitalstatistik 2014: Venture Capital – Investeringar i svenska portföljbolag*. Statistik 2015:06. OECD Science, Technology and Industry Outlook 2014

and target holdings of no less than 15% and no more than 50%. In addition, the fund can provide various types of risk-sharing loans, i.e., loans with options. The investment per company ranges between SEK 5mln and SEK 100mln. Venture capital is usually provided over time. No investment exceeds 5% of the funds' assets under management (currently corresponding to SEK 190mln). The investments have a time limit, which usually is between 5-15 years.¹⁹

Figure 3 shows amount of venture capital investments and number of companies receiving investment for different stages of companies in Sweden over the years of 2012, 2013, 2014 and 2015. Seed represents financing provided to research, assess and develop an initial concept before a business has reached the start-up phase. Start-up Financing represents financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially. Finally, Later-stage venture represents financing provided for the expansion of an operating company, which may or may not be breaking even or trading profitably. Later-stage venture tends to finance companies already backed by venture capital firms.

In 2013, 46% of the total (identified) investment volume went to portfolio companies in Stockholm County.²⁰

Figure 3 Amount of venture capital investments and number of companies receiving the investments for different stages of companies in Sweden the years of 2012, 2013, 2014 and 2015. Amount in thousands of euro.



Source: EVCA, 2016

¹⁹ International Bank for Reconstruction and Development/The World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment. Tillväxtnalys* (2015). Riskkapitalstatistik 2014: Venture Capital – Investeringar i svenska portföljbolag. Statistik 2015:06. Riksrevisionen (2014). *Statens insatser för riskkapitalförsörjning – i senaste laget*, RIR 2014:1.

²⁰ Swedish Agency for Growth Policy Analysis (2015). *Riskkapitalstatistik 2014: Venture Capital – investeringar i svenska portföljbolag*. 2015:06.

1.3.3 Business angels

There are a number of business angels networks in Sweden. One example is Connect, the biggest business angel network in Sweden. Connect is a network with nationwide offices, and it has several international partners. For example, Connect organises Språngbräda, an event where entrepreneurs are invited to pitch their ideas to an investor panel. Other examples are SeedfundIt and Spiltan, a network of professionals from different industries who invest together in different ventures. In addition to the official business angel networks, some of the business angels invest their own private equity in different start-ups (with products specific for their area of expertise). The share of investment declined between 2011 and 2012. However, it appears to have increased in 2013 and 2014.²¹ Today, Sweden has a significantly larger proportion of business angels in comparison with other countries, with the exception of the United States.²²

1.3.4 Incubators and accelerators

At present, Sweden has over 40 business incubators, such as STING, Teknikdalen and Mindpark, and over 30 science parks, for example Alfred Nobel Science Park, Uminova Science Park, and Medeon Science Park. From January 2015, all of Almi's activities regarding incubator support and incubation were moved to Vinnova. One example is the Incubator programme funded by Vinnova. Another example is the TechINCubator (TINC), a business development programme in Silicon Valley.

There is also a number of accelerators and accelerator programmes. Born Global is an accelerator programme for Swedish start-ups that aspire to go global. Selected start-ups are guided towards a verified and scalable business model. The programme is run by Chalmers University of Technology and financed by Almi and Vinnova. The cost for participation is SEK 300,000 per company, with Almi and Vinnova covering SEK 250,000 of these costs.²³

At the university level, university holding companies were established in the mid-1990s. Today, they enclose a total of SEK 2b in 17 different holding companies. A university holding company plays a role of an advisor and investment partner in early phases of commercialisation of research and seed funding. Some institutions have also started special investment funds in collaboration with other public entities, but this activity is marginal in relation to the state venture capital system in general. The largest of these include KTH Seed Capital and Chalmers Innovation Seed Fund with a capital of over SEK 100m each.²⁴

In the beginning of 2016, Chalmers Innovation and Encubator merged and became Chalmers Ventures. Both Chalmers Innovation and Encubator have been on the top ten top list of Europe's most successful university-related incubators, according to the UBI index. With 60 existing companies and 20-30 new start-up companies per year, Chalmers Ventures is one of the dominant Swedish actors in transforming academic knowledge into business. Chalmers will finance the initiative with a total of SEK 300m over period of five years, plus SEK 150m in operation costs.²⁵

²¹ Laufer M., et al. (2014). *Affärsängelnätverk och investeringar. Svenska tillväxtföretag kan andas ut – affärsänglar har kapitalet*. Ratio and Connect Sverige. Braunerhjelm P., et al. (2012). 2012 Entreprenörskap i Sverige – Nationell rapport Entreprenörskapsforum and GEM.

²² Entreprenörskapsforum (2016). *Entreprenörskap i Sverige*. Nationell rapport 2016.

²³ <http://bornglobal.se/the-born-global-program>

²⁴ SOU 2012:41. *Innovationsstödjande verksamheter vid universitet och högskolor*, see also SOU 2015:64 *En fondstruktur för innovation och tillväxt*.

²⁵ Veckans Affärer, article published 2016-01-08 <http://www.va.se/nyheter/2016/01/08/hon-har-450-miljoner-att-pumpa-in-i-startups>

1.3.5 Other support

As mentioned, there are several agencies in Sweden working to promote innovation, business development and commercialisation and internationalisation in certain sectors. For example, the Swedish Energy Agency supports new companies within the cleantech sector. Annually, the agency provides approximately SEK 100m in conditional loans (*tillväxtlån*) to companies in the commercialisation phase.

Today, an increasing part of the entrepreneurship policy is distributed on regional and local levels. The Swedish government supports several local initiatives, supported by specific local funds where local municipalities announces funding for local innovative companies and/or ideas, usually with support from the Swedish Agency for Economic and Regional Growth (so called regional investment support and regional grants for business development which includes start-ups). Each year, the County Administrative Boards get funding from the government to use in various programmes in order to support the county's enterprises. These supports are not only targeted to start-ups.

There is also an extensive network of organisations and companies in the public and private sector working with academic institutions in Sweden. The organisations aim to develop new products, services and processes. One example is the Knowledge Foundation (KK-stiftelsen). The foundation aims to stimulate competitiveness by creating conditions for innovation and creativity, and by strengthening the links between academia and industry. Another example is the Swedish Foundation for Strategic Research, an independent organisation that supports research in the natural sciences, engineering and medicine.

In recent years, crowd funding has become a more important source of funding in several countries around the globe. In March 2011, the organisation Funded-ByMe launched the first Swedish crowd funding platform. Since then, several other platforms have followed. FundedByMe is the largest crowd funding platform in Sweden, and is one of the first crowd funding platforms in the world to offer a one-stop-shop solution for loan-based and equity crowd funding. Since start, it has raised over SEK 5.7m in reward and donation based crowd funding for more than 300 of a total of 689 projects on their platform. Funded-ByMe offers two methods of crowd funding, equity and loan, to investors and entrepreneurs. For equity campaigns, there is a €1,000 listing fee to go live with the campaign and an 8% success fee on the total amount of money raised at the end of the campaign (and these fees are only applicable to entrepreneurs). Another example is Crowdcube. The platform works with equity crowd funding and is directed to entrepreneurs who seek to raise capital to launch or expand their businesses. Since 2011, Crowdcube has raised SEK 900m for 220 start-ups and early-stage businesses.²⁶

Informal investments, debt- or equity-based, are often identified as being crucial to start-ups. In a study, carried out by the Swedish Entrepreneurship Forum, it is stated that capital from founders to be the primary source of funding, and that funding from family and friends is more or less non-existent in Swedish innovative start-up firms. Instead, the studied firms are to a large extent funded

²⁶ Ingram, C. and Teigland, R. (2013). Crowdfunding Among IT Entrepreneurs in Sweden: A Qualitative Study of the Funding Ecosystem and IT Entrepreneurs' Adoption of Crowdfunding.

by governmental funding in the form of grants. This differentiates Sweden from several other countries.²⁷

Sweden has also a number of hackathons and meetups, often located around the Stockholm area.

1.4 Access to markets

Like the other Nordic countries, the domestic market is too small for entrepreneurs not to think internationally from the day they start their companies. Swedish companies have low barriers entering foreign markets, which is a necessity given the size of the country. Entrepreneurs and start-ups must think globally and more or less expand directly throughout the world (so called born global firms). Skype and Spotify are two examples of Swedish companies which from the start found an international market. The area and interest of born global firms have increased over recent years, for instance due to an increase in internationalisation. The study *Born Global: The Potential of Job Creation in New International Businesses* states that even the smallest and newest companies can succeed on the world stage. The report estimates that roughly a fifth of young companies in Europe are born global, but the share varies widely from one country to another. However, these companies just represent a fraction of the total number of new companies in Sweden, and the domestic markets for start-ups is still of importance. In order to increase the number of born globals, access to venture capital need to be improved.²⁸ Furthermore, previous analyses have shown that only a fraction of the start-ups develop into fast-growing companies. The report *Identifiering av snabbväxande företag och gaseller* shows that of all companies with organic growth, just 18% were gazelles, while 80% were older companies with rapid organic growth.²⁹

For some sectors, the relatively small Swedish market is rather limited. Export has a positive impact on economic growth, but many Swedish companies do not internationalise due to a perceived lack of competence. Furthermore, the study *Internationalization competence of SMEs* highlights that many SMEs have difficulties in finding relevant information about different internationalisation activities.³⁰ However, in recent years, several initiatives on internationalisation and export have emerged. These are further explored in Section 1.5.

1.5 Cultural context

Entrepreneurship has come to be recognised as an important factor behind economic growth, innovation and employment. Public funding and government support plays an instrumental and generally positive role in the Swedish entrepreneurship and start-up ecosystem, and the access to finance offers a variety of instruments.

²⁷ Söderblom A. et al. (2014). Sources of capital for innovative startup firms. An empirical study of the Swedish situation. Näringspolitiskt forum Rapport #9

²⁸ Halldin, T. (2012). *Firm internationalization and born global firms – On the causes and consequences of export market entry*. Royal Institute of Technology, Sweden, and Halldin, T. (2012). *Born global firms – Do they perform differently?* Electronic Working Paper Series, No. 269, Swedish Royal Institute of Technology, CESIS, Stockholm. The study, using data from Statistics Sweden, estimates that, in a sample of 610 Swedish exporters in manufacturing or knowledge intensive business services, 10-20% of all enterprises can be classified as born globals. However, born global firms constitute only 1-2% of all firms founded during the specified period. Halldin also investigates survival of the born globals; Data shows that when compared to all new firms, born globals have a superior survival rate. See also Mandl, I. et al (2013). *Born global: the potential of job creation in new international businesses*

²⁹ Poldahl, A. (2011). *Identifiering av snabbväxande företag och gaseller*.

³⁰ Achtenhagen L (2011). *Internationalization competence of SMEs*. Entreprenörskapsforum. Adenfelt M. et al. (2015). *LEVEL UP Internationaliseringsfrämjande av företag med hög tillväxtpotential - en kartläggning av initiativ och program i Norden*. Entreprenörskapsforum. See also Tillväxtanalys (2014). *Internationalisering 3.0. Nya vägar och möjligheter för svenska små och medelstora företag*.

Swedes are often stated not being risk-takers (some argue that Swedes are safety junkies, other say that the Swedish entrepreneurs are reasonably risk-willing), but the country is a quite risk-friendly place due to several safety nets from an income perspective, which reduces the risk of starting your own company. According to the *OECD Reviews of Innovation Policy report* from 2013 social attitudes towards entrepreneurship in Sweden are occasionally unsupportive. Sweden does not rank high in terms of viewing entrepreneurship as a desirable career option. However, the joint results in the report do not suggest considerably negative attitudes toward entrepreneurship. On the other hand, the perception of social prestige attached to successful entrepreneurs and of the frequency of media coverage of entrepreneurship is slightly above the OECD average.³¹

According to the Global Entrepreneurship Monitor, many Swedes see opportunity in starting a business, but few individuals actually do it. Low growth ambitions are still a weak spot. Swedish entrepreneurs are found to have relatively low ambitions for growth in terms of number of employees compared to the other countries even though the level has increased slightly from the previous years. A common idea is that a generally positive perception of entrepreneurship can lead to more individuals taking the chance to start their own company. Among the innovation driven countries, Sweden has the highest proportion of population (70%) who consider themselves to be a person that can identify good business opportunities. On the other hand, Sweden is below average compared to other innovation driven countries in terms of sufficient knowledge to transform perceived opportunities to companies; 37% in contrast to average 40%.³² In 2015, 70% experienced that there were good entrepreneurial business opportunities in the local environment. 37% claimed to have the ability to start and run a business. This is a slight increase compared to the year before. In addition, 70% of the Swedish population believes that successful entrepreneurship gives high status in the society.³³

Changing cultural norms towards entrepreneurship is among the major challenges in Sweden. However, with government support, the entrepreneur culture can be embraced. When establishing a focus on entrepreneurship and high-growth companies, the government demonstrates the commitment that they do in order to help Sweden succeed.

Several sectors have made structural changes, and today, the innovation process takes other forms than we are traditionally accustomed with. Small and medium-sized enterprises have a new role, and it is increasingly important for large companies to utilise the knowledge and expertise that exists outside its own operations. At the same time, large companies can support young firms by providing external knowledge, ideas, resources and technologies. Open Innovation, and the role of large companies in helping start-ups to access, for instance, international markets continues being a hot topic. This includes primarily sectors like high-tech industries like biotechnology, pharmaceutical and IT. In Swe-

³¹ OECD (2013). *OECD Reviews of Innovation Policy: Sweden 2012*, OECD Publishing, Paris. See also OECD (2015), *Entrepreneurship at a Glance 2015*, OECD Publishing, Paris. See also World Economic Forum (2015). *Leveraging Entrepreneurial Ambition and Innovation: A Global Perspective on Entrepreneurship, Competitiveness and Development*

³² Braunerhjelm P., et al. (2012). *2012 Entreprenörskap i Sverige – Nationell rapport*. Entreprenörskapsforum and GEM.

³³ Entreprenörskapsforum (2016). *Entreprenörskap i Sverige. Nationell rapport 2016*. Kelley, D. et al. (2016). *Global Entrepreneurship Monitor 2015/16 Global Report*.

den, the automotive industry has become more important for young firms, for example collaborations between suppliers and large OEMs.³⁴

1.6 Currently identified key challenges and barriers

One key challenge is to implement policy measures that foster positive conditions for entrepreneurship. A barrier for creating more high growth firms in Sweden is low ambitions. The Global Entrepreneurship Monitor report shows that Swedish entrepreneurs have relatively low ambitions regarding growth and a weak internationalisation. Furthermore, Swedish experts see weaknesses in knowledge and entrepreneurial spirit. In this context, perceived obstacles must be addressed.³⁵

Financial constraints are often identified as major barrier for the development of young companies. Access to venture capital is an important prerequisite for entrepreneurship. Access to finance is overall not seen as a big problem, however, it must be noted that seed-stage capital is still rather limited in Sweden, although there are a variety of for example, government programmes helping fund start-ups.³⁶ A recent study conducted by Företagarna (The Swedish Federation of Business Owners) indicates that 90% of the SMEs want to grow and that they think it is difficult to obtain external financing.³⁷ In 2015, the World Bank came to the opposite result in their analysis of the Swedish business climate and stated that access to venture capital is not a big problem in Sweden (see section 1.2).³⁸ Thus, this shows that there is no consensus regarding the access to finance and if it is a problem or not.

Swedish companies pay 49.1% of total commercial profit in taxes, **including a corporate tax rate of 22%.**³⁹ This is more than the average Nordic country, OECD high income, and EU28. The size of the taxes on business has an impact on investment and growth, and evidence from member countries of OECD indicates that lowering statutory corporate tax rates can result in large productivity gains by increasing the profitability of already dynamic firms. Furthermore, high corporate tax rates have been predicted to hold back productivity in all enterprises, except the young and small. The report *Sweden's Business Climate – A Microeconomic Assessment* shows that among high income OECD countries, higher taxes on profits result in lower foreign direct investment, while higher taxes on labour result in lower rates of new-firm formation.⁴⁰

Sweden has high tax rates, but the tax rates have not stopped Sweden from bringing several new, well known start-ups. However, a visible trend is the relocation of companies when they have moved from the initial phases. Would a lower rate encourage companies to stay in Sweden?

1.7 Future outlook

Sweden has steadily improved its position in the Global Entrepreneurship Monitor ranking since the mid-2000s, which also applies to women's entrepreneur-

³⁴ See for example Parida, V. et al. (2009). *Implementation of Open Innovation practices in Swedish manufacturing industry*. International Conference on Engineering Design, ICED '09 Stanford University Stanford CA USA, and Kuschel J. et al. (2010). *Open Innovation and Control: A Case from Volvo*. Proceedings of the 43rd Hawaii International Conference on System Sciences - 2010

³⁵ Braunerhjelm P., et al. (2012). *2012 Entreprenörskap i Sverige – Nationell rapport*. Entreprenörskapsforum and GEM.

³⁶ Renstig M (2015). *Världsklass – men hur ska världen få veta? A study assigned by Teknikföretagen*.

³⁷ Företagarna (2015). *Småföretagen vill växa – men saknar finansiering*. Företagarnas finansieringsrapport 2015.

³⁸ The World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment*.

³⁹ 49.1% is total corporate taxes, i.e. income corporate tax, social security, etc. and not only the corporate income tax (22%, see section 1.2.3)

⁴⁰ International Bank for Reconstruction and Development/The World Bank (2015). *Sweden's Business Climate. A Microeconomic Assessment*.

ship. The percentage of individuals who say they want to start a business has also continued to increase. The changes are not drastic, but Sweden has passed its Nordic neighbours. Several reports state that entrepreneurship (start-ups included) will be of importance for future growth in Sweden. A successful entrepreneurship and innovation policy must build mechanisms to transform knowledge into social benefits. As mentioned in several reports, this requires initiatives that promote entrepreneurship. As stated above, seed-stage capital is still limited and there is still a need for more business angels in Sweden. In this context, several reports highlight the need for more initiatives that ensure access to capital (from funding programmes, grants and loans to venture capital).⁴¹

Sweden has been moving towards a greater entrepreneurship and entrepreneurship policy. In June 2015, the report *En fondstruktur för innovation och tillväxt* was published. The report offers proposals for how state financial support to SMEs should be organised and conducted in order to be more efficient. The focus has been on high growth enterprises with high technological content. The study analysed and assessed when and if financial support, such as grants, loans or equity, is needed in order to correct and/or complement private financing. The proposal is that a new public state owned fund should be set up in order to co-invest with private capital in venture capital funds. Furthermore, the fund will act as the holding company. The main objective of the new fund will be to co-finance early stage venture capital investments in innovative Swedish enterprises with high growth potential. An additional objective is to contribute to the strengthening of the overall financial ecosystem in Sweden.

The fund will be called Fondinvest AB, and will be a holding fund comprising several funds; up to six new funds will be set up with total capital of SEK 500–1,000m per fund. Furthermore, two EU-financed funds will be incorporated into the new structure. The report also proposes a demonstrator fund for investments in production scale facilities (approximately SEK 1.5b). In addition, Fondinvest will administer a new loan guarantee system. Lastly, the review proposes measures to enhance the support for developing innovative enterprises. In total, SEK 340m is proposed for several measures (loans and grants for innovation). The new investment structure will be implemented during 2016.

In addition, the Swedish Energy Agency is planning to further develop support in the early phase. The support will be based on grants and a possibility of royalty (known as grants of limited royalties).⁴²

Almi (together with European Investment Fund (EIF)) is to set up new loan scheme (€130 million in total) for SMEs. The loans are targeted to innovative SMEs.⁴³

When the so called start-up manifesto launched in conjunction with Almedalsveckan, it had the major impact. Mikael Damberg, Minister for Enterprise and Innovation, has stated that the start-up scene should be a priority for the

⁴¹ For example Braunerhjelm, P. (2012). *Ett ramverk för innovationspolitiken - Hur göra Sverige mer entreprenöriellt?* Stockholm: Samhällsförbundet. Adenfelt M. et al. (2015). *LEVEL UP Internationaliseringsfrämjande av företag med hög tillväxtpotential - en kartläggning av initiativ och program i Norden*. Entreprenörskapsforum. Laufer M., et al. (2014). *Affärsängelnätverk och investeringar. Svenska tillväxtföretag kan andas ut - affärsänglar har kapitalet*. Ratio and Connect Sverige. Braunerhjelm P., et al. (2012). *2012 Entreprenörskap i Sverige – Nationell rapport Entreprenörskapsforum and GEM*.

⁴² SOU 2015:64. *En fondstruktur för innovation och tillväxt*.

⁴³ <http://www.di.se/artiklar/2016/4/28/nytt-miljardstod-till-smaforetagen/>

Swedish government. The government has appointed a special coordinator regarding start-ups. In addition, start-ups are a priority in the government's new export strategy. Among other things, the government will examine how the process of working visas can be simplified. Moreover, the state risk capital will be reformed.⁴⁴

In December 2015, Finansinspektionen (Sweden's financial supervisory authority) presented a report on crowd funding. One conclusion in the report was that there is a need for deeper analysis. Another conclusion was that existing laws and regulations need to be clarified. Now, the Swedish government has appointed a commission to identify and analyse the market for crowd funding in Sweden. The assignment includes, for example, to identify market platforms for crowd funding, an analysis of the platforms' role, functioning and incentive structure, and, where appropriate, develop necessary legislative proposals. One starting points for the commission is to improve the conditions for the development of this form of financing as an alternative source of financing for SMEs, The commission will submit its report by December 2017.⁴⁵

The Swedish government has, as part of Sweden's export strategy (see section 1.2), given Business Sweden the assignment to help innovative and early internationalised companies (born globals), to develop their exports more rapidly. The assignment also includes attracting foreign start-up companies to establish themselves in Sweden. The government will allocate SEK 7.5m in 2016. This will be used for partnerships with business incubators, science parks and other start-up environments. The intention is that the corresponding amount will be invested annually until 2019.⁴⁶

Regarding entrepreneurship, Sweden is once again on the same level as other small EU countries, and Sweden has maintained its position as the most entrepreneurial country in the Nordic region.⁴⁷

⁴⁴ <http://sverigesradio.se/sida/artikel.aspx?programid=3993&artikel=6264479>

⁴⁵ <http://www.regeringen.se/artiklar/2016/07/regeringen-utredet-grasrotsfinansiering/>

⁴⁶ <http://www.regeringen.se/pressmeddelanden/2016/07/ny-satsning-pa-innovativa-och-tidigt-internationaliserade-foretag---born-globals/>

⁴⁷ Entreprenörskapsforum (2016). *Entreprenörskap i Sverige*. Nationell rapport 2016.

Appendix E

Norway

1.1 The entrepreneurial ecosystem in numbers and volume

Norway is a small country where production and export are important. Petroleum, hydro-electricity and fishery have been three important sectors for Norway's economy, and approximately 60% of Norway's total exports are directly or indirectly linked to the oil and gas sector. Consequently, the Norwegian economy is profitable, but also vulnerable. The favourable economic development over the last decades will not necessarily be followed by correspondingly high growth in Norway in the years to come. Since the decrease in the petroleum production, it has become more important to strengthen entrepreneurship and innovation in Norway. The oil industry will no longer be the engine for growth, and in this context, new sectors, and new firms need to take over.¹ The entrepreneurial ecosystem is growing in Norway, but recent reports indicates that Norway *only* is ranked in the mid-range in comparison to other EU and EFTA-countries. In addition, the share of start-ups is low compared to other OECD countries. In the Entrepreneurship Index, published in 2016, Norway ranks as number 20, below the other Nordic countries.²

Figure 1 shows the share of the Norwegian population involved in entrepreneurial activity between 2004 and 2014.

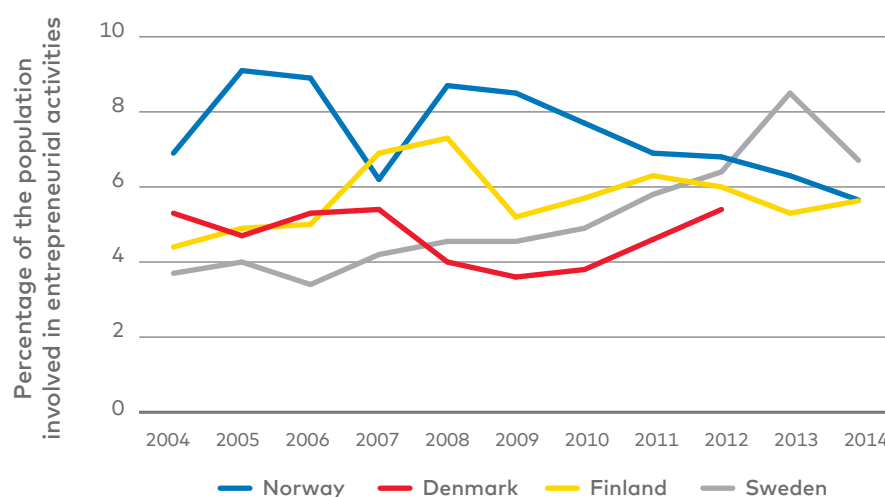
GEM data shows that Norway had a higher share of the population involved in entrepreneurial activities than their neighbouring countries between 2004 and 2012. However, between 2012, 2014 the share decreased and 2014 Norway had a smaller share of the population involved in entrepreneurial activities than in 2004.

The report *Produktivitet - grunnlag for vekst og velferd* implies that the share of rapidly growing businesses is lower in Norway than in most OECD countries. One reason could be that capacity utilisation in Norway has been higher than in many other countries. Therefore, it has been difficult to obtain labour for new, rapidly growing firms. It is also stated in the report that the process to create new, knowledge-based industry involves the establishment of new enterprises in new areas (aside from the petroleum sector). In this context, it is important

¹ OECD (2014). *OECD Economic Surveys: Norway 2014*, OECD Publishing. See also Cappelen, Å. Et al. (2013). *Petroleumsvirksomhetens virkning på norsk økonomi og lønnsdannelse. Framtidig nedbygging og følsomhet for oljeprissjokk*, SSB, Reports 59/2013, commissioned by the Ministry of Finance, study carried out for the Holden III Commission.

² The Bloomberg Innovation Index, see: <http://www.bloomberg.com/graphics/2015-innovative-countries> <http://thegeedi.org/global-entrepreneurship-and-development-index/>

Figure 1 Percentage of the population in Norway, Sweden and Denmark and Finland who were involved in entrepreneurial activities, between 2004 and 2014.



Source: GEM

that public policy facilitate both the growth of incumbents and renewal through start-ups.³

Norway is known for being a country that is decentralised and has a strong regional focus. The entrepreneurial ecosystem has a strong focus on Oslo, however there are ecosystems besides the capital region, for instance around Midt-Norge. Business angels are primarily operating in and around the large Norwegian cities such as Oslo, Bergen, Stavanger, Trondheim and Tromsø (see section 1.3.3.). This also applies to different incubator and accelerator activities. There are also start-up hubs in, for example, Tromsø, Trondheim and Bergen. Another example is Startup Norway, that has several so called mini programmes outside of Oslo in order to support start-up activity.

1.2 Policy context

1.2.1 National policy

The aim of the industrial policy in Norway is to create the right conditions for Norwegian enterprises to be innovative, adjustable and internationally competitive, while the Norwegian innovation policy aims to create economic growth that enables the Norwegian society to cope with future challenges. Innovation is important for the Norwegian enterprise and industrial policy since it is crucial for a creative and adjustable industry, especially due to the decreasing prices and production of petroleum.⁴

Norway has ambitions to create a society where knowledge is central through a highly educated population and a high quality research. Hence, innovation policy in Norway is closely connected to research and education.

The government in Norway has set three main goals regarding the research and the higher education system: promote innovation and competitiveness, solve

³ NOU 2015:1. *Produktivitet - grunnlag for vekst og velferd*. Produktivitetskomisjonens første rapport, Oslo, Finansdepartementet.

⁴ <https://www.regjeringen.no/no/tema/naringsliv/forskning-og-innovasjon/hva-er-innovasjonspolitik-k-fulltekst/id527568/>, <https://www.regjeringen.no/no/tema/naringsliv/forskning-og-innovasjon/a-legge-til-rette-for-bedrifter-og-nar-in/id526488/>, <https://www.regjeringen.no/no/tema/naringsliv/forskning-og-innovasjon/id526417/> See also OECD (2016), *OECD Economic Surveys: Norway (2016)* OECD Publishing.

great challenges for the society and develop a highly skilled labour force. The main goals, regarding the research and education policy, aim to promote innovation and access to knowledge for all Norwegian businesses.⁵

1.2.2 Entrepreneurial infrastructure

The Norwegian SME strategy *Små bedrifter – store verdier. Regjeringens strategi for små og mellomstore bedrifter* is part of the follow-up of the strategy Stortingsmelding nr. 7 (2008-2009) *Et nyskapende og bærekraftig Norge*. The strategy includes a target and a programme for regulatory burden reduction. The main instruments are for example simplification of official forms. Several instruments regard "starting a business", for example has the equity requirements for private limited companies been reduced by 70% (from NOK 14,000 to 4,000). This reduces the cost of establishing new businesses. In addition, the audit requirements have been removed for small companies. The SME strategy also includes a number of measures concerning "running a business". For instance, it is now possible to distribute the equity more efficiently by allowing dividend payments all year around.⁶

1.2.3 Taxes

Compared to several other OECD countries, the taxes in Norway are rather high. The Norwegian tax system has been criticised, for instance by OECD. In their report *OECD Economic Surveys: Norway 2016*, it is stated that the Norwegian tax system should be better adapted in order to promote enterprises.⁷ During 2015, the Norwegian government proposed new initiatives to ease the tax burden on enterprises. For instance, the government proposed to reduce the business taxes to the level of 22% during the period 2016-2018. In addition, the government has implemented a reduction of the income taxes for enterprises from 27% to 25%.⁸

The Norwegian government has made several efforts in reducing the barriers for entrepreneurship and start-ups, and the country has fewer regulatory barriers of product market regulation than most other OECD countries. The Norwegian government also supports companies through tax incentive scheme SkatteFUNN. It was introduced in 2002, and is a governmental programme designed to stimulate R&D in the business sector. Initially, SkatteFUNN was directed towards SMEs, but today all enterprises are included. The programme helps enterprises to work systematically with R&D, gain awareness of R&D as a strategic tool for tomorrow's businesses, raise Norway in the international competition (both by value and R&D efforts in relation to GDP), and motivate the private sector to increase investment in R&D.

SkatteFUNN is set to decrease the realised cost of R&D investments for companies. Small and medium sized companies may receive a tax credit of up to 20% of the eligible expenses (wages, other expenses directly related to the R&D project such as materials and external services) related to R&D activity for approved projects. The deduction is awarded for a period of maximum three years. To qualify as R&D, any activity must meet the definitions set out by the Research

⁵ Meld. St. 7 (2014-2015) *Langtidsplan for forskning og høyere utdanning 2015-2024*.

⁶ Ministry of Trade, Industry and Fisheries (2012). *Små bedrifter – store verdier Regjeringens strategi for små og mellomstore bedrifter*. OECD (2015). *Financing SMEs and Entrepreneurs 2015: An OECD Scoreboard*. OECD Publishing, Paris.

⁷ OECD (2016). *OECD Economic Surveys: Norway 2016* OECD Publishing.

⁸ OECD Science, Technology and Industry Outlook (2014) *Norway*. Ernst & Young Skatt og avgift. Nyhetsbrev Nr 3 – oktober 2015 <https://www.regjeringen.no/no/tema/okonomi-og-budsjett/skatter-og-avgifter/skattesatser-fradrag-og-belopsgrenser-i-2016/id2457143/>

Council of Norway. In 2008, the threshold on internal R&D projects was NOK 4m per year. In 2015, the limit was NOK 15m. In 2008, an evaluation of SkatteFUNN was carried out by Statistics Norway. The evaluation concluded that SkatteFUNN has stimulated and increased enterprises investments in R&D.⁹

Apart from SkatteFUNN, there are no particular tax incentive regimes for start-ups. Norway lacks innovation- and patent box systems. In addition, there are no specific incentives or tax concessions available for investors in Norway. Overall, there is no Norwegian tax on capital gains on shares in a Norwegian company accruing to a non-Norwegian tax resident investor.

1.2.4 Education and training

For more than ten years, entrepreneurship has been integrated in the Norwegian education system. The efforts to strengthen student's skills in entrepreneurship, such as innovative thinking and personal skills have been addressed through the *Action Plan Entrepreneurship in Education and Training – from compulsory school to higher education 2009–2014*.¹⁰ The Action Plan was developed by a cross-ministerial collaboration, between the Ministry of Education and Research, the Ministry of Trade and Industry and the Ministry of Local Government and Regional Development and it expands the government's efforts in this field. The Action Plan conveys the Norwegian government's intention to further implement entrepreneurship education throughout the whole education system, and is an attempt to ensure that today's pupils and students receive a well-qualified, preparatory and practical education to meet the demands of their future working life.

The objective of the Action Plan is to strengthen the quality and scope of entrepreneurship education and training at all levels and areas of the education system. Internationally, Norway shall be a leading force when it comes to entrepreneurship in education and training. Following the launch of the action plan, the government commissioned an on-going evaluation of its implementation. The evaluation project comprised several impact assessments covering all levels of education.

NIFU and Eastern Norway Research Institute conducted an on-going evaluation of the Action Plan. The project had several objectives, for instance to measure the impact of entrepreneurship education. Furthermore, the project investigated possible operationalisation of the concept of entrepreneurship education and provided status reports on the implementation at different educational levels. The evaluation project has so far published nine reports including the results from impact assessments from specific implementations of entrepreneurship education and an assessment of societal impacts. The most recent evaluation concluded that the Action Plan has been successful in promoting entrepreneurship in the higher education system. The evaluation shows that different approaches toward entrepreneurship have different outcomes in terms of abilities, skills and attitudes. Education *through* entrepreneurship seems to be most effective at lower secondary level. On the other hand, education for entrepreneurship is considered to be more relevant in upper secondary as well as higher education. In addition, the evaluators stated that knowledge of the most essential mechanisms behind the effects of entrepreneurship is still in its early stages.

⁹ Cappelen, Å. et al. (2008). *Evaluering av SkatteFUNN – Sluttrapport*. Statistisk sentralbyrå. SkatteFUNN will be evaluated during next year.

¹⁰ The Norwegian Government (2009). *Entrepreneurship in Education and Training – from compulsory school to higher education 2009–2014*.

In this context, it needs to be further investigated in order to better understand different factors that lead to individuals becoming more entrepreneurial.¹¹

Today, approximately 50% of all Norwegian higher education institutions offer entrepreneurial programmes. Recent reports show that about two-thirds of all students in natural science and technology, and economics and business administration participate in entrepreneurship education. Courses in innovation and entrepreneurship are normally both offered as part of other degree programmes or as a distinctive discipline. Examples of higher education institutions offering programmes in innovation and entrepreneurship are Norwegian School of Entrepreneurship (*Gründerskolen*). The programme was founded in 1999 and started up in cooperation with Cornell University. The programme involves most universities or colleges in Norway and several international universities and the Norwegian School of Entrepreneurship. Since then, the programme has had a rapid growth. Under the last years, it had approximately 150 students.

Other examples are Centre for Entrepreneurship with the Faculty of Mathematics and Natural Sciences at the University of Oslo, BI Norwegian School of Business (offers courses in innovation and entrepreneurship) and the new international PhD programme on Innovation (NORSI), organised by the Norwegian Business School and Norwegian University of Science and Technology.

Other examples regarding education is Start Norge. It is a student organisation working to advance innovation and entrepreneurship amongst Norwegian students. *Ungt Entreprenørskap*, which is a part of Junior Achievement – Young Enterprise (JA-YE).

1.3 Key support schemes

The ecosystem in Norway is currently growing with an increasing aim to support entrepreneurs. However, a report from OECD highlights that Norway needs to increase its support towards entrepreneurs.¹²

1.3.1 Government funding

The Norwegian state supports businesses through grants, loans and capital investments. A number of public support instruments are delivered through agencies, such as Innovation Norway, Siva and the Research Council of Norway. Innovation Norway and Siva target SMEs, including start-ups and high growth firms in particular. The instruments include loans, grants and tax incentives. In general, Norway does not support enterprises through guarantees. However, there is an exception, so called export guarantees.

Innovation Norway offers support to entrepreneurs and start-ups that have growth ambitions, and established an innovative business concept (which represent something new and significant in the market). The organisation also supports companies to build networks with investors and consult various forums where investors are looking for potential investments so that the realisation of a company's idea can be established. These networks can help companies to

¹¹ Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (2015). *Entrepreneurship Education: A road to success 13 Case studies Prepared for the study 'Compilation of evidence on the impact of entrepreneurship education strategies and measures'*. Luxembourg: Publications Office of the European Union, 2015.. See also Hagen S. E. et al. (2012) *Entreprenørskap i utdanningen – samfunnseffekter*. Johansen V. et al. (2012) *Entreprenørskap i utdanningen og oppnåelse av læringsmål*. Støren L. A. (2012). *Entreprenørskap i høyere utdanning – erfaringer blant nyutdannede*.

¹² OECD (2014). *OECD Economic Surveys: Norway 2014*, OECD Publishing.

further develop their business capital, expertise or networks. The services that Innovation Norway provides focus on idea and business development, how to obtain money, how to pitch an idea, and how to think internationally.

Innovation Norway provides support through start-up grants. The aim is to stimulate establishment of new enterprises, and the grants need to cover specified activities. Promising start-ups with growth ambitions are eligible to apply for a start-up grant. Start-up grants are applicable for premarket evaluation (to evaluate customer needs) through customer surveys, testing and development of solution, and networking and competence building). The support range from NOK 50,000 to NOK 100,000. If a company as a result can document further growth potential, the company is eligible to apply for a second phase. The second phase regards commercialisation with the purpose to help the company grow rapidly. Relevant activities include product/service development (including design or collaboration with pilot customers), protection of IP, development of brand strategy and visual identity and other activities related to market introduction.

Innovation Norway also has an IPR Advisory Team that gives advice on issues concerning copyright, patents and industrial design rights. The team collects correct information in order create a map of the IPR status in a company. When the information is analysed, a company will be capable of creating value from their IPR, and will be able to make better decisions with regards to protection and commercial use of their IPR.

Furthermore, Innovation Norway supports enterprises with different kinds of loans, for instance, innovation loans. These loans are granted to businesses that have an aim to invest in innovation but are unable to find investment. Low-risk loans are another sort of loan that Innovation Norway uses to support enterprises in Norway. Low-risk loans are offered to companies in need of financing long-term capital needs, and are based on Innovation Norway and the bank taking their share of the financing, or share the financing on a conditioned basis. In 2014, Innovation Norway distributed NOK 618m in risk-loans and approximately NOK 2.4b in low-risk loans.¹³

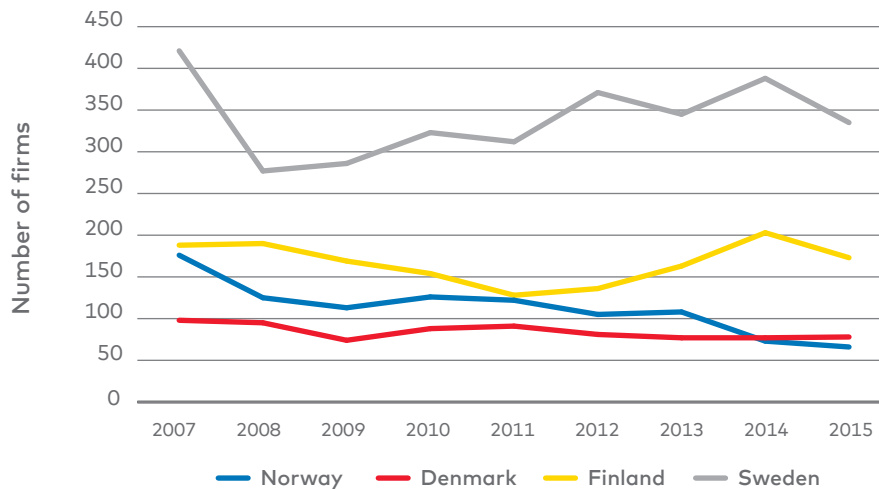
The organisation also supports start-ups with a mentoring service. The mentoring service offers strategic mentors to general managers of start-ups. The objective of the service is to contribute to increased survival and growth among start-ups.¹⁴

Another example is the Global Entrepreneurship Training (GET) programme that enables entrepreneurs to become successful business leaders by developing entrepreneurial capabilities, business skills and network for successful international expansion. The core of GET is the executive business skill training at Babson College in Boston taught by senior academic lecturers that are themselves successful entrepreneurs. Furthermore, the programme aims at knowledge sharing and networking in a world leading ecosystem for innovation and entrepreneurship through visits and seminars at knowledge hubs.

¹³ Innovasjon Norge (2014) *Årsrapport 2014*.

¹⁴ <http://www.innovasjon norge.no/en/start-page/our-services/start-ups/>

Figure 2 Number of start-up firms receiving venture capital funding between 2007 and 2015, Norway compared to other Nordic countries.



Source: EVCA, 2016

Innovation Norway develops and runs workshops in partnership with leading advisors, and other professionals, investors and experienced entrepreneurs contributes to the sessions through Business Bootcamp. If you are an entrepreneur with international ambitions, you can participate in Business Bootcamp to gain insight into customer development and modern tools for creating successful products and lasting relationships with customers. The programme includes workshops to learn tools and strategies for developing successful products and entering new markets, and pitch training and mentoring.

TechCity Executive Accelerator is a programme developed by Innovation Norway to support high-growth businesses in the technology sector. The programme supports enterprises to test their product in a global competitive environment.

The Research Council of Norway (RCN) distributes public funding to businesses regarding innovation and R&D. Their programme User-driven Research based Innovation (BIA) aims to promote R&D connected to businesses. Today, the programme has an annual budget of approximately NOK 544m. The programme seeks to promote the greatest possible value creation in Norwegian trade and industry through research-based innovation in companies and the R&D groups with which they cooperate and provides funding for research that will result in new products, processes and services in or across a variety of sectors. Thematic areas for the projects may include new business models and/or management strategies, preferably in combination with technology for a more sustainable business sector that assumes broader social responsibility. The programme accepts grant applications from innovation projects for the industrial sector, i.e. companies (not only start-ups and SMEs) that collaborate with other companies and/or R&D groups at higher education institutions and/or independent research institutes.

FORNY2020, run by RCN, is a programme that supports the innovation of enterprises based on research results. The programme has a general focus on commercialisation and aims to bringing the results from publicly funded research institutions into the market. FORNY2020 also aims to promote growth of young as well as established enterprises.

The Norwegian government also gives support to start-ups and SMEs to certain sectors. *Miljøteknologiordningen*, a grant scheme run by Innovation Norway, supports projects in environmental technology.

1.3.2 Venture capital

Norway has not had a very large professional investment sector, but it seems to be a change in the last years. In 2015, Q4 was a record quarter in terms of money invested in Norwegian start-ups. In addition, Norwegian companies are popular amongst foreign buyout firms¹⁵ Norwegian companies generally rank close to the international average in terms of access to venture capital. Norway differs from several other countries as venture funds and some institutional investors appear to opt out of investment in new and growing businesses.¹⁶ In 2014, the use of venture capital in Norway was below the OECD median. Figure 2 show the development in the number of start-up firms receiving venture capital financing between 2007 and 2015 in Norway, compared to Finland, Denmark and Sweden.

The figure shows that the number of firms receiving venture capital in Norway has decreased from around 170 companies in 2007 to 75 firms in 2014.

Figure 3 Amount of venture capital investments and number of companies receiving the investments for different stages of companies in Norway the years of 2012, 2013, 2014 and 2015. Amount in thousands of euro.



Source: EVCA, 2016.

¹⁵ Information from Startup Norway

¹⁶ NOU 2015:1. *Produktivitet - grunnlag for vekst og velferd*. Produktivitetskomisjonens første rapport, Oslo, Finansdepartementet.

To increase the venture capital, the Norwegian government has launched a programme called Seed Fund Investment Programme. The programme aims to increase venture capital investments in the early development phase (early-stage risk-capital investment). S  kornsfonderna aim to distribute funds and knowledge to enterprises that are in the earlier development. In 2014, two new funds (Alliance Venture Spring and ProVenture Seed II) were established. Each fund was granted a total of NOK 500m. The state and several private investors equally invested NOK 250m in each fund. During 2016, two new *S  kornsfonder* will be established.

Figure 3 shows the amount of venture capital investments and the number of companies receiving the investment for different stages of companies in Norway the years of 2012, 2013, 2014 and 2015. Seed represents financing provided to research, assess and develop an initial concept before a business has reached the start-up phase. Start-up Financing represents financing provided to companies for product development and initial marketing. Companies may be in the process of being set up or may have been in business for a short time, but have not sold their product commercially. Finally, Later-stage venture represents financing provided for the expansion of an operating company, which may or may not be breaking even or trading profitably. Later-stage venture tends to finance companies already backed by venture capital firms.

Investinor is a state owned investment company that supports enterprises through venture capital investments and ownership deals. Investinor is directed towards enterprises with an international aim that is in their early development phase. Through the investments by Investinor, the Norwegian state wants to increase the value of the enterprises that are supported by the investments.

Argentum Fondsinvesteringer is a state owned investment company. The purpose of Argentum is to increase high risk capital and is directed towards innovative enterprises. Argentum supports innovative enterprises through investments in equity. Argentum manages around NOK 7b.

Norwegian Venture Capital and Private Equity Association (NVCA) represents venture capital and business angels in Norway. NVCA provides information on different investors in Norway. One example of a venture capital fund is Northzone. It offers early-stage venture capital investments. Other examples are Nunatak (offers support in different stages of a start-up company's life cycle), Fabian Invest (invests in early stage mediatech companies), Ignitas (advisory and venture company focused on digital strategy and on-line visibility) and Oslo Innovation Center. The latter houses research-based start-ups.

Other examples are Springfondet, a seed capital fund located at Oslo Innovation Center, and Viking Venture. Viking Venture invests in companies within electronics, software, oil and gas, materials and clean tech, and the investments are targeted toward companies in the growth phase. Alliance Venture is another venture fund that invests in emerging technology companies at an early stage.

Besides the funding sources mentioned above, there is also the cross-Nordic venture capital networks, as SEED capital and Creandum. CONNECT is another example of a non-profit organisation that helps entrepreneurs connect with investors.

The largest and most profitable companies with the highest added value is located in the Oslo region and on the Vestlandet (especially in Rogaland).¹⁷

1.3.3 Business angels

Besides investing money in Norwegian enterprises, business angels help enterprises with knowledge and experience. Norway does not have a strong business angel network. However, in regard to what was stated in the first section and in a time with large changes in the largest Norwegian industries, there is a need for a stronger network. A report by Menon Business Economics shows that 2,400 business angels have invested in approximately 4,500 companies in Norway (2010). The report concluded that the share of business angels was similar to most European countries and that business angels had a high share of ownership in high growth companies, but quite low share of ownership in SMEs.

The business angels are primarily operating in and around the large Norwegian cities (such as Oslo, Bergen, Stavanger, Trondheim and Tromsø) where many of the Norwegian growth companies also are located. About 10% of the business angels are categorised as so-called elite angels (former entrepreneurs wishing to contribute with their experience and knowledge in new-established companies). The study by Menon also showed that 30% of private equity-owned portfolio companies also have received investments from business angels.¹⁸

Two examples of business angels networks are Cofounder and Nunatak. Another example is NorBAN. NorBAN is a non-profit based forum with the purpose of creating greater national awareness of the value of Norwegian business angels represent. NorBAN is a member of Eban, the European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players. NorBAN offers a virtual and physical meeting venue for private investors. Another example is LeanVenture, an angel investor group. The main areas of focus are technology, software, and different internet based business models.

1.3.4 Incubators and accelerators

Norway has a number of incubators and accelerators, mainly in or near the largest cities. StartUp Lab supports start-ups with early-stage funding, housing and access to networks. The Lab is run by Oslo Innovation Center, which also runs Oslo Science Park and the Build2Grow programme. StartUp Lab also runs the Silicon Valley Catalyst. The programme is designed to provide emerging technology companies with the practical knowledge, tools, customers and financing needed to launch in Silicon Valley and build a global success out from the US. Furthermore, the programme provides an intensive programme that combines customised training/coaching modules with the development of company-specific tools and processes. It accepts applicants from start-ups within the Nordics.

Innovation House is a Nordic co-working space and incubator in Silicon Valley made for start-ups taking the step to USA. Innovation House run Tech INCubator (TINC), which is a four week technology incubator programme in Silicon Valley. Innoventus is another incubator, working with a wide spectre of start-ups. Venture Lab helps with accelerating start-ups, raising capital, and access to

¹⁷ Menon Business Economics (2015). *Verdiskapingsanalyse. De aktive eierfondene i Norge*.

¹⁸ Menon (2010). *Forretningsengler i Norge: Omfang, betydning og behov for offentlig involvering*, Report 15/2010. See also Menon (2011). *The need for government supported capital measures in the market for early stage risk capital in Norway*, Report 18/2011.

networks, while Venturefactory supports start-ups in the digital service sector. Ipark Incubator invests at an early stage within the energy sector, ICT, welfare technology, culture, design and communication. ACCEL is an innovation programme for both start-ups and established businesses. The programme aims at providing highly qualified assistance for companies to develop a viable business plan.

Siva is a public enterprise owned by the Norwegian Ministry of Trade and Fisheries. The organisation is a part of the public funding agencies for innovation and work closely with Innovation Norway, RCN and the Norwegian Patent Office. Siva aims to develop strong regional and local industrial clusters through ownership in infrastructure, investment and knowledge networks as well as innovation centres. The objective is improvement of national infrastructure for innovation. The main objective is to contribute to the achievement of the Norwegian government's policy goals in remote areas, and within this framework contributes to unleash innovation capability and increase wealth creation in all parts of the country. Today, Siva runs over 30 incubators spanning across the entire country. The incubators range both in sector and investment focus.

1.3.5 Other support

Simula Research Laboratory is a research laboratory for, e.g., software engineering and communication systems. Simula Research Laboratory runs Simula Innovation that seeks to commercialise and transfer research to business ventures. The Laboratory also runs *Gründergarasjen*, a place where a start-up can find technical talent. In addition, Norway has a number of co-working spaces, where MESH is one of the largest co-working spaces in Norway.

FIN, the Association for innovation companies in Norway, works with improving public policy for entrepreneurs and increasing public investments in start-ups by improving the conditions for innovation and the creation of growth businesses.

Previously, Norwegian companies have not been able to get equity-based crowdfunding, since the Norwegian financial supervisory authority, *Finanstilsynet*, required crowdfunding companies to hold an investment services licence. Now, initiatives have been taken. Invesdor is a pioneering equity-based crowdfunding platform. It provides an online investment matching service where entrepreneurs looking to raise equity financing can easily connect with investors who are seeking to discover and invest in exciting growth companies. Bidra, Kickstarter, Fundedbyme, Newjelly and Indiegogo are examples of crowdfunding platforms. The transaction value in the crowdfunding segment amounts to approximately USD 13 million in 2016. The transaction value is expected to show an annual growth rate of approximately 26%, resulting in the total amount of USD 32m in 2020.¹⁹

Hackathons (and events like these) are not organised very often in Norway.

1.4 Access to markets

Norway is a small and open economy that increasingly relies on international trade for value creation. Since Norway is a small country, high growth firms need to go global early and be prepared to incorporate abroad. Norway exports a vari-

¹⁹ <https://www.statista.com/outlook/335/145/crowdfunding/norway>

ety of goods and services abroad. As in most countries, merchandise exports the biggest share of between 70% and 80%. EU is the biggest market for Norwegian exports, and 76% of goods and service exports go to the EU.²⁰ Easy access to export markets is important to a small country as Norway. Internationalisation is generally promoted and is prioritised by the Norwegian government regarding the country's innovation and research policy.²¹

Innovation Norway supports internalisation through the initiative International Market Advisory. The advisors support Norwegian companies with strategic advice and operational assistance during their internationalisation process. This includes information about business culture, market structures, competition and local requirements. Furthermore, Innovation Norway connects Norwegian companies to potential business partners, distributors, customers, local specialists and sector clusters. As part of its work on helping Norwegian companies grow abroad, Innovation Norway is part of the EUs SME-network Enterprise Europe Network.

The Global Entrepreneurship Initiative aims to connect Norwegian start-ups to global network and expertise in leading hubs. By exposure to international market conditions, opportunity to validate in highly competitive markets, input from skilled mentors and connections to relevant network, the initiative aims to contribute to faster growth of start-ups and with lower risk to the entrepreneurs.

The Business MatchMaking Programme is a programme designed to support the establishment of long-term sustainable and profitable business co-operations between Norwegian companies and companies in Bangladesh, Kenya, Tanzania and Uganda. Innovation Norway administers the programme, which is funded by Norad (the Norwegian Agency for Development Cooperation). The objective of the programme is to reduce poverty by promoting long-term sustainable economic growth in the partner country. This is achieved through the development of business partnerships. The partnership aims to contribute to increased business activity and employment in the partner countries, transfer Norwegian technology, knowledge and production know-how, financial capital and committed trading activities in accordance with the programme guidelines and to provide better access to and increase trade to international markets for products and service from the partner countries.

Norway uses guarantees to promote exporting enterprises. The Norwegian Export Credit Guarantee Agency (GIEK) is a public enterprise under the Ministry of Trade, Industry and Fisheries that issues guarantees. GIEK is a supplement to the commercial banking market, with financial results that will break even over time, and is part of the public policy implementation system for export promotion together along with Export Credit Norway, Innovation Norway and GIEK Kredittforsikring. The guarantees are not directed only toward SMEs or start-ups.

1.5 Cultural context

Norwegians are known as early adopters, willing and able to pay for new technology. Two different surveys based on individual perceptions concluded that

²⁰ Ministry of Trade, Industry and Fisheries (2012). *Små bedrifter – store verdier Regjeringens strategi for små og mellomstore bedrifter*. See also Innovasjon Norge (2009): *15 år med EØS-avtalen: Fungerer avtalen for bedriftene?*

²¹ OECD Science, Technology and Industry Outlook (2014). *Norway*.

Norwegian consider opportunities for entrepreneurs are high. In the Global Entrepreneurship Index 2015, Norway scored high on the indicator of cultural support, the indicator is based on how well regarded entrepreneurs are in the society and if entrepreneur is a good career path. Among the top 25 countries regarding entrepreneurial attitudes, Norway was ranked as the third country with a score of 0.9 (in a scale between 0 to 1). Only Finland scores higher among the Nordic countries.²²

However, according to new data from GEM, Norwegians have low intentions to start businesses (less than 5% of the population). In the ranking of self-perceived entrepreneurial opportunities, Norway ranks as number three (of 60 countries). Only Sweden is ranked higher (as number one). Regarding fear of failure, Norway ranks as number 37, a bit above Finland.²³

In a recent, OECD recommends that Norway needs to strengthen the culture of entrepreneurship in order to promote entrepreneurship. By strengthening the entrepreneurship culture, it is more likely that new opportunities are detected and captured.²⁴ However, the growth in entrepreneurship related courses can contribute to the entrepreneurship culture in Norway (see Section 1.2.4).

1.6 Currently identified key challenges and barriers

Even though the Norwegian ecosystem is developing in a positive way, there are still a number of barriers. Several studies show that the country reaches a low score in terms of start-ups. Norway scores low regarding perceived entrepreneurial capabilities. Low entrepreneurial capabilities can lead to less people feel they have the right skills to start a business. However, Norway works to increase the entrepreneurial skills through initiatives in the education system.²⁵

The taxes have also been mentioned as a possible barrier. The taxes are generally considered to be high which can make it less attractive to start a career as an entrepreneur. The structure of the tax system has also been pointed out to be a burden for businesses in Norway. The property taxes could also be a barrier for smaller enterprises. It has also been stated that the tax system in Norway have indirect effects that can decrease investments in R&D.²⁶

As stated in the report *Produktivitet – grunnlag for vekst og velferd*, Norway has low competition in product markets, which perhaps is caused by regulations providing strong implicit or explicit protection for incumbents, extensive requirements in relation to the start-up of a business, complex regulatory procedures and high public ownership. The high amount of publicly owned enterprises is another challenge. Publicly owned enterprises that are granted subsidies can be another obstacle in promoting good conditions for enterprises. It is not unusual that state owned companies are inefficient and subsidies to publicly owned enterprises can promote inefficiency instead of competitiveness in the private market.

²² OECD (2014), „OECD Economic Surveys: Norway 2014, OECD Publishing. Global Entrepreneurship Monitor (2014). *Global Entrepreneurship Monitor 2014 Global Report*. See also Acs, Zoltan J, et al. (2015). *Global Entrepreneurship Index, GEDI*.

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²⁴ OECD (2014). *OECD Economic Surveys: Norway 2014*, OECD Publishing. See also OECD (2016). *OECD Economic Surveys: Norway 2016*, OECD Publishing.

²⁵ OECD (2014). *OECD Economic Surveys: Norway 2014*, OECD Publishing. See also OECD (2016). *OECD Economic Surveys: Norway 2016*, OECD Publishing.

²⁶ OECD (2014). *OECD Economic Surveys: Norway 2014*, OECD Publishing. See also Xiang Jing Mei, et al. (2015). *The national government as the facilitator of tourism innovation: evidence from Norway*. *Current Issues in Tourism*, 18:12, 1172-1191.

Norway has insufficient access to relevant labour, mainly engineers and natural science graduates. In addition to a better education system, the design of the Norwegian welfare and pension schemes is emphasised as having an impact on the labour market.²⁷ Historically, it has been relatively easy to get a job in Norway. This factor, combined with uncertain outcomes from new ventures as result of the international financial crisis, affect the Norwegian economy. This can also be challenging for the entrepreneurial activity in Norway. Another factor that might curb the access to relevant labour (in terms of fewer newcomers) is the high cost of living in Norway.

As stated above, the capital market for start-ups is still undersized despite recent efforts by the government. The capital market includes a handful of venture capitalists and venture capitalist networks, and the business angel sector is still rather fragmented. However, this is somewhat compensated through soft funding and different public support targeted at entrepreneurs, start-ups and new high growth firms.

1.7 Future outlook

The government aims towards 1% of GDP is going to be publicly invested in R&D until 2020. In 2015, the investments in R&D reached 0.97% of GDP which suggest that the goal is already close to be achieved. Norway has the ambition to create a knowledge society, and Norway is increasing the investments in R&D. For instance, the current Norwegian government has made several proposals to increase investments in R&D during 2016.²⁸

To promote businesses in the early phase, the government plans to establish two more *Såkornsfonder* in 2016 that give access to slow capital for businesses in the early phase (see Section 1.3.2). In 2015 Norway invested in a new fund, pre-*Såkornsfasen*, that enables investment in projects that are connected to incubators and Technology Transfer Offices (TTOs). The fund has been granted NOK 40 million. The fund is going to be managed by Innovation Norway.²⁹

In recent years, the Norwegian government has decreased the tax burden on businesses and labour in Norway.³⁰ As mentioned earlier, the business taxes are going to be reduced to 22% during the years 2016-2018 and the income taxes for businesses have been reduced to 25%.

However, it is notable that despite political efforts to promote entrepreneurship among women, the proportion of female entrepreneurs has been remarkably stable over the years.³¹

In 2016, Innovation Norway will present ideas and proposals based on the Dream Commitment process (Drømmeløftet). The Dream Commitment is a national brainstorming where different participants had the opportunity to identify challenges and possibilities for Norwegian industry. On May 2016, Innovation Norway, together with the Research Council of Norway and Siva pre-

²⁷ NOU 2015:1. *Produktiviteten - grunnlag for vekst og velferd*. Produktivitetskomisjonens første rapport, Oslo, Finansdepartementet.

²⁸ Norges forskningsråd (2015). *Det norske forsknings- og innovasjonssystemet – statistikk og indikatorer 2015*. <https://www.regjeringen.no/no/om-regjeringa/solberg/Regjeringens-satsingsomrader/Regjeringens-satsingsomrader/konkurransekraft-for-norske-arbeidsplasser1/Innovasjon1/id753912/>

²⁹ Meld. St. 7 (2014-2015). *Langtidsplan for forskning og høyere utdanning 2015-2024*.

³⁰ OECD (2016). *OECD Economic Surveys: Norway 2016*. OECD Publishing.

³¹

sented the Innovation Speech 2016 (Innovasjonstalen 2016). Innovation Norway has identified six opportunity areas where the needs of the world meets Norwegian competences: clean energy ocean, space, bio-economy, tourism and creative industry, health and welfare, and smart societies. Also stated in the report, Innovation Norway will continue to strengthen entrepreneurial culture and cooperation to create more jobs.

A suggestion in the report is that one actor should coordinate various public actors' innovation policy instruments.³²

³² Innovation Norway (2016). *Innspill til en ny retning for Norge . Drømmeløftet 2016*. See also <http://www.xn--drømmeløftet-1cbe.no/en-aktor-bor-samordne-og-syndikere-de-ulike-offentlige-aktorenes-innovasjonspolitiske-virkemidler/> about one coordination actor.

Appendix F

Benchmark with Metropoolregio Amsterdam

1.1 Definition and demarcation of the ecosystem

The Amsterdam start-up ecosystem, like most ecosystems is demarcated in different ways. The most often used consensus is that of the so-called *Metropoolregio Amsterdam*. That demarcation includes the municipality of Amsterdam, the somewhat smaller agglomerations of Haarlem and Almere, as well as the ports of IJmuiden, and Schiphol Airport. Within this particular area, a set of 33 municipalities and two provinces coordinate their economic policy. The Municipality of Amsterdam operates as a *primus inter pares*. The Municipality of Amsterdam has its own *Amsterdam Economic Board* (AEB) which is very much inspired by the Singapore model. Decisions of the AEB feed into the Metropoolregio policy.

About 2.4m people live in the Metropoolregio of which about 1m in the Amsterdam agglomeration. Total surface is 2,500km². Total GDP in the Metropoolregio is about €123bn¹, which is about 19% of Dutch GDP. Since 2008 economic growth in the Metropoolregio has constantly outnumbered that in the rest of the country.

Figure 1 The Metropoolregio Amsterdam



¹ TNO, Vrije Universiteit (2015). *Economische Verkenningen MRA 2015*. Extrapolations: Technopolis Group

The Amsterdam ecosystem officially focuses on eight different clusters, which are defined by the Amsterdam Economic Board. The clusters and their prominence are presented below (in the alphabetic order):

- Creative Industries
- ICT/e-Science
- Financial & Business Services
- High tech materials
- Horticulture & Agri Food
- Life Sciences & Health
- Logistics
- Tourism & Conferences

The selection of clusters has not changed over time. The decision of the Amsterdam Economic Board (and thus of the Metropoolregio) to focus on these specific eight clusters is often perceived in the public debate as a non-decision as so much is covered. The most important clusters in employment terms are the financial & business services, as well as life sciences & health. ICT/ e-science is becoming increasingly important as a horizontal cluster that succeeds in attracting research infrastructures (particularly the FOM Institute ARCNL on nanolithography) and companies (such as ASML and Cisco).

1.2 Rationale for benchmarking

Netherlands in general is an interesting benchmark for many start-up ecosystems. The figure below shows the rapid growth in early-stage entrepreneurial activities in The Netherlands. This is the main reason for benchmarking.

One might wonder what it is, but it is clear that something good is being done in The Netherlands. Entrepreneurship in The Netherlands has increased dramatically in the past ten years. In 2005 the country was lagging behind vis-a-vis the benchmark group. Ten years later the odds have changed significantly. The Netherlands has become a forerunner in the field of entrepreneurship. Nowhere has the increase of early-stage entrepreneurship activities been so significant.

The Amsterdam ecosystem (made operational as the *Metropoolregio Amsterdam*) has been the clear focal point of this development. Facilities were set up,

Figure 2 Total early-stage entrepreneurial activities (The Netherlands versus other relevant countries in this project)

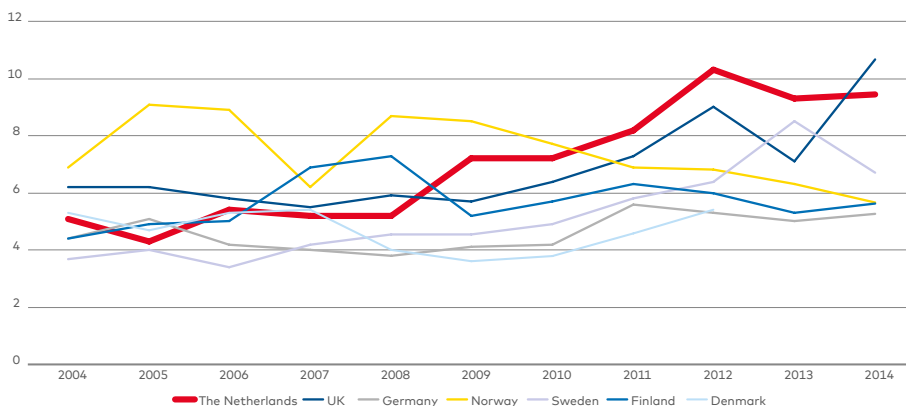
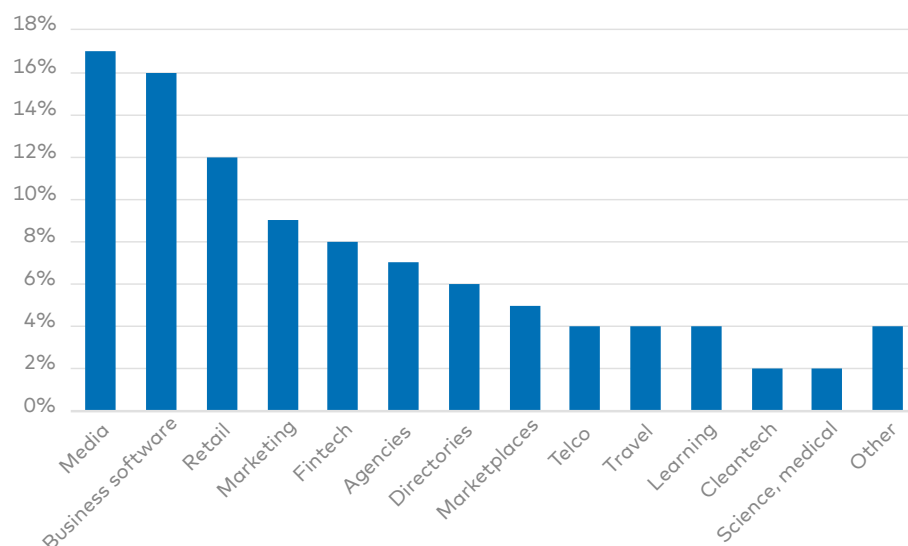


Figure 3 Distribution of Amsterdam start-ups over the domains



Metropoolregio Amsterdam, calculations: Technopolis Group²

and the volume of investments increased significantly over the past few years (as explained in Section 1.5).

1.3 Description of the benchmark ecosystem

The Metropoolregio estimates that The Netherlands hosts over 3,000 start-ups, of which more than 1,000 are situated in the Metropoolregio Amsterdam. The figure below shows what domains they are in. Domains are based on the internal Amsterdam categorisations. It is fair to say that the Amsterdam ecosystem is relatively scattered in terms of domains. Apart from the rather broad domains 'media' and 'business software' none stand out quantitatively. High-tech domains (such as cleantech, science, life sciences) can be found at the right end of the figure.

The Metropoolregio Amsterdam houses two universities, several research institutes, most large Dutch MNCs, research organisations, investors, accelerators, incubators, and semi-public service providers.

The two universities in Amsterdam (*Vrije Universiteit* and the *Universiteit of Amsterdam*) have similar portfolios and each has about 30,000 students. Both have large medical centres and large science faculties that are about to merge into one Amsterdam University Medical Centre and one large science faculty. The latter is supposedly the largest of its kind in Europe. In addition to the two universities, the ecosystem has a number of universities of applied sciences, most notable the Hogeschool van Amsterdam, and the Hogeschool InHolland, and a recently founded branch of MIT focusing on sustainability issues in large cities. There are also significant research institutes in the Amsterdam Metropoolregio, focusing on mathematics & ICT (CWI), and physics of biomolecular systems & nanophotonics (AMOLF).

² [https://app.startupamsterdam.org/#/companies/map?q=locations\(Amsterdam,Netherlands\)](https://app.startupamsterdam.org/#/companies/map?q=locations(Amsterdam,Netherlands))

The ecosystem also hosts several large MNCs, such as KLM, Heineken, ABN Amro, ING, Philips, Reed Elsevier, ASML TomTom and Ahold and the R&D facilities of Royal Dutch Shell. Even though these companies have their headquarters or main R&D facilities in the Amsterdam Metropoolregio, this does not per se imply a significant impact on the start-up ecosystem.

Significant public and semi-public accelerators and incubators are relatively scarce in the Amsterdam ecosystem. Public and semi-public incubator and accelerator facilities are offered by, for example, ACE Venture Lab of the two Amsterdam universities, New Energy Docs, that focuses on 20 eco-innovation start-ups. All take a share in the start-ups, which is a common business model for Dutch university accelerators and incubators as well.

Large-scale privately owned accelerator capacity is very scattered over the domains. There is no particular focus on specific technologies or domains. Privately owned accelerator capacity is offered by, for example, Rockstart (particularly in the fields of life sciences & health, web & mobile applications, and energy) that has helped 58 start-ups graduate, and whose graduates have raised €29m in total; Venture Lab of the two Amsterdam universities; and Startupbootcamp. Other accelerators identified by StartupDelta include zorgInc (a healthcare focused accelerator), Haarlem Valley (no specific focus), Waag Society (social innovation start-ups), W Ventures (ICT), Village Capital (no specific focus), TTY (no specific focus), The Grounds (airports services), the SUN Amsterdam (legal), Holland Startup (no specific focus), Investment Ready (social enterprises), Open-House (entertainment industry), Impact Hub (no specific focus), Vectrix (no specific focus), Bitcoin Embassy (supports bitcoin companies), Circle Economy (circular economy), Clever Clover (traditional industries) and Appsterdam (ICT).

There are several active private investors in the ecosystem. In 2014 Dutch private equity and VC firms invested €1.9bn in domestic and foreign businesses. This is a 80% increase vis-à-vis the previous year, which is mainly due to investments in the upper SME segment.³ VC investments were made in 386 companies that year. Section 1.5 elaborates.

1.4 Cultural context

In general, the Dutch business culture does not differ that much from the Nordic culture. The Dutch are slightly more hierarchy oriented than most Nordic peoples, especially the Danes. They are significantly more individualistic than the more collectivist Nordic business culture. The Dutch tend to avoid risks more than the Danes and the Swedes do and they are similar to the Finns and the Norwegians.⁴

Even though the Dutch are risk avoidant they do tend to have a very positive attitude versus start-ups. This positive attitude has grown significantly in the past few years.⁵ At this point in time, entrepreneurship is considered a desirable career choice by no less than 79% of the adult population in The Netherlands. Apart from post-Lehman economic turndown it is difficult to identify clear drivers that changed the Dutch start-up attitude over the past few years. The

³ NVP (2015). *THE DUTCH PRIVATE EQUITY AND VENTURE CAPITAL MARKET IN 2014: ENTERPRISING CAPITAL*

⁴ See for example: Suzanne van Veen (2015). *Communiceren & onderhandelen in de Nordics Een onderzoek naar de zakelijke culturen van Denemarken, Finland, Noorwegen & Zweden door de ogen van de Nederlandse ondernemer* Utrecht University

⁵ See also: Global Entrepreneurship Monitor

status of successful entrepreneurs has not changed over the past ten years⁶, while media attention paid to entrepreneurship has decreased.⁷ Start-ups in The Netherlands find it harder to get into contact with business angels than four to five years ago.⁸

Amsterdam is considered the focus point of entrepreneurship culture in The Netherlands. The attitude towards entrepreneurship and start-ups is relatively positive in the West of The Netherlands (that roughly includes the Amsterdam ecosystem and a 30km strip south of that ecosystem, including Rotterdam and The Hague) is more positive than in the other parts of the country.⁹

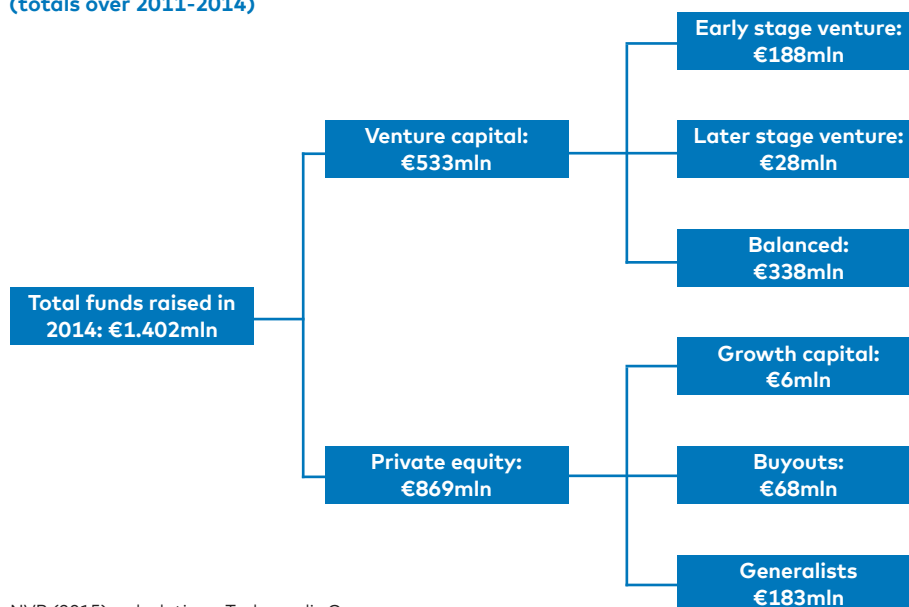
1.5 Venture capital and angels investments in the ecosystem

1.5.1 Sum of investments of venture capital and private equity funds in The Netherlands between 2011 and 2014

The €1,402m total investments in venture capital and private equity were distributed as presented in the figure below.

Most of the investments (49% in 2014, €680m) were allocated to private equity buyout funds. It is fair to say that these funds have not been of much use directly to high-growth firms. About 13% (€183m) of the investments were allocated to generalist's funds that either have a stated focus of investing in all stages of private equity investment, or that have broad area of investment activity. About 28% (€388m) were allocated to balanced venture capital funds that focus on both early stage and development with no particular concentration on either. About 8% of the investments were explicitly allocated to early stage venture capital funds. Venture capital shortages, in particular in the early stage, are a main concern to many in the ecosystem.¹⁰

Figure 4 Allocations of funds raised by Dutch venture capital private equity funds (totals over 2011-2014)



NVP (2015), calculations: Technopolis Group

⁶ See also: Global Entrepreneurship Monitor, KN.A.19

⁷ See also: Global Entrepreneurship Monitor, KN.A.21

⁸ Tornado Insider (2016). *Nederlands investeringsklimaat voor Technostarters: 9-meting*.

⁹ Tine Holvoet, Niels Bosmaa, en Hans Crijnsa (2015) *ONDERNEMERSCHAPSMENTALITEIT IN VLAANDEREN* Landschapstekening

¹⁰ Technopolis Group (2016). *Knelpunten bij de doorgroe van academische start-ups*.

A significant part of VC in The Netherlands comes from abroad. This share had risen to 42% in 2014. The number of active foreign VCs in The Netherlands was 61 at that time. Proximity is important: most foreign VCs in The Netherlands were Belgian. The large majority of foreign venture capital in The Netherlands focuses on later stage.

1.5.2 Informal investors and business angels in The Netherlands

Little is known about angel investors in The Netherlands. The Dutch Ministry of Economic Affairs published a study to find out why so little is known. It was concluded that the angel population "is diffuse, and that angels have a clear interest to keep it that way" to avoid too much demand for their service. Start-ups that use the services of angels have a clear interest not to be transparent about that.¹¹

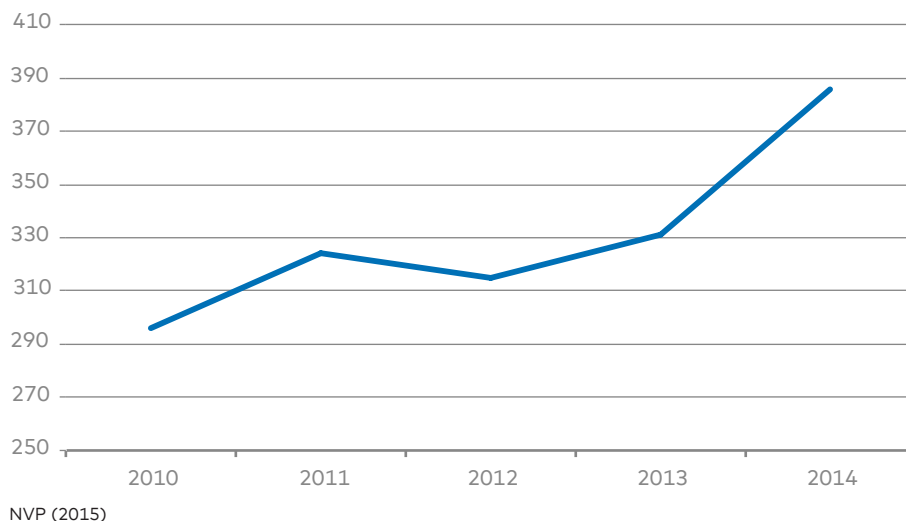
A clear consequence is that only 3% of the post 2012 high-tech start-ups in The Netherlands have tried to access business angels' funds. This percentage has decreased significantly in the past few years. Business angels in The Netherlands still do not yet seem to have a very significant role in the ecosystem, which is a concern.¹² The large majority of requests (88% in 2015) were approved.

1.5.3 Focusing on early stage venture capital investments in The Netherlands

Even though investments in early stage venture capital seem low, one should be aware that there has been a significant growth in the years before 2014. In 2012, for example, investments in early stage venture capital summed up to €24m.

This increase of relatively small early stage venture capital investments can also be seen in the figure below. It presents the total number of investments made by Dutch private equity and venture capital firms between 2010 and 2014. The figure shows a gradual increase from 296 (2010) to 386 (2014). Most of this increase in terms of numbers of investments was allocated in the <€1m segment.

Figure 5 Number of investments by Dutch private equity and venture capital firms



¹¹ Panteia (2014) *Informeel investeerders en business angels in Nederland : Kijk op kansen*

¹² Tornado Insider (2016). *Nederlands investeringsklimaat voor Technostarters: 9-meting*.

1.5.4 Sources of venture capital and private equity funds in The Netherlands

The figure below shows the sources of venture capital and private equity in The Netherlands between 2011 and 2014. Three important observations can be made. First, funds raised have decreased significantly between 2011 (€2,257m) and 2013 (€804m). In 2014 the first signs of recovery were seen (€1,402m). Second, most of this decline was due to banks, fund-of-funds, and especially pension funds pulling out of the market. Family offices remain a constant source of VC. Third, the decline was somewhat compensated by a more than doubling of government investments in VCs portfolios (up to €284m in 2014, which is significantly more than pension funds and banks invested in the Dutch VC and private equity portfolios). Studies show that the role of government investments in VC is increasing, due to a number of support schemes that have been set up in the past two years. These are presented in Section 1.7. These are much appreciated by VC fund managers.¹³

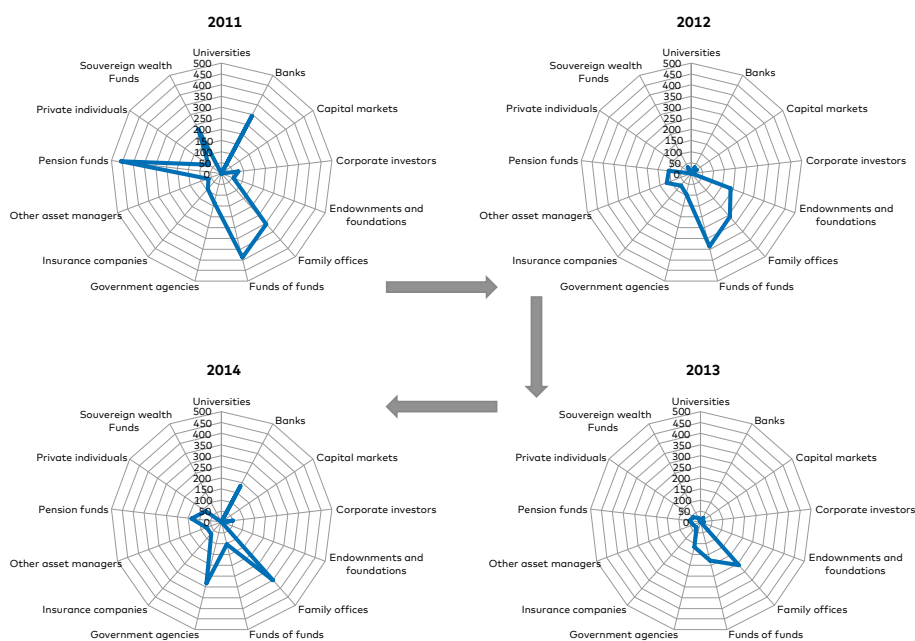
1.5.5 Venture capital and private equity in the Amsterdam ecosystem

The Amsterdam ecosystem is by far the most important target ecosystem in The Netherlands for venture capital and private equity in The Netherlands. Between 2012 and 2014 the investments in the Amsterdam ecosystem increased from €303.7m (22% of the total Dutch volume) to €1,204m (40% of the total Dutch volume).

This, however, masks the uncomfortable fact that most of these additional investments concerned private equity investments. Annual venture capital investments in Amsterdam decreased steadily from €86.6m in 2012 to €49.6m in 2014. All figures are presented below.

The figure above shows that the availability of early-stage risk finance is problematic in the Amsterdam ecosystem. In 2014, the OECD showed that “venture

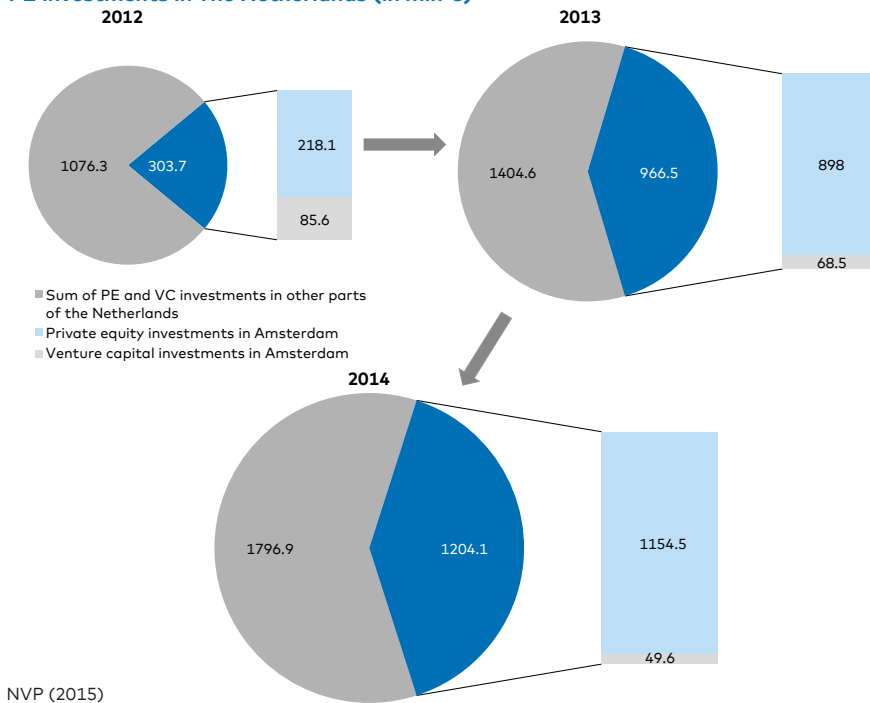
Figure 6 Sources of funds raised by Dutch venture capital private equity funds (2011-2014)



NVP (2015)

¹³ Tornado Insider (2016). *Nederlands investeringsklimaat voor Technostarters: 9-meting*.

Figure 7 Position of the Amsterdam ecosystem in the regional distribution of VC and PE investments in The Netherlands (in mln €)



capital investment as a percentage of GDP – including early-stage – is roughly on par with some comparator countries in the EU but is far behind the leading countries. Banks, pension funds and insurance companies face obstacles for investing in private equity funds. This may negatively affect the pool of financial resources and may be at least partially responsible for the relatively small size of the venture capital market, especially for the seed and early stages.¹⁴ This was also made clear in the 2015 Global Startup Ecosystem Report¹⁵ that stated that “the lack of seed and growth capital impedes entrepreneurial success, especially with regards to later-stage start-ups” in the Amsterdam ecosystem.

1.6 Policy context

There is a very clear recognition of the importance of start-ups in the Amsterdam ecosystem. This is supported at the level of the Amsterdam municipality, the Metropoolregio Amsterdam level, yet also at the level of the national government. This sector presents the policy context at each of the three levels.

The Amsterdam municipality has launched its Amsterdam Economic Board. Even though the Board itself consists of mainly corporates, the Amsterdam Economic Board organisation pays considerable attention to start-ups. The Amsterdam Economic Board is fully aware of the shortage of early stage venture capital in the ecosystem. This issue is high on its agenda.¹⁶ The Amsterdam municipality has also launched StartupAmsterdam, which is a PPP that aims to represent start-ups and put venture capital issues on the agenda.¹⁷ Both the AEB and StartupAmsterdam depend on in-kind funding from the municipality.

¹⁴ OECD Reviews of Innovation Policy. NETHERLANDS: Overall Assessment and Recommendations

¹⁵ Compass (2015). *The Global Startup Ecosystem Ranking 2015*

¹⁶ E.g. Amsterdam Economic Board (2014). *Jaarverslag 2013*.

¹⁷ <https://www.iamsterdam.com/en/business/startupamsterdam>

The Metropoolregio Amsterdam does not develop its own start-up policies but follows the AEB's line of reasoning.

The Dutch national government fully recognises the importance of start-ups, which also has a clear effect on policy recognition in the Amsterdam ecosystem.¹⁸ For that purpose the government has set up StartupDelta. StartupDelta consists of a dedicated team of about 20 with connections in enterprise, government, research and other relevant aspects of the start-up community. They are assigned by the Dutch government to tackle challenges that hinder growth for start-ups. The organisation is led by Special Envoy Mrs Neelie Kroes who has become the face of the Dutch start-up community in the public debate. She and her team have been able to keep start-ups high on the policy agenda in The Netherlands. In addition to that, there is a special concern in the Dutch Parliament on chances of Dutch university spin-offs. This issue receives regular attention in Parliament, which is a clear proxy of the role of start-ups on the policy agenda.¹⁹

1.7 Key support schemes

Within the Amsterdam ecosystem, the general Dutch start-up instruments are of course available. Most of these are grants or fiscal measures. These schemes include:

- **The Zelfstandigenaftrek and the Startersaftrek (€1,840mIn in 2016).** The best accessible support schemes are the tax relief for entrepreneurs ('*zelfstandigenaftrek*') and the tax relief for start-ups ('*startersaftrek*'). The first one is a tax relief for entrepreneurs that have less than five years experience as an entrepreneur. It allows for an artificial decrease of the taxable income, and thus of the taxes paid. The second tax relief comes on top of the first under specific conditions. Combined they can result in about €4,000 tax relief per year. There are constant rumours in Dutch politics about stopping this particular instrument as the impacts are small. It is known to be beneficial particularly to low growth start-ups. Preliminary research of the Court of Auditors in The Netherlands (2016) indicates that the negative consequences are limited.
- **The WBSO (€794mIn in 2016).** More mature start-ups with a focus on R&D can make use of the R&D Tax Credit ('WBSO'). The WBSO is the most important Dutch scheme to promote private R&D. With the WBSO, companies can lower the wage costs for R&D and other R&D costs and expenditures, such as prototypes or research equipment. The companies and self-employed individuals can set off their tax benefit in their tax return to the Dutch Tax and Customs Administration. Companies pay less income tax and national insurance contributions and self-employed individuals can make use of a fixed deduction.²⁰ Formally this measure is open to start-ups. However, to benefit from this R&D tax relieve, a company needs to be profitable. That limits the measure's added value to start-ups.
- **The Borgstelling MKB-kredieten (€425mIn in 2015).** Another important support scheme that is also open to start-ups is the *Borgstelling MKB-kredieten*.

¹⁸ Ministry of Economic Affairs (2015) *Actieplan Ambitieuze Ondernemerschap*

¹⁹ Technopolis Group (2016). *Knelpunten bij de door groei van academische start-ups*.

²⁰ Source: RVO

This is a government guarantee to go with a bank loan of an SME. At this point in time, pilots are undertaken to test if the measure should also be applied on non-bank loans. The 2011 evaluation of this was positive.²¹ The Court of Auditors is however sceptical and indicates that the added value of the instrument should be made clear.²²

- **The Innovatiekrediet (€41m in 2016).** The Innovation Credit measure is a max €5m loan of the Dutch Ministry of Economic Affairs to companies that work on R&D. This loan covers between 35% and 50% of the costs of an R&D project. The 2013 evaluation of this measure found a multiplier of 1.82.²³
- **STW Take-off Loans.** The STW Take-off Loans are funded by the national government, and managed by the Technology Foundation STW. They cover proof of concept (PoC) research and early stage trajectories for start-ups in the technical sciences. Individual inventors can use them as long as the inventors have an affiliation with a university. These loans are generally used for academic start-ups.²⁴
- **Small Business Innovation Research Programme (€7m in 2015).** Inspired by American successes, the Dutch government started its own Dutch SBIR programme in 2005. The Dutch Government uses its procurement power to mobilise the innovative capacity of Dutch companies to solve societal challenges, such as mobility, sustainability, safety and health. The instrument also aims to promote innovation, especially in SMEs.^{25 26}
- **SEED Capital measure (sum invested in 2014: €250m).** Unlike the previously mentioned schemes, this scheme does not address start-ups directly. Under this measure, the Ministry of Economic Affairs leverages privately owned seed funds under specific conditions (including max 50% leverage, no management fees, specific sectors). The 2014 evaluation of the Seed funds clearly showed the success of the funds, although dilution of public shares is a concern.
- **Dutch Venture Initiative (DVI) (fund size: €202m).** Dutch Venture Initiative is a fund of funds set up in 2012 and specialising in venture capital and private equity investments in later, early and development stage small and medium sized businesses. The fund targets high technology, ICT, cleantech, medtech, renewable energy, life sciences sectors, emerging and converging technologies. It seeks to invest in The Netherlands. It seeks to hold its investments for a period of five years. The DVI is funded by the Ministry of Economic Affairs, Regional Investment Agencies in The Netherlands (outside Amsterdam) and the EIF.²⁷ DVI intends to build a balanced portfolio of venture capital and growth funds that are able to demonstrate a strong investment focus on the Netherlands. DVI supported Fund Managers need to focus on companies in either an early or a development stage.

²¹ Carnegie Consult (2011). *BMKB Beleidsvaluatie 2005 - 2010*

²² Dutch Court of Auditors (2015). *Opvolging aanbevelingen (peilmoment augustus 2015)*

²³ ARP (2013). *Evaluatie Uitdagingskrediet en Innovatiekrediet*

²⁴ See also: Birch Consultants (2013). *Proof of Concept Fund Onderzoek en aanbevelingen op basis van een analyse van de STW Valorisation Grant*. Conceptrapportage

²⁵ Ministry of Economic Affairs (2010). *SBIR The power of public procurement: innovative solutions to societal challenges*

²⁶ Ministry of Economic Affairs (2015). *Vaststelling begroting Ministerie van Economische Zaken en Diergezondheidsfonds 2015*

²⁷ See also: Bloomberg

Other regions outside the Amsterdam area have set up early-stage venture capital funds or co-invest in privately owned early-stage venture capital funds. These instruments became particularly significant in the past few years after regional governments were able to sell their shares in energy corporations. Amsterdam has never had these shares, and has therefore not been able to set up such instruments. That is not the case in the Amsterdam ecosystem.

In addition to the above-mentioned schemes, Amsterdam aims to set up instruments under the new StartupAmsterdam initiative. These instruments include an online StartupJobs platform that helps start-ups attract the right talent; an online coding academy that aims to improve coding skills of the 8-12 years old; coding classes at school; a corporate partner programme that aims to strengthen the involvement of 25 Amsterdam-based corporations in the Amsterdam ecosystem; and several global start-up events.

About half of the official StartupDelta events organised in The Netherlands take place in the Amsterdam ecosystem. Examples include the STARTERSLEF Start-up contest, Workshops on Negotiations at ACE Venture Lab, and e.g. the European FinTech Awards 7 Conference 2016. StartupDelta has clearly taken up a catalyst role in these events.

1.8 Policy outlook

Two forces drive the policy outlook for the upcoming five years. These are: the seizure of StartupDelta, Amsterdam ambitions, and the transformation of Dutch national schemes (from grants to loans and fiscal reliefs).

StartupDelta is now one of the key players in the debate. It will, however, cease its operations in 2016. Although StartupDelta and its few funders have clear reasons to dissolve the organisation, the start-up policy arena does benefit from such a central node in the debate to which start-ups, corporates, venture capitalists and politicians listen. It is now by far the strongest and most active advocate of start-up promotion in The Netherlands. StartupDelta will leave behind a discourse vacuum.

At the same time, the municipality of Amsterdam (and the AEB) nevertheless has clear ambitions when it comes to Amsterdam's start-up ecosystem. It ambitiously considers itself 'the main ecosystem in Europe's West Coast for Disruptive Start-ups'.²⁹ "We increasingly hear about successful exits in Berlin and London, complaints about capital and the lack therefore, and the lack of significant start-up events".³⁰ The municipality will therefore be implementing the StartupAmsterdam policy programme that aims to position Amsterdam structurally in the top 3 European start-up ecosystems. That implies that the municipality of Amsterdam will increasingly focus on:

- Attracting early stage start-ups from other countries to Amsterdam by promoting Amsterdam incubators and accelerators, as well as its work force

²⁸ Mrs Kroes indicated that she could only lead the organization after an agreement was made that it would be dissolved after two years. This decision was made ex-ante.

²⁹ Municipality of Amsterdam (2015). *Visie en Actieprogramma StartupAmsterdam*.

³⁰ Municipality of Amsterdam (2015). *Visie en Actieprogramma StartupAmsterdam*.

- Lobbying for less conservative migration laws to allow Amsterdam start-ups to more effectively attract the skills they need from outside the EU (particularly programming skills)
- Maintaining improved positioning of Amsterdam start-ups in foreign high tech clusters³¹
- Increasing FDI and investments by Amsterdam financial service providers in Amsterdam start-ups.

This ambition goes hand in hand with filling the discourse vacuum that StartupDelta will likely leave behind. Even though the tide is good for Amsterdam as it is currently moving up the international ecosystem rankings, StartupAmsterdam is not likely to be able to fill the gap that StartupDelta leaves behind. The difference in scale and people involved is too significant.

1.9 Key success factors of the benchmark ecosystem

In June 2015 StartupDelta has asked several specialists in the field of start-ups to assess the Amsterdam and Dutch start-up ecosystem. The general consensus of the 150 experts was that the Dutch ecosystem in general (and Amsterdam specifically) owes its success to a conducive business environment, a very well-educated workforce that is generally fluent in English, and a good university base. Moreover, the government is fairly supportive; funding is to some extent available and well available beyond the early stage. These are considered the key success factors of the Amsterdam ecosystem.

1.10 Additional interviews conducted

- Egbert Schram, itim International

²⁸ Mrs Kroes indicated that she could only lead the organization after an agreement was made that it would be dissolved after two years. This decision was made ex-ante.

²⁹ Municipality of Amsterdam (2015). Visie en Actieprogramma StartupAmsterdam.

³⁰ Municipality of Amsterdam (2015). Visie en Actieprogramma StartupAmsterdam.

³¹ Not identified

Appendix G

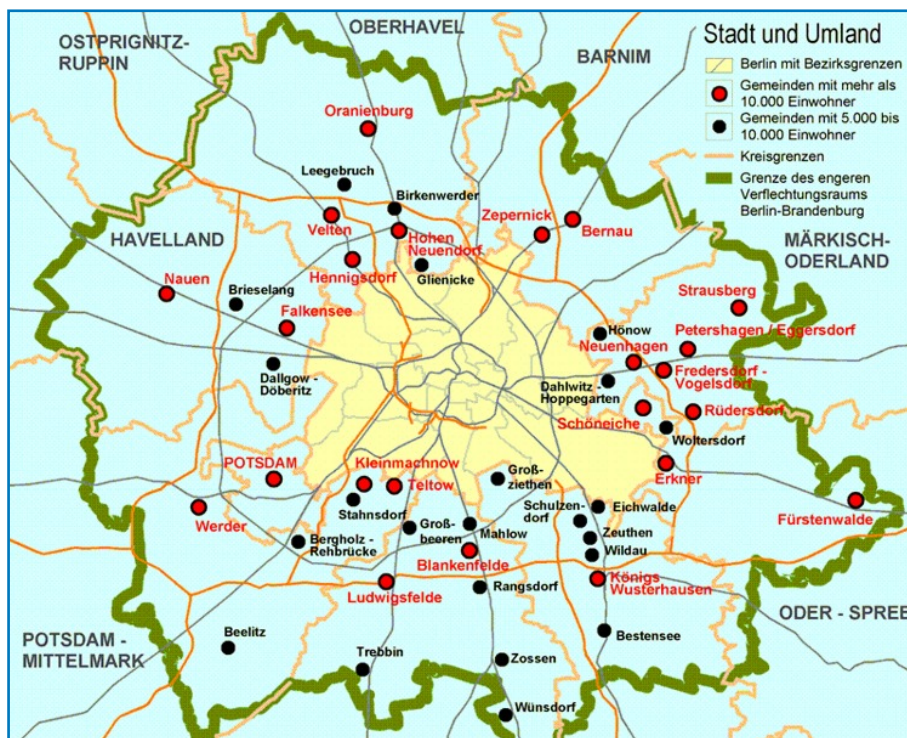
Benchmark with Berlin

1.1 Definition and demarcation of the ecosystem

Unlike, for example, the Amsterdam ecosystem, the start-up ecosystem in Berlin is not so clearly demarcated geographically.¹ For the purpose of this study we demarcate the Berlin start-up ecosystem as the Stadt Berlin. That is the yellow segment in the figure below. Total surface of Stadt Berlin is about 800km². Total population is about 3.5mln.²

The Berlin ecosystem is widely considered Germany's capital for entrepreneurs. Berlin Partner, a PPP that offers business and technology support for companies, investors and academia in Berlin, estimates that over 44,000 new firms or spin-offs are launched each year. Berlin Partner uses a rather loose demarcation. More conservative estimates (e.g. by Compass) result in a total of 1,800-

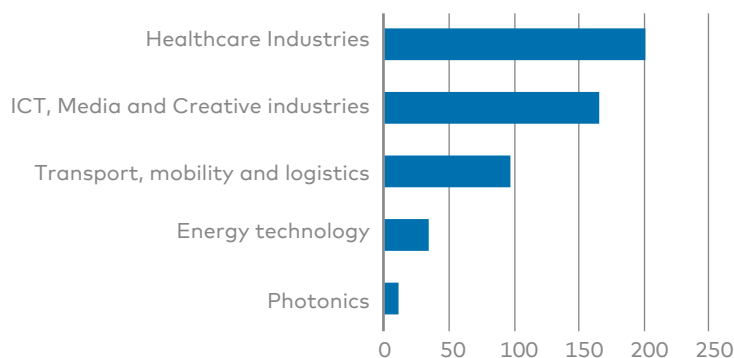
Figure 1 The Berlin ecosystem painted in yellow



¹ Berlin Partner (2016). *Ihr Standort: Berlin*

² Amt für Statistik Berlin-Brandenburg

Figure 2 The five main clusters in Berlin and their size in employment terms (*1000)



Source: Berlin Partner

3,000 active start-ups in Berlin. Major investments in infrastructure and public support measures have resulted in such numbers, mainly in the service innovation industry.³

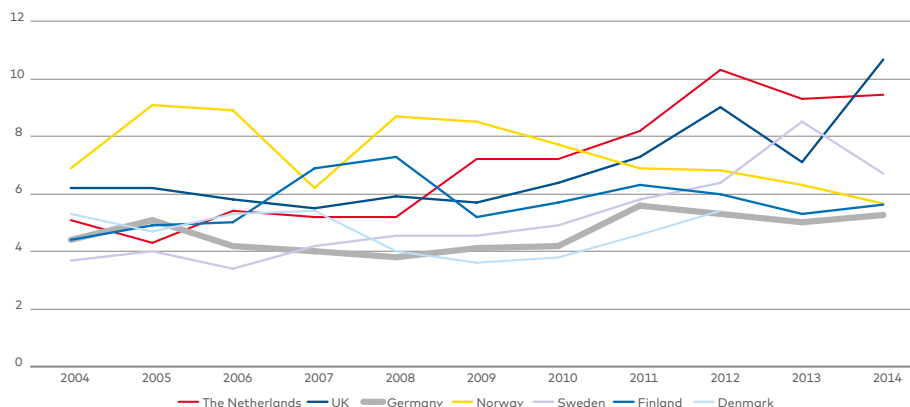
Berlin distinguishes between five important clusters. Their size in terms of employment is presented in the figure below.

1.2 Rationale for benchmarking

The figure below shows total early stage entrepreneurship activities in Germany, compared to that in the other relevant countries. Start-up activities in Germany have been modest since 2004 and it appears that this is still the case. At this point in time, the relative volume of activities in Germany more or less equals that in Finland, Denmark, and Norway.

Nevertheless, there are three clear reasons to include Berlin in the benchmark. First, there is the recent growth of available venture capital in the Berlin ecosystem⁴ that we also discuss in Section 1.5. Second, yet related to that, is that the Berlin start-up ecosystem has strongly matured in the past few years. One should be aware that the ecosystem is only a quarter of the age of the other benchmark ecosystems. Until 2013 there was no significant VC fund available

Figure 3 Total early-stage entrepreneurial activities (Germany versus other relevant countries in this project)

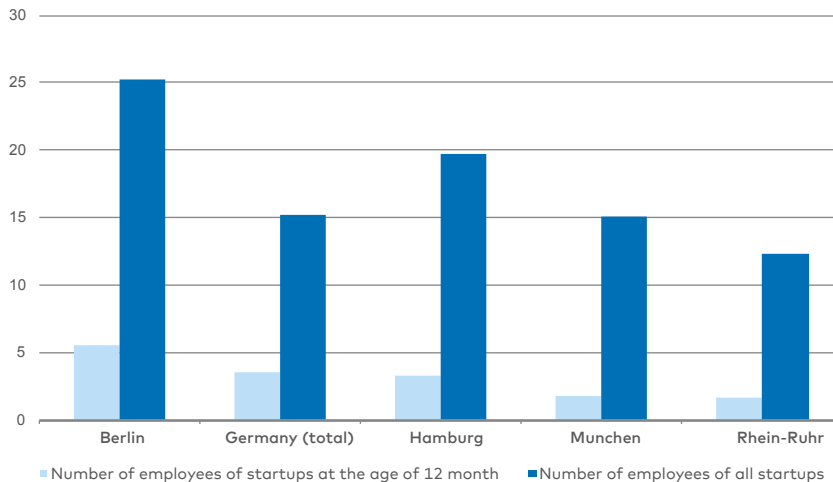


GEM

³ Fischer, Thomas (2011). *Regional Innovation Monitor: Regional Innovation Report (Berlin)*, Technopolis Group

⁴ Compass (2015). *The Global Startup Ecosystem Ranking 2015*

Figure 4 The significant growth rate of start-ups in Berlin compared to other German start-ups



Bundesverband Deutsche Start-ups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany: Deutscher Startup Monitor 2015 (12-months data: 2014).

in Berlin.⁵ This ecosystem growth has gone hand in hand with the growth and motorisation of several of its start-ups. Zalando was founded in a Berlin flat eight years ago and was valued €6.2bln after its 2014 IPO. Soundcloud moved to Berlin in 2007 and was valued €943bln in 2014. Berlin has several of such success stories. Third, besides the success stories, Berlin start-ups in general also grow faster than start-ups in many other German ecosystems, including ecosystems that are generally perceived to be successful such as the München/ Bayern ecosystem (see figure below). The Berlin success translates in high growth of both start-ups younger than 12 months, and for more mature start-ups.

1.3 Description of the benchmark ecosystem

The Berlin ecosystem, according to Compass, hosts 1,800 to 3,000 start-ups. No data are available on the domains and the technologies that they are in. Compass however states that “start-ups in the Berlin ecosystem have historically been successful in markets like eCommerce, gaming, and marketplaces, with new start-ups showing potential in other verticals such as SaaS and adtech”.⁶

The Berlin ecosystem houses four universities. The Technical University (*Technische Universität Berlin*) has a total of 26,000 students, which makes it Germany's largest technical university. It offers rather broad programmes, that also include social sciences, and humanities. The Free University (*Freie Universität Berlin*) has approximately 34,000 students, which makes it one of Germany's largest universities. It has a strong track record in humanities, social sciences, natural sciences, and medicine. The Humboldt University (*Humboldt-Universität zu Berlin*) is Berlin's oldest university. Like the Free University it is one of Germany's largest universities. The University of the Arts (*Universität der Künste*) is Germany's largest college of arts. In addition to its universities, Berlin has seven other institutions of higher education, the so-called Fachhochschulen. They specialise in a range of fields, and combine practice-oriented research with innovation and technology transfer.

⁵ The Guardian, *Berlin's startup scene is knuckling down to business*, 22 October 2015

⁶ Compass (2015). *The Global Startup Ecosystem Ranking 2015*

The number of large MNCs in Berlin is small, which is a legacy of the past. Berlin's top-employers are all public or semi-public organisations. The top-4 consists of Deutsche Bahn (headquarters in Berlin, private joint-stock company (AG), with the Federal Republic of Germany being its single shareholder), Charité (university hospital), Vivante (hospitals), and Berliner Verkehrsbetriebe (public transport). Siemens is the first non-public company at number 5.⁷ Disposable income is below the national average. In August 2015, the unemployment rate in Berlin was 10.7 % against the national rate of 7.4 % (EURES data).

According to Berlin Start-ups, Berlin has as total of six accelerators and eight incubators. Accelerator services are offered by Berlin Startup Academy (no specific focus), Berlin 42 (high-tech), Founder2be (no specific focus), Hardware.co (hardware start-ups), Startupbootcamp (no specific focus), and Stepinto.us (tech focus, US oriented). Incubators include EPIC Companies (no specific focus), Found Fair Ventures (no specific focus), German Start-ups Group (Internet start-ups), HitFox Group (Big Data, Advertising, and FinTech), hub:raum (owned by Deutsche Telekom), Team Europe Management (no specific focus), and YOU IS NOW Startup-Incubator (focus on real estate, mobile and social media). The Technische Universität Berlin has its own incubator, the Centre for Entrepreneurship.

A total of €2bn was invested by VCs in Germany in 2015, which ranked Berlin #2 in Europe. Key VC firms include BDMI (focus on digital media), Earlybird (focus on health tech), E.Ventures (focus on consumer Internet, media, mobile), Pertech (focus on digital media, information technology), and Point Nine (focus on SaaS, eCommerce, mobile, marketplaces).

1.4 Cultural context

KfW Bankengruppe stated in 2014 that "entrepreneurial spirit in Germany still qualifies as too low: in 2012, the number of persons entering into self-employment even reached a new record low. At best, there are the beginnings of a sustainable entrepreneurial culture with widespread effects".⁸

The GEM2014 Report was also sceptical about the cultural context in Germany: "Germany has a relatively low level of entrepreneurial activity, even when compared with other industrialised economies. This is not due to a lack of government support – rather, it is due to a lack of entrepreneurial spirit among the majority of the population". In addition to that, GEM 2014 states that "total early-stage entrepreneurial activity (TEA) rate of young people (below 25) in Germany has decreased permanently". KfW⁹ distinguishes between *Chancengründer* and *Notgründer*. The latter are forced to start-up. The first do so voluntarily. The distribution of the two does not seem to change much over time.

At this point in time, entrepreneurship is considered a desirable career choice by only 51% of the adult population in Germany.¹⁰ This has decreased slowly since 2004. The status of successful entrepreneurs has not changed since

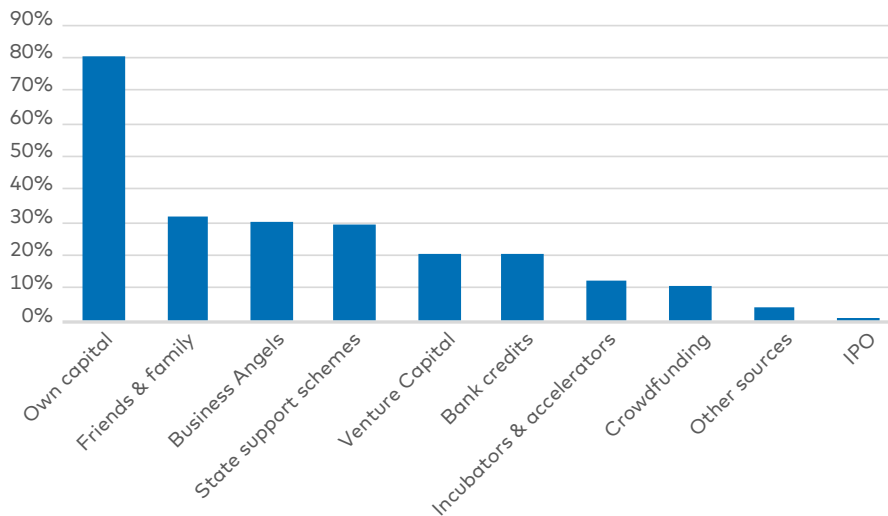
⁷ IHK Berlin (2012). *Berlin's economy in figures*

⁸ Matthias Bittorf (2014). *Germany's entrepreneurial culture: strengths and weaknesses*

⁹ KfW Bankengruppe (2014). *Gründungsgeschehen auf dem Tiefpunkt – kein Anstieg in Sicht*; KfW Bankengruppe (2014). *KfW-Gründungsmonitor 2015*

¹⁰ See also: Global Entrepreneurship Monitor, KN.A.17

Figure 5 The funding sources used by start-ups in Germany: significant importance of own capital and friends & family



Bundesverband Deutsche Start-ups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany: Deutscher Startup Monitor 2015

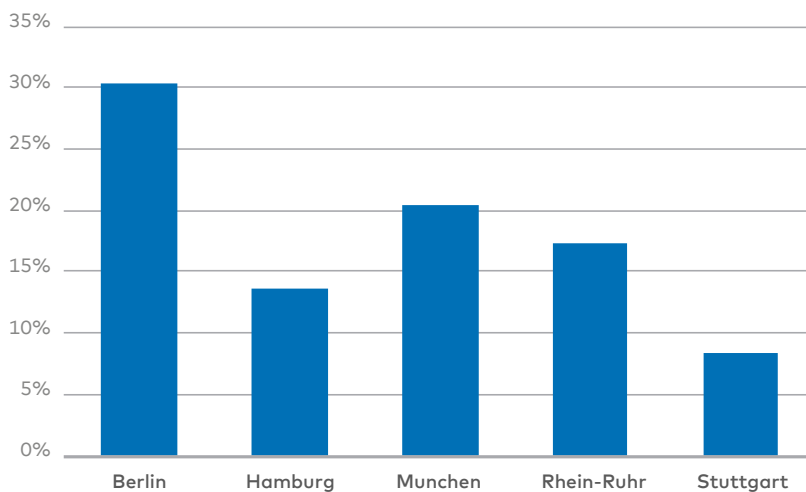
2007,¹¹ while media attention paid to entrepreneurship has slowly increased since 2005.¹²

Berlin is currently considered the main node of entrepreneurship culture in Germany. Yet data to distinguish the culture context in Berlin from that of other parts of Germany are not available.¹³

1.5 Venture capital and angels investments in the ecosystem

The figure below shows the respective funding sources for German start-ups in general. It shows that own funding is by far the most frequent funding source

Figure 6 Access to Venture capital: Berlin outperforms other German ecosystems



Bundesverband Deutsche Start-ups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany: Deutscher Startup Monitor 2015

¹¹ See also: Global Entrepreneurship Monitor, KN.A.19

¹² See also: Global Entrepreneurship Monitor, KN.A.21

¹³ Cf. Michael Fritsch and Michael Wyrwich (2012). *The Long Persistence of Regional Entrepreneurship Culture: Germany 1925 – 2005*. Deutsches Institut für Wirtschaftsforschung

for start-ups in Germany. Slightly less than 80% of start-ups in Germany uses won private capital in the start-up.

Angel investments and venture capitalists used less frequently. Three out of ten start-ups in Germany are (partially) funded by business angels, while two of out ten are (partially) funded by venture capitalists.

Venture capital and angel investments in the Berlin ecosystem however differ significantly from other parts of Germany. The share of start-ups that depend on own savings is significantly smaller in Berlin (10.6%) than it is in Germany (18.7%). The share of start-ups that have access to venture capital in Berlin is over 30%, which is 1.5 times the German average. Other notable German ecosystems such as Hamburg (13.6%), München (20.5%), and Stuttgart (8.3%) are significantly below the Berlin average.

The large majority of available venture capital (77.1%) is German. In Berlin this percentage is a bit smaller (69.9%) indicating a more international ecosystem. Berlin is especially successful in attracting venture capital from the UK and the US. Venture capitalists from these two countries focus almost entirely on Berlin and Hamburg.¹⁴

Venture Capitalists in Germany can fall back on three public co-financing sources: ERP/ EIF Dachfonds, European Angels Fund, and the INVEST Programme. Each is described in detail in Section 1.5.

VC investments have grown significantly in the past years. In 2014 a total of €2.2bn was invested by VCs in Germany, which ranked Berlin #2 in Europe. 2015 Q1 saw around €771m of venture capital flow into Berlin, more than triple the sum of the 2014 Q1.¹⁵ Even though this has led to much enthusiasm in Berlin, one should be aware that this amount was raised by a few rapidly scaling start-ups and should not lead to the conclusion that Berlin's funding landscape has fully matured. The weak local exit market makes it hard to raise late-stage funding in Berlin, which is considered a serious threat in Berlin.¹⁶

1.6 Policy context

Berlin has a special policy context that affects much more than just the start-ups in the ecosystem. The Berlin region has depended heavily on public investments in the past 25 years. This has resulted in a relatively strong dependence on public services and government services, as was also indicated in Section 1.4.

The policy framework for start-ups in Berlin – like in other German ecosystems – is set by both the federal government (*Bundesregierung*) and by the state government (*Landesregierung*). The federal policy context is clear: it "wants to increase the numbers of innovative start-ups in Germany, by improving the existing pertinent instruments and by connecting start-ups to global centres of growth and value creation".¹⁷ Start-ups in Berlin are quite satisfied with the work of the federal government. Their view on the federal government's policy framework does not differ from that of start-ups in other ecosystems that are

¹⁴ Bundesverband Deutsche Startups, Hochschule für Wirtschaft und Recht Berlin, KPMG Germany (2015) *Deutscher Startup Monitor 2015*

¹⁵ The Local (2015). *Cash influx sets Berlin up to overtake London*

¹⁶ Die Welt (2015). *Warum London das angesagte Berlin fürchten muss*

¹⁷ German Government (2014). *The new High-Tech Strategy Innovations for Germany*

subject to the same policies. The Berlin start-ups however are significantly less positive about the policy context set by their state government than start-ups in other German states. No particular reason is known.¹⁸

1.7 Key support schemes

There are several support schemes that are only available in the Berlin ecosystem. The six most significant ones are identified below.¹⁹ In general they are young, relatively small in volume, given the size of the Berlin ecosystem, and oriented at SMEs or newly found companies in general:

- **Berlin Kredit Innovativ.** The Berlin Kredit Innovativ is a credit line that supports the financing of capital goods in Berlin clusters. The scheme is available for start-ups and for SMEs that have either a headquarters or a branch in Berlin. Credits can range from €100,000 to €1mln. The Investitionsbank Berlin (IBB) manages the scheme.
- **Berlin Start.** A loan scheme under friendly conditions for companies that want to invest in capital goods, or in takeovers. The maximum loan size is €250,000.
- **Coaching BONUS.** Berlin supports the coaching of young entrepreneurs in the high tech industries and in the creative industries under the Coaching BONUS programme. Young businesses outside these domains are also eligible, as long as they focus on either internationalisation or sustainability challenges. IBB Business Team GmbH manages coaching BONUS.
- **Coaching in der Vorgründungsphase.** Berlin has also got a programme that targets potential entrepreneurs that consider setting up their own start-ups. They are supported through various coaches trajectories, and assessments. ABG Arbeit in Berlin GmbH manages the programme.
- **Pro FIT.** Pro FIT stands for Förderung von Forschung, Innovationen und Technologien which implies that it promotes RTI. The Berlin Bundesland uses this scheme to promote cooperation between research institutes and enterprises in experimental research. The scheme is open to all SMEs in the Berlin region. This is a scheme that is very much oriented towards technology development. No more than 80% of total R&D expenditure can be covered under certain circumstances, up to a maximum of €400,000 (grant) of €1mln (loan). The Investitionsbank Berlin (IBB) manages the scheme.
- **Microcredits and start-up loans from the Berlin SME Funds (total volume: €35mln).** The Berlin SME Funds allows for microcredits (up to €25,000) and loans (up to €250,000) for enterprises younger than five years old. The Investitionsbank Berlin (IBB) manages the scheme. The Berlin SME Fund was set up in 2005 with a total volume of €35mln²⁰, which has grown to €100mln, while there are plans to further increase size to €140mln.²¹

¹⁸ German Government (2014). The new High-Tech Strategy Innovations for Germany

¹⁹ Inventory based on <http://www.foerderdatenbank.de>

²⁰ IBB (2005). *IBB startet Kreditfonds für kleine und mittlere Unternehmen (KMU-Fonds)*

²¹ Morgenpost (2015). *Investitionsbank braucht Geld für neue Aufgaben*

Apart from that, there are 20 instruments that are available in all of Germany and that are managed at the federal level. These include grants, loans, VC instruments, and guarantees. Most significant instruments are the following:²²

- **Gründercoaching Deutschland.** Through this programme the KfW Banks, supported by the ESF help coach young entrepreneurs in the field of economic, financial and organisational issues. In addition, there are funding possibilities in the scheme.
- **ERP-Beteiligungsprogramm.** The ERP-Beteiligungsprogramm is set up to help SMEs in Germany improve their capital base. The scheme supports cooperation between start-ups, and product innovation processes, generally through a replacement of an existing debt obligation with another debt obligation under different terms. Participation is up to €1.25m or, in exceptional cases, up to €2.5m.
- **EIF's European Recovery Programme (€1bn).** "The ERP is a EUR 1 billion 'Fund of Funds (Dachfonds)' investing in venture capital funds mainly focusing on German based, high-tech early and development stage companies. Even though those funds are not restricted to invest solely in German companies, the main focus of investments should be in Germany. ERP covers all technology areas (ICT, Life Sciences, energy-related, emerging and converging technologies). EIF manages the facility on behalf of the German Federal Ministry of Economics and Technology (BMWi) and the European Recovery Programme (ERP)."²³
- **Mikromezzaninfonds Deutschland (€70m).** The Mikromezzaninfonds Deutschland is set up by the BMWi and funded by the ERP. The aim of the scheme is to increase the capital base of small and micro enterprises. The fund is particularly set up for women and immigrants. Support can be up to €50,000.
- **The EXIST Programme (€67m in 2014²⁴).** This particular programme is funded by the ESF and aims at promoting spin-offs from universities and research institutions. The EXIST Gründerstipendium helps prepare a business plan, and product and service innovation. Both staff (up to €3,000 a month), operating expenditure (up to €30,000) and consultancy costs (up to €5,000) are funded by the EXIST Programme. EXIST-Forschungstransfer provides support for preparing innovative, technology-oriented and knowledge-based start-up projects developed by students, graduates and academics. EXIST-Forschungstransfer funds both the development work required in order to prove the technical feasibility of research-based start-up ideas as well as the preparations needed in order to start up the company.²⁵
- **The INVEST Programme (€23m in 2014).** The INVEST Programme provides grants for venture capital. The amount of the support is 20% of the weighted

²² Monika Piegeler, Klaus-Heiner Röhl (2015). *Gründungsförderung in Deutschland: Ein Aktionsplan gegen sinkende Gründerzahlen*, Institut der deutschen Wirtschaft

²³ EIF

²⁴ BMWi (2014). *Departmental budget 09: Federal Ministry for Economic Affairs and Energy*

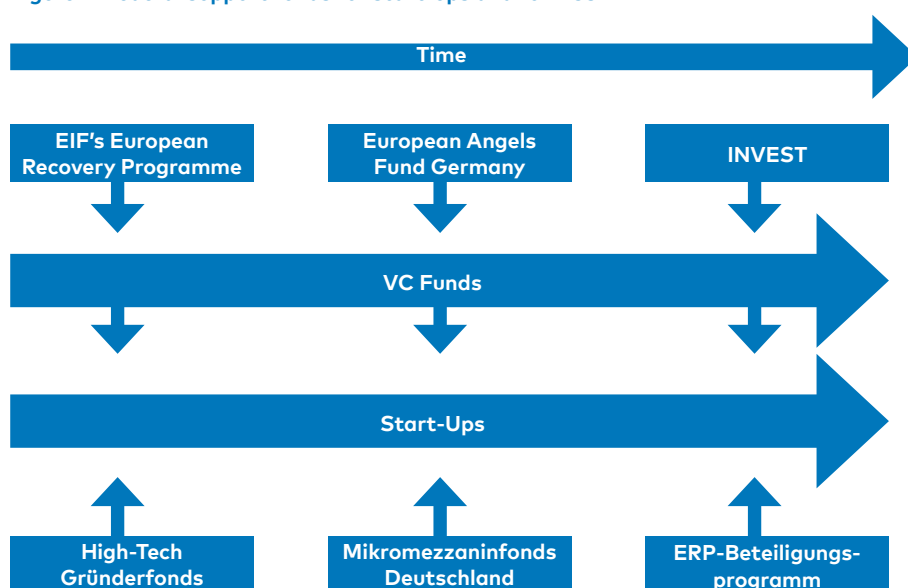
²⁵ Marianne Kulicke (2014). *15 Years of EXIST University-based start-up programmes: Development of the EXIST funding programme between 1998 and 2013*. Fraunhofer ISI

average issue price of the shares. The fund's maximum size is €1mln per year with a maximum INVEST funding of €200,000.

- **The European Angels Fund Germany (€135mln).** "The EAF is an initiative advised by the EIF which provides equity to Business Angels and other non-institutional investors for the financing of innovative companies in the form of co-investments. The initiative was first launched in Germany and is currently broadening its scope to Austria, Germany, Ireland, the Netherlands and Spain. The EAF increases the investment capacity of business angels by co-investing into innovative companies in the seed, early or growth stage. The activity of the European Angels Fund is adapted to the Business Angels' investment style by granting the highest degree of freedom in terms of decision making and management of investments."²⁶
- **The High-Tech Gründerfonds (€304mln).** The HTGF invests in newly established companies in promising technologies and domains. In addition to that, it provides management support to companies. The first (HTGF I) has been on the market since 2005 and seized operations in 2011. HTGF II has been operational since then. Both funds are designed as public-private partnerships. BMWi invests, and the KfW banking group and the six (HTGF I) or 18 (HTGF II) industry investors take care of monitoring role.

The list above indicates that federal instruments in Germany focus very much on capitalisation and financing start-ups. Their combined size is significant. Moreover, as the figure below illustrates that cover both direct financial support to start-ups and to VC funds. In addition to that they cover the various early phase stages.

Figure 7 Federal support funds for start-ups and for VCs



Monika Piegeler, Klaus-Heiner Röhl (2015). Gründungsförderung in Deutschland: Ein Aktionsplan gegen sinkende Gründerzahlen, Institut der deutschen Wirtschaft

²⁶ EIF

1.8 Policy outlook

The federal new High-Tech Strategy Innovations for Germany has five core elements. One of these – innovation of industry – has four underlying groups of measures. One of these groups is referred to as ‘increasing the numbers of innovative start-ups’. Seven measures are announced at the federal level. Three of these measures imply continuation of existing policies (EXIST; High-Tech Gründerfonds; Gründerwettbewerb IKT Innovativ). New measures include:

- **An expansion of the German Silicon Valley Accelerator.** ‘The approach used in the “German Silicon Valley Accelerator” is being expanded in the interest of enhancing networking of German high-tech start-ups with global growth and value-creation centres. (...) A second Accelerator is being established in New York City, to enhance access to the U.S. East Coast and its markets. In the medium term, additional locations in other growth markets will be identified and reviewed.”
- **Increased efforts to match established companies and innovative start-ups.** “The measures carried to promote such matching include events designed to reinforce the willingness of established companies to cooperate with young companies. (...) The Federal Government is working to enable initial public offerings of young growth companies in Germany to be more effective in attracting investors.”
- **ESA Business Incubation Centres.** “The aim is to promote transfer of space technologies into other industrial sectors, for commercial applications. In the process, companies will be assisted and supported throughout their entire efforts, from initial phase to market entry.”

The Berlin policy outlook in the field of start-up policy is less explicit. The Berlin Senate has put the increase of funding possibilities for start-ups on its agenda in June 2015.

1.9 Key success factors of the benchmark ecosystem

The key success factors of Berlin are not that clear yet. One however cannot neglect the fact that:

- There have been unprecedented transfers of funds from the old Länder to the new Länder, including Berlin. Start-ups have benefited from that and from other policies that benefit Berlin companies over non-Berlin companies.
- The Berlin population is young, and there is a strong creative scene. Low living costs have attracted national and international tech talent.²⁷
- The Berlin ecosystem is young, and has gone through a tremendous growth in the past few years. This growth is remarkable and draws attention from all over the world, but this is not a clear representation of the maturity of the ecosystem. Funding possibilities (especially later stage) are still limited, which also goes for potential positioning in value chains outside Berlin.

1.10 Additional interviews conducted

- Prof. dr. Thomas Heimer. Technopolis Group/ Frankfurt School of Finance

²⁷ Compass (2015).

Appendix H

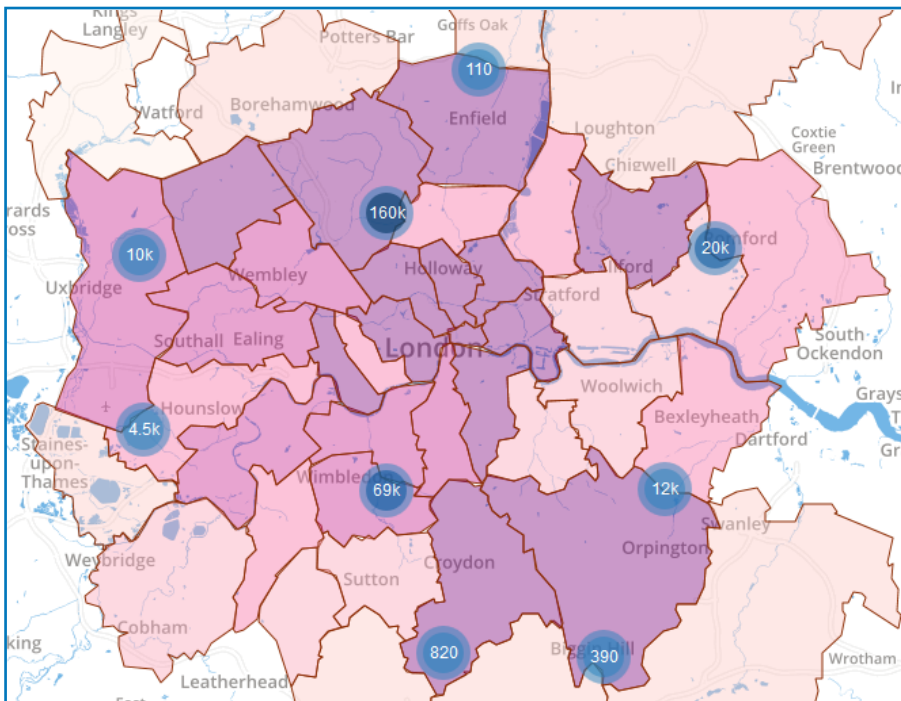
Benchmark with London

1.1 Definition and demarcation of the ecosystem

The London start-up ecosystem has been the subject to various mapping attempts to produce an accurate representation of the ecosystem's demarcation. However, these attempts have been marked by differences because of the scale of data collected and the time period which the maps attempt to represent. In general it is agreed that the Central (or inner) London area has the largest concentration of start-ups in the entire London metropolitan area.

About 8.6m people live in the city of London. Total surface area is 1,572 km² with a population density of around 5,432/km². While London contains roughly 12.5% of the total UK population, the capital generates 22% of UK GDP.¹

Figure 1 London start-up ecosystem (higher concentration marked in deeper purple)



¹ Kelly J (2015). London-centric. Available at: <http://www.bbc.co.uk/news/resources/1dt-248d9ac7-9784-4769-936a-8d3b435857a8>

According to Compass² the start-up ecosystem in London contained between 3,200 to 5,400 start-ups in 2015. These start-ups are supported by 12 incubators and 24 accelerators and around 70 co-working spaces.³ The start-ups are divided into six major hub areas, that have the highest concentration of start-ups.

In 2015⁵⁹ London was ranked as Europe's largest start-up ecosystem and the second fastest growing start-up ecosystem in Europe, only taken over by Berlin in this regard. The ecosystem, while characterised by a considerable drive for tech-related businesses, nonetheless lacks a clear specialisation, covering industry sectors both related and not related to technologies. It is estimated that 60% of the job positions in the start-up ecosystem are not technology based.⁶²

1.2 Rationale for benchmarking

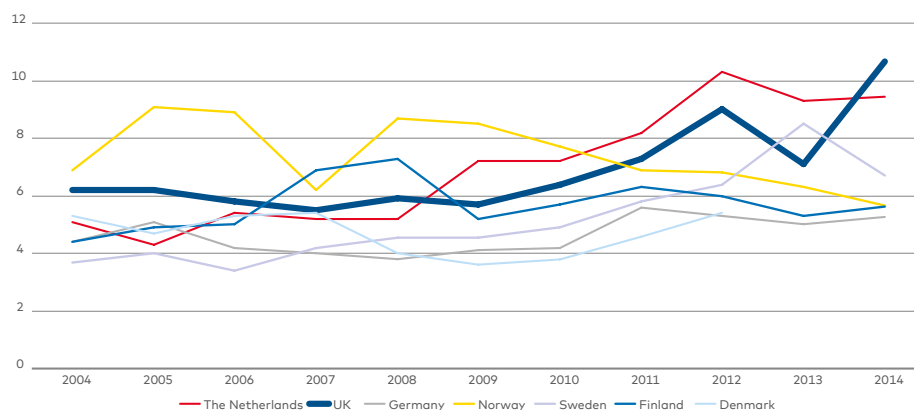
The figure below demonstrates the early stage entrepreneurship activities in the UK that are compared to those in the other relevant countries. The UK in the past few years has been recovering from a drop in entrepreneurial activities, but since 2013 these activities are on the rise again.

The rise of entrepreneurial activities in 2013 happened around the same time when there was a noticeable increase of start-up in the London metropolitan area. Since 2013 the start-up ecosystem began to boom and resulted in London becoming one of the largest European start-up ecosystems that is currently characterised by a growing number of venture capital and business angel investments.

London is also the most diverse start-up ecosystem in the world with a total of 53% of foreign employees and 18% of female founders.

However, an aspect of the London ecosystem is not just the raw statistical evidence but the actual feel of being a start-up or working in a start-up. There is a distinct focus in the media that portrays start-ups as a "trendy" working environment for young entrepreneurs and engineers. The media's portrayal of the ecosystem showcases how to present entrepreneurship to a new generation in a manner that takes into consideration the culture of urban specialists.

Figure 2 Total early-stage entrepreneurial activities (UK versus other relevant countries in this project)



GEM

² Compass (2015). *The Global Startup Ecosystem Ranking 2015*

³ Reback G. (2015). *London v. Berlin: Which startup ecosystem will lead Europe?* Available at: <http://www.geektime.com/2015/11/19/london-v-berlin-which-startup-ecosystem-will-lead-europe/>

1.3 Description of the benchmark ecosystem

The 2015 Compass report⁵⁹ indicates a growth rate of 3.3 which is the second highest in Europe. The report indicates that London start-ups come from a diverse background and the expectations were that they would create around 10,000 new jobs in 2015.

The start-ups have a density of 0.25% – 0.4% of the business density in London. The start-up ecosystem is valued between £27.5bn to £33.7bn and makes up £583bn of the entire London metropolitan area GDP.

The significance of start-up growth in London is demonstrated by the fact that out of the total 17 unicorn start-ups (start-ups that have exceeded USD 1bn in value) 12 are located in London.

Internationalisation has been acknowledged as a major success factor of the ecosystem with foreign employees making up 53% of the total number of people employed in the ecosystem and foreign clients making up 50% of the start-up clientele. Industry experts have noted that this internationalisation is caused by both London being a cultural melting pot and a common area for foreign entrepreneurs and investors to set up their first international business venture.⁴

The start-up ecosystem is characterised by a large amount of co-working spaces (in 2015 it was estimated that there were more than 70 such spaces in London metropolitan area⁵). The co-working spaces are meant to act as facilitators for start-ups and professionals to meet and collaborate by providing common working grounds. The co-working spaces are also reported as a key feature in increasing the networking capabilities of start-ups.⁶ Among the most prominent co-working spaces are Huckletree (leans towards the tech industry);

Figure 3 London unicorn start-ups

Start-up	Description
ASOS	Online retail platform for fashion and beauty products for men and women
JustEat	The leading business worldwide in online takeaway ordering
Skrill	E-commerce platform that facilitates online transactions for businesses and individuals
Wonga	An online payday lender offering short-term cash loans to UK consumers
Zoopla	Provides accurate house price estimates available in the UK market.
Farfetch	Provides a wide selection of boutique brands and styles
Transferwise	Money transfer service
Shazam	Media engagement company
Funding Circle	World's leading online marketplace for business loans
Markit Group	Financial information services company
Powa	International commerce specialist specialising in technologies that integrate the physical and digital world
Rightmove	Property website for home movers to find details of available properties in the UK

RiseHigh (2016). *An Introduction: London Startups 2016*

⁴ TechCrunch (2014). *London's Startup Ecosystem Explained*

⁵ RiseHigh (2016). *An Introduction: London Startups 2016*

⁶ Gani F. (2015). *London Startup Ecosystem*

Google Campus (over 40,000 registered users); Rainmaking Loft (international workspace); and WeWork (one of the largest in London with five locations).

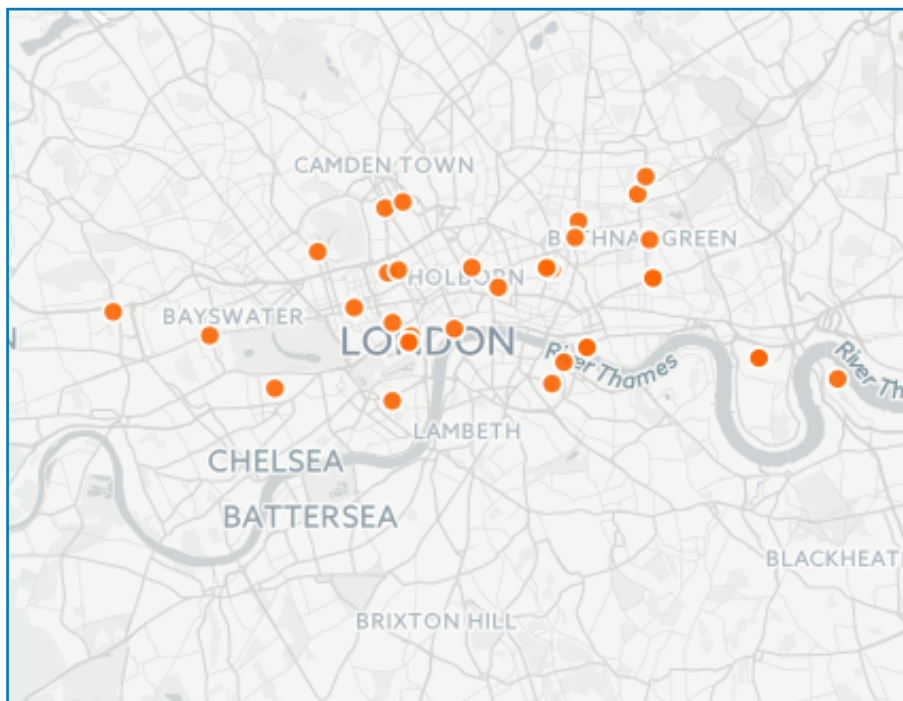
As shown in the figure below, in 2014 the London start-up ecosystem maintained 36 programmes (12 incubators and 24 accelerators) that had been influential in increasing the number of startups each year.⁷ As of 2016 the total number of programmes has increased to 58 (with 22 incubators and 36 accelerators).⁸ The London start-up ecosystem houses around two thirds of the entire incubators and accelerators located within the UK. It is reported that these programmes raise an average of £68,000 for participating start-ups and London start-ups that take advantage of accelerators or incubators have a 92% survival rate as opposed to 72.5% for businesses that opt not to use the services of these programmes.⁶⁵ In the past the incubators tended to target digital and technology driven start-ups, but have now expanded to other sectors, further increasing the diversification of the London start-ups.

VC invested a total of €1.1bn in London start-ups in Q1 and Q2 of 2015.⁶⁰ Key VC firms include Atlas Venture (technology and life science sectors); Balderton Capital (e-commerce, consumer internet and software); Earlybird (tech and health-tech sectors); Episode 1 (software); Forward Partners (e-commerce); Index Ventures (e-commerce, marketplaces, cloud and big data); Mercia Fund (no specialisation); Notion Capital (no specialisation); Passion Capital (digital media and technology); and Playfair Capital (technology).

1.4 Cultural context

The GEM2014 Report notes continuing positive trends in entrepreneurship in the UK: "It was previously suggested that 2011 was somewhat of a "break-out" year

Figure 4 London start-up ecosystem (incubators and accelerators) 2014



The Telegraph (2015). *All of London's startup accelerators and incubators*

⁷ The Telegraph (2014). *All of London's startup accelerators and incubators*

⁸ TechLondon (2016). *Incubators & Accelerators*

in terms of early-stage entrepreneurial activity in the UK: the year in which the TEA rate moved above its long run stable rate of around 6% to 7.6%. The TEA rate in 2014 of 8.6% further confirms the higher long-term trend in early-stage entrepreneurial activity in the UK". In 2014, 20% of working adults were either engaged in entrepreneurial activities or were thinking of starting their own business, which is a higher number than the one reported in 2010.⁹

The Report indicates that the current culture of entrepreneurialism in the UK remains strong with non-entrepreneurial individuals displaying positive attitudes towards opportunities for new businesses. However, those seeking to engage in entrepreneurial activities rate their start-up skills as being lower than in the pre-2008 crisis period.⁶⁷

The London start-up ecosystem has a number of cultural characteristics. London has recently become the start-up capital of the UK (some might argue even the capital of Europe) because London has focused on evolving a network of support measures that directly and indirectly accommodate start-up founders and employees. These support measures for start-ups include not only accelerator, incubator and VC access but also events specifically aimed at the start-up community. Many organised events facilitate networking process for start-ups. Some of the most prominent events in 2015 were the Europas aimed at connecting technology start-ups, investors and media; the Noah Conference which focused on connecting investors with innovative start-ups; and Seedcamp Week London had the aim to connect the best web-tech, mobile, software talents with entrepreneurs, developers, experts and investors.¹⁰

There has been increasing media attention given to the start-up scene in London from portals such as StartupBlink, StartUs Magazine, RiseHigh and others. These websites offer information that is geared towards providing a one-stop-shop for people just starting out in the start-up world.

An interesting case was the Startup Institute which provided an 8-week-long programme aimed at boosting employee skills and allowing participants to establish themselves as part of the start-up community. The Startup Institute was an exported concept with roots in the USA (with offices and regular events organised in Boston, New York and Chicago). The Startup Institute demonstrates two major cultural elements of the London start-up ecosystem. First, there is a heavy emphasis towards community building and being a start-up employee is understood as not only a career choice but a lifestyle as well. This is accentuated by the existence of cafes and clubs that act as meet-up places for start-up talents⁶⁶. Second, the concept of start-ups is still highly American and the London start-up scene is reported to lack authenticity and an entrepreneurial spirit, which is compensated by the high number of international employees working in London start-ups.

1.5 Venture capital and angels investments in the ecosystem

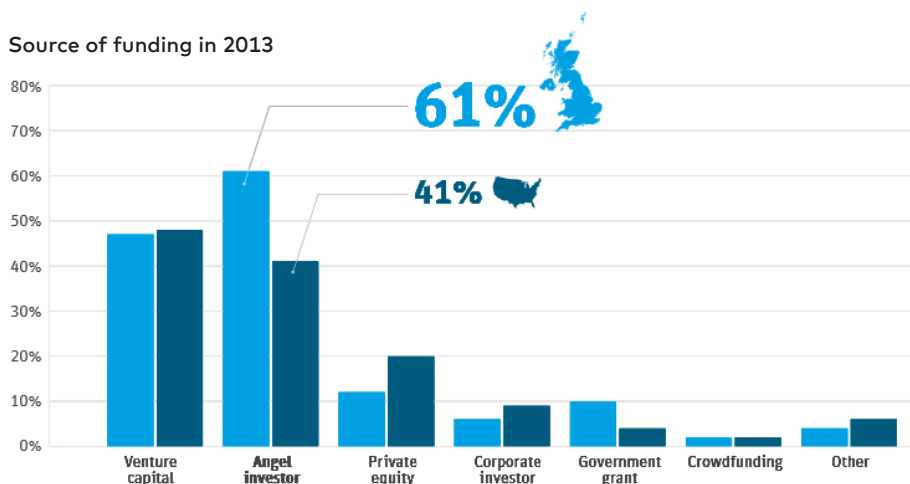
1.5.1 Sources of investments in the UK

Silicon Valley Bank produces an annual evaluation of businesses working with

⁹ Hart M. et al. (2015). *Global Entrepreneurship Monitor United Kingdom 2014 Monitoring Report*

¹⁰ Birlea T. (2015). *London Startup City Guide*

Figure 5 Source of funding for innovation in the UK and the USA (2013)



Silicon Valley Bank (2014). *Innovation Economy Outlook UK*

innovations in the UK and the USA. Their 2014 report demonstrated the dynamics of how these businesses are funded, based on the data of 2013.

The above figures demonstrate that venture capital and angel investors remain the most prominent sources of financing businesses working with innovation. In particular the report pointed out that angel investors were becoming an increasingly important part of the financing community. The report named them as a particular strength of the UK innovation economy investing in very early-stage start-ups.¹¹

However, that same report has drawn attention to the fact that entrepreneurs, who participated in the data gathering process, were interested in reducing the reliance of businesses on angel investors and were of the opinion that start-ups should make more use of venture capital available in the UK.

The London start-up ecosystem has been receiving an increased amount of funding ever since 2010. The occurring trends in the investments have demonstrated higher investment intensity in Q1 of each year and slowing down during Q2 and Q3. Subsequently, each year Q1 has been the best investment period for London-based start-ups.

1.5.2 Venture Capital investments

The figure below demonstrates the dynamics of the venture capital funding in the UK in terms of the amount invested and the number of deals made.

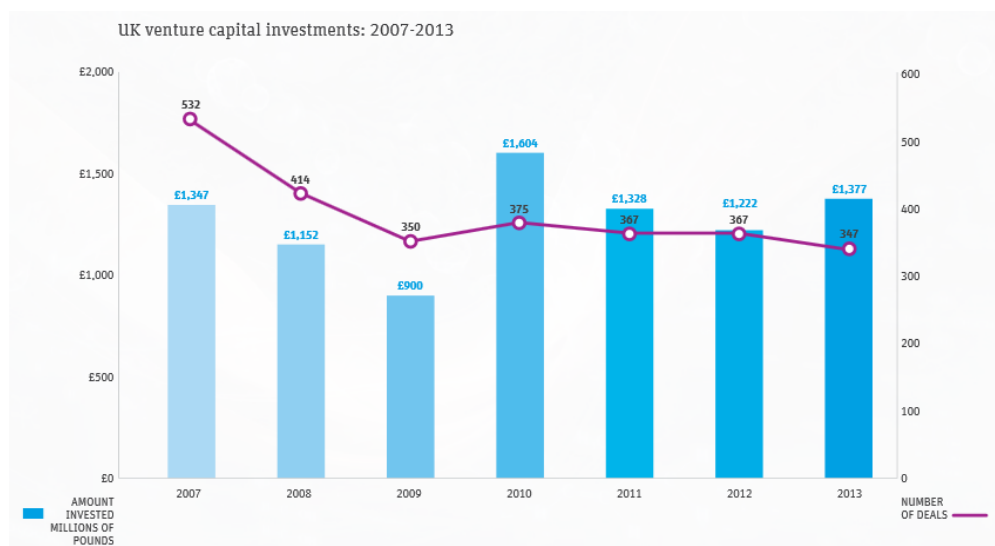
Figure 6 London start-up funding (millions of USD)

	2010	2011	2012	2013	2014	2015
Q1	43.55	139.68	168.39	232.94	411.0	682.5
Q2	10.2	86.2	92.15	115.56	320.15	
Q3	13.94	25.44	45.17	214.82	207.64	
Q4	33.02	50.18	166.82	193.52	411.62	
Total	100.71	301.5	472.53	756.84	1350.41	682.5

Lunden I. (2015). *London's Startups Hit A High Of \$682M In VC Funding In Q1 2015*

¹¹ Silicon Valley Bank (2014). *Innovation Economy Outlook UK*

Figure 7 UK venture capital investments in 2007-2013 (millions of GBP/number of deals)



Silicon Valley Bank (2014). *Innovation Economy Outlook UK*.

When comparing the period 2007 – 2013 a shift in dynamics between investment and the number of deals can be observed. Since 2007 the number of deals has been declining, reaching its lowest mark in 2013. The opposite is true for investments which, while fluctuating, are higher for the 2010-2013 period than they were for the 2007-2009 period. The investment dynamics indicate a shift in the mentality of venture capitalists – while in the past the investments tended to be smaller and aimed for quantity, since 2010 fewer but higher profile deals are being made.

UK investors are very much interested in technology and innovation which is shown by an increasing number of deals in start-ups. The figure below demonstrates the trends of the VC investments both in the UK and in London. Both UK and London start-ups working with technology have demonstrated increasing levels of funding. In particular, London has been accounting for a larger share of VC investments each year. It was noted in the previous sections that London has become a booming start-up scene and these figures indicate that venture capital played a large role in this development.

The interest venture capitalists have displayed in London technology start-ups has only grown in recent years and a report in 2015 indicated that London technology companies have secured 75% of the total (USD2.2bn) VC investments into the UK based technology firms.¹²

The increasing support for technology start-ups from venture capitalists has made London UK's most prominent hub of technology development with around one fifth of the total tech businesses in the UK now being located in Inner London.¹³

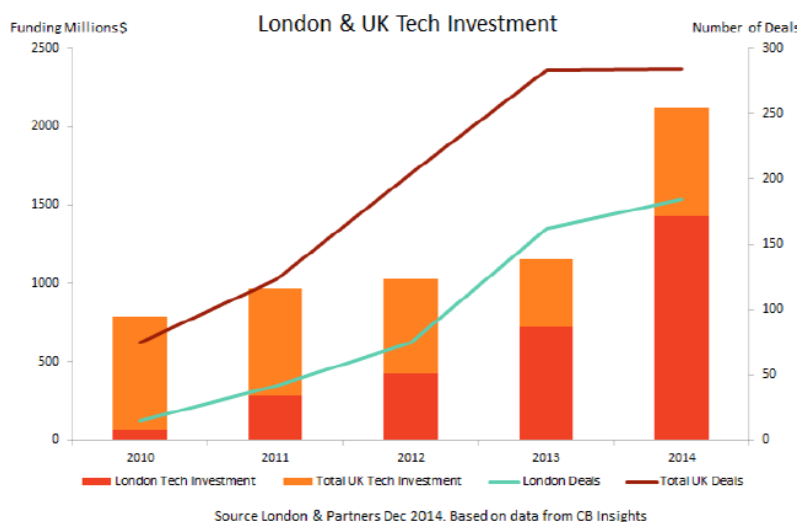
1.5.3 Business Angel investments

Unlike venture capital, which has been steadily gravitating towards technology,

¹² London and Partners (2014). *Record Venture Capital investment in UK Tech sector over last 9 months*

¹³ TechCity (2015). *London's Digital Industry*

Figure 8 UK and London venture capital investments in technology businesses in 2010-2014 (millions of USD/number of deals)



London and Partners (2014). *Pivotal year for technology sector as investment financing doubles*

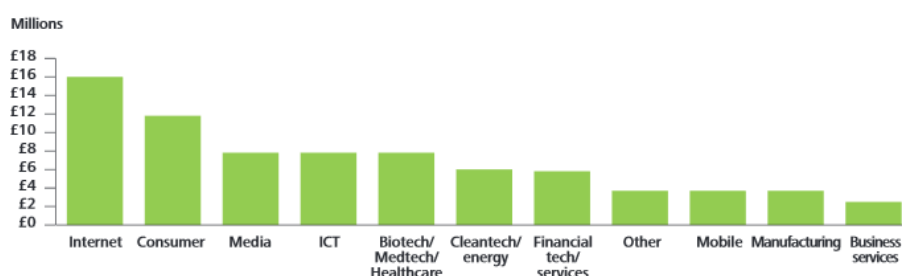
angel investors in the UK and London are slightly more diverse in their funding, although businesses working with technologies still make up the majority of the beneficiaries. In particular businesses working with consumer services rank as 2nd highest beneficiaries of angel investment in the UK. Internet and media take the 1st and 3rd positions respectively. This is due to the number of successful Internet based businesses (15 of the London's unicorn start-ups are based online), a trend which has been shifting more attention towards digital services.

The investments made by angel investors have been split between London and the rest of the UK to demonstrate the concentration of business angels and to show this balance between to sectors.

It is evident that angel investors have the heaviest concentration in London with only the sector of consumer electronics having more angel investor in the rest of the UK than in London. This high concentration further demonstrates that the London ecosystem is expanding in terms of not only new businesses but investors as well.

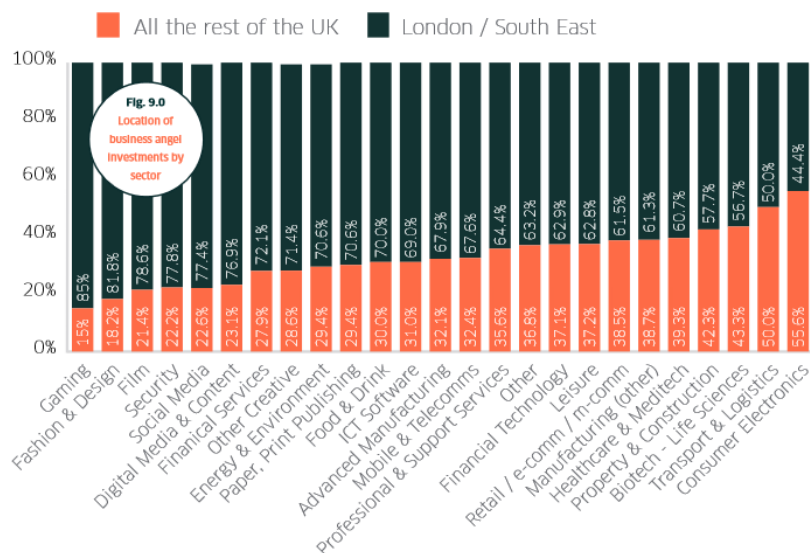
However, start-ups only make up 14% of the angel investment in London, with business angels being most interested in other early stage business ventures and seed capital.

Figure 9 UK business angel investment by sector in 2012-2013 (millions of GBP)



UK Business Angels Association (2014). *Taking the pulse of the angel market.*

Figure 10 UK and London angel investment by sector, 2014



Centre of Entrepreneurs (2015). *Nation of Angels*

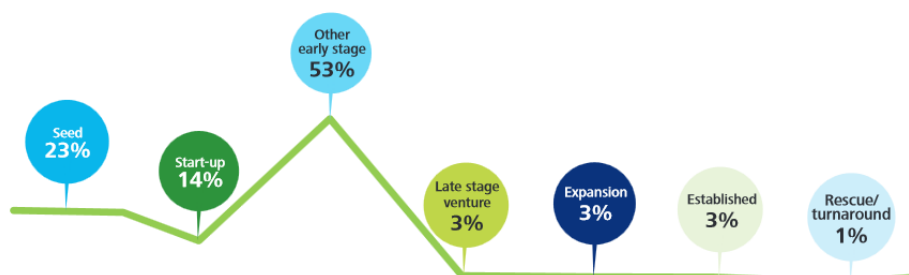
The figure demonstrates that business angel investors are much more interested in other early stage businesses as opposed to start-ups, which only rank in third place. So, while business angel investment was indicated to play the largest role in the UK's innovation landscape, in terms of start-up funding, venture capital is a much larger source of finances than angels. **Policy context**

The London start-up ecosystem has been an important part of the UK innovation development. The Government of the UK, similarly to the Dutch government, recognised the importance London played and in 2010 invested £53m to establish TechCity, a similar initiative to StartupAmsterdam.

Tech City was to support the East London tech cluster (the Silicon Roundabout). It has since grown to offer support to the London metropolitan area and other cities around the UK. TechCity is a publicly funded non-profit organisation with a primary focus towards programmes aimed at businesses and entrepreneurs working with digital technology that facilitate the growth of businesses across all stages of development. TechCity is publicly funded by the UK Government's Department for Culture, Media & Sport via Innovate UK. For the period of 2015-2016 TechCity has a total budget of £2.2m.

The government also offers other support initiatives for start-ups including grants and investment funds, up to 72% tax relief for start-up investors. The

Figure 11 UK and London business angel investments by business type



UK Business Angels Association (2014). *Taking the pulse of the angel market*

incorporation service was streamlined and is inexpensive (24h/£15/online) with various online help provision.⁶³

The policy context regarding start-ups can be summed up as streamlined and inclusive as possible. The government has set clear signals that it should be easy for entrepreneurs to establish their start-ups, while support initiatives and events are aimed to provide a network of mentors and investors to make the start-up flourish.

From the perspective of investment, the strength of London lies in the historically strong banking and financing sectors that have come to understand the role start-ups play in London's business world. This is a contrast to the Berlin ecosystem, which has depended heavily on public investment, whereas in London private funding has been easier to acquire. In this regard, London also is ahead of Amsterdam as venture capital investment, unlike in Amsterdam, continues to grow.

Financial institutions in London have recently begun sponsoring accelerators and hosting events for start-ups. Among these events are Cake & Hackers (which combines baking and fintech); NewFinance (monthly open microphone nights during which a handful of start-ups have a 3-minutes opportunity to pitch their business model); Coinscrum (a digital currency-specific meetup for start-ups).¹⁴ At the same time London's history as a financial capital is especially appealing for financial technology (fintech) start-ups that usually try to sell into financial institutions.

An unexpected challenge for the development of the start-up ecosystem has been its rapid growth. While an influx of talent might seem a strange problem at first, the issue is that these individuals start to engage in networking not with entrepreneurs, investors and mentors, but among each other. This leads to an interesting case of talented individuals forming a network of people who all seek answers on how to establish themselves in the start-up ecosystem, but neither of whom actually have an answer to that.⁶⁸ This is especially prominent in the various support events aimed at start-ups that have come to attract these new talents and have in turn become more generic and less orientated towards specific start-up needs.

However, a contrast to the Berlin ecosystem can be observed regarding whether start-ups trust the government. While start-ups in Berlin are reported to be quite satisfied with the work of the federal government, London start-ups are facing challenging times as the new conservative government tightens control on immigration. This poses threats towards the high reliance on foreign specialists by the start-ups and the UK start-ups have been a vocal group against the current policy trends.

1.7 Key support schemes

London start-ups benefit from a number of governmental grants¹⁵ which are aimed at entrepreneurs:

¹⁴ Reutzel B. (2015). *Why London's Fintech Startup Scene Is Growing Fast*

¹⁵ ENT Magazine (2015). *Startup Initiatives*

- The Grant for Business Development (GBI) and selective Finance for Investment (SFI) schemes offer entrepreneurs (for ventures in select sectors) grants to acquire capital assets.
- The Small Business Research Initiative (SBRI) is designed to bridge the seed-funding gap which is experienced by many start-ups. The initiative supports economic growth and enables the development of innovative products and.
- Export Credits Guarantee Department (ECGD) offers insurance schemes for entrepreneurs. ECGD also provides grants to facilitate participation in overseas exhibitions.
- The Mayor of London and the European Regional Development Fund (ERDF) has launched a funding scheme of £300m that is specifically aimed to help small and medium businesses manage their carbon footprint.

The Government also offers loans and loan assistance geared towards helping entrepreneurs with their ventures.⁷³ The particularly interesting programmes are not the ones that offer direct financial assistance, but instead give indirect assistance in that they help to either raise funds or offer help for entrepreneurs who were denied private loans:

- The Small Loans for Business Scheme provides small and medium businesses with loans of up to £50,000.
- The Enterprise Finance Guarantee scheme, which is managed by the Department for Business Innovation and Skills helps entrepreneurs who were denied loans by banks for want of collateral. The government also offers guarantee to lenders.

Beyond financial support the government also offers other support programmes that are designed to help entrepreneurs and start-ups.⁷¹ These schemes are primarily focused on training entrepreneurs in the necessary business skills they will need in their ventures.

- The Entrepreneur First scheme seeks 'fresh' university graduates who would be interested in starting their own businesses. The scheme offers a two-year programme that provides training and mentoring to the candidate, as well as giving them access to funding through a network of investors, free legal advice, free software, and a platform to network with other entrepreneurs.
- The Get Mentoring Scheme that is run by the Small Firms Enterprise Development Initiative (SFEDI) aims to bring entrepreneurs and mentors together. Mentors offer coaching and mentoring to both aspiring and new entrepreneurs to equip them with essential skills operate their business.
- The Startup Visa (or entrepreneur visa) is a governmental initiative that is aimed at founders coming from outside the UK who wish to set up their business in the UK. The initiative makes it easier for start-up founders to set up in London and expand further into the UK and Europe. The founders have to have access to at least £50,000 of investment in order to be eligible for the visa.

There are also support schemes that are specifically designed for entrepreneurs working in London. Some of these schemes include:

- The Business Bootcamps scheme is an intensive training programme that provides the opportunity for around 1,000 new entrepreneurs to develop essential skills required to succeed in business. The scheme, with £275,000 worth of funds from the Royal Bank of Scotland and another £135,000 worth of funds from the EU's Interreg, focuses on sectors of digital technology, fashion, hospitality, entertainment, and bio-tech.
- The Gateway to Finance programme offered by The East London Small Business Centre (ELSBC) is specifically aimed at London. The scheme helps entrepreneurs in the 33 London Boroughs, particularly in East London, raise funds to start or expand their business.

1.8 Policy outlook

With past enterprise strategies that involved the UK start-ups ending in 2015 (i.e. 2010 to 2015 government policy was focused on business enterprises), the elected conservative majority government is now undergoing a process of setting new priorities for UK start-ups.

One of the pledges by the new government was a triple increase of the government's start-up loans programme, which would aim to provide loans to 75,000 entrepreneurs over the next five years.¹⁶

The government is also taking an active interest in cyber-security start-ups. The government's plans include establishing two cyber security co-working spaces that are specifically aimed at early stage start-ups.¹⁷

The government's position on immigration is to maintain a cap on skilled economic migration from outside the EU at 20,700.⁷⁴ However, because the UK (and to the extent London) start-ups have demonstrated a high reliance on specialists coming from outside of UK (more than half of the employees working in London start-ups are foreigners) the government's position on immigration poses hurdles for start-ups that have come to rely on skilled staff from overseas. The start-up outlook survey was especially critical towards the developments regarding foreign work force. According to their latest finding access to talent is currently the most important public policy issue for start-ups.¹⁸

1.9 Key success factors of the benchmark ecosystem

The key success factors of the London start-up ecosystem include:

- London has greatly benefited from international talent both in terms of bringing in fresh new talent and workforce to the city and because the start-up concept was taken in from abroad and made a part of the London business scene. In turn international talents and entrepreneurs value London because of its significance as a financial capital.

¹⁶ Lamas N. (2015). *New U.K. Government Focuses On Startups And Spooks*

¹⁷ Lamas N. (2015). *U.K. Gov't To Invest \$250M In Cyber Security Startups To Help Spooks*

¹⁸ SVB (2016). *UK Startup Outlook 2016*

- There is a general enthusiasm about entrepreneurship and start-ups in London right now which was caused by the growing number of start-ups and has in turn contributed towards their growing number. Websites that present the start-up ecosystem act almost as tourist guides for the entrepreneurs wishing to experience the start-up community of London.
- The London start-up ecosystem is presented not just as a career path but as a way of life, both signifying a sense of freedom, a rejection of the old corporate mindset and a modern life choice. The media portrays start-ups as a fashion statement in the business world and working in a start-up could be considered trendy for the young talents entering the London scene. This is a key concept that London demonstrates very well.



Nordic Innovation
Stensberggt. 25
NO-0170 Oslo
+47 47 61 44 00
www.nordicinnovation.org