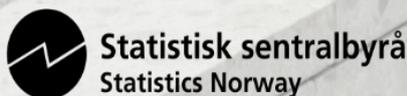


# *Scale-ups in the Nordics*

*– Statistical Portrait 2008-2016*



Scale-ups in the Nordics - Statistical Portrait 2008 - 2016

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Nordic Innovation is a Nordic organisation working to promote cross-border trade and innovation. Nordic Innovation is a vital instrument for the Nordic ministers of business, energy and regional policies and shall contribute to make the Nordic region a leading region for sustainable growth. Nordic Innovation aims to increase entrepreneurship, innovation and competitiveness in the Nordic region. Nordic Innovation supports projects and programmes to stimulate innovation and works to improve the framework conditions for Nordic markets and exports.

Nordic Scalers is a programme founded and funded by Nordic Innovation. The programme promotes and facilitates growth among ambitious scale-up companies, strengthening the Nordic ecosystem via events, labs and a community. The 'Scale-ups in the Nordics' report is a part of this initiative.

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This publication *Scale-ups in the Nordics – statistical portrait 2008-2016* contains the first statistics and analysis of Nordic scale-ups. The publication is based on harmonised national databases holding statistical information at enterprise level from statistical registers covering variables from structural business statistics, business register, international trade in goods and business demography. Statistics Denmark coordinated the project and the project group consisted of the following persons:

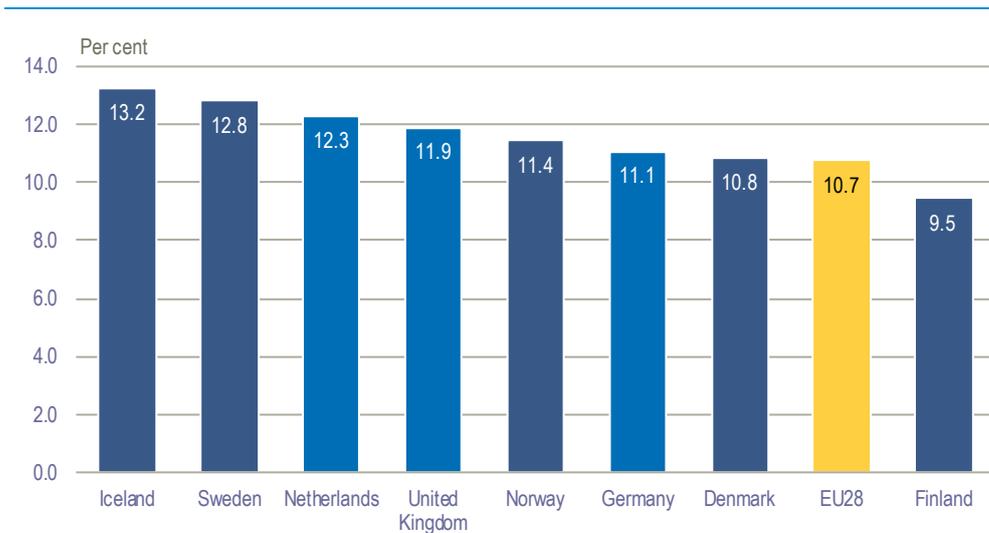
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- Statistics Finland: Henri Luomaranta, Pontus Lindroos and Olli-Jussi Sonni .
- Statistics Iceland: Alina Kerul and Gísli Már Gíslason.
- Statistics Norway: Øyvind Hagen and Jan Olav Rørhus.
- Statistics Sweden: Andreas Poldahl.

# Introduction

High growth enterprises are important contributors to employment and wealth creation. Especially established medium-sized enterprises that innovate and scale-up are the driving force behind growth in many OECD economies. Not only within the enterprises but also in terms of often ensuring the coordination, upgrading and participation in supply chains of smaller enterprises<sup>1</sup>. Increasingly, governments are focusing on enabling conditions for the scaling up of enterprises as a lever to boost productivity growth and competitiveness. This attention has created a need for statistical information about the numbers and performance of fast growing enterprises, such as scale-ups.

To accommodate this need, national statistical offices have produced statistics on high growth enterprises using a definition of an average annual growth of 10% over a three year period, see Box 1 for the definition. The latest figures for 2016 show that 10.7 per cent of all enterprises with 10 or more employees in the EU can be characterised as high growth enterprises. All Nordic countries except Finland show a higher share of high growth enterprises than the EU average, see Figure A. As comparison, Ireland showed the highest share of high growth enterprises (16.3%), followed by Spain (13.9%). Countries like Germany, the Netherlands and United Kingdom all showed shares above the EU average but below both Sweden and Iceland.

Figure A **Share of high growth enterprises of total stock of enterprises with 10 or more full time employees in the business economy, 2016**



Source: Eurostat: High Growth enterprises [bd\_gpm\_r2]

<sup>1</sup> OECD (2018): Enabling SMEs to scale-up

### Box 1: Definition of high growth enterprises

In the European Union, high growth enterprises is defined by the Regulation (EU) No 439/2014 defining high growth enterprises as enterprises with at least 10 employees in the start year of the growth period and having average annualised growth in the number of employees of 10% or more per annum, over a three year period.

All EU member states are obliged to provide Eurostat with data on high growth enterprises using this definition.

The definition is a modified version of the original OECD/Eurostat definition of high growth enterprises using more strict criteria for growth:

Enterprises with average annualised growth in the number of employees greater than 20% per year, over a three year period, and with 10 or more employees in the beginning of the observation period. Only growth caused by organic growth is included, see OECD Manual on Business Statistics, 2008. As only few countries collect data using this definition, it is not possible to carry out international comparisons using the definition.

In general, it is important to underline that growth can occur in different forms; as organic (internally generated) and non-organic growth (through mergers and acquisitions, joint-ventures or alliances).

Furthermore, it is important to note that in a period when enterprises increasingly are organising their production globally, the observed growth only relate to the growth within the domestic economy – not the total global growth of an enterprise group having affiliates abroad.

Nordic Innovation has initiated the programme Nordic Scalars designed to help Nordic scale-up companies to prepare and accelerate their next stages of growth through access to competence building and financing opportunities as difficulties in accessing the relevant competences, skills, networks and finance are widely recognised as the major obstacles for growing a business<sup>2</sup>. For the purpose of evidence-based decision making, Nordic Innovation has initiated a project establishing a definition and producing statistics about scale-ups and their economic performance and employment creation in the Nordic countries, see also Box 2.

### Box 2: Definition of scale-up enterprises

The definition used in this study is the following:

Enterprises with 10 or more full time equivalent number of employees (hereafter FTE) and an annual turnover of 2 or more million EUR in the start year of observation.

Enterprises with average annualised growth in the number of employees (FTE) greater than 20% over a three-year period. The growth measured can be caused by organic growth or by mergers and acquisitions and is only measured as employment growth within the country of location.

Concerning the turnover threshold it is important to keep the annual fluctuations in exchange rates between the national currencies (IKR and NOK) and EUR, see also annex for exchange rates used.

The definition of scale-up enterprises is stricter than the definition of high growth enterprises used by Eurostat as the annual growth rate is set to 20% and also adding an annual turnover threshold of 2 million EUR in the start year of the growth period. Nordic Innovation has chosen this definition in order to focus on the fastest growing established enterprises, the so-called scale-ups. But at the same time less strict compared to the Eurostat definition as growth by mergers and acquisitions is included.

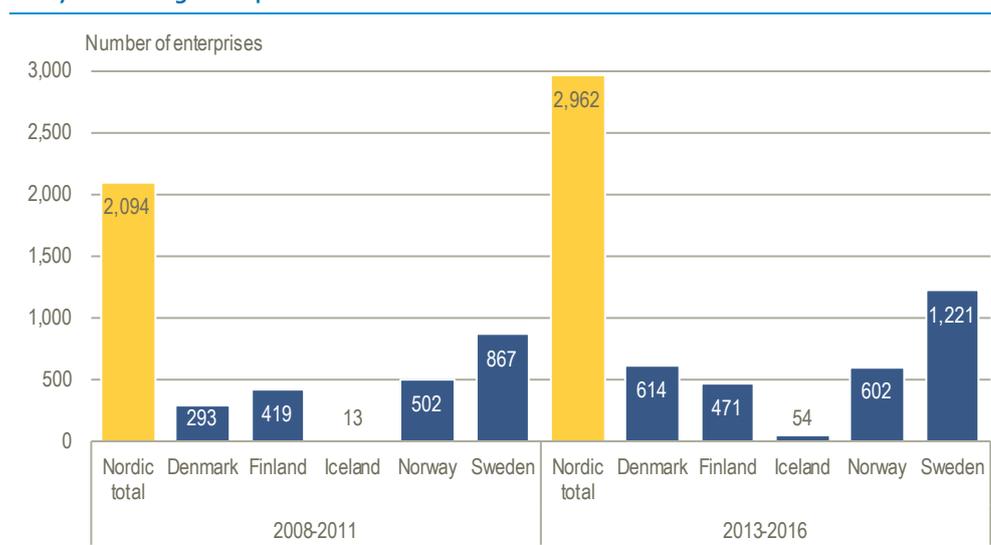
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<sup>2</sup> <http://nordicscalars.io>

## 1. Scale-ups in the Nordic countries

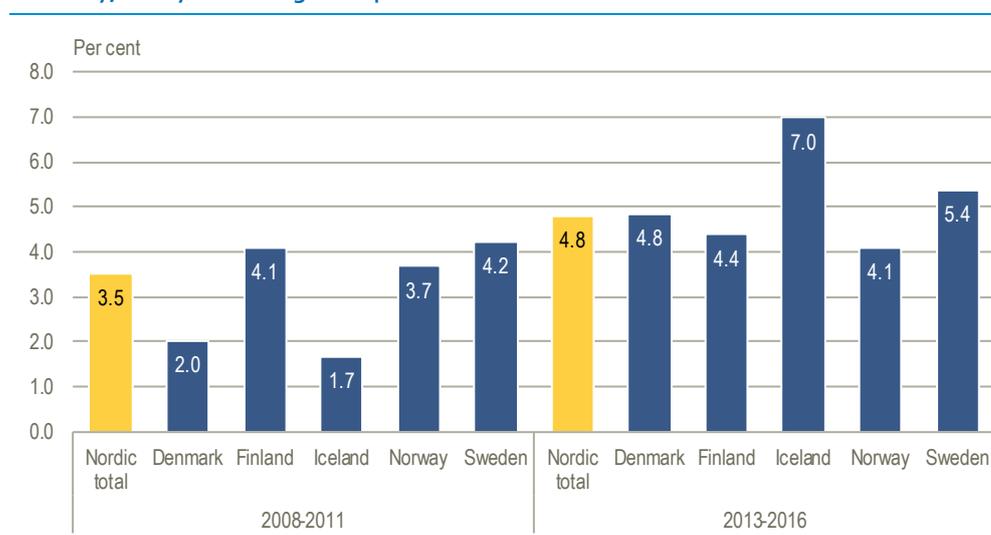
The Nordic countries experienced a growth in scale-up enterprises from nearly 2,100 scale-ups in 2011 (covering the growth period 2008-2011) to nearly 3,000 scale-ups in 2016 (covering the latest available growth period 2013-2016). This is an increase of more than 40%. An increasing number of scale-ups can be observed for all Nordic countries; although huge differences across the Nordics, from an increase of 315% in Iceland, although the number in absolute terms is small, 109% in Denmark, 41% in Sweden, 20% in Norway to only 12% in Finland, see Figure 1.1.

Figure 1.1 Number of scale-up enterprises in the non-financial business economy in the Nordic countries, end year of the growth period



For all countries, we can observe an increase in scale-ups as all activity groupings in the non-financial business economy experienced a growth, except for Norway where the scale-ups in Knowledge intensive services declined with one third and for Finland where scale-ups in Manufacturing decreased with nearly 10%, see the following chapters describing the national developments in detail.

Figure 1.2 Share of scale-ups of total stock of enterprises with 10 or more full time equivalent number of employees and an annual turnover of 2 million EUR or more in the non-financial business economy, start year of the growth period



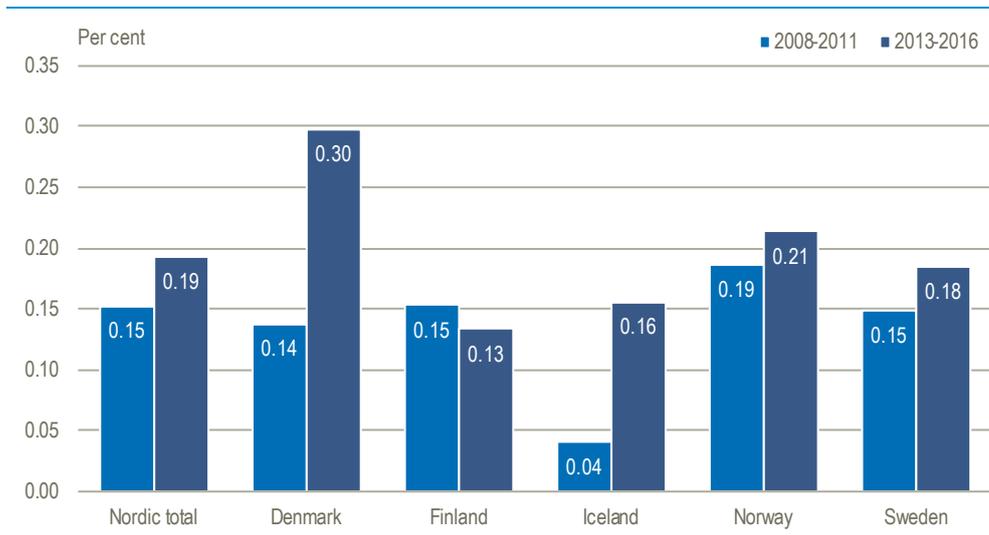
On average, the Nordic countries experienced a growth in the share of scale-ups, defined as the number of scale-ups compared to the total stock of enterprises within the non-financial business economy, potentially fulfilling the criteria for becoming a scale-up enterprise, see Box 1 for the definition. In 2011, the scale-ups constituted 3.5% expanding to 4.8% in 2016 of all enterprises within the non-financial business economy in the Nordic countries, see Figure 1.2. A growing share of scale-ups can be observed in all Nordic countries but at different levels, from a very strong growth in Iceland (5.3 percentage points) to a relative moderate growth in Finland (0.3 percentage points).

As mentioned above, introducing this stricter threshold related to growth rate clearly influences the magnitude of the target population. Going from high growth to scale-up enterprises reduces the share with between half to nearly two-thirds of the official figures reported to Eurostat, especially Norway is impacted as the share drops from 12.2 to 4.1%.

As the detailed data show, it is more difficult to create a growth rate of 20% annually over a three year period for Manufacturing enterprises, as the share of Manufacturing for the growth period 2013 to 2016 is between 3.4% (Norway) and 1.6% (Iceland) of all scale-ups. In all Nordic countries, Manufacturing represented the smallest share of scale-ups compared to the existing stock of enterprises. This underline the huge importance of the services sector for economic growth and employment creation in the Nordic economies.

Most enterprises in the Nordic countries are micro enterprises with less than 10 full time employees. The share of scale-ups compared to the total stock of enterprises is very small in all Nordic countries, constituting between 0.3 (Denmark) and 0.13% (Finland) of all enterprises within the non-financial business economy, see Figure 1.3. The Nordic average standing at 0.19%. For all Nordic countries - except Finland - an increased share can be found from the first observation period (2008-2011) to the last period of observation (2013-2016).

Figure 1.3 Scale-ups as share of total stock of enterprises within the non-financial business economy, start year of the growth period



Most scale-ups in the Nordic countries (80% on average in the Nordic countries) are small enterprises having between 10-49 employees (FTE) in the start year of the three year growth period, see Figure 1.4. This is most predominant in Norway where more than 85% of the scale-ups are small enterprises. In comparison, the other Nordic countries share of small scale-ups are in the range between 75 and 82%. This pattern can also be found across

sectors, as there is hardly any difference in the share of small enterprises being scale-ups within Manufacturing and Knowledge-intensive services.

### Box 3: Activity grouping

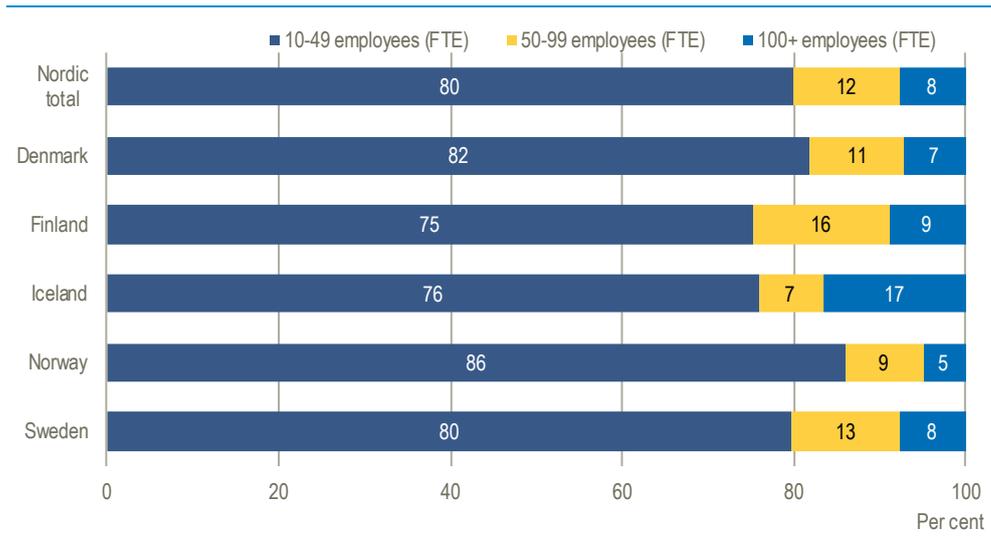
The non-financial business economy is for analytical purposes grouped into the following three activity groupings:

Knowledge-intensive services: Computer programming, consultancy and related activities (NACE Rev.2 Division 62); Information service activities (NACE Rev.2 Division 63); Financial service activities, except insurance and pension funding (NACE Rev.2 Division 64); 69 Legal and accounting activities (NACE Rev.2 Division 69); Activities of head offices management consultancy activities (NACE Rev.2 Division 70); Architectural and engineering activities; technical testing and analysis (NACE Rev.2 Division 71); Scientific research and development (NACE Rev.2 Division 72); Advertising and market research (NACE Rev.2 Division 73); Other professional, scientific and technical activities (NACE Rev.2 Division 74)

Manufacturing: Manufacturing (NACE Rev.2 Divisions 10-33)

Other activities: Other NACE Rev. 2 Divisions included in the non-financial business economy such as Construction, Wholesale and retail trade, Transportation, Hotels and restaurants.

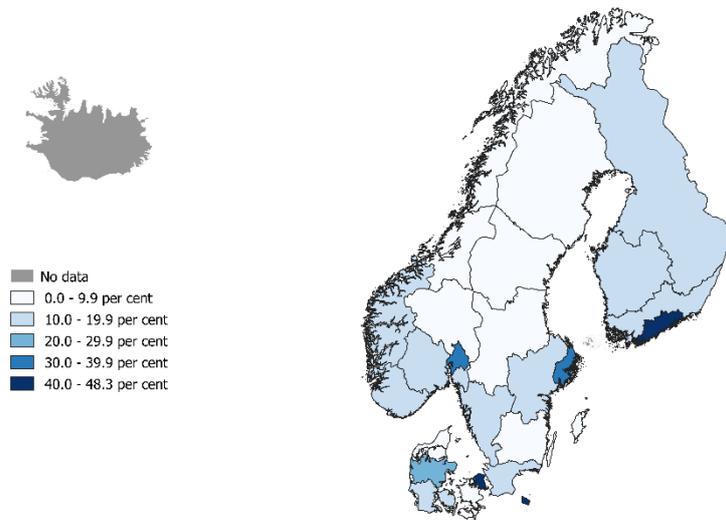
Figure 1.4 Scale-ups broken down by employment size in the start year of the growth period 2013-2016



The largest scale-ups with 100 or more employees (FTE) constitute 8% of all Nordic scale-ups, with Iceland showing the largest share (17%) and Norway the smallest share (5%). This result is in line with recent research documenting that employment creation since the economic crisis mainly has taken place in small and medium sized enterprises<sup>3</sup>.

<sup>3</sup> Danmarks Statistik (2018), Virksomhedsgiganter eller gazeller – hvor skabes størst vækst? and Statistics Sweden (2010), De små och medelstora företagens ekonomi

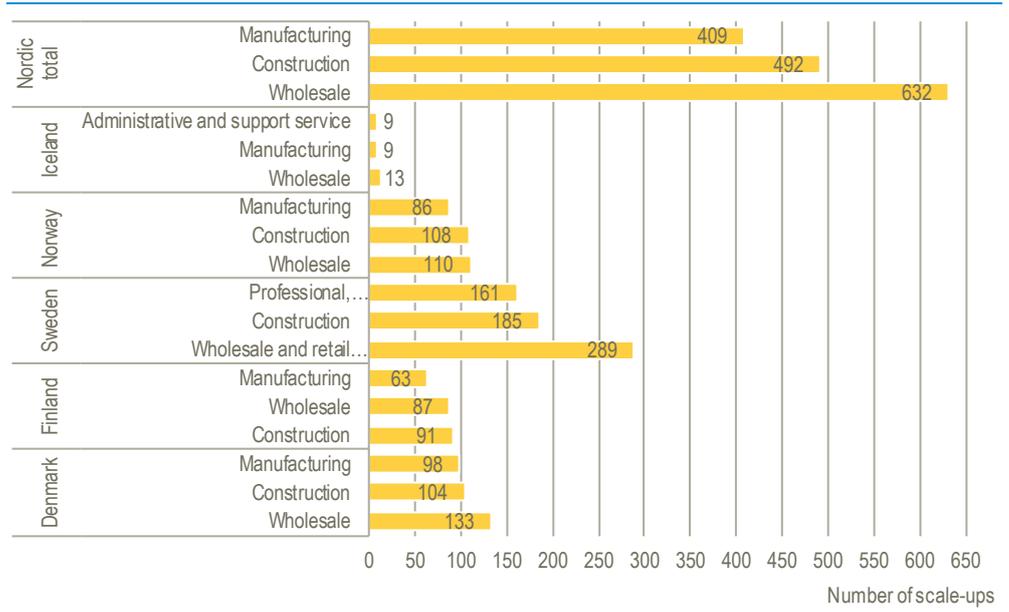
Map 1.1 National scale-ups broken down by regions in the start year of the growth period (2013-2016)



The scale-up enterprises are mainly located in the capital regions. This is the case in all four Nordic countries, where a regional breakdown is feasible, see Map 1.1. The largest concentration is found in the Helsinki-Uusimaa region (48%), followed by Stockholm region (45%), Greater Copenhagen region (40%) and Oslo and Akershus region (38%).

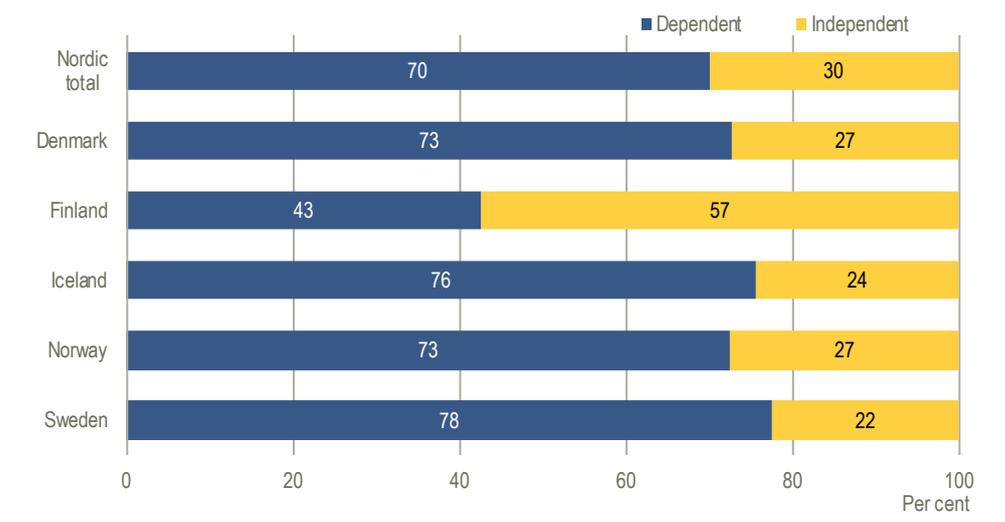
Across the Nordic countries, most scale-ups can be found within Wholesale and retail trade with 630 scale-ups in all Nordic countries followed by Construction (490 scale-ups) and Manufacturing (410 scale-ups); constituting 1 530 or more than half of all scale-ups in the Nordic countries, see Figure 1.5. These three activity groups are also the ones with most scale-ups in Denmark, Finland and Norway. In Sweden, Professional, scientific and technical activities is the third most frequent activity group.

Figure 1.5 Scale-ups broken down by activity, start year of growth period 2013-2016



In all Nordic countries, except Finland, the vast majority of scale-ups is part of a group (so-called dependent enterprises); ranging from 78% of all scale-ups in Sweden, followed by Denmark and Norway (both 73%) and Iceland (67%). Finland is the only country with a majority of independent scale-ups (57%), see Figure 1.6. One reason for the high share of scale-ups being part of a group is the relative large number of scale-ups within Wholesale, as these enterprises often are a specialised unit within the enterprise group taking care of the sales function. It is also characteristic for all countries, except Sweden, that the share of scale-ups belonging to a group in Knowledge-intensive services is below the country average. A similar pattern can be found for Manufacturing scale-ups. Finland is the only exception with a share of scale-ups in Manufacturing belonging to a group being higher than the average for all scale-ups in Finland.

Figure 1.6 Scale-ups broken down by group relation, start year of the growth period 2013-2016

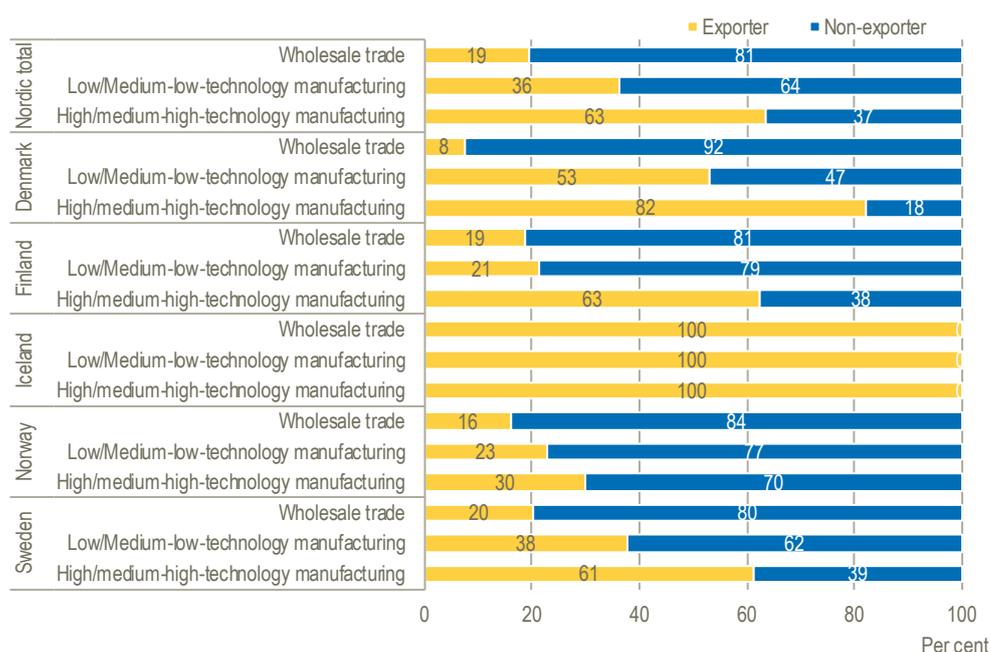


As the Nordic countries are small economies, the growth potential is to a certain degree related to the possibility of expanding via access to export markets and global value chains (GVCs), allowing enterprises to specialise in specific activities within global production networks<sup>4</sup>. This is especially the case for Danish scale-ups where the large majority of scale-ups (82%) within High/medium-high technology Manufacturing are direct exporters of goods, see Figure 1.7. The importance of export markets for the scale-ups within High/medium-high technology Manufacturing is a general pattern across all Nordic countries, as nearly two thirds of all scale-ups in High/medium-high technology Manufacturing are exporters. Norway shows the lowest share of 30%.

The share of exporting scale-ups is clearly lower for Low/medium low technology scale-ups in all Nordic countries, around one third of all scale-ups in this grouping. Again, Denmark shows a different picture with more than half of all scale-ups in this grouping being exporters compared to only 23% in Norway. On average, 20% of all Nordic scale-ups within Wholesale trade was exporters. Denmark is again the country showing the largest share of direct exporters within Wholesale trade (45%) and Norway having the lowest share (16%).

<sup>4</sup> Statistics Denmark, OECD et al: Nordic Countries in Global Value Chains (2017)  
<https://www.dst.dk/Site/Dst/Udgivelses/GetPubFile.aspx?id=28140&sid=nordglobchains>

Figure 1.7 Share of scale-ups within Wholesale and Manufacturing being goods exporter, start year of the growth period 2013-2016



#### Box 4: Classification of Manufacturing industries into categories based on technology intensity

The classification is an aggregation of the Manufacturing industries according to technological intensity (R&D expenditure/value added) and based on the [Statistical classification of economic activities in the European Community \(NACE\)](#) at 2-digit level. The level of R&D intensity served as a criterion of classification of economic sectors into high-technology, medium high-technology, medium low-technology and low-technology industries.

*High-technology industries:* Aircraft and spacecraft, Pharmaceuticals, Office, accounting and computing machinery, Radio, TV and communications equipment and Medical, precision and optical instruments

*Medium-high-technology industries:* Electrical machinery and apparatus, n.e.c., Motor vehicles, trailers and semi-trailers, Chemicals excluding pharmaceuticals, Railroad equipment and transport equipment, n.e.c. and Machinery and equipment, n.e.c.

*Medium-low-technology industries:* Building and repairing of ships and boats, Rubber and plastics products, Coke, refined petroleum products and nuclear fuel, Other non-metallic mineral products and Basic metals and fabricated metal products

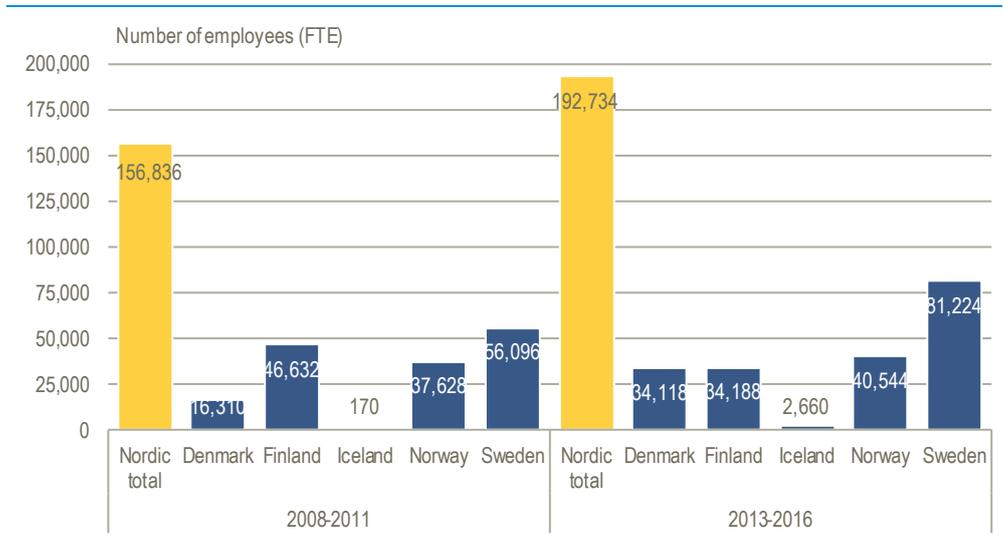
*Low-technology industries:* Manufacturing, n.e.c.; Recycling, Wood, pulp, paper, paper products, printing and publishing, Food products, beverages and tobacco and Textiles, textile products, leather and footwear.

Source: [https://ec.europa.eu/eurostat/cache/metadata/en/htec\\_esms.htm](https://ec.europa.eu/eurostat/cache/metadata/en/htec_esms.htm)

The Nordic scale-ups employed 325,000 employees (FTE) in 2016 or 5.2% of total employment in the Nordic non-financial business economy. The employment in the Nordic scale-ups represents a growth of nearly 193,000 employees (FTE) in the growth period 2013-2016. This was an increase of nearly 36,000 employees (FTE) compared to the first growth period (2008-2011) or 23%, see Figure 1.8. More than 40% of the employment created by the Nordic scale-ups was by the Swedish scale-ups (81,200 employees, FTE), followed by Norway (40,500 employees, FTE), Finland (34,200 employees, FTE), Denmark (34,100 employees, FTE) and Iceland (2,700 employees, FTE). For all Nordic countries,

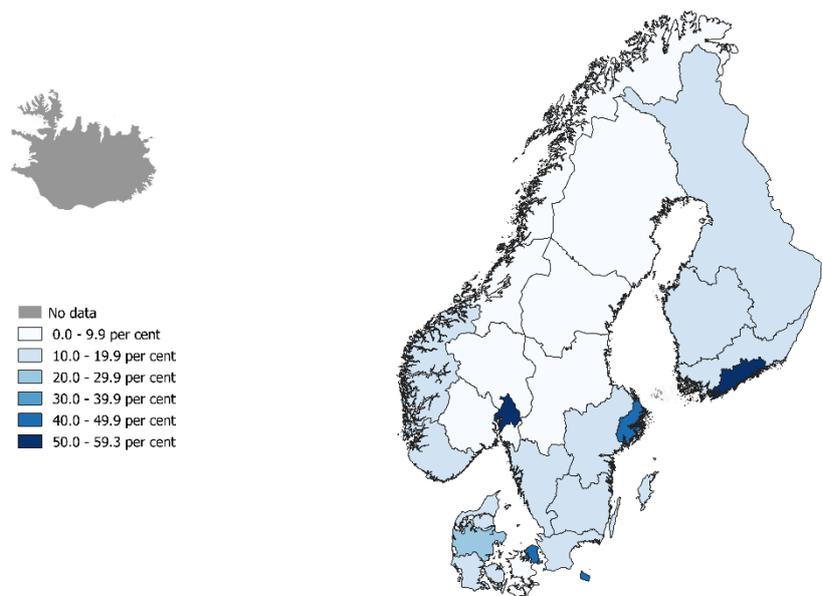
except Norway, more employment were created by scale-ups in Knowledge-intensive services than in Manufacturing, 31,400 employees (FTE) compared to 25,000 employees (FTE) in 2016 in all Nordic countries.

Figure 1.8 Employment growth by scale-ups, end year of growth period



The employment growth by the Nordic scale-ups is characterised by the concentration of employment growth in the capital regions. These being regions with high population density and a large pool of skilled human capital. This goes for all the four Nordic countries where a regional breakdown is feasible, see Map 1.2. The largest concentration is found in the Helsinki-Uusimaa region and Oslo and Akershus region (59% of all employment growth in the growth period 2013-2016), followed by Greater Copenhagen region (45%) and Stockholm region (44%).

Map 1.2 National employment growth 2013-2016 broken down by regions



**Summing up the results of the first statistics on scale-ups in the Nordic countries, the main findings are:**

There is an increasing number of scale-ups in the Nordic countries since 2008; from 2,100 scale-ups in the first growth period (2008-2011) to nearly 3,000 in the last period observed (2013-2016). This pattern is found in all Nordic countries.

The growth in scale-ups is greater than for other similar enterprises as the share of scale-ups increases from 3.5% in 2011 to 4.8 of all Nordic enterprises with 10 or more employees and an annual turnover of 2 million EUR or more in the non-financial business economy in 2016. The largest shares can be found in Iceland (7.0%) and Sweden (4.2%).

The dominant share of scale-ups is small enterprises in the Nordic countries (80%), most predominant in Norway (85%).

More than half of all the nearly 3,000 scale-ups in the Nordic countries was in Wholesale and retail trade, Construction or Manufacturing. This pattern can be found in Denmark, Finland and Norway, while in Sweden Professional, scientific and technical services was the third most frequent activity grouping in the last growth period 2013-2016.

Nearly 70% of all scale-ups in the Nordic countries belonged to an enterprise group, while only around 30% was independent enterprises. Especially Swedish scale-ups were part of a group (78%) while the majority (53%) of scale-ups in Finland was independent enterprises not belonging to a group.

Nearly two-thirds of all Nordic scale-ups within High/medium tech Manufacturing was goods exporters, illustrating the importance of export possibilities and engagement in global value chains (GVCs) for the Nordic scale-ups, due to the relatively small domestic markets in the Nordic countries.

The employment growth by Nordic scale-ups amounted to nearly 193,000 full-time equivalent number of employees (FTE) in the growth period 2013-2016. The Nordic scale-ups employed 325,000 employees in 2016 or 5.2% of total employment in the Nordic non-financial business economy.

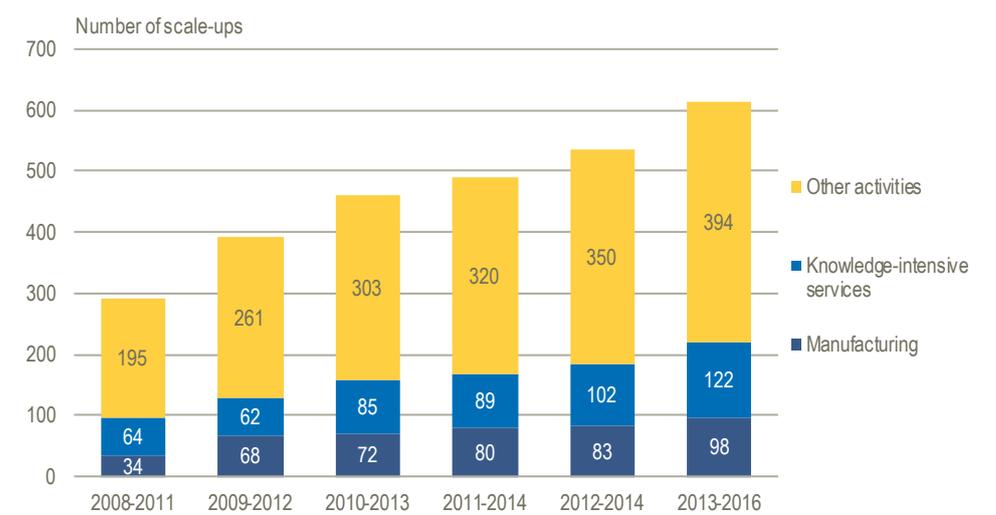
40-60% of employment growth created by scale-ups are located in the capital regions in the Nordic countries with the highest concentration in Helsinki-Uusimaa and Oslo and Akershus regions (close to 60 per cent of total employment growth in the period 2013-2016).

## 2. Denmark

Denmark as a small open economy - as the other Nordic countries - was hugely influenced by the economic crises, especially influencing Danish exports and the performance of the enterprises engaged in exports. Further challenges for employment growth in Denmark have partly been the movement of employment from Danish enterprises, mainly within manufacturing, to abroad. Additionally restructuring and consolidation have in a first instance hampered employment growth. However, cost efficiency seeking factors such as outsourcing and digitalisation have served to improve the competitiveness of Danish enterprises and supported not only economic growth but also employment growth<sup>5</sup>.

The Danish economy experienced a shock due to the economic crisis and especially due to the dramatic drop in exports, resulting in a decrease in employment of around 175,000 persons in the period 2009-2013. During the last years (2013 to 2016) of the observation period in this analysis, the Danish economy improved considerably and the employment in the private sector grew with more than 90,000 persons<sup>6</sup>. Recent analysis has shown that the employment growth in the non-financial business economy in the period 2009-2016 has taken place in the micro, small and medium sized enterprises while the largest enterprises experience a decline in employment in the same period<sup>7</sup>.

Figure 2.1 Number of scale-ups 2008-2016 in the non-financial business economy broken down by activity grouping



Denmark experienced a continuous growth in the number of scale-ups in the period 2008 to 2016; from 293 enterprises in the first growth period (2008-2011), to 614 in the last growth period (2013-2016), see Figure 2.1. Thus, the number of scale-ups in Denmark more than doubled from the first to the last growth period (an increase of 109%). Scale-ups in Manufacturing grew with nearly 190%, from 34 enterprises in the period 2008-2001 to 98 in the period 2013-2016. Also scale-ups in Knowledge-intensive services grew in the period (with 90% or 58 enterprises), see Box 3 for definition.

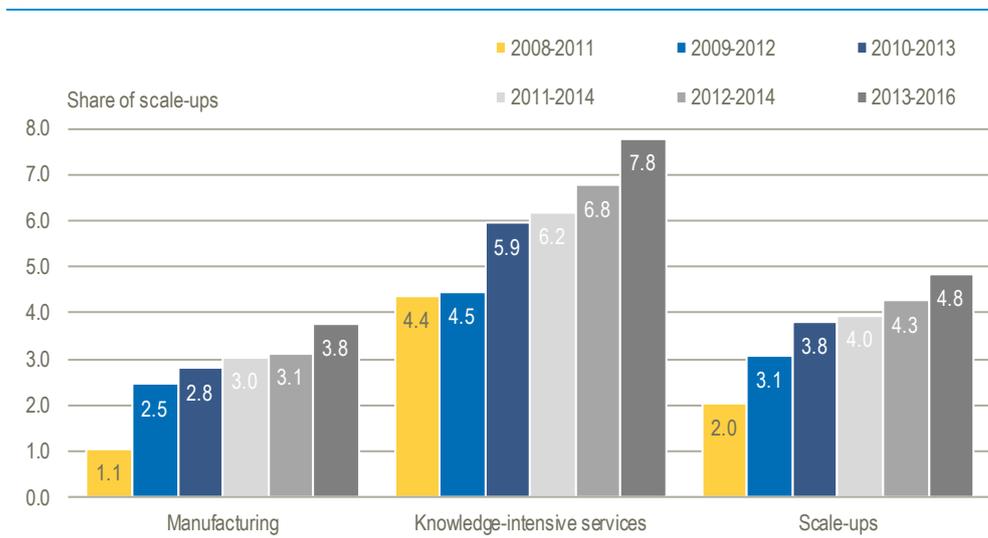
<sup>5</sup> Økonomi- og Indenrigsministeriet, Økonomisk Redegørelse (december 2016), [https://oim.dk/media/18439/oekonomisk\\_redegoerelse\\_december\\_2016\\_tilgaengelig.pdf](https://oim.dk/media/18439/oekonomisk_redegoerelse_december_2016_tilgaengelig.pdf)

<sup>6</sup> Økonomi- og Indenrigsministeriet, Økonomisk Redegørelse (december 2016), [https://oim.dk/media/18439/oekonomisk\\_redegoerelse\\_december\\_2016\\_tilgaengelig.pdf](https://oim.dk/media/18439/oekonomisk_redegoerelse_december_2016_tilgaengelig.pdf)

<sup>7</sup> Danmarks Statistik (2018), Virksomhedsgiganter eller gazeller – hvor skabes størst vækst? <https://www.dst.dk/da/Statistik/Analyser/visanalyse?cid=30698>

Knowledge-intensive services account for around 20% of all scale-ups, in both the first and last growth period. Whereas Manufacturing scale-ups share of all scale-ups grew from around 10% in the first growth period, to 15% in the last growth period from 2013-2016. The largest number of scale-ups can be found in Wholesale and retail trade and Construction (both being part of Other activities) with 133 and 104 scale-ups respectively in the last period.

**Figure 2.2 Share of scale-ups of total stock of enterprises with 10 or more employees (FTE) and an annual turnover of 2 million EUR or more in the non-financial business economy, start year of the growth period**

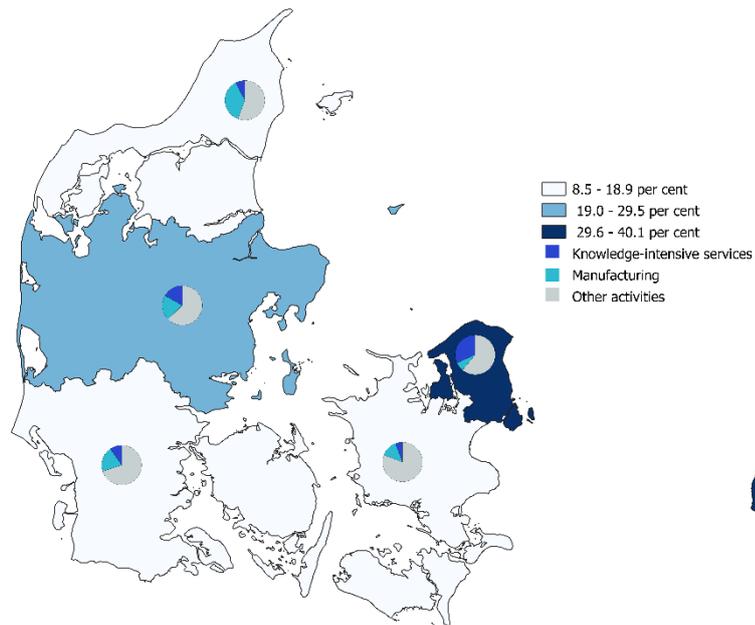


There is, not only, an absolute growth in the number of scale-ups in Denmark, but also an increasing share of the total number of existing enterprises with 10 or more full time equivalent number of employees (FTE) and 2 million or more EUR in turnover becomes scale-ups, see Figure 2.2. The share of scale-ups is rising from 2% (2008-2011) to little less than 5% (2013-2016).

Within Manufacturing the share of scale-ups grew from around 1% in the first growth period to just below 4% in the last. An even more pronounced development is found for enterprises within Knowledge-intensive services. In the growth period from 2008-2011 little more than 4% of the enterprises became scale-ups. The similar share was just short of 8%, for the growth period 2013-2016.

Map: The base map shows the share of all scale-ups (2013-2016) by region. The pie charts show the regional distribution of scale-ups by activity. Activity being grouped into three categories: Knowledge-intensive services, Manufacturing and Other activities, se Box 3 for definition.

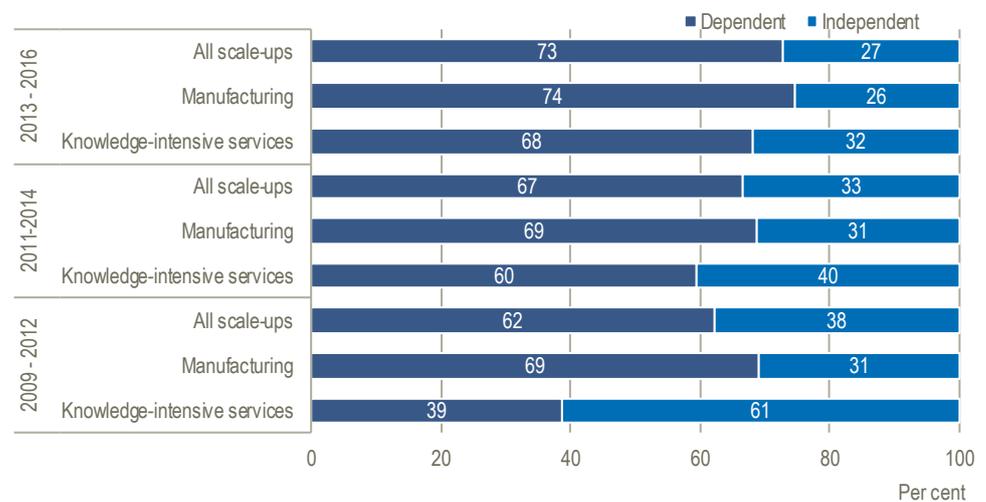
**Map 2.1 Scale-ups broken down by region and activity groupings in the start year of the growth period. 2013-2016**



The largest share of scale-ups is located in the capital region of Greater Copenhagen, see Map 2.1. The region holds 40% of all scale-ups from the growth period 2013-2016. In second place is the Central Denmark region. The North Denmark region, the region of Southern Denmark and the region Zealand fall within the range 8 to 19% of the collective number of scale-ups.

The regional distribution of scale-ups by activity shows differences but also stark similarities. Manufacturing’s share of scale-ups in the North Denmark region is disproportionately large; the same goes for Knowledge-intensive services in the region of Greater Copenhagen, see Map 2.1 (pie charts). Most remarkable is the high share of scale-ups in the category Other activities with more the half of all scale-ups in all regions, most notable in the region Zealand.

**Figure 2.3 Scale-ups broken down by group relation, start year of the growth period**

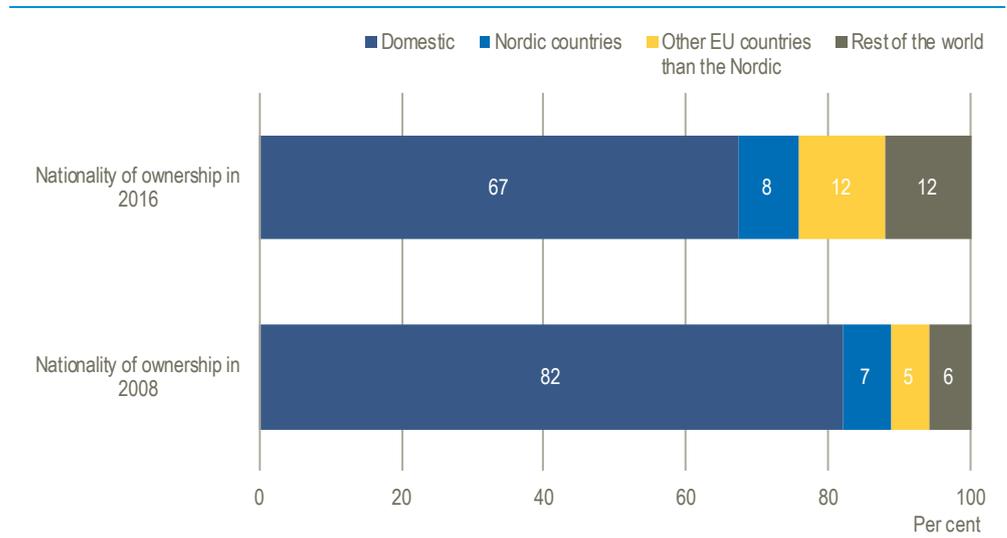


In order to better understand the performance of scale-ups, these are analysed by dependency. Scale-ups are either independent enterprises or enterprises being part of a group (here called dependent enterprises), and thus part of a larger organisation of enterprises which might have a certain division of labour among the affiliates.

Nearly 75% of all scale-ups are part of an enterprise group in 2016. This is an increase of 11 percentage points from the period (2009-2012) where 62% belonged to a group, see Figure 2.3.

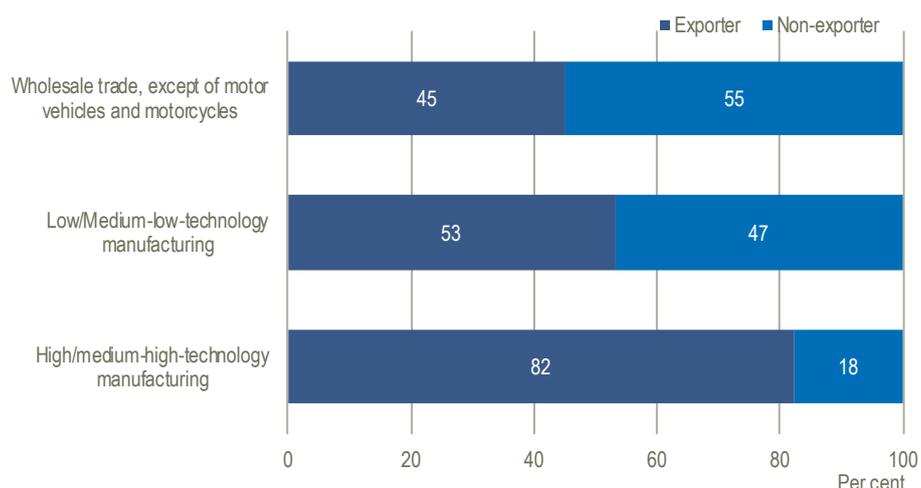
This change is most evident for enterprises within Knowledge-intensive services. The dependent enterprises within Knowledge-intensive services accounted for only 39% in 2009-2012, but this increased to 68% in 2013-2016. However, enterprises within this category still have a lower share of dependent enterprises than Manufacturing scale-ups, 69% in 2009-2012 and 74% in 2013-2016, and the average share for all scale-up enterprises.

Figure 2.4 Change in ownership of scale-ups. 2008 (start year) compared to 2016



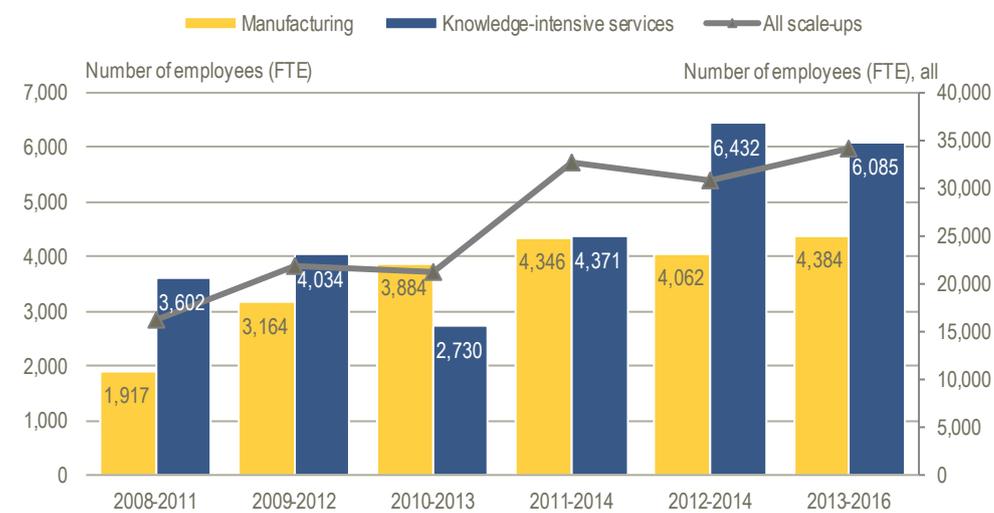
The following investigates to which extent scale-up enterprises are investment objects for foreign investors. Of the scale-ups from the growth period 2008-2011 still existing in 2016 (in total 239 enterprises); a larger share had international ownership in 2016 (32%) than in 2008 (18%), see Figure 2.4. The largest increase (in percentage points) is found for ownership from other EU member states than the Nordic ones with an increase of 7 percentage points between 2013-2016; from 5 to 12% of all surviving scale-ups. In 2016, 8% of the scale-ups were controlled by enterprises owned by other Nordic countries.

Figure 2.5 Share of scale-ups within Wholesale and Manufacturing being goods exporter, start year of the growth period 2013-2016



Especially for Nordic manufacturing enterprises access to exports markets is crucial for expansion due to small domestic markets<sup>8</sup>. This is illustrated by the large share of Manufacturing scale-ups being exporters, especially high/medium high technology Manufacturing shows a large share of exporters as more than 80% of the enterprises are exporters, see Figure 2.5. In comparison, the direct access to export markets seems to be of less importance for scale-ups within low/medium-low Manufacturing, as only around half of the scale-ups are exporters.

Figure 2.6 Employment growth (FTE) by scale-ups by end year of growth period



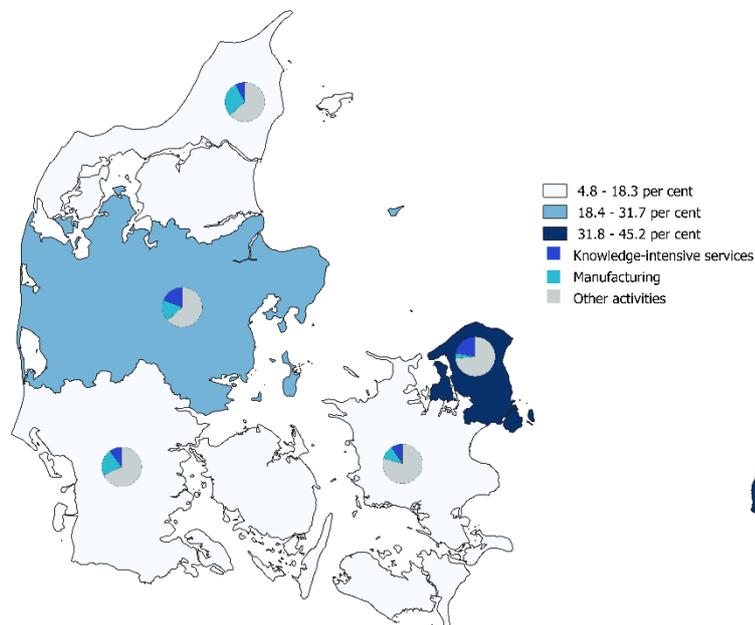
The scale-up enterprises increased their total employment with 34,000 employees (FTE) in the period 2013-2016, see Figure 2.6. Thus, the number of employees (FTE) created have doubled during the period observed, from 16,000 employees (FTE) created in the first growth period. This development is not just a reflection of more scale-ups, but also of moderate economic resurgence since 2013 following the crisis years.

<sup>8</sup> Statistics Denmark, OECD et al: Nordic Countries in Global Value Chains (2017) <https://www.dst.dk/Site/Dst/Udgivelser/GetPubFile.aspx?id=28140&sid=nordglobchains>

The overall growth in the number of employees (FTE) is also found for scale-up enterprises within Knowledge-intensive services and Manufacturing. In general, the Knowledge-intensive services start-ups created more employment than Manufacturing. Most employment within the Knowledge-intensive services scale-ups were established in the growth period 2012-2015 (6,432 employees) and within Manufacturing scale-ups in the 2013-2016 growth period (4,384 employees).

Map: The base map shows the regional share of scale-ups employment growth (2013-2016). The pie charts show the regional employment growth distribution the activity of the scale-ups. Activity broken down by the categories Knowledge-intensive services, Manufacturing and Other activities, see Box 3 for definition.

Map 2.2 Employment growth by scale-ups 2013-2016 broken down by regions

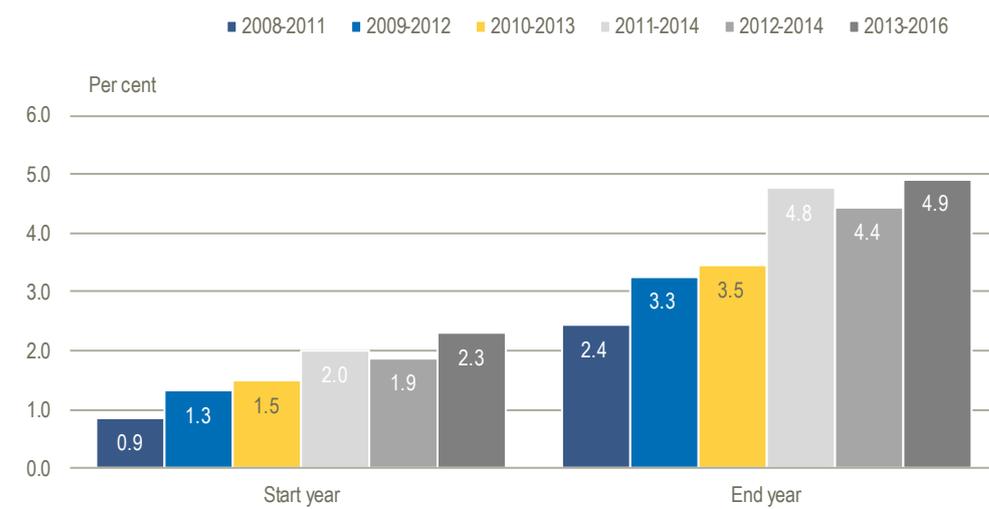


45% of the employment growth that occurred from 2013-2016 where in the region of Greater Copenhagen. As such the share of employment created in the region is larger than the region’s share of scale-ups, see Map 2.2. Second is the Central Denmark region. The regions North Denmark, Southern Denmark and Zealand are falling within the range 5 to 18% of the scale-up’ employment growth.

Other activities have the largest part of the employment growth in all regions. However, there is an east west divide. Other activities are very dominant the eastern part of Denmark, whereas Manufacturing scale-ups share are more noticeable in the Northern Denmark region and the region of Southern Denmark (more than 20%), while both Manufacturing and Knowledge-intensive services combine for a fairly large share of the employment growth in the Central Denmark region.

Looking exclusively at regions where Knowledge-intensive services are prevalent, the region of Greater Copenhagen and the Central Denmark region show the high share of the employment growth coming from Knowledge-intensive services (around 20%).

Figure 2.7 Employment (FTE) in scale-ups as share of total employment (FTE) in the non-financial business economy in the start and end year of the growth period

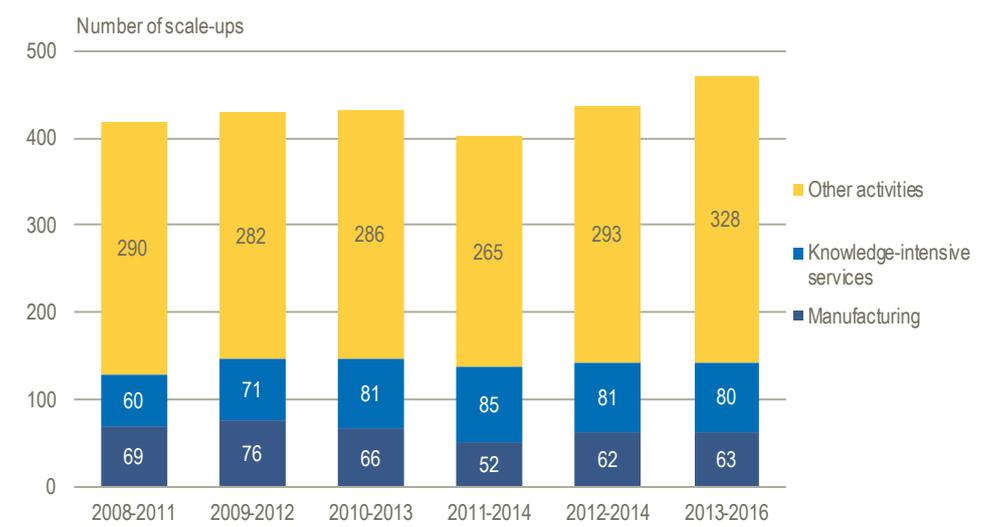


The importance of scale-ups for the Danish economy measured by employment in scale-ups as share of total employment in the non-financial business economy has been increasing since the first growth period, see Figure 2.7. At the end of the first growth period ending 2011, the scale-up enterprises constituted 2.4% of the total employment in the non-financial business economy. The share in 2016 has increased to 4.9%, reflecting the higher employment growth in scale-ups compared to the total enterprise population. This share is quite noticeable as scale-ups account for less than 0.3% of the population of enterprises in the non-financial business economy.

### 3. Finland

Finland was strongly influenced by the economic crisis in 2008, and especially hard hit was the traditionally strong ICT sector. Industrial output is still at lower levels than in 2008. National specific shocks to cost competitiveness alongside with trends such as automatisisation and outsourcing, have contributed to large Manufacturing enterprises being less capable of providing new employment in the economy. Finnish politicians, very much like their Nordic counterparts, are increasingly paying attention to small and medium sized enterprises, and especially on start-ups, in the hopes that they would create the much needed new employment in the economy.

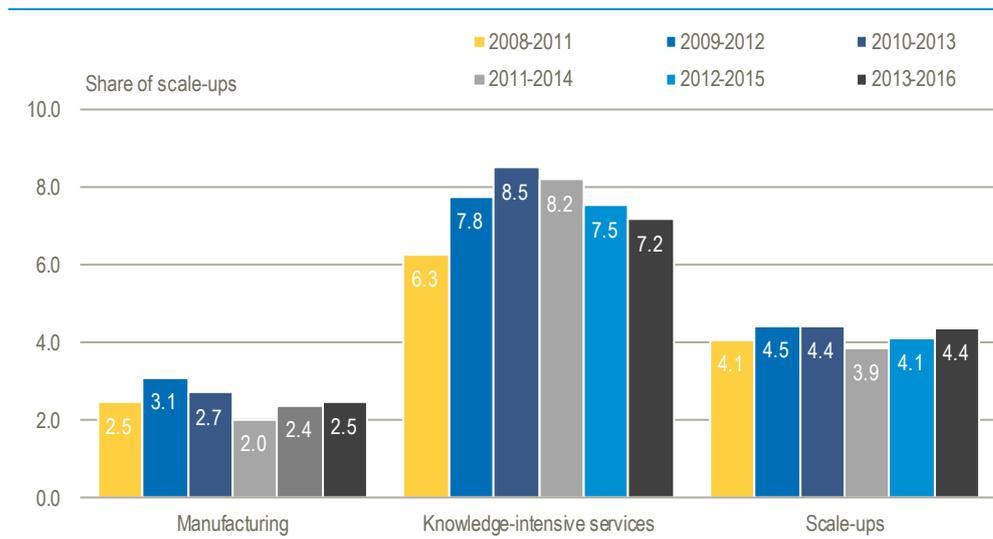
Figure 3.1 Number of scale-ups 2008-2016 in the non-financial business economy broken down by activity grouping



In Finland, the number of scale-ups in the period 2008 to 2016, has been relatively stable; there were 419 enterprises in the first growth period (2008-2011), and 471 in the last growth period (2013-2016), see Figure 3.1. Thus, the number of scale-ups in Finland from the first to the last growth period has increased by around 12%. The number of scale-ups in Manufacturing declined by around 9%, from 69 enterprises in the period 2008-2001 to 63 in the period 2013-2016. On the other hand, scale-ups in Knowledge-intensive services grew in the period (with 33% or 20 enterprises), see Box 3 for definition.

Knowledge-intensive services account for around 17% of all scale-ups in the most recent growth period ending 2016, a slight increase from the 14% in the first period, whereas the share of scale-ups in Manufacturing declined slightly from around 14% in the first growth period, to 13% of all scale-ups in the last growth period. The largest number of scale-ups can be found in Wholesale and retail trade and Construction (both being part of Other activities) with 91 respectively 87 scale-ups in the last period.

Figure 3.2 Share of scale-ups of total stock of enterprises with 10 or more employees (FTE) and an annual turnover of 2 million EUR or more in the non-financial business economy, start year of the growth period

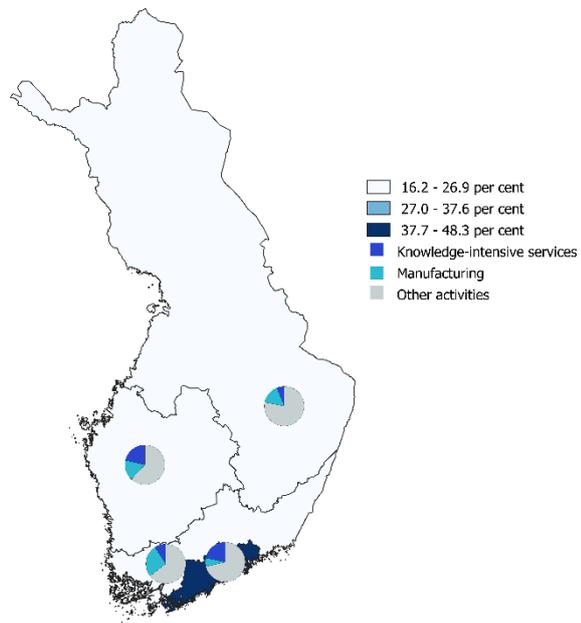


As a whole, the share of scale-ups is stable over the years. When compared to the enterprise population with 10 or more full time equivalent number of employees (FTE) and 2 million EUR in turnover, the data reveals that scale-ups in Manufacturing represent 2.5% of the total, and that the share of scale-ups in knowledge intensive services has increased over the years, from 6.3% in 2008-2011, to 7.2 in 2013-2016.

This evidence tells us, that enterprises within Knowledge-intensive services are much more likely to become scale-up enterprises pointing towards innovation and business renewal. For Finland, it is a positive signal that the share of scale-ups in this category has increased.

Map: The base map shows the share of all scale-ups (2013-2016) by region. The pie charts show the regional distribution of scale-ups by activity. Activity being broken down by the categories Knowledge-intensive services, Manufacturing and Other activities, see Box 3 for definition.

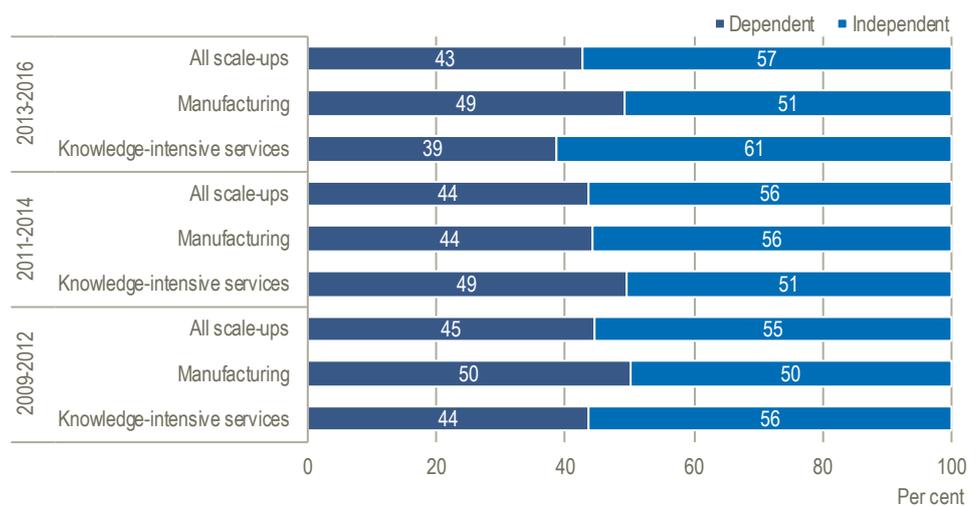
Map 3.1 Scale-ups broken down by region and activity groupings in the start year of the growth period. 2013-2016



The largest share of scale-ups is located in the capital region Helsinki-Uusimaa, see Map 3.1. The region holds more than 48% of all scale-ups from the growth period 2013-2016. The remaining Finnish regions have roughly the same number of scale-ups each.

There are few notable differences in the Finnish regions in terms of distribution of activities of scale-ups. For instance, South Finland has disproportionately large share of Manufacturing scale-ups. This is interesting because of the well-known presence of a strong Manufacturing cluster in the Tampere region. Helsinki-Uusimaa and West Finland both have relatively large share of Knowledge-intensive services scale-ups.

Figure 3.3 Scale-ups broken down by group relation, start year of the growth period

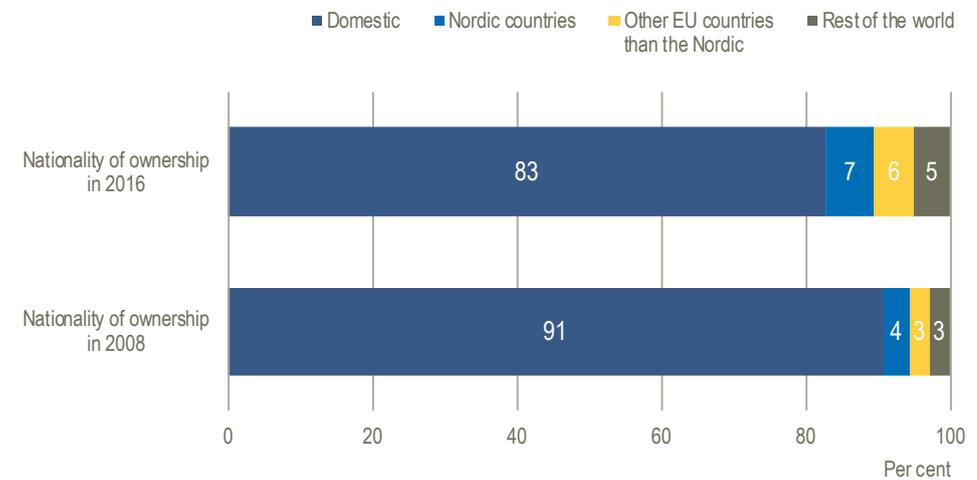


In order to better understand the performance of the enterprises, we have analysed whether the scale-ups are independent enterprises or enterprises being part of a group (here called dependent enterprises) and thus part of a larger organisation of enterprises which might have a certain division of labour. Nearly 43% of all scale-ups are part of an

enterprise group in 2016. This is a decrease of 2 percentage points from the first period (2009-2012) where 45% belonged to a group, see Figure 3.3.

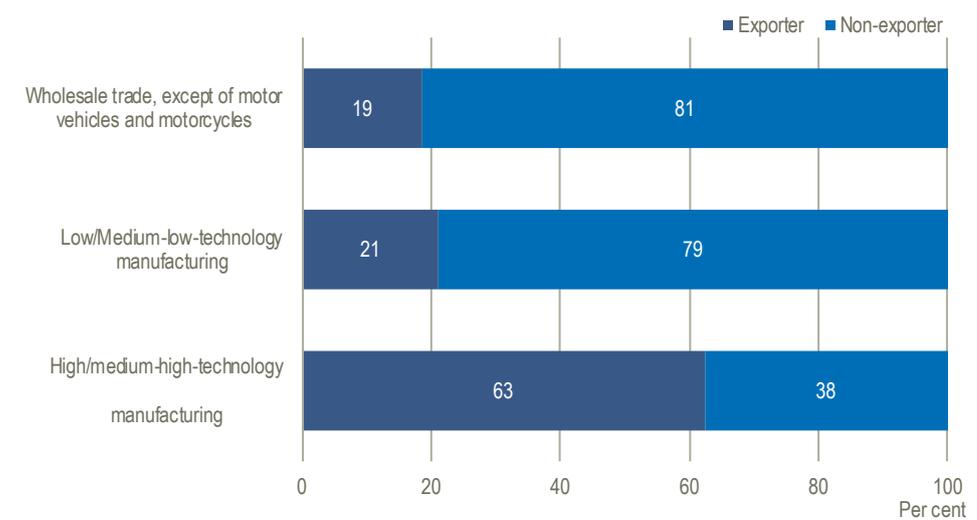
The shares of dependent and independent scale-ups in Finland have remained stable over the years. Being a dependent scale-up is more frequent in Manufacturing. These findings highlight the importance of larger groups, also when analysing high growing enterprises.

**Figure 3.4** Change in ownership of scale-ups. 2008 (start year) compared to 2016



We have investigated to which extent scale-up enterprises are attractive investment opportunities to foreign investors. Of the scale-ups from the growth period 2008-2011 still existing in 2016 (in total 312 enterprises); a larger share had international ownership in 2016 (28%) than in 2008 (10%), see Figure 3.5. In relative terms, the largest increase in ownership is in the share of other EU countries, excluding Denmark and Sweden, which increases from 3 to 6 percentage points. Nordic ownership however remains the largest category, with 7% share (4% in 2008). Rest of the world category increases from 3 to 5% share.

**Figure 3.5** Share of scale-ups within Wholesale and Manufacturing being goods exporter, start year of the growth period 2013-2016

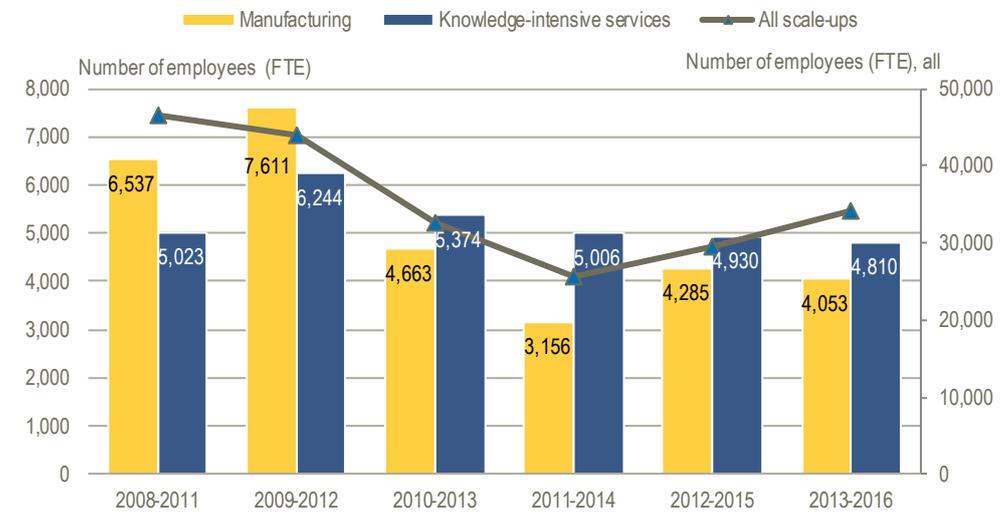


Especially for Nordic manufacturing enterprises access to exports markets is crucial for expansion due to small domestic markets<sup>9</sup>. This is illustrated by the huge share of

<sup>9</sup> Statistics Denmark, OECD et al: Nordic Countries in Global Value Chains (2017).

Manufacturing scale-ups being exporters, especially in high/medium high technology Manufacturing. More precisely, more than 60% of the enterprises in this category are exporters, see Figure 3.5. In comparison, the direct access to export markets seems to be of less importance for scale-ups within low/medium-low Manufacturing, as only around 20% of the scale-ups are exporters.

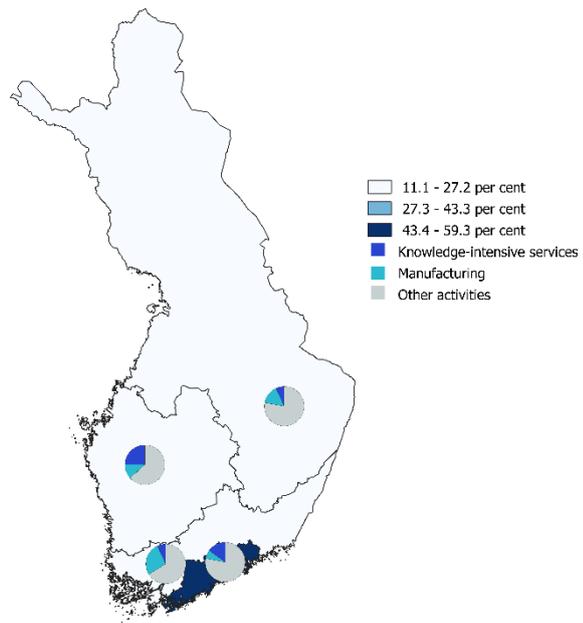
Figure 3.6 Employment growth (FTE) by scale-ups by end year of growth period



The scale-up enterprises increased their total employment with 35,000 employees (FTE) in the period 2013-2016, see Figure 3.6. The employment creation rate has considerably decreased from the first growth period to the last, going from 45,000 to 35,000 employees (FTE).

Overall, the Knowledge-intensive services scale-ups created more employment than Manufacturing in the last four growth periods, but the opposite was true in first two growth periods. Most employment within the Knowledge-intensive services and Manufacturing scale-ups were established in the growth period 2009-2012 (6,244 and 7,611 employees respectively).

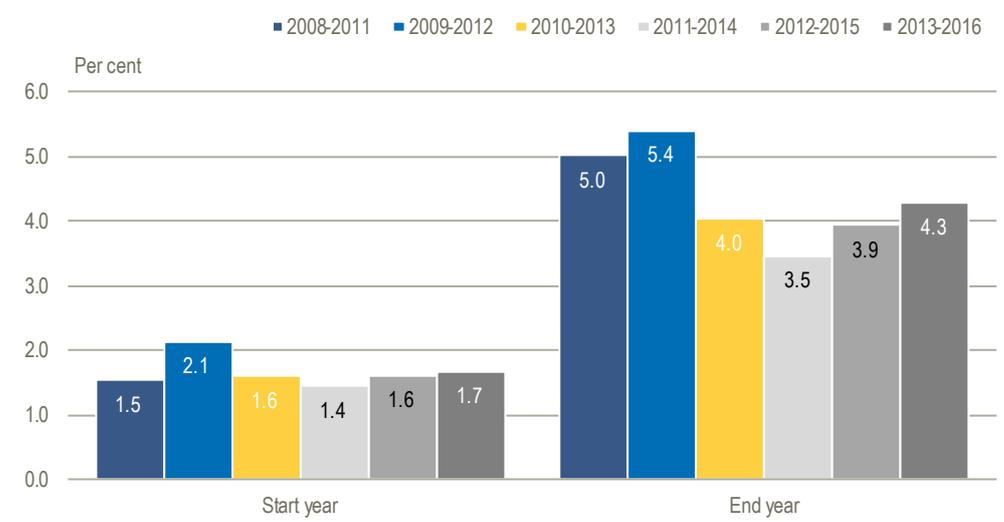
Map: The base map shows the regional share of scale-ups employment growth (2013-2016). The pie charts show the regional employment growth distribution the activity of the scale-ups. Activity broken down by the categories Knowledge-intensive services, Manufacturing and Other activities, see Box 3 for definition.



Just below 60% of the employment growth generated by scale-ups from 2013 to 2016 took place in the capital region of Helsinki-Uusimaa. As such, the share of employment created in the region is larger than the region’s share of scale-ups, see Map 2.2. South Finland was the second most important region in terms of employment created by scale-ups (16% share), and the other two regions created around 12% each. Thus, employment creation is concentrated to the south of Finland.

Other activities represent the largest share of the employment growth in all the regions. There is again noticeably large share of employment created in Manufacturing in the South Finland region, and high share of Knowledge-intensive services employment created in West Finland.

Figure 3.7 Employment (FTE) in scale-ups as share of total employment (FTE) in the non-financial business economy in the start and end year of the growth period



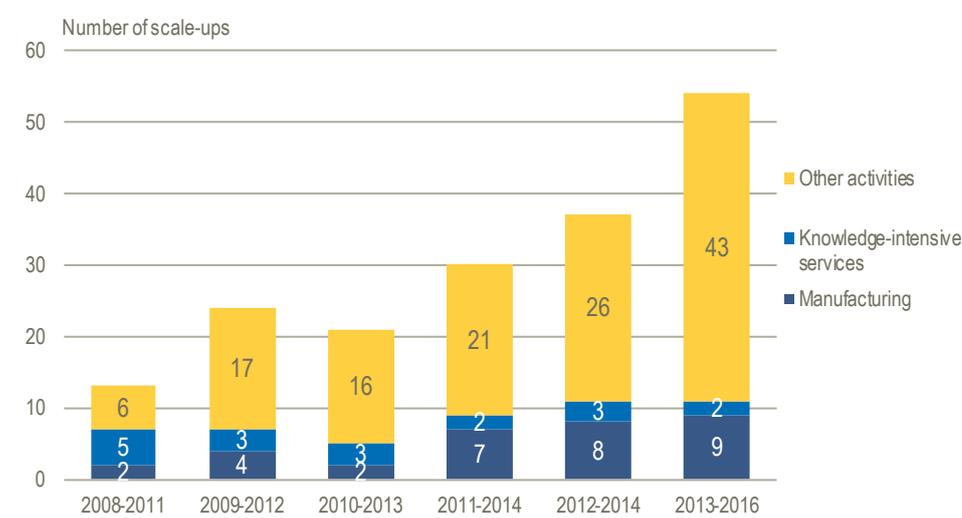
The importance of scale-ups for the Finnish economy measured by employment in scale-ups as a share of total employment in the non-financial business economy has been decreasing since the first growth period, see Figure 3.7. At the end of the first growth period ending 2011, the scale-up enterprises constituted 5% of the total employment in the non-financial business economy, while the scale-ups ending in 2016 had a 4.3% share. The scale-ups represent generally a small share, 1.5-2.1 of employment in the beginning of the growth period, but they grow to represent already a significant share over the short period of three years. The shares in the end year of the growth period are between 3.5-5.4%. This share is remarkable as the scale-ups only account for less than 0.3% of the population of enterprises in the non-financial business economy.

## 4 Iceland

Iceland as a small open economy was hugely influenced by the economic crises. During this period, challenges for employment growth in Iceland had partly been due to the significant decrease in domestic consumption and investment (both private and public). As the Icelandic currency (ISK) depreciated significantly against all foreign currencies, the cost of these two national expenditures increased significantly. Same time, Icelandic goods and services became highly competitive in pricing, which resulted in higher exporting values. Such trend allowed exporting enterprises to grow quicker both in employment creation and turnover.

Recent analysis has shown that the highest employment growth in the tourism related services, in the period 2013-2016, has taken place in the micro, small and medium sized enterprises<sup>10</sup>.

Figure 4.1 Number of scale-ups 2008-2016 in the non-financial business economy broken down by activity grouping



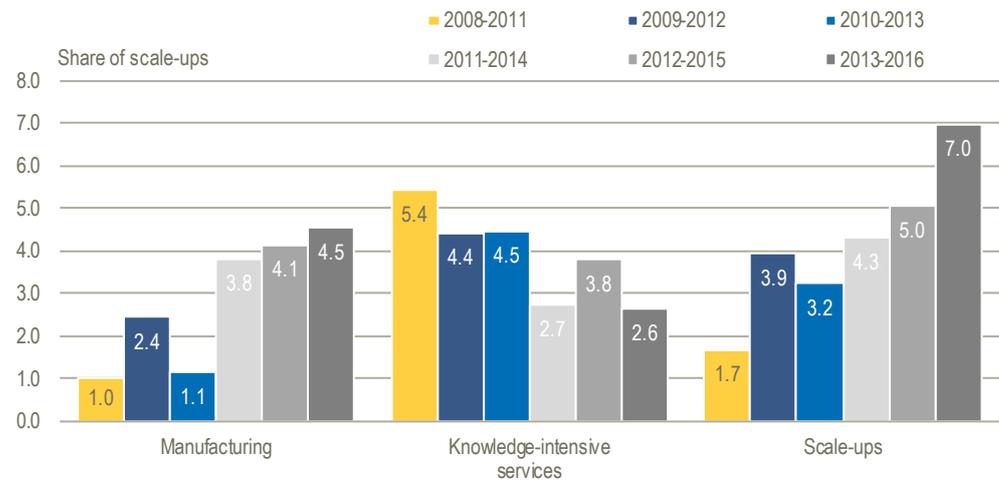
Iceland experienced a growth in the number of scale-ups in the period 2008 to 2016; from 13 enterprises in the first growth period (2008-2011), to 54 in the last growth period (2013-2016), see Figure 4.1. Thus, the number of scale-ups in Iceland has increased by more than four times from the first to the last growth period (an increase of 315%), although the absolute level of scale-ups should be kept in mind. Scale-ups in Manufacturing grew with nearly 350%, from 2 enterprises in the period 2008-2001 to 9 in the period 2013-2016. However, the number of scale-ups in Knowledge-intensive services has decreased in the period (from 5 to 2 enterprises), see Box 3 for definition.

Knowledge-intensive services accounted for around 38% of all scale-ups in the first growth period and only for 4%, in the last growth period. The share of scale-ups in Manufacturing varied from 15% to 23% of all scale-ups during the research period. The largest number of scale-ups can be found in Wholesale and retail trade and Administrative and support service (both being part of Other activities) with 13 and 9 scale-ups respectively in the last period.

<sup>10</sup>

[https://px.hagstofa.is/pxen/pxweb/en/Atvinnuvegir/Atvinnuvegir\\_fyrirtaeki\\_afkoma\\_1\\_afkoma/FYR08001.px/table/tableViewLayout1/?rxid=cdb7c62-c891-4268-b7e7-ebb126acd6b5](https://px.hagstofa.is/pxen/pxweb/en/Atvinnuvegir/Atvinnuvegir_fyrirtaeki_afkoma_1_afkoma/FYR08001.px/table/tableViewLayout1/?rxid=cdb7c62-c891-4268-b7e7-ebb126acd6b5)

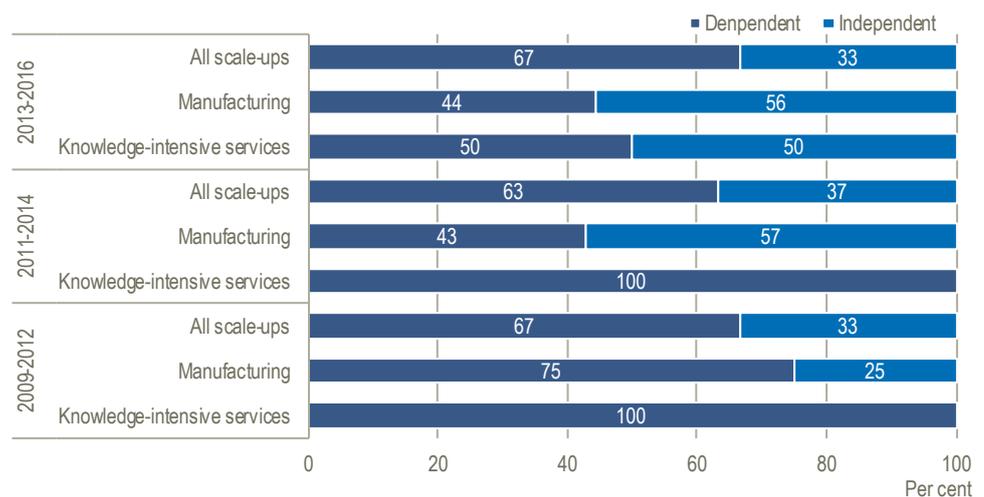
**Figure 4.2 Share of scale-ups of total stock of enterprises with 10 or more employees (FTE) and an annual turnover of 2 million EUR or more in the non-financial business economy, start year of the growth period**



Not only do we find an absolute growth in the number of scale-ups in Iceland, but also an increasing share of the total number of existing enterprises with 10 full time equivalent number of employees (FTE) and 2 million EUR in turnover show such a huge growth that they become scale-ups, see Figure 4.2. The share of scale-ups rising from 2% (2008-2011) to 7% (2013-2016).

Within Manufacturing the share of scale-ups grew from around 1% in the first growth period to 4.5% in the last. However, an absolutely opposite development is found for enterprises within Knowledge-intensive services. In the growth period from 2008-2011 little more than 5% of the enterprises became scale-ups. The similar share was significantly below 3%, for the growth period 2013-2016.

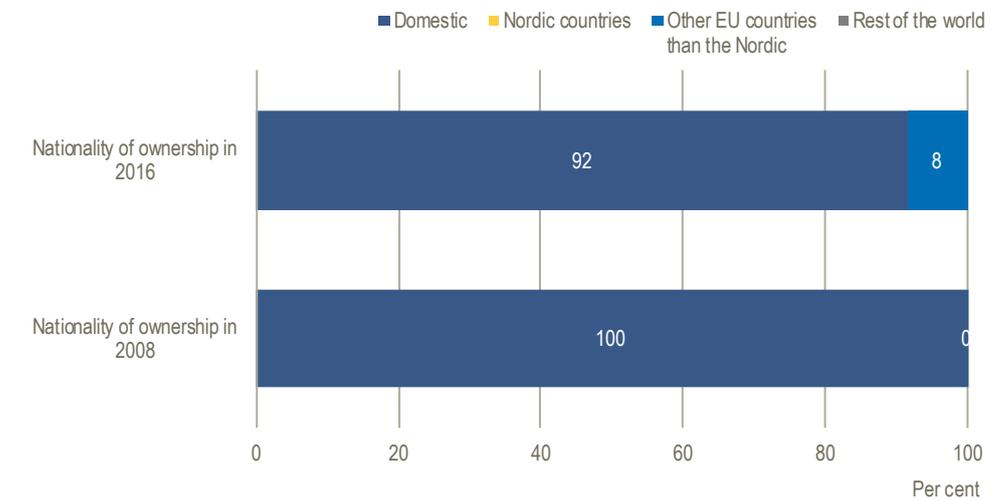
**Figure 4.3 Scale-ups broken down by group relation, start year of the growth period**



In order to better understand the performance of the enterprises, we have analysed whether the scale-ups are independent enterprises or enterprises being part of a group (here called dependent enterprises) and thus part of a larger organisation of enterprises which might have a certain division of labour.

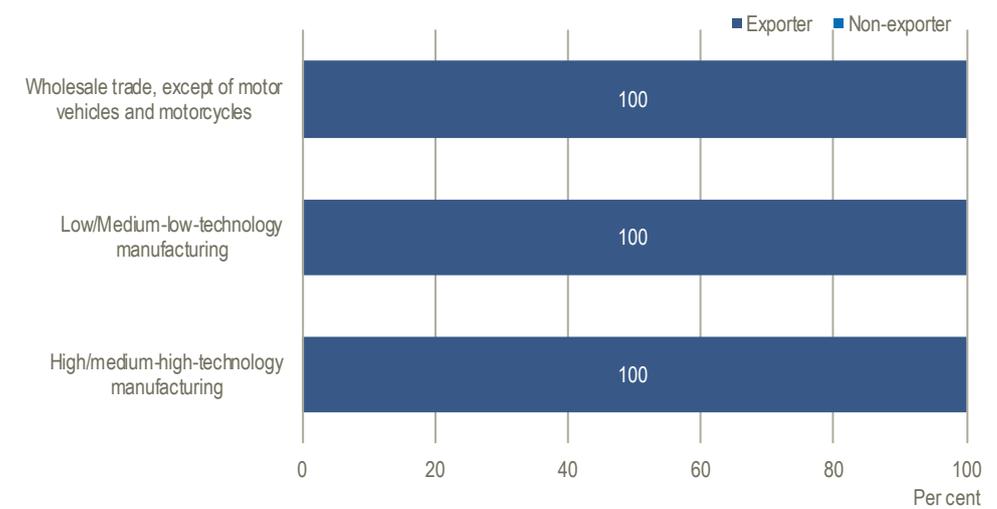
Nearly 67% of all scale-ups are part of an enterprise group in 2016. This trend is holding constant from the first period (2009-2012) where 67% belonged to a group, see Figure 4.3. Manufacturing scale-ups (75% in 2009-2012 and 44% in 2013-2016) and Knowledge-intensive services scale-ups (100% in 2009-2012 and 50% in 2013-2016) decreased in their share of dependent enterprises. This could be one of the explanations why the share of scale-ups in these economic activities is under the average.

Figure 4.4 Change in ownership, scale-ups 2008 (start year) compared to 2016



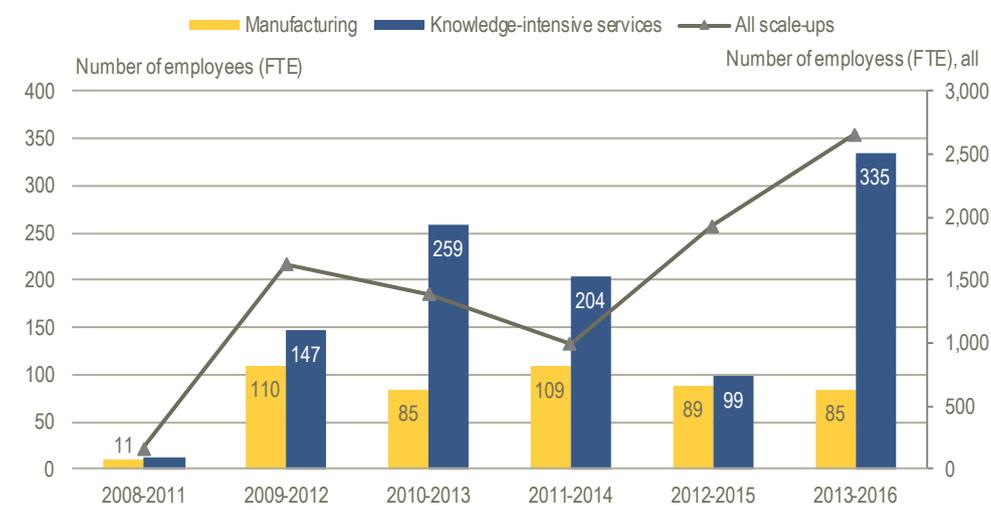
We have investigated to which extent scale-up enterprises are investment objects for foreign investors. Of the scale-ups from the growth period 2008-2011 still existing in 2016 (in total 12 enterprises); a larger share had international ownership in 2016 (8%) than in 2008 (0%), see Figure 4.4. The largest increase in percentage points is found for ownership from other EU member states, except the Nordic ones, with an increase of 8 percentage points in 2016; from 0 to 8% of all surviving scale-ups. In 2016, none of the surviving scale-ups were controlled by enterprises owned by other Nordic countries.

Figure 4.5 Share of scale-ups within Wholesale and Manufacturing being goods exporter, start year of the growth period 2013-2016



Especially for Nordic manufacturing enterprises access to exports markets is crucial for expansion due to small domestic markets<sup>11</sup>. This is illustrated by the dominant share of Wholesale trade scale-ups and Manufacturing scale-ups being exporters of goods- 100% of the enterprises are exporters, see Figure 4.5.

Figure 4.6 Employment growth (FTE) by scale-ups by end year of growth period

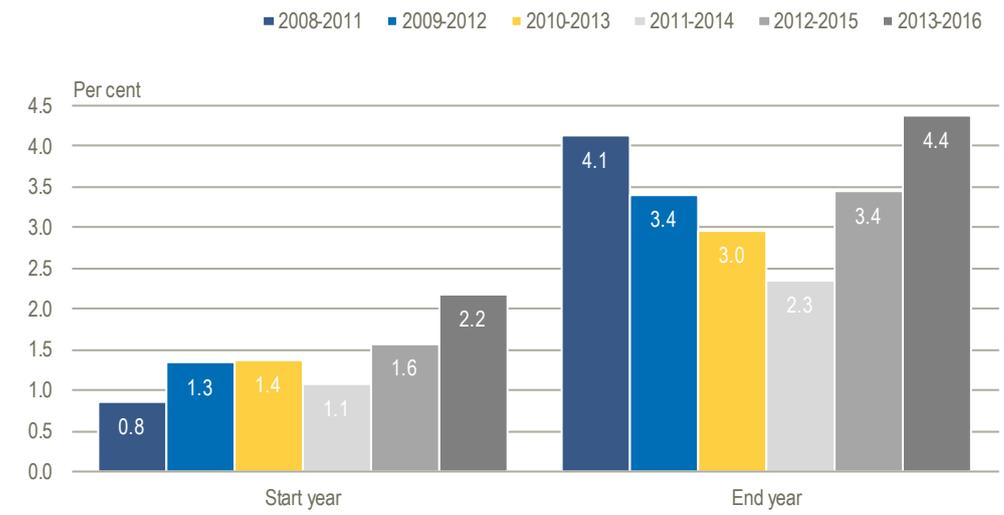


The scale-up enterprises created over 6,000 employees (FTE) in the period 2013-2016, see Figure 4.6. Thus, the number of employees (FTE) created had doubled during the period observed, from 2,500 employees (FTE) created in the first growth period. This development is not just a reflection of more scale-ups, but also of moderate economic resurgence since 2013 following the crisis years.

The overall growth in the number of employees (FTE) is also found for scale-up enterprises within Knowledge-intensive services scale-ups and Manufacturing. In general, the Other activities start-ups created more employment than Manufacturing and the Knowledge-intensive services. Most employment in scale-ups within the Knowledge-intensive services were established in the growth period 2008-2011 (4,100 employees, FTE) and within Manufacturing scale-ups in the 2013-2016 growth period (690 employees, FTE).

<sup>11</sup> Nordic Council of Ministers: Services and Goods Exports from the Nordics (2016), <http://norden.diva-portal.org/smash/record.jsf?pid=diva2%3A1047303&dswid=7611>

Figure 4.7 Employment (FTE) in scale-ups as share of total employment (FTE) in the non-financial business economy in the start and end year of the growth period



The importance of scale-ups for the Icelandic economy measured by employment in scale-ups as share of total employment in the non-financial business economy has been increasing since the first growth period, see Figure 4.7. At the end of the first growth period ending 2011, the scale-up enterprises constituted 4.1% of the total employment in the non-financial business economy while the share in 2016 has increased to 4.4%, reflecting the higher employment growth in scale-ups compared to the total enterprise population. This share is mainly noticeable as the scale-ups only account for 0.1% of the population of enterprises in the non-financial business economy.

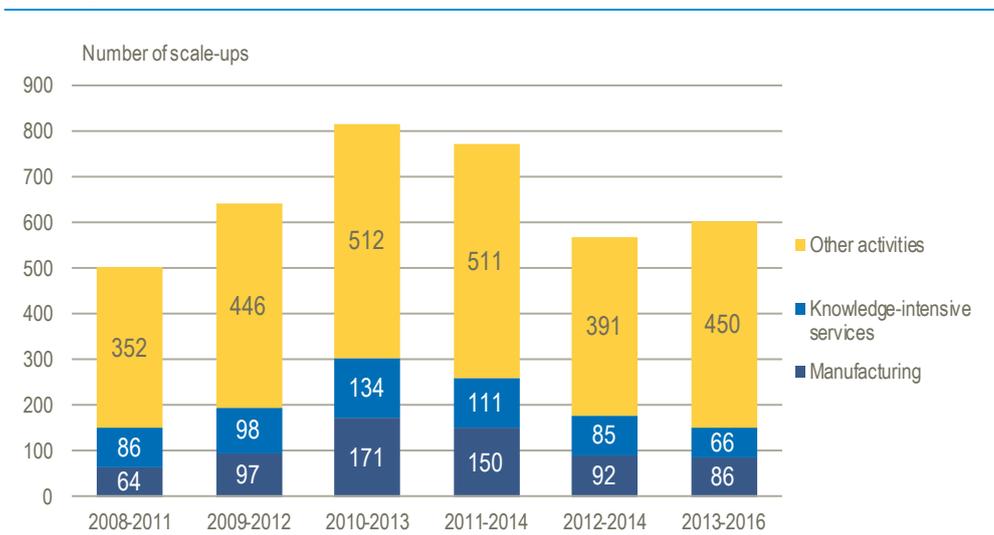
## 5. Norway

Norway being a small open economy was influenced by the economic crisis, but not to the same extent as the other Nordic countries. Having an export of mainly raw materials and freight services was an advantage in the crisis of 2008, due mainly to faster recovery in the emerging Asian countries. A large current account surplus was also of great importance.

In Norway the rate of unemployment was very low in 2008 and remained at a reasonably low level throughout the whole period 2008 to 2016. The movement of employment abroad was also at a lower level compared to other Nordic countries. Most of the employment lost was in Manufacturing.

The level of employment showed a decline in the first two years after 2008, then rising and peaking in 2014 - before the oil crisis led to a drop later this year. Due to the large decline in oil prices from 2014-2015, Norway lost 25.000 employees from 2013 to 2015 in the oil industry and industry providing services to the oil industry, thus leading to increased unemployment in parts of Norway <sup>12</sup>.

Figure 5.1 **Number of scale-ups 2008-2016 in the non-financial business economy broken down by activity grouping**



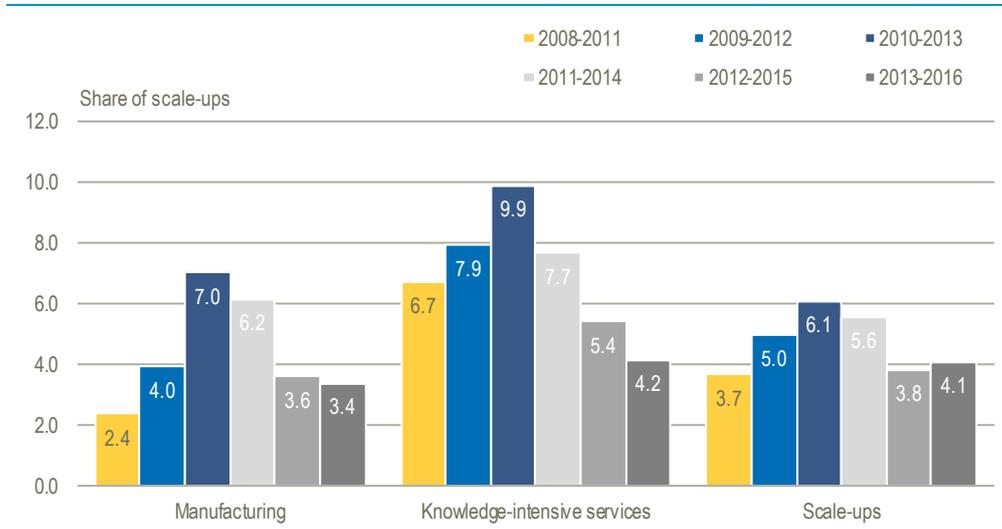
The number of scale-ups in Norway differed widely in the period 2008-2016. In the three first growth periods (2008-2011 to 2010-2013) the number of scale-ups grew; followed by a decrease for two periods; and then growing again in the last period (2013-2016), see figure 5.1. This rise and fall tendency shown in the Norwegian figures are coincide with the movement in the oil price. The collapse in the oil price had considerable impact on the Norwegian growth. All in all, the number of scale-ups grew by 20%, from 502 to 602 enterprises from the first to the last growth period.

Manufacturing accounted for 13% of all scale-ups in the first growth period, and 14% in the last growth period. In the intervening period Manufacturing surged, and accounted to 21% of the scale-ups (2010-2013). Both the number and share of scale-ups in Knowledge-intensive services dropped during the period examined, see Box 3 for definition. Starting from 86 scale-ups in 2008-2011 and ending at 66 in 2013-2016. The group Other activities, which also is the largest group throughout the period, grew slightly during the period examined, accounting for 70 % of the scale-ups in 2008-2011 and 75% in the last period

<sup>12</sup><https://www.ssb.no/forskning/makrookonomi/makrookonomiske-analyser/25-000-faerre-sysselsatte-knyttet-til-petroleumsnaeringen>)

(2013-2016). The largest number of scale-ups can be found in Wholesale and retail trade and Construction (both part of Other activities) with 110 and 108 scale-ups respectively in the last period.

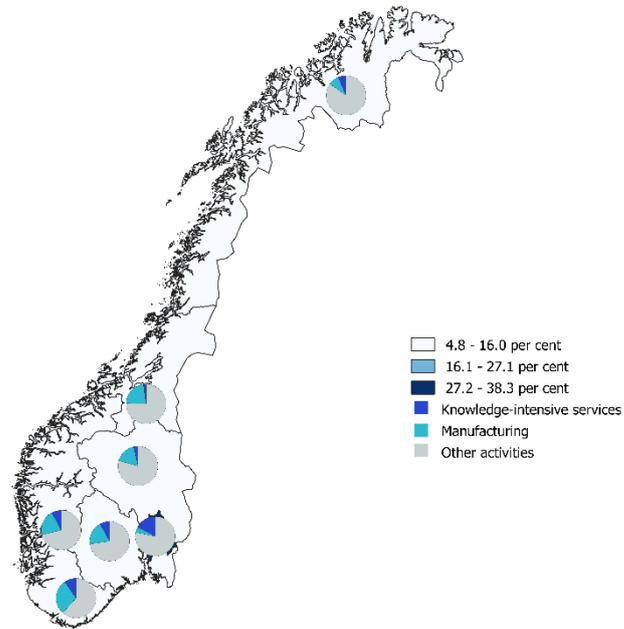
**Figure 5.2** Share of scale-ups of total stock of enterprises with 10 or more employees (FTE) and an annual turnover of 2 million EUR or more in the non-financial business economy, start year of the growth period



When comparing the share of scale-ups to the total number of existing enterprises with 10 full time equivalent number of employees (FTE) and 2 million EUR in turnover, a similar trend as for the number of scale-ups. The share of scale-ups within Manufacturing increased most evidently, accounting to 2.4% of the relevant enterprises in (2008-2011); peaking at a share of 7% in (2010-2013) and thereafter falling to 3.4 in 2013-2016. The decrease in scale-ups for Norway is most likely tied to the fall in the oil price in 2014, which had an evident effect on the Norwegian economy.

Knowledge-intense services seems to have been even harder hit by the decrease in the oil price. Enterprises here constituted 6.7% in (2008-2011); peaking at 9.9 in (2010-2013) and then continuously falling, ending at a share of 4.2% of the relevant enterprises with 10 FTE and 2 million EUR in turnover.

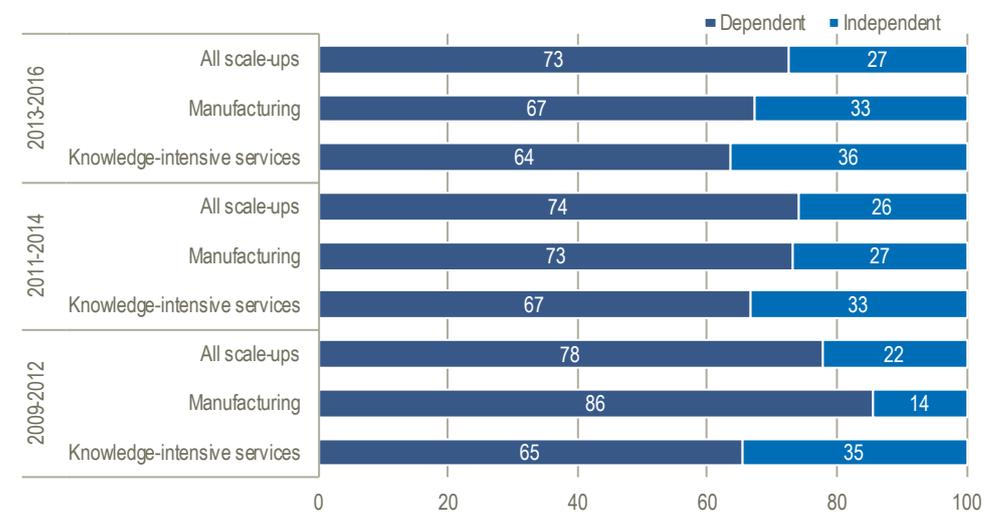
Map: The base map shows the share of all scale-ups (2013-2016) by region. The pie charts show the regional distribution of scale-ups by activity. Activity being broken down by the categories Knowledge-intensive services (note: activities explained), Manufacturing and Other activities, see Box 3 for definition.



The capital region of Oslo and Akershus contains the highest share of scale-ups, see Map 1.1. In the growth period (2013-2016) almost 40% of the scale-ups were located here. The second place is shared by West-Norway and South-East Norway, both regions containing 15% of the scale-ups. The rest of the regions hold between 5 and 12% of the collective number of scale-ups.

When looking at the scale-ups by activity there are some interesting findings. Relatively few of the scale-ups in the capital area are in Manufacturing (pie charts). The majority of the scale-ups are, as in all other regions, in Other activities. The capital region also has the largest share of Knowledge-intensive services of all the regions. In the other regions, except for Northern-Norway, Manufacturing is the second largest category, ranging from 17 to 29% of the scale-ups in the region.

Figure 5.3 Scale-ups broken down by group relation, start year of the growth period



To better understand the performance of scale-ups, we have analysed these by group dependency. Scale-ups are either independent enterprises or part of a group (here called dependent enterprises) and thus part of a larger organization of enterprises which might have a certain division of labour.

Close to 75% of all scale-ups are dependent and part of an enterprise group in 2013-2016. This is a decrease of 5 percentage points compared to first period (2009-2012), when 78% belonged to an enterprise group, see Figure 5.3.

The same trend is even more evident among Manufacturing enterprises. Of these enterprises 86% were dependent in 2009-2012. In 2013-2016 this had decreased to 67%, 19 percentage points less than in the first period. The share of dependent scale-ups within Knowledge-intensive services was stable in the examined period, around 65% dependent enterprises.

Figure 5.4 Change in ownership of scale-ups. 2008 (start year) compared to 2016

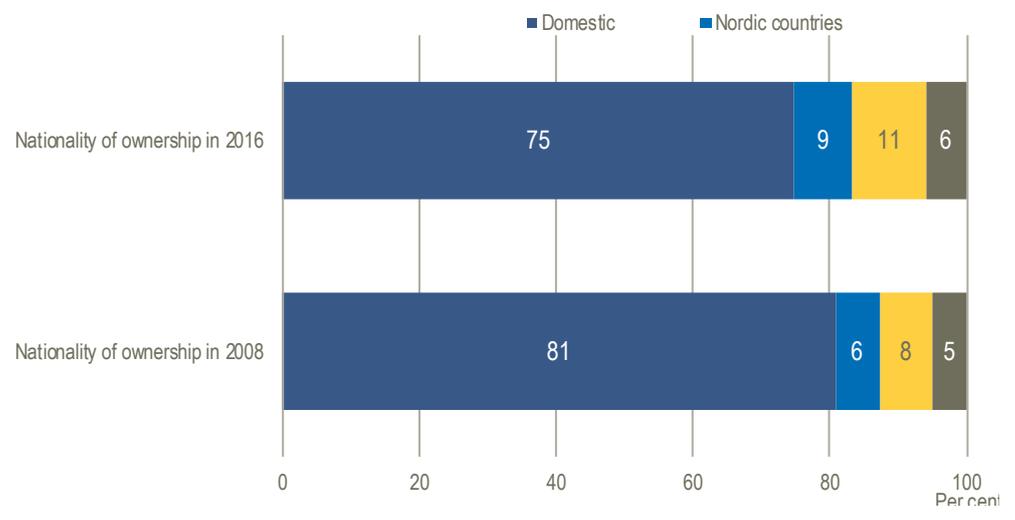
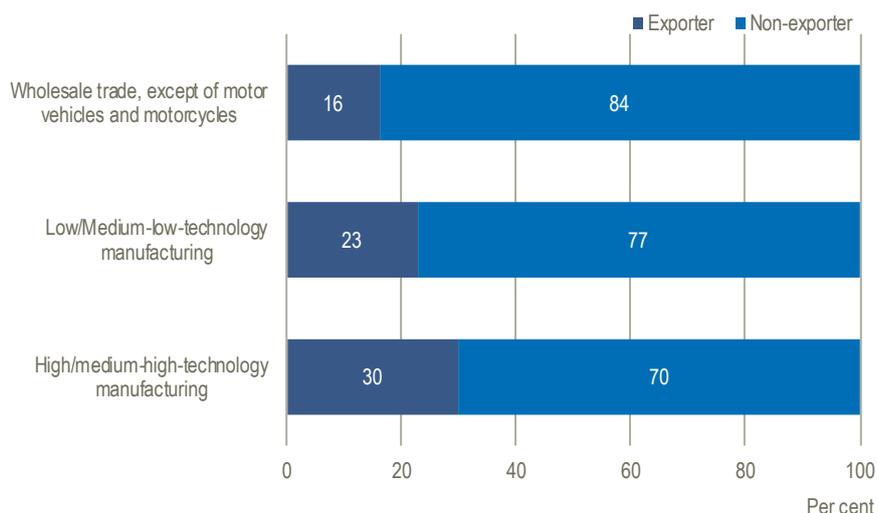


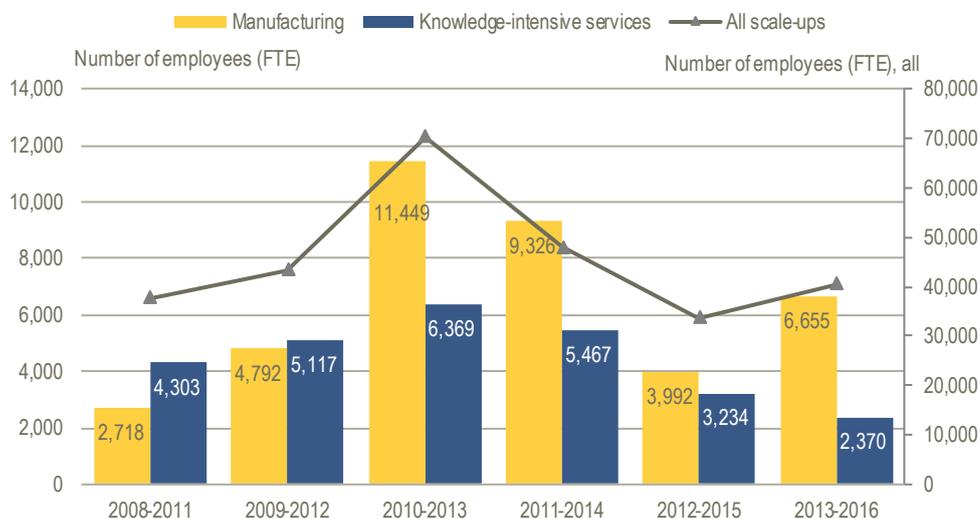
Figure 5.4 shows to which degree scale-up enterprises are investment objects for foreign investors. Of the scale-ups from the growth period 2008-2011 still existing in 2016, a larger share had international ownership in 2016 (26%) than in 2008 (19%). Other Nordic countries and the EU member states excluding the Nordic ones both grew by 3 percentage points. Countries from the Rest of the world increased marginally by only 1 percentage point.

Figure 5.5 Share of scale-ups within Wholesale and Manufacturing being goods exporter, start year of the growth period 2013-2016



Norwegian scale-ups are not especially dependent on exporting of goods. Of the different groups shown in figure 5.5, export is most frequent among High/medium high technology Manufacturing and Low/medium low technology Manufacturing enterprises. In these groups, 30% and 23% respectively of the scale-ups have export. The access to export markets is of even less importance for scale-ups within Wholesale where 16% of the scale-ups were exporters of goods.

Figure 5.6 Employment growth (FTE) by scale-ups by end year of growth period



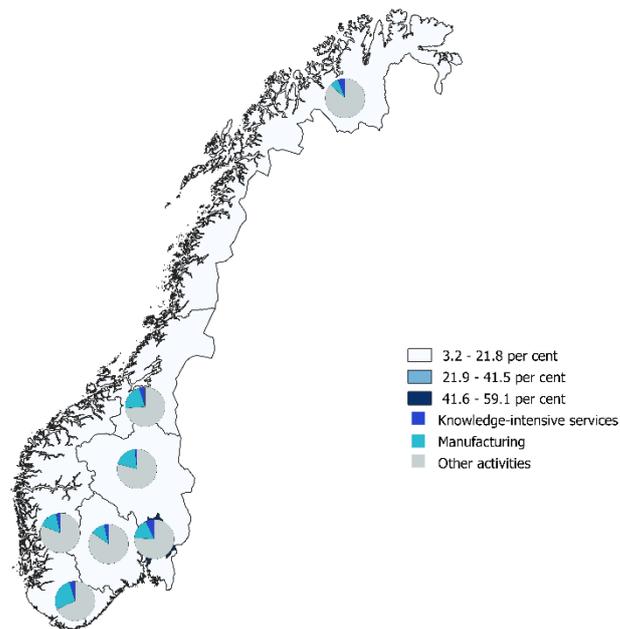
The highest number of employment created by scale-up enterprises occurred from 2010 to 2013, when 70,000 employees (FTE) were created, see Figure 5.6. In comparison, employment creation was around 40,000 both in the start (2008-2011) and end (2013-2016) of the examined period. The peak in (2010-2013) and the following fall in employment creation afterwards is most likely caused by the collapse in the oil price which has affected the Norwegian economy considerably

For the two first periods the employment creation was quite similar for both Manufacturing and Knowledge-intensive services, but in 2010-2013 12,000 employees (FTE) were created

in Manufacturing. This is twice as high as in Knowledge-intensive services. Also in the growth periods 2011-2014 and in 2013-2016 employment creation were considerable higher within Manufacturing.

Map: The base map shows the regional share of scale-ups employment growth (2013-2016). The pie charts show the regional employment growth distribution the activity of the scale-ups. Activity broken down by the categories Knowledge-intensive services (note: activities explained), Manufacturing and Other activities, see Box 3 for definition

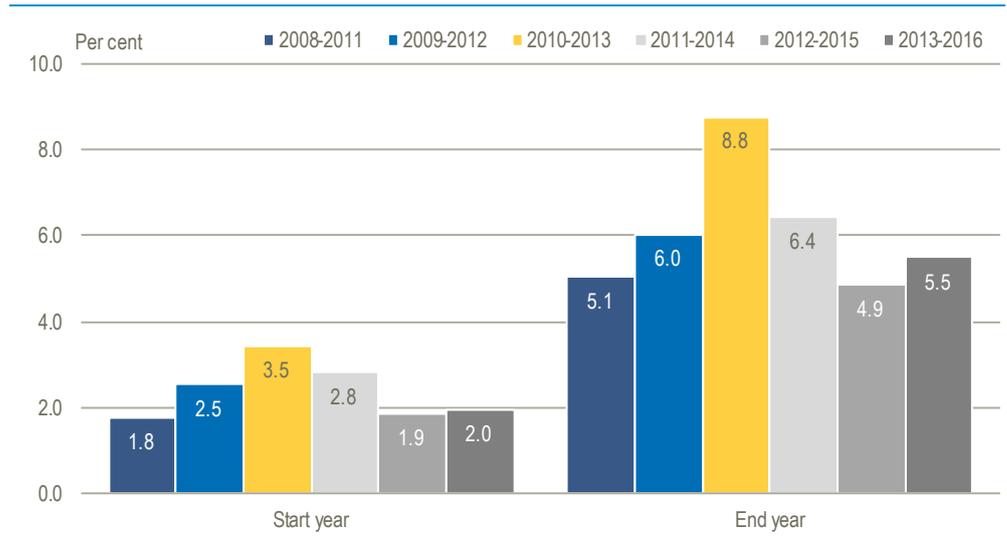
Map 5.2 Employment growth by scale-ups 2013-2016 broken down by regions



Almost 60% of the employment growth within scale-ups occurred in 2013-2016 was located in the region Oslo and Akershus. As such, the share of employment created in the region is considerably larger than the region's share of scale-ups, see Map 5.2. The three regions South-, South/East- and West-Norway, all shared a similar large part of the employment growth with approximately 10%.

Other activities is dominating the employment growth. This applies for all regions. At the other extreme, Knowledge-intensive services is the group attributing the least to employment creation in all regions. Knowledge-intensive services show the largest share in the capital region of Oslo. Manufacturing has a considerable employment creation in all regions, but is largest in South-Norway.

Figure 5.7 Employment (FTE) in scale-ups as share of total employment (FTE) in the non-financial business economy in the start and end year of the growth period



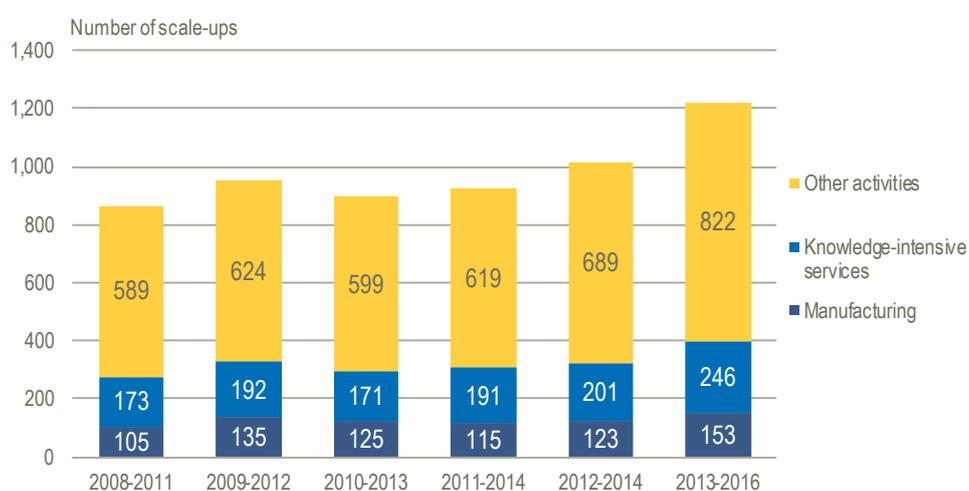
The importance of scale-ups for the Norwegian economy measured by employment in scale-ups as share of total employment in the non-financial business economy has been rising for the first part of the period and then falling, see Figure 5.7. By the end of the first growth period ending 2011, the scale-up enterprises constituted 5.1% of the total employment in the non-financial business economy. In 2016, this share had risen marginally to 5.5%, but in the growth period 2010-2013 the share peaked with 8.8% of total employment in the non-financial business economy.

## 6. Sweden

Sweden as a small open economy - as the other Nordic countries - was hugely influenced by the economic crises, especially influencing Swedish exports and the performance of the enterprises engaged in exports. Further challenges for employment growth in Sweden have partly been the movement of employments from Swedish enterprises, mainly within manufacturing, to abroad. Additionally restructuring and consolidation has in a first instance hampered employment growth. However, cost efficiency seeking factors such as outsourcing and digitalisation have also improved the competitiveness of Swedish enterprises and supported not only economic but also employment growth.

Recent analysis has shown that the employment growth in the non-financial private sector in the period 2009-2016 has taken place in the micro, small and medium sized enterprises while the largest enterprises has had a decline in employment in the same period<sup>13</sup>.

Figure 6.1 Number of scale-ups 2008-2016 in the non-financial business economy broken down by activity grouping

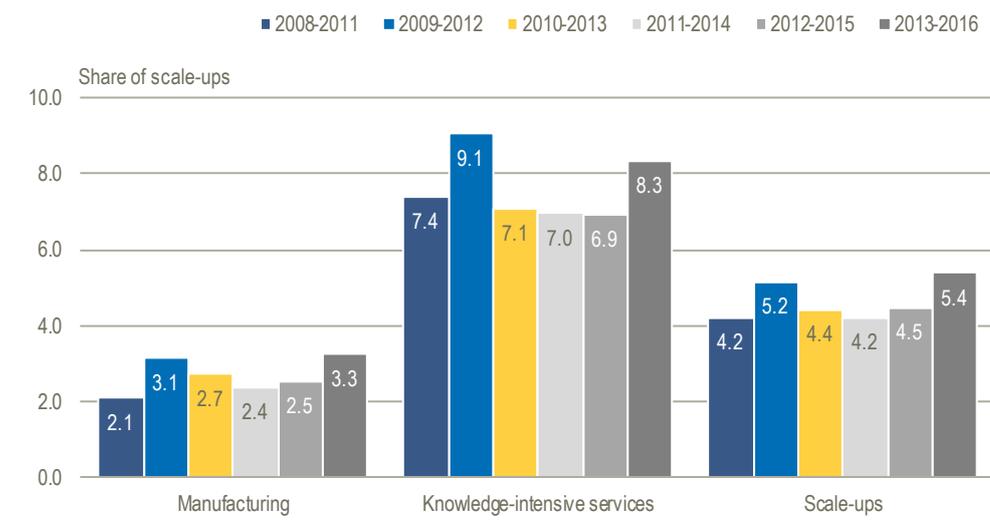


Sweden experienced growth in the number of scale-ups in the period 2008 to 2016; from 867 enterprises in the first growth period (2008-2011), to 1,221 in the last growth period (2013-2016), see Figure 6.1. Thus, the number of scale-ups in Sweden increased more than 40%. Scale-ups in Manufacturing grew with nearly 46%, from 105 enterprises in the period 2008-2001 to 153 in the period 2013-2016. In addition, scale-ups in Knowledge-intensive services grew with 42% or 73 enterprises from the first to the last growth period, see Box 3 for definition.

Knowledge-intensive services account for around 20% of all scale-ups, in both the first and last growth period, whereas the share of scale-ups in Manufacturing was around 12% of all scale-ups in both the first and the last growth period. The largest number of scale-ups can be found in Wholesale and retail trade and Construction (both being part of Other activities) with 589 and 822 scale-ups respectively, in the last growth period.

<sup>13</sup> <https://www.scb.se/sv/Hitta-statistik/Publiceringskalender/Visa-detaljrad-information/?publobjid=12330>

Figure 6.2 Share of scale-ups of total stock of enterprises with 10 or more employees (FTE) and an annual turnover of 2 million EUR or more in the non-financial business economy, start year of the growth period

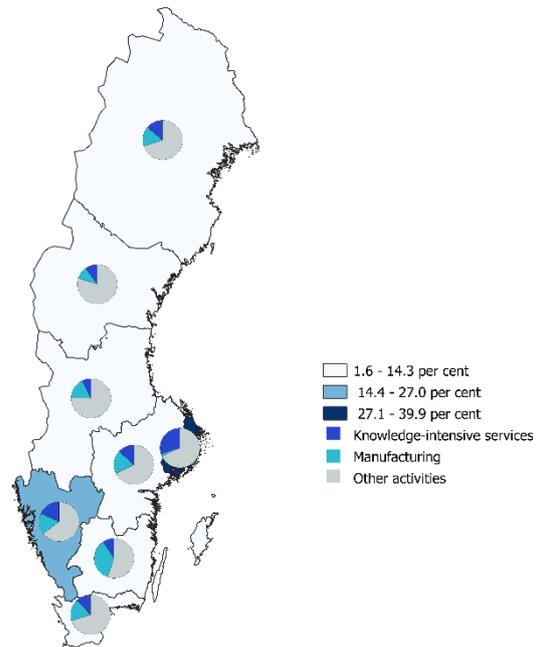


There is, not only, an absolute growth in the number of scale-ups in Sweden, but also an increasing share of the total number of existing enterprises with 10 full time equivalent number of employees (FTE) and 2 million EUR in turnover that become scale-ups, see Figure 6.2. The share of scale-ups rising from around 4% (2008-2011) to little more than 5% (2013-2016).

Within Manufacturing the share of scale-ups grew from around 2% in the first growth period to just above 3% in the last. A similar development is found for enterprises within Knowledge-intensive services. In the growth period from 2008-2011 little more than 7% of the enterprises became scale-ups. The share was slightly more than 8% for the growth period 2013-2016.

Map: The base map shows the share of all scale-ups (2013-2016) by region. The pie charts show the regional distribution of scale-ups by activity. Activity being broken down by the categories Knowledge-intensive services, Manufacturing and other activities, see Box 3 for definition.

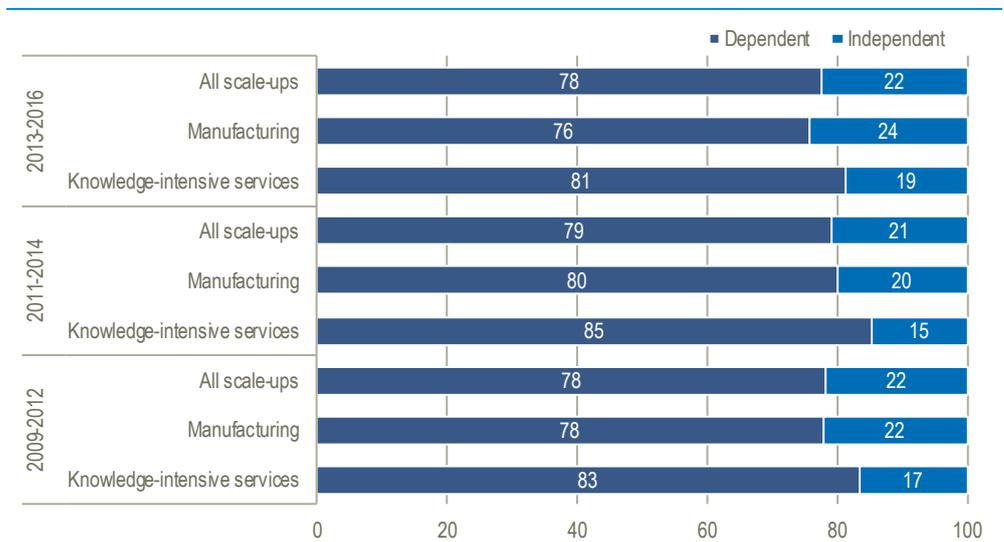
Map 6.1 Scale-ups broken down by region and activity groupings in the start year of the growth period. 2013-2016



The largest share of scale-ups is located in the region of Stockholm see Map 6.1. The region holds 40% of all scale-ups from the growth period 2013-2016. In second place is the region of West Sweden. The regions Småland and the Island, East Middle Sweden and North Sweden are classified within the range 2 to 16% of the collective number of scale-ups.

The regional distribution of scale-ups by activity shows differences but also similarities. The share of scale-ups in Manufacturing in Småland and the Island is disproportionately large compared to the other regions; the same goes for Knowledge-intensive services in the region of Stockholm, see Map 6.1 (pie charts). Most glaring is the high share of scale-ups in the category Other activities. More than half of all scale-ups in all regions are within Other activities and most pronounced in the regions Middle Norrland and North Middle Sweden (above 75%).

Figure 6.3 Scale-ups broken down by group relation, start year of the growth period

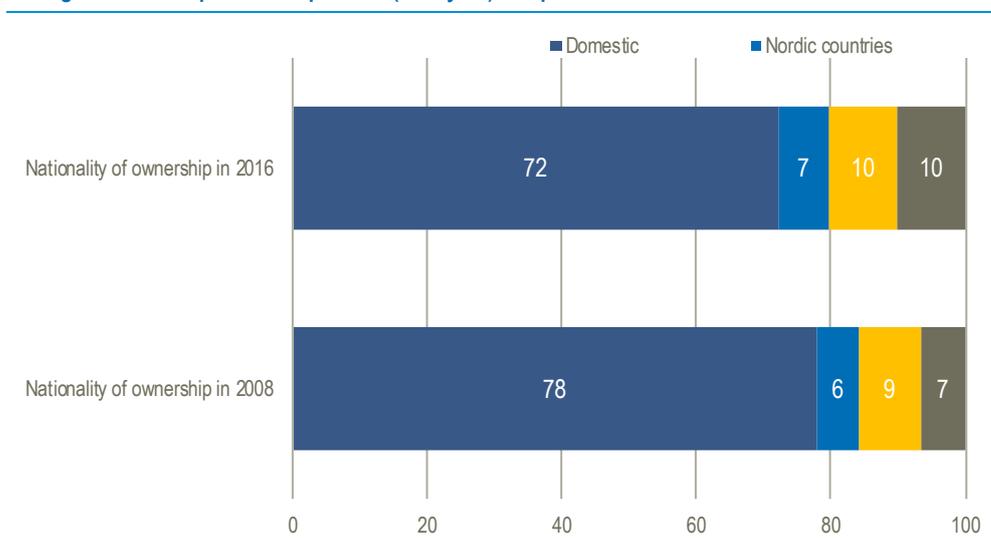


In order to better understand the performance of the scale-up enterprises, these are analysed by group dependency. Scale-ups are either independent enterprises or enterprises being part of a group (here called dependent enterprises) and thus part of a larger organization of enterprises, which might have a certain division of labour among the affiliates.

78% of all Swedish based scale-ups are part of an enterprise group in the start year of the growth period 2013-2016. The share is fairly stable as compared to the preceding growth periods, see Figure 6.3.

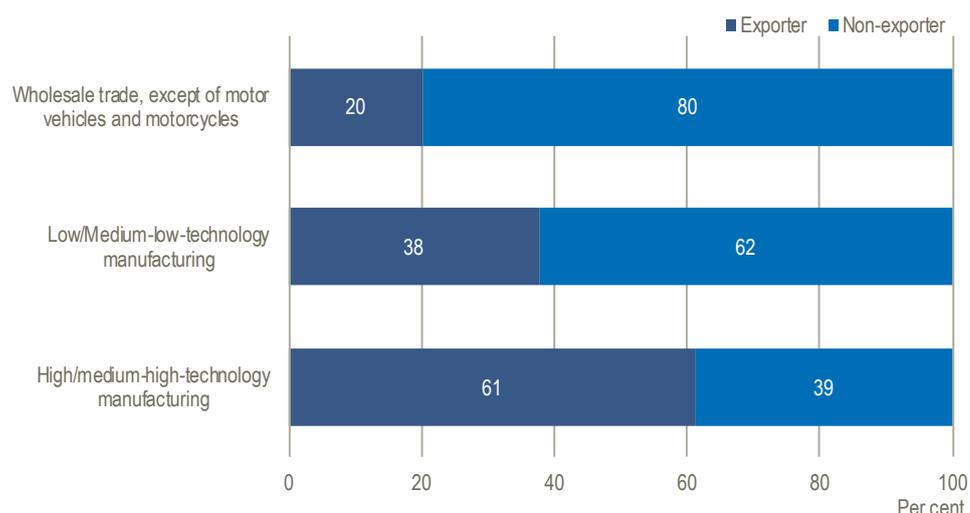
The dependent scale-up enterprises within Knowledge-intensive services accounted for 83% in 2009-2012 and 81% in the last growth period ending 2016. However, enterprises within this category still have a higher share of dependent enterprises than Manufacturing scale-ups, 78% in 2009-2012 and 76% in 2013-2016, and also higher than the average share for all scale-up enterprises.

Figure 6.4 Change in ownership of scale-ups. 2008 (start year) compared to 2016



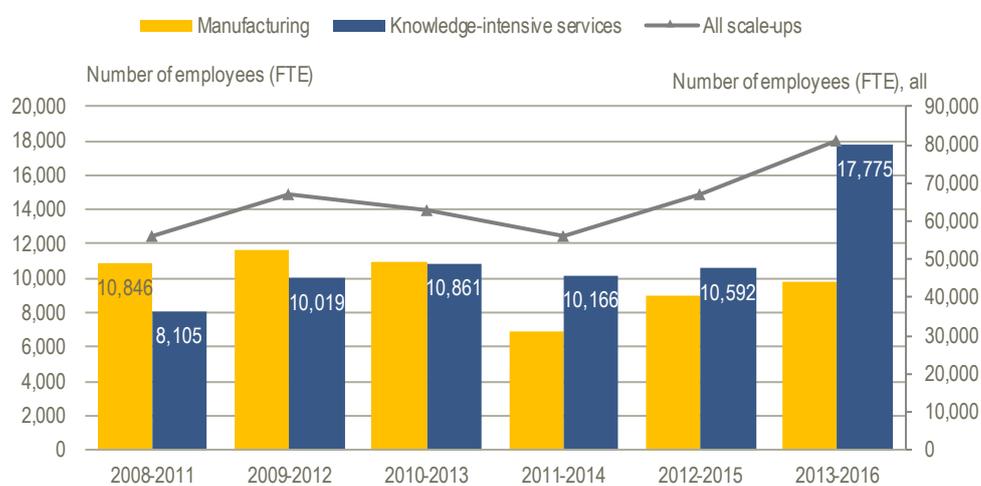
Furthermore, the analysis outline to which extent scale-up enterprises are investment objects for foreign investors. Of the scale-ups from the growth period 2008-2011 still existing in 2016 (in total 734 enterprises) a larger share had foreign ownership in 2016 (27%) than in 2008 (22%), see Figure 6.4. The largest increase in percentage point is found for ownership from other countries than the Nordic and other EU countries (Rest of the world) with an increase of 3 percentage points in 2016; from 7 to 10% of all surviving scale-ups. In 2016, 7% of the surviving scale-ups were controlled by enterprises owned by other Nordic countries.

Figure 6.5 Share of scale-ups within Wholesale and Manufacturing being goods exporter, start year of the growth period 2013-2016



Especially for Nordic manufacturing enterprises access to exports markets are crucial for expansion, due to small domestic markets<sup>14</sup>. This is illustrated by the sizeable share of Manufacturing scale-ups being exporters, especially high/medium high technology Manufacturing shows a large share of exporters as more than 60% of the enterprises are exporters, see Figure 6.5. In comparison, the direct access to export markets seems to be of less importance for scale-ups within low/medium-low Manufacturing, as only 38% of these are exporters of goods.

Figure 6.6 Employment growth (FTE) by scale-ups by end year of growth period



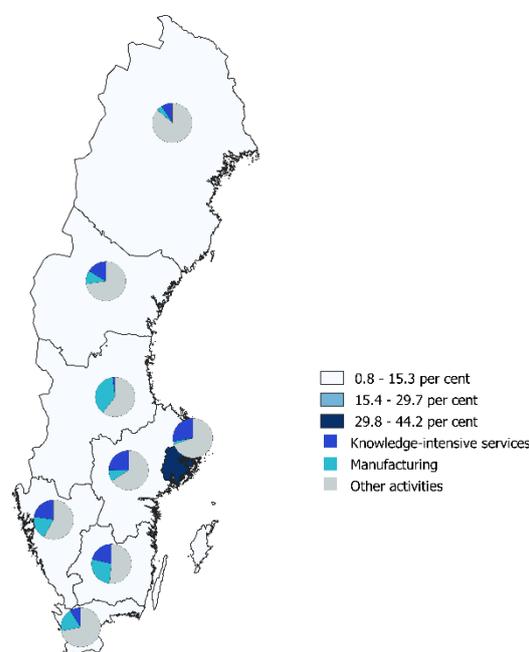
The scale-up enterprises increased their total employment with nearly 81,000 employees (FTE) in the period 2013-2016, see Figure 6.6. Thus, employment has increased by approximately 25,000 during the observed period, from 56,000 employees (FTE) in the first growth period. This development is not just a reflection of more scale-up, but also of moderate economic resurgence since 2013 following the crisis years.

<sup>14</sup> Statistics Denmark, OECD et al: Nordic Countries in Global Value Chains (2017)  
<https://www.dst.dk/Site/Dst/Udgivelses/GetPubFile.aspx?id=28140&sid=nordglobchains>

In general, the Knowledge-intensive services start-ups created more employment than Manufacturing during the latter periods 2011 and onwards. Most employment within the Knowledge-intensive services scale-ups were established in the growth period 2013-2016 (17,800 employees, FTE) and within Manufacturing in the 2009-2012 growth period (11,600 employees, FTE).

Map: The base map shows the regional share of scale-ups employment growth (2013-2016). The pie charts show the regional employment growth distribution the activity of the scale-ups. Activity broken down by the categories Knowledge-intensive services, Manufacturing and Other activities, see Box 3 for definition.

Map 6.2 Employment growth by scale-ups 2013-2016 broken down by regions

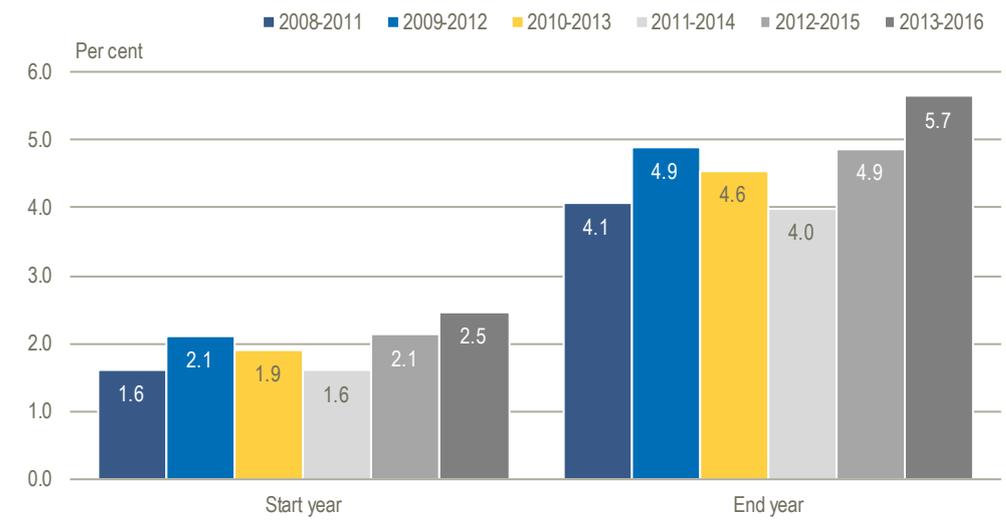


About 44% of the employment growth in scale-ups, which occurred from 2013-2016 were located in the region of Stockholm. As such, the share of employment created in the region is approximately same as the region's share of scale-ups, see Map 1.2. The region of West Sweden came second, though this as well as the regions South Sweden, Småland and the Island and North Sweden had between 1 to 15% of the collective scale-up employment growth.

Other activities have the largest part of the employment growth in all regions. Other activities are very dominant the northern part of Sweden, whereas Manufacturing enterprises share are most noticeable in North Middle Sweden and Småland and the Island, while both Manufacturing and Knowledge-intensive services account for a fairly large share of the employment growth in the region of Småland and the Island.

Looking exclusively at regions where Knowledge-intensive services are prevalent, the Capital region of Stockholm and the region of East Middle Sweden show the highest share of the employment growth coming from Knowledge-intensive services.

Figure 6.7 Employment (FTE) in scale-ups as share of total employment (FTE) in the non-financial business economy in the start and end year of the growth period



The importance of scale-ups for the Swedish economy measured by employment in scale-ups as share of total employment in the non-financial business economy has been increasing since the first growth period, see Figure 6.7. At the end of the first growth period ending 2011, the scale-up enterprises constituted 4.1% of the total employment in the non-financial business economy while the share in 2016 has increased to 5.7%, reflecting the higher employment growth in scale-ups compared to the total enterprise population. This share is mainly noticeable as the scale-ups only account for less than 0.1% of the population of enterprises in the non-financial business economy.

## Annex:

The annex outlines the harmonised methodology applied by the Nordic statistical institutes for the project Nordic Scale-up (scalars) commissioned by Nordic Innovation. The annex is arranged as follows. First, a short introduction to the micro data linking, coherent databases and the joint syntax approach used in the project. This is followed by a listing of the variables outputted from the databases.

### Methodology

#### 1.1 Micro data linking and Nordic databases

The foundation of the project is national register databases established in each of the Nordic statistical offices containing a number of harmonised statistical variables and enterprise populations covering Structural Business Statistics, International Trade in Goods Statistics and Foreign Affiliates Statistics (FATS), see below. The databases cover all active enterprises in the non-financial business economy (NACE Rev.2 sections B to N, excl. K) for the period 2008 to 2016, the latter being the most recent year available across the Nordic countries when it comes to annual business statistics.

Core to micro data linking (MDL) is the unique enterprise ID, operating as key for identifying the same enterprises across statistical registers, e.g. Structural Business Statistics and Foreign owned enterprises (Inward Foreign Affiliates Statistics), and matching the data from the different registers. Furthermore, the ID number is used for tracking the development of individual enterprises over a period of time in order to monitor the growth rate. Thus, established register databases tailored to cross national microdata linking purposed and unique enterprise ID allows for longitudinal micro-level analysis of Nordic scale-up enterprises.

To the extent possible, the project tailored MDL databases use input data for the reference period 2008-2016 from the Structural Business Statistics, International Trade in Goods Statistics, Foreign Affiliate Statistics (Inward and Outward FATS) and the Statistical Business Register for each of the Nordic countries.

For the above sources, annual micro- level datasets are created. For the purpose of producing output smoothly yearly dataset are stored for each reference years and register included in the MDL database. These are stored locally at each NSI and identifiable data will not be exchanged.

The analysis of Nordic scale-up enterprises is based on variables (see variable description below) contained in the MDL database outlined above. First, base datasets for each year 2008-2016 are created. Following this, each base dataset are joined to corresponding data for the following years using enterprise ID as key. This ensures that the correct information is linked at a micro level. Lastly, the dataset are merged in to one master dataset that holds all country specific information needed to create additional derived variables to be used in the analysis. The approach ensures a safe and easy handling of data and variables.

Following the establishing of the master dataset, the next step is to create the variables not already included in data. This is done for all years at once due to a consistent and rational structure of the data across years. At completion, this dataset is ready to create

the output needed to analyse the structure and development of scale-up enterprises across the Nordic countries.

The last issue is the programming of tabulations showing the agreed output for analytical purposes.

## Shared syntax

One of the major benefits of the applied design and coherent MDL databases at the Nordic NSI is the possibility of applying centrally scripted SAS syntax locally at each NSI. This ensures a similar approach to the tailoring of panel data for each country and a consistent output. This methodology has been tested in previous project and, for instance, circumvents issues of different data sources being applied and errors regarding different styles of scripting statistical programs.

## Statistical variables

**Turnover:** Turnover comprises the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties. Turnover includes all duties and taxes on the goods or services invoiced by the unit with the exception of the value added type taxes (VAT). Turnover values are converted from national currencies EUR using the average yearly exchange rate set for each country, see point 5 below.

**Full Time Equivalent number of employees (FTE):** The number of employees converted into full time equivalents (FTE). Figures for the number of persons working less than the standard working time of a full-year full time worker, should be converted into full time equivalents, with regard to the working time of a full time full-year employee in the unit. It is the total hours worked divided by the average annual number of hours worked in full time employees in the reporting country.

**FTE size class:** The variable is constructed from the variable Full Time Equivalent number of employees and has the range 10-49 employees (FTE), 50-99 employees (FTE) and 100+ employees (FTE).

**Exporter:** The variable is created from the variable Exports of goods, which is as recorded in the International Trade in Goods Statistics but converted to euro using the average yearly exchange rate set for each country. An exporting enterprise is defined as one where exports account for at least 5% of the turnover in a given year and where the absolute export value is higher than 5,000 EUR.

**Ownership:** The variable is based on the variable Ultimate country of ownership as recorded in the National Business Register. The variable is recoded and are designed to be either Domestic, Nordic country, Other EU countries than the Nordic or Rest of the world.

**Affiliation:** As recorded in the Statistical Business Register. In operational terms an enterprise can be dependent belonging to an enterprise group or independent if not a part of a group.

**Activity grouping 1:** The non-financial business economy is for analytical purposes grouped into the following three activity groupings:

Knowledge-intensive services: Computer programming, consultancy and related activities (NACE Rev.2 Division 62); Information service activities (NACE Rev.2 Division 63); Financial

service activities, except insurance and pension funding (NACE Rev.2 Division 64); 69 Legal and accounting activities (NACE Rev.2 Division 69); Activities of head offices management consultancy activities (NACE Rev.2 Division 70); Architectural and engineering activities; technical testing and analysis (NACE Rev.2 Division 71); Scientific research and development (NACE Rev.2 Division 72); Advertising and market research (NACE Rev.2 Division 73); Other professional, scientific and technical activities (NACE Rev.2 Division 74)

Manufacturing: Manufacturing (NACE Rev.2 Divisions 10-33)

Other activities: Other NACE Rev. 2 Divisions included in the non-financial business economy such as Construction, Wholesale and retail trade, Transportation, Hotels and restaurants.

**Activity grouping 2:** The classification is an aggregation of the Manufacturing industries according to technological intensity (R&D expenditure/value added) and based on the Statistical classification of economic activities in the European Community (NACE) at 2-digit level. The level of R&D intensity served as a criterion of classification of economic sectors into high-technology, medium high-technology, medium low-technology and low-technology industries.

*High-technology industries:* Aircraft and spacecraft, Pharmaceuticals, Office, accounting and computing machinery, Radio, TV and communications equipment and Medical, precision and optical instruments

*Medium-high-technology industries:* Electrical machinery and apparatus, n.e.c., Motor vehicles, trailers and semi-trailers, Chemicals excluding pharmaceuticals, Railroad equipment and transport equipment, n.e.c. and Machinery and equipment, n.e.c.

*Medium-low-technology industries:* Building and repairing of ships and boats, Rubber and plastics products, Coke, refined petroleum products and nuclear fuel, Other non-metallic mineral products and Basic metals and fabricated metal products

*Low-technology industries:* Manufacturing, n.e.c.; Recycling, Wood, pulp, paper, paper products, printing and publishing, Food products, beverages and tobacco and Textiles, textile products, leather and footwear.

Source: [https://ec.europa.eu/eurostat/cache/metadata/en/htec\\_esms.htm](https://ec.europa.eu/eurostat/cache/metadata/en/htec_esms.htm)

**Region:** This variable is the regional codes used by the national statistical institutes; in this project at NUTS2 level. The NUTS classification (Nomenclature of territorial units for statistics) is a hierarchical system for dividing up the economic territory of the EU, see <https://ec.europa.eu/eurostat/web/nuts/background>

## Exchange rates

The following exchange rates have been used:

	2008	2009	2010	2011	2012	2013	2014	2015	2016
Danish krone	7.4560	7.4462	7.4473	7.4506	7.4437	7.4579	7.4548	7.4587	7.4452
Swedish krona	9.6134	10.623	9.5482	9.0287	8.7063	8.6512	9.0961	9.3548	9.4675
Icelandic krona	127.46	172.67	161.89	161.42	160.73	162.38	154.86	146.30	133.59
Norwegian krona	8.2237	8.7278	8.0043	7.7934	7.4751	7.8067	8.3544	7.9496	9.2906