European Commission

P2P Digital

Design Option Paper

Digitalisation Support to SMEs

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VÆKSTHUS HOVEDSTADSREGIONEN
tillväxt verket
bayern innovativ
Flanders State of the Art
Tehnopol

1. Content

2. Summary

This paper is the result of studying multiple initiatives that aim to improve the awareness and ability of SMEs to take advantage of digital technology in their administrative, manufacturing or sales and marketing processes.

The study was conducted by five business and innovation development centres or agencies in Belgium, Denmark, Estonia, Germany and Sweden.

The study shows that the five participating countries and regions are all dedicated to working with initiatives that address the issue of digitalization with a focus on SMEs.

Each agency has chosen initiatives that represent and are characteristic for their region or country, and these examples demonstrate a variety of mechanisms that should be taken into consideration when designing such initiatives or programs.

Studies show that SMEs are generally less digitalized than larger companies, and many of the initiatives work with financial incentives to encourage SMEs to address barriers to adopting digital technology in their operation, work processes or market relations.

Although most of the initiatives can be characterised as “voucher” programs, we have found a great variety in, for example, program size, budget, number of recipients and administrative processes.

The work in P2P Digital will result in this Design Options Paper (DOP), and we hope it can be used as a template for learning within the consortium, as well as a conduit for further communication to other business and innovation support organisations that are involved in digitalisation of SMEs.

3. Introduction

Scope of this Design Option Paper (DOP)

The overall objective of P2P Digital is to provide innovation support institutions in regions across Europe with insight into parameters upon which initiatives can be based or refined, with regards to methodologies that can increase digitalisation in small and medium sized enterprises (SMEs).

The task is to find, describe, and evaluate experiences with initiatives which activate, engage, encourage and aid SMEs to use digitalisation as a means for maintaining or increasing competitiveness, growth and jobs.

These findings will help us to make recommendations for future initiatives to consider.

In P2P Digital we will look for initiatives that aim to increase digitalisation of SMEs, not for measures that target how the innovation system can increase the number and success of ICT start-ups, "born digital's" or new digital services. The focus is on the non-digital companies rather than on ITC/digital companies.

These new companies and services play an important role in digitalisation, but the challenge we will address is how to improve the adoption of these new digital features and opportunities in established SMEs to improve productivity and competitiveness.

The digital agenda is a main element in Industry 4.0 – the so called 4th industrial revolution. In P2P Digital we will concentrate on this digital element, which means that other elements of the Industry 4.0 agenda, such as automation or materials technology, will be out of our scope.

P2P Digital will consider initiatives that relate to all SMEs, and not only SMEs in industrial or manufacturing fields.

The work in P2P Digital will result in this Design Options Paper (DOP), and we hope it can be used as a template for learning within the consortium, as well as a conduit for further communication to other business and innovation support organisations that are involved in digitalisation of SMEs.

The DOP will therefore also address the issue of design, organisation, delivery and administration of the initiatives.

Approach

The P2P Digital project used the Twinning+ model, which supports the knowledge, evaluation and transfer of good practices among agencies, and provides an opportunity to apply this experience

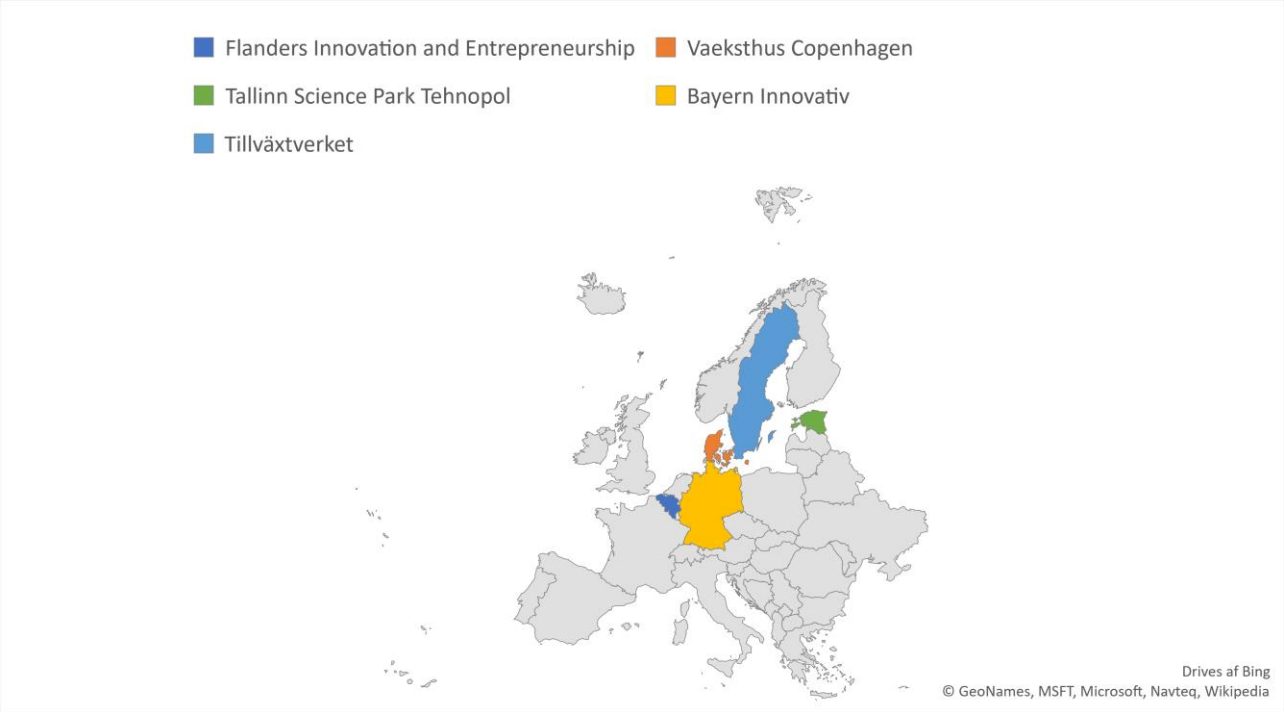
to describe, develop and test approaches to address the support challenge in a new and better way.

Using Twinning+, the partners investigate and compare existing innovation support initiatives that are relevant to, or could be made relevant to digitalisation in SMEs, by describing and evaluating digitalisation initiatives offered in the P2P Digital member regions or countries.

Twinning+ Partners in P2P Digital

The P2P Digital consortium consists of five innovation support organisations from Belgium, Estonia, Denmark, Germany and Sweden, who recognise the need for mutual learning on methods and systems to support digitalisation of SMEs.

The five organisations are from leading, innovative regions of Europe, and understand the need to provide relevant support to high-growth potential SMEs.



1. Fonden Vaeksthus Copenhagen (VHHR)

Væksthus Hovedstadsregionen / Vaeksthus Copenhagen (VHHR), is the official state-appointed innovation and business support agency for the Capital Region of Denmark and offers guidance to start-ups and businesses with growth ambitions. Vaeksthus Copenhagen is financed by the Danish Business Agency and the 29 municipalities in the Capital Region of Denmark and as a result, guidance delivered is free and independent.

The vision for Vaeksthus Copenhagen is to make the Capital Region the leading region in terms of high-growth businesses and as a result has staff specialised in innovation, financing and funding, IPR, internationalisation, management and strategy, high-tech start-ups.

The organisation cooperates with a very wide network of innovation and business support organisations, including banks, financial institutions, investors, accountants and law firms, Danish Trade Council and several other providers of public service to businesses.

VHHR is located in Symbion, the largest business incubator in the region and home to around 250 highly innovative businesses.

VHHR provides innovation management support services to SMEs in the region, via a combination of internal and external staff using a wide variety of tools, including the Commission-supported IMP3rove and the Irish Innovation Health Check.

VHHR is the coordinator of the consortium and is represented by

- Steen Lohse

2. Tillväxtverket (TVV) SE

Tillväxtverket, The Swedish Agency for Economic and Regional Growth, is a government agency under the Ministry of Enterprise and Innovation.

The organisation promotes economic growth in Sweden by increasing the competitiveness of companies and works to strengthen competitiveness by facilitating entrepreneurship and creating attractive environments for companies in the region.

The vision is more companies in Sweden that want to grow and have the capabilities and courage to do so, and knowledge, networks and funding are the main tools to achieve it.

Some efforts are targeted directly to businesses or aspiring entrepreneurs. Other initiatives are aimed at developing the general terms and conditions that affect entrepreneurship.

Based on their knowledge of the needs of companies and of Swedish regions, they build networks to facilitate cooperation and finance efforts to boost economic growth.

The biggest single task is helping to ensure that EU funds are invested in projects that promote regional growth and employment.

The agency has approximately 430 employees and has offices in Arjeplog, Gävle, Gothenburg, Jönköping, Luleå, Malmö, Örebro, Östersund and in Stockholm (headquarters).

Tillväxtverket has been given the assignment from the Swedish government to create and form solutions to help SMEs with the challenges their lack of digitalisation brings, both in the present and the future.

Since 2017 SMEs can apply for vouchers to, for example, buy consultancy services to help them create and shape digital strategies.

A number of different types of programmes have also been created for start-ups, industry and SMEs in general to boost and strategically lift digitalisation as a key topic for business development.

Tillväxtverket's director general is Gunilla Nordlöf, who also has the position of SME Envoy for Digitalisation.

Tillväxtverket is represented by

- Ellen Vidfamne Mildaeus
- Karin Silfversten

3. Bayern Innovativ (BI) DE

Bayern Innovativ GmbH is Bavaria's organisation for innovation, technology and knowledge transfer.

It supports players from industry and science along all stages of the value chain by providing customised services to boost innovation dynamics. The goal is to build an ecosystem of dynamic networks to accelerate the innovation process.

Bayern Innovativ operates at the interfaces of various industries and technologies. In addition to the organisation's own clusters Energy Technology, Automotive and New Materials, activities focus on "cross-clustering" with other Bavarian clusters and networking with key players in the Bavarian innovation landscape.

Digitalisation enjoys a strong focus in Bavarian technology policies. Bayern Innovativ's clusters and networks support digitisation processes in all arenas, with a particular focus on SMEs.

Bayern Innovativ has the additional mission of managing synergies with all relevant institutions in Bavaria in this field. The Bavarian Research and Development Agency (BayFIA), the umbrella organisation under which BI operates, is a one-stop shop for all innovation projects, including funding tools for both research and industry, research alliances, and patents.

In addition, BI is a partner in the Enterprise Europe Network (EEN), offering support services to SMEs and research institutions in Bavaria, to help market their technologies across Europe and to find European technology partners. The International Innovation Networks unit of BI also offers tools to help optimise innovation capacities for SMEs.

Bayern Innovativ has ca. 125 employees and an annual turnover of over 16 million Euros.

Bayern Innovativ is represented by

- Kimberley Parsons Trommler, Project Manager Automotive / Digitalisation
- Holger Czuday, Project Manager Automotive / Internationalisation

4. Flanders Innovation and Entrepreneurship (VLAIO) Vlaams Geweest (VLO) BE

The Agentschap Innoveren en Ondernemen (Flanders Innovation and Entrepreneurship – VLAIO) is a government agency, tasked with implementing the economic, innovation and enterprise policy in Flanders. It helps companies with the initiation of their activities, the growth and continuity of their business, as well as with the search for the right location, information on permits, financing, investments in innovation and ecological technologies, and other topics. As of 2016, the VLAIO acts as the one-stop-shop for companies, hence the economic and innovation support to benefit businesses in Flanders.

The VLAIO also hosts the Enterprise Europe Network (EEN) Flanders, and acts as the managing authority for the EU ERDF calls and support in the Flemish Region.

In short, VLAIO manages all economic and innovation support for companies located within or active within the Flemish Region.

VLAIO assists companies, research centres and knowledge centres in realizing their research and development projects by offering funding, advice and a network of potential partners in Flanders and abroad.

VLAIO supports cluster development in Flanders and networks for digitising manufacturing (Industry 4.0 program).

VLAIO has over 350 staff and operation resources of 30 Million euro and in 2016, assisted in the provision of 513 Million euro of grants.

Flanders Innovation and Entrepreneurship is represented by

- Dieter Goossens, Head of the SME-Wallet team, VLAIO
- Caroline Pollet, Service Manager, VLAIO
- Lutgart Spaepen, Director Enterprise Europe Network Flanders

5. Tallinn Science Park Tehnopol (THE) EE

Tallinn Science Park Tehnopol is a science and business campus which aims to advance technology-based entrepreneurship in Estonia, bring scientists and entrepreneurs together and provide suitable conditions and a suitable environment for the realisation of breakthrough business ideas.

Many projects that have gone on to become sources of wider prosperity and economic growth have been launched in science parks around the world.

As early as 1991 there were attempts to start a business district adhering to the principles of a science park close to Tallinn University of Technology (TUT), but the plan took off only in 2003, when the Republic of Estonia, TUT and the City of Tallinn founded the Tallinn Technology Park development foundation, known today as Tallinn Science Park Tehnopol.

The Science Park also has some striking success stories to show – businesses that have started out at the site (e.g. Skype, Defendec, Toggl and FlyDog) and have become strong companies.

Tehnopol supports the adoption of promising new technologies and accelerates the growth of technology-based companies. It focuses on 3 areas: health-tech (meaning health IT), greentech and IT in general, including smart city solutions. There are currently over 200 companies operating in the park, plus an average of 35 in the Start-Up Incubator.

Companies in the park employ over 3.500 employees and there are an additional 14.000 students and 1.300 scientist affiliated with the centre.

Tehnopol is represented by

- Anu Puusaag, Head of Business Unit, ICT Sectoral Manager
- Kadi Villers, Head of Development Projects

4. Why Digitalisation Initiatives?

Digitalisation is certainly not a new topic – it's been on-going for decades. However, the subject seems to be more in focus than ever. In this section we discuss why there is so much attention and why there's a focus on digitalisation in SMEs.

Digitalisation will drive productivity

A report by BDI in 2015[1] suggests that European industry can add an additional potential value of 1,25 trillion euros over the next 10 years by taking full advantage of the effect of digitisation. If they fail to do so, the potential losses could be equivalent to 10% of the European industrial base.

So, there is an important reason to enable all sectors to be part of and contribute to this value creation.

New technologies emerge and provide new opportunities

Digitalisation is an integral and vital part of the future Industry 4.0, which will be driven by a new generation of information technologies such as Internet of Things (IoT), cloud computing, big data and data analytics, robotics, artificial intelligence, machine learning, virtual reality and 3D printing.

This will enable smart, flexible, automated and autonomous production as a basis for re-industrialisation, but will also change value chains and introduce new potential ways to add value, thus providing opportunities not only for improving existing processes, but also for creating entirely new business models.

The opportunities appear at an increased pace which challenge SMEs, especially in terms of keeping up, and being able to take advantage of the opportunities in the digital transformation.

While representing opportunities for some, new technologies may also challenge existing business models and jobs, forcing stakeholders to adopt and integrate new technologies or change their business model entirely.

If Europe wants to stay on top – we must be the best at taking advantage of digitalisation

While Europe has or had leading positions in digital sectors such as electronics for automotive, security and energy markets, telecommunication equipment, business software, and laser and sensor technologies, other parts of the world are catching up.

[1] The Digital Transformation of Industry, Bundesverband der Deuchen Industrie e.V. 2015 (https://bdi.eu/media/user_upload/Digital_Transformation.pdf)

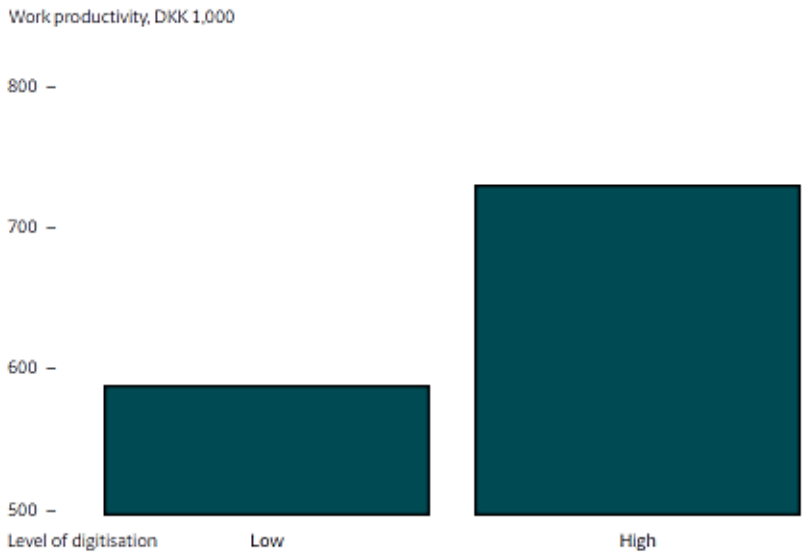
Even a position of technological leadership and a 30 % worldwide market share did not guarantee Nokia continued success in the mobile phone market when challenged by new digitised business models.

The ability to take advantage of digitalisation will depend on the degree of digitalisation in sectors, companies and organisations. The higher the share of stakeholders who are highly digitized and the higher the degree of digitisation within those shareholders, the better the conditions to take advantage of digitalisation and to boost competitiveness in Europe.

Some industries and sectors and regions are less digitised

Studies show that companies that have a high degree of digitalisation are more productive than companies with a lower degree. This finding leads to the conclusion that if the less-digitised companies increase their level of digitalisation, they will potentially increase their productivity and competitiveness.

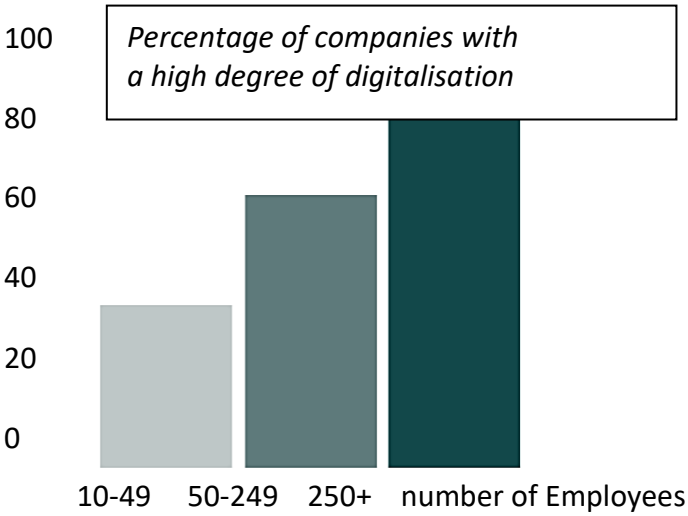
The following graph from a Danish report illustrates lower productivity in companies that have a lower level of digitalisation.[2]



[2] Strategy for Denmark's Digital Growth (https://eng.em.dk/publications/2018/april/strategy-for-denmarks-digital-growth/)

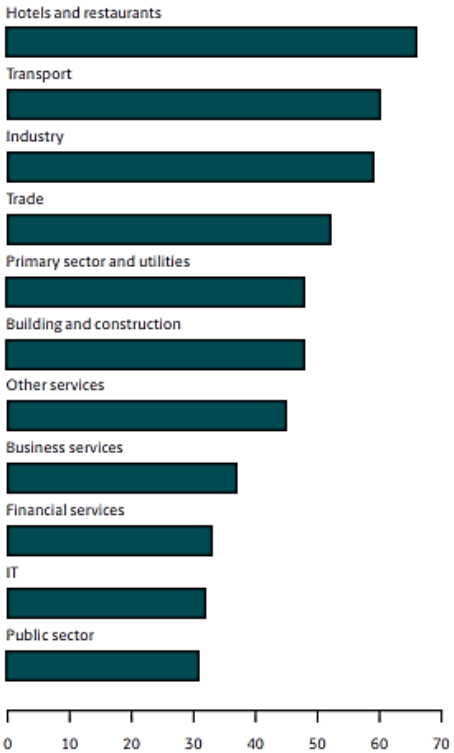
The same report shows that the degree of digitalisation is lower in SMEs[3]

Fig. SMEs are less digitised than larger companies, measured on 12 technologies[4]



The chart shows the proportion of business that are highly digitised (use at least 7 of 12 digital technologies).

Finally, from this report we can observe which Danish sectors are less digitised compared to those who are most digitised. [5]



Report: Automation potential is defined as the proportion of work activities that could be automated using existing technologies.

Source:
McKinsey & Company, 2017

[3],[5] Strategy for Denmark's Digital Growth (https://eng.em.dk/publications/2018/april/strategy-for-denmarks-digital-growth/)

[4] See Appendix Enclosure 2, EU Digital Intensity Index 2017

In addition to the reasons listed above, it is also logical to promote digitalisation because of the very large number of SMEs and the number of people they employ. According to the Annual Report on European SMEs[6], 99.8% of all non-financial companies in the EU are SMEs, who together employ 66,4% of all employees (95 million people) and who generate 56.8 % of the added value.

Number of SMEs and large enterprises in the EU-28 non-financial business sector in 2017 and their value added and employment

	Micro SMEs	Small SMEs	Medium-sized SMEs	All SMEs	Large enterprises	All enterprises
Enterprises						
Number	22,830,944	1,420,693	231,857	24,483,496	46,547	24,530,050
%	93.1%	5.8%	0.9%	99.8%	0.2%	100.0%
Value added						
Value in € (trillion)	1,525.6	1,292.1	1,343.0	4,160.7	3,167.9	7,328.1
%	20.8%	17.6%	18.3%	56.8%	43.2%	100.0%
Employment						
Number (in 000)	41,980,528	28,582,254	24,201,840	94,764,624	47,933,208	142,697,824
%	29.4%	20.0%	17.0%	66.4%	33.6%	100.0%

[6] European Commission, Annual Report on European SMEs 2017/2018 (https://ec.europa.eu/docsroom/documents/32601/attachments/1/translations/en/renditions/native)

5. National Context of Digitalisation Initiatives

As part of our studies of the five P2P regions, each region presented their national context in terms of policies, strategies and programs which relate to the digitization initiatives. This chapter is a brief summary of these presentations.

Belgium

Belgium is represented by Flanders Innovation and Entrepreneurship (VLAIO), the Flemish government agency responsible for implementing the innovation and entrepreneurship policy of the Flemish Ministry of Work, Innovation, Economics and Sports.

Flanders is the northern region and Dutch-speaking part of Belgium, independently-governed, and is situated at the very centre of Europe. The capital of Flanders is Brussels.

Flanders has:

- 13 522 km2 area which is 44.8% of Belgium's territory and represents the majority of the country's industry and workforce (2017[7])
- 6.55 Million of Flemings which is approx. 57,6 % of the Belgian total 11,3 Million (2017[8])
- a regional GDP of € 228 billion, which is 58% of the overall Belgian GDP (2017[9])
- 614.928 SMEs in Flanders, which is 54,5% of the Belgian SMEs (2016[10]). On the federal level, 99,3% of all companies are SMEs.

The **Global Competitiveness Report (GCR**) of 2016-2017[11] released by the World Economic Forum ranks Belgium at the top of the charts in R&D, innovation and collaboration between industry, academic and governmental institutions. Innovative clusters are of key importance to Flanders as a knowledge region.

One of the **strategic research centres is Imec**. It's one of the world's leading R&D and innovation hubs in nanoelectronics and digital technology, with nearly 4 000 researchers and an important state-of-the-art infrastructure. Imec cooperates with companies such as Intel and has initiated several spin-off companies active in photovoltaics, analogue chip design, satellite navigation and infrared detectors. With "iMec istart" it supports the scaling of more than 150 tech start-ups in

[7] https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/flanders
[8] https://statbel.fgov.be/sites/default/files/Over_Statbel_FR/NL_kerncijfers_2017_web_0.pdf
[9] https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/flanders
[10] https://www.unizo.be/sites/default/files/aantalkmos_2.pdf
[11] http://www3.weforum.org/docs/GCR2016-2017/05FullReport/TheGlobalCompetitivenessReport2016-2017_FINAL.pdf

Flanders. The Flemish Government concluded a multi-annual management agreement with Imec. The amount of public support for Imec was 108,7 million in 2017.

The Flemish government follows an ambitious course in planning the development of science, technology and innovation (STI) in Flanders by means of "**key priority transition areas".** One of these, the **transitional area 'digital society',** created vision of digital society[12] by 2025 as an interactive digital society, with objectives for next generation networks, smart devices, big data, cloud computing, mobile applications and encryption technology.

With the **Industry 4.0 program**, Flanders strives to become a leader in new technologies and concepts in manufacturing, such as 3D printing, artificial intelligence, nanotechnology, robotics and other innovations. The program put in front so called "living labs" because companies need a more open contact with innovative ideas and a better introduction to real applicable technologies, with a 3,5 Million euro to support 7 living labs (2018-2021).

VLAIO launched a campaign several years ago to promote **digital awareness in the retail sector**, in collaboration with Google and retail partners. Retailers are a special sort of SME. Most of them are not digital natives and have low means to invest in e-commerce and the rethinking of their shop.

Raising awareness via mass media, workshops and video testimonials combined with vouchers for advice from experts are a good way to convince them.

Flanders has **a reputation for innovation** and focuses on sustainable economic growth as a key factor for the social and economic development of the region. The Flemish government considers **digitalization as part of the growth strategy for enterprises**. The quest for a scalable business model comes first, digitalization follows. A business case approach by front office advisors of the Flemish government, combined with a smart 'voucher & grant' system are key in the Flemish government policy today.

For the near future, the Flemish minister of innovation announced **an Artificial Intelligence-plan** for the next years with a budget of 30 million Euro. The plan aims to put Flanders on the front runners list for AI and machine learning. Furthermore, the ministry is preparing a plan for cybersecurity and IoT with a focus on Smart cities. Currently, Imec is the driver of the first **'City of Things' project** that is building a Smart City 'Internet of Things' living lab in Antwerp, which is the first in Europe.

At the federal level, the government assigned a federal minister responsible for the **action plan 'Digital Belgium'** which outlines the long-term digital vision for the country and translates this into clear ambitions.

The federal government has defined five priorities to put Belgium on the digital map:

1. digital infrastructure: focusing on a state-of-the-art network infrastructure
2. digital confidence and security: tackling illegal content and fake news, safe and privacy-friendly online environment and cyber security.
3. digitizing the government: a single user-friendly, high-performance digital portal for citizens

[12] https://www.vlaanderen.be/nl/publicaties/detail/flanders-in-transition

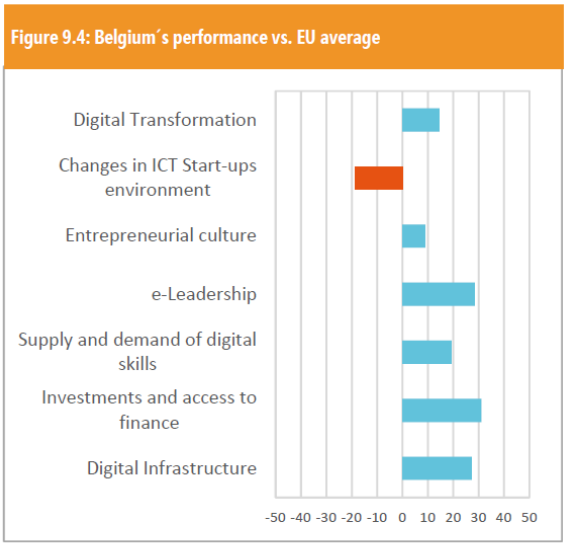
4. digital economy: an approach to digital innovations that will create new jobs and encourage people to be entrepreneurial and which brings new players – tech start-ups - into the field.
5. digital skills and jobs: about penetration of mobile internet, digital inclusion and learning environments

There is an overview with results[13] for this action plan (only available in Dutch).

The ambition is to get into the digital top three of the **European Digital Economy and Society Index (DESI)**[14] by 2020 – Belgium is in 8th place now- , for 1 000 new start-ups to take root in our country and for the digital revolution to deliver 50 000 new jobs in a variety of sectors.

C Comparison with other EU Member States

Figure 9.4: Belgium´s performance vs. EU average



Note: Based on the average of the difference of the latest three imputed values. Where no data was available, the EU average was used.

Belgium is well advanced in its digital transformation in comparison to other EU Member States. It scores above the EU average in six out of seven dimensions. Belgium performs particularly well (more than 20% higher than the EU average) in investments and access to finance, e-leadership, digital infrastructure and digital transformation.

In addition, Belgium's performance in entrepreneurial culture is around 10% higher than in the EU average.

Nevertheless, the country performs below the EU average concerning its ICT start-up environment, representing the country's main weakness.

In summary, Belgium significantly outperforms in comparison to the EU average, and hence can be considered one of the EU's digital front runners. However, further support for business creation in the ICT sector is needed to catch up with the average EU performance.

[13] https://economie.fgov.be/nl/publicaties/barometer-van-de-4
[14] DESI Report – See Appendix Enclosure 1

Denmark

Denmark is represented by Vaeksthus Copenhagen (Capital Region), which is one of five Business Development Centres located in the five regions of Denmark.

The Capital region of Denmark has:

- a population of 1.8 million people corresponding to around 31% of the Danish population of 5.8 million people
- a regional GDP of €109.6 billion euros, which is app. 40% of the Danish GDP
- 125 118 registered companies, of which 98% are SMEs

The context for Danish initiatives is the "Strategy for Denmark's Digital Growth". [15]

The Danish government seeks to exploit the opportunities derived from the digital transformation to create more prosperity for the Danish people.

The strategy consists of 38 initiatives, to which there are allocated a total of 134 million EUR from 2018 to 2025 and 10 million EUR onwards per year, plus private funding. The seven main initiative areas are:

1. Digital Hub – for a stronger digital growth environment in Denmark
2. SME: Digital – digital enhancement of SMEs
3. The Technology Pact – digital skills for all, strengthened computational thinking in elementary school
4. Data as a driver of growth in trade and industry
5. Agile regulation for new business models for trade and industry
6. Strengthened cyber security in companies

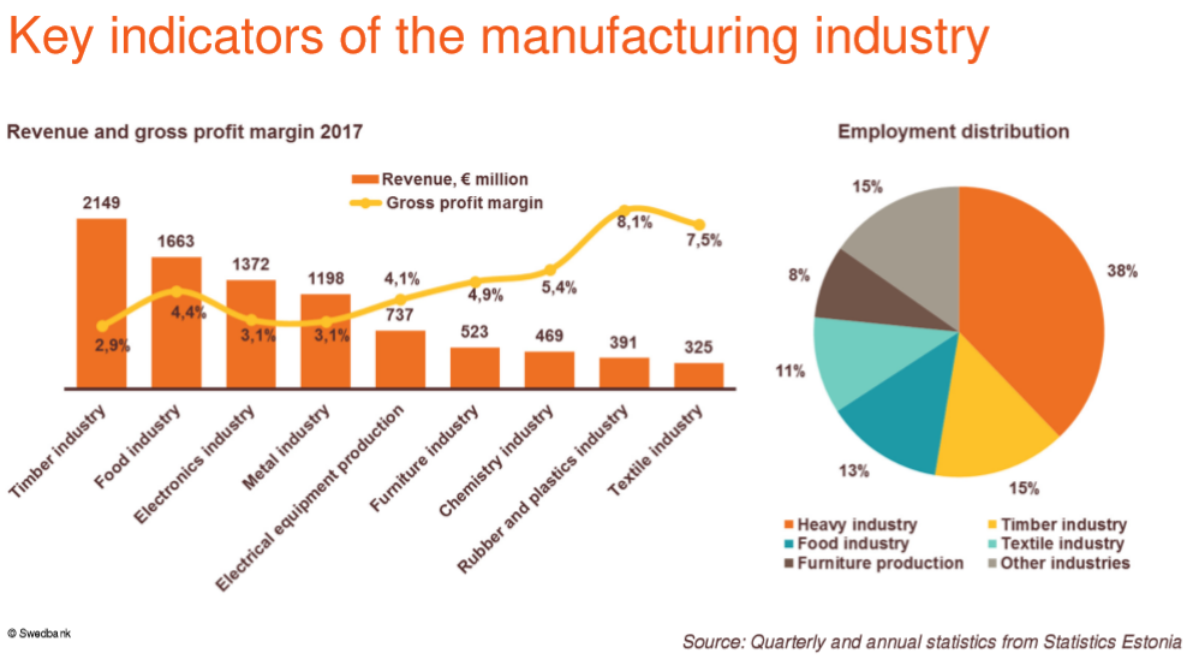
The second initiative area in the strategy addresses digitalisation in SMEs in particular. This framework includes four sub areas:

- SME:Digital – a digital transformation and e-commerce scheme for small and medium-sized enterprises
- Expand knowledge of new robot technologies to small and medium-sized enterprises
- Development of international standards for small and collaborative robots
- Increased emphasis on digitalisation in the innovation system

[15] Strategy for Denmark's Digital Growth (https://eng.em.dk/publications/2018/april/strategy-for-denmarks-digital-growth/)

Estonia

The manufacturing industry has historically been important for the Estonian economy, currently forming about 16% of GDP and giving employment to more than 125 000 people in about 7 000 companies. In addition, the industry sector provides jobs for tens of thousands of people in the sectors related to industry. In 2016, the total added value in the industrial sector was EUR 3.7 billion.



However, Estonian companies have several shortcomings when it comes to digitalisation and automation of the industry. The capital invested by the Estonian manufacturing industry per employee was just above half of the European Union average, indicating a low level of automation (5.8 million euros and 9.4 million euros respectively in 2015).

According to the digital economy and society index (DESI)[16] compiled by the European Commission, Estonia was ranked 9th in 2017 in general comparison but only the 22nd in the ability to integrate digital solutions into business.

The Ministry of Economic Affairs and Communications holds the main digitisation role for SMEs and corporates in Estonia. The ministry published the Green Book of Industrial Policy at the end of 2017, which describes the long-term development strategy and goals for the industry sector in Estonia (up to 2030). Industrial production counts for 70% of the export volume in Estonia and therefore improving efficiency in the manufacturing sector has a huge impact on Estonia's international competitiveness.

[16] DESI Index – See enclosure 1

According to the strategy, Estonia aims to grow the added value of its manufacturing sector per person employed to the average level of European countries by 2030. At the time of compiling the Green Book it was only 54% of the European average, lagging far behind the industrial leaders in the region. Digitisation of value chains in the industry sector is one of the seven focus areas to develop according to the strategy, and it calls for developing the necessary relevant collaboration networks and measures to support companies' digitisation initiatives.

Digitisation support measures are carried out and led mostly by Enterprise Estonia and KredEx. In 2018 KreEx started to give out special loans to manufacturing companies to help them finance investments into fixed assets, both tangible (production plants, equipment) and intangible (brand, IP).

Enterprise Estonia's new measures include financing "digidiagnostics" for industrial companies to audit their digitisation level and opportunities, and they are working on opening a grant to support product and technology development of manufacturing enterprises.

Enterprise Estonia promotes business and regional policy in Estonia and is one of the largest institutions within the national support system for entrepreneurship, providing financial assistance, counselling, cooperation opportunities and training for entrepreneurs, research institutions, the public and non-profit sectors. Following Estonia's accession to the EU, EAS became one of the agencies implementing EU structural funds in Estonia. The main purpose of Enterprise Estonia is to support about 600 with high added value and create at least 20 well-known new brands.

Digitalisation tools are integrated into these targets as one option to support companies by innovating their internal processes. The initiatives include training and raising awareness about the digitalization gains and sharing information about the possibilities and networks that are necessary for implementation.

In addition, there are grants available: both smaller voucher schemes to analyse the necessity of the digitalization and also larger grants to perform the actual implementation of the digitalization within the companies and their production lines.

The new digidiagnostics grant was mentioned above. Initiatives that support digitalization within companies are mostly implemented by the support of EU structural funds. As one of these initiatives EAS has launched a series of events with Tallinn Science Park Tehnopol - Smart Industry ideation days and hackathons - where industrial companies look for digital solutions for their operational challenges and work on making the first prototype of these.

Germany

Germany was represented by Bayern Innovativ, who are responsible for innovation and knowledge transfer in Bavaria. The Free State of Bavaria is one of sixteen federal states in Germany.

Bavaria has:[17]

- 12.9 Million Inhabitants, which is approx. 15.7% of the German total (End of 2017)
- A regional GDP of €570 billion, which is 18.1% of the overall German GDP (2016)
- 619 311 registered companies, of which 99.6% are SMEs
- There were 616 884 SMEs registered in Bavaria in 2016 (Statistisches Bundesamt, 2018)

The Bavarian government has placed a very strong emphasis on digitisation, as evidenced by:

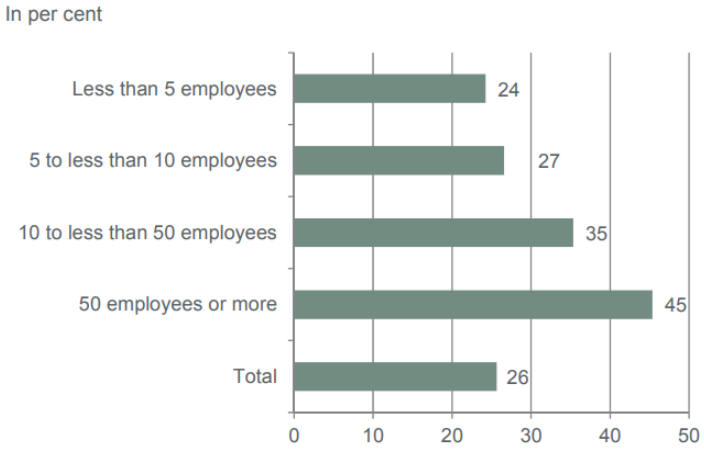
- The appointment of a Minister of Digitisation
- The creation of the Bavarian Hub for Digital Transformation, which consists of:
    - The Center for Digitisation in Bavaria (ZD.B)
    - The Bavarian Research Institute for Digital Transformation (BIT)
    - The Department of Digital and Media at the Bavarian State Chancellery
- Two funding programs:
    - Bavaria Digital I (2015-2018) 2,5 Billion Euro
    - Bavaria Digital II (2018-2022) 3,0 Billion Euro

Despite this governmental focus on digitisation, a study by KfW Research (kfW Banking Group) in March 2018 found that the share of German SMEs who have successfully completed digitisation projects in 2014-2016 is only 26%, clearly demonstrating that there is still lots of room for improvement.

There is a clear correlation between company size and level of digitisation:

[17] https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/bavaria

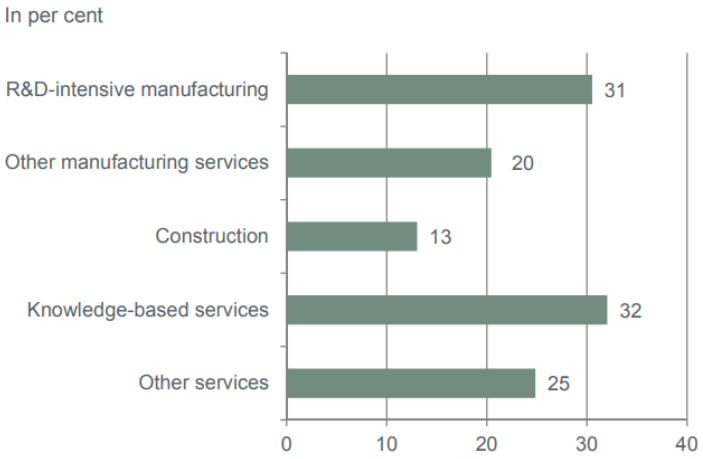
SMEs with completed digitalisation projects 2014–2016[18]



Source: KfW SME Panel 2017, own calculations

And also differences between sectors:

SMEs with completed digitalisation projects 2014–2016 by sector[18]



Source: KfW SME Panel 2017, own calculations

The most common barriers were found to be a lack of IT skills, unresolved issues relating to data security and data protection, problems in adapting their corporate structure and workflow management and the unsatisfactory quality of their internet connection. In addition, the companies had difficulty accessing loans/credit for digitisation projects, a problem that can be addressed with targeted voucher programs and loans. (Source: Digitalisation in German SMEs[18])

[18] https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Fokus-Volkswirtschaft/Fokus-englische-Dateien/Fokus-2018-EN/Fokus-No.-202-March-2018-Digitalisation-in-German-SMEs.pdf

Sweden

Sweden was represented by The Swedish Agency for Economic and Regional Growth.

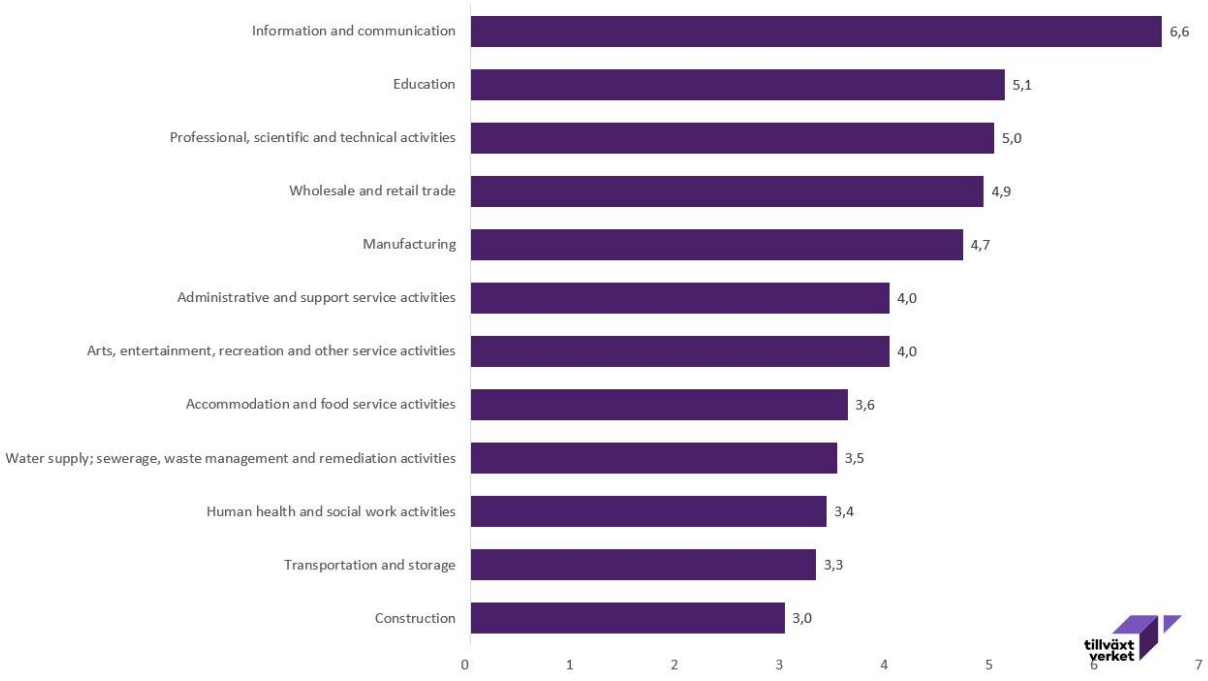
Sweden has 10 million inhabitants and about 1 million businesses of which 99 % are small enterprises with fewer than 50 employees. Only a small share have their primary market overseas.

Sweden is a digital frontrunner and is often highly ranked in international comparisons. The objective of the Swedish government is to be the world leader in harnessing the opportunities of digital transformation. Sweden's strategy for digitalisation, "Sustainable digital Sweden", identifies policy objectives for digital skills, digital security, digital infrastructure, digital leadership and digital innovation.

In 2018 The Agency for Digital Government, DIGG, was established. Its objective is to serve as a hub for public sector digitalisation.

Digitalisation Index - Divided by Sector

The results of a survey with 10 000 Swedish small and medium-sized enterprises shows differences in the level of digitalisation depending on firm size, where small enterprises are the least digitalised. Firms in the services sector are more digitalised compared to the industrial sector. Firms in "Information and communication" are the most digitalised, whereas firms in "Construction" are the least digitalised. The use of IT is primarily used to enhance efficiency (e.g. administration) and to a considerably lesser extent for business development.



Access to broadband is not a primary barrier to growth among Swedish SMEs. On average, only 9 percent of firms consider this an important obstacle to growth. Rather the biggest obstacle relates to lack of skills.[19]

The OECD have evaluated the initiatives in the Swedish digital strategy. The review suggests further efforts to strengthen the digitalisation of SMEs, e.g. by increased training to boost ICT skills and diffusion of advanced digital technology among SMEs.[20]

An important challenge for Sweden is to increase the capability of SMEs to use digital technologies for business development.

[19] Företagens villkor och verklighet 2017 (https://tillvaxtverket.se/vara-tjanster/publikationer/publikationer-2017/2017-09-27-foretagens-villkor-och-verklighet-2017.html)
[20] Going Digital in Sweden, OECD 2018 (https://www.oecd.org/sweden/going-digital-in-sweden.pdf)

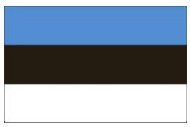
6. Initiatives to Support Digitalisation in SMEs

Nineteen initiatives were chosen to be included in this study. All initiatives listed below are described in more detail in the appendices. Our analysis is based on the data we were able obtain and in some cases on our estimations. For complete information please contact the individual initiatives.

Each initiative was selected by the hosting region and was presented during study visits by the peer consortium members.

The initiatives are chosen to give a representative picture of the activities in the region, but also to demonstrate different content and delivery mechanisms, and thereby an overview of options used in these initiatives.

Initiatives by Country – Region

Belgium (Flanders) 	SME Growth Subsidy SME e-Wallet Digital Journey Tracker
Denmark (Copenhagen) 	Digitalisation Boost Digital Escalation (Digitaliseringsløft) Partnership for Advanced Production Growth Escalation (Vaekstløft)
Estonia (Tallinn) 	Digidiagnostics Digitisation of industry hackathons Digitisation seminars Enterprise Development Programme
Germany (Bavaria) 	Digitalbonus.Bayern Silicon Vilstal Trendmapping Zentrum Digitalisierung.Bayern Zollhof Incubator
Sweden (Stockholm) 	Digileap Startup Sweden Vouchers for Digitisation

Barriers Addressed

When analysing the different initiatives of each partner country we classified the barriers that these initiatives aim to address into four groups according to their target pain point:

- barriers related to company management,
- barriers related to organisation,
- barriers related to finances
- and other barriers.

Company-management-related barriers deal with challenges linked to low awareness, competence and unfavourable mindset towards digitisation.

Organisation-related barriers include lack of resources and the competence needed to digitise.

Finance-related barriers are those which inhibit access to loans and investment money.

Other barriers are any others that don't fall into the first three categories.

Inititatives and barriers for digitisation in SME's		Management and ownership							
	Initiatives	Barriers	No awareness	No knowledge of opportunities	No knowledge of process	Inadequate competences	Mindset	Risk avoidance	Bad experiences	Unclear business case
	Belgium (Flanders)									
1	SME Growth Subsidy				x		x	x		x
2	SME e-Wallet		x	x	x	x		x	x	x
3	Digital Journey Tracker		x	x	x	x	x	x	x	x
	Denmark (Copenhagen)									
4	Digitalisation Boost			x	x					x
5	Digital Escalation (Digitaliseringsløft)		x	x	x		x			x
6	Partnership for Advanced Production				x	x		x	x	x
7	Growth Escalation (Vaekstløft)			x	x	x		x	x	x
	Estonia (Tallinn)									
8	Digidiagnostics		x	x	x	x		x	x	x
9	Digitisation of industry hackathons		x	x	x		x			x
10	Digitisation seminars		x	x	x		x		x	x
11	Enterprise Development Programme				x	x		x		x
	Germany (Bayern - Nürnberg)									
12	Digitalbonus.Bayern						x	x		
13	Silicon Vilstal		x	x			x		x	
14	Trendmapping		x	x			x	x		x
15	Zentrum Digitalisierung.Bayern		x	x	x	x	x			x
16	Zollhof Incubator			x			x			x
	Sweden (Stockholm)									
17	Digileap		x	x	x	x				
18	Startup Sweden					x				
19	Vouchers for Digitisation					x				

Inititatives and barriers for digitisation in SME's		Organisation					Economy		Other	
	Initiatives / Barriers	Capacity/ time	No IT-competences	Unable to hire ICT-skilled employees	Access to technology	Access to network	Unable to finance investment	Unable to obtain loan	No test or demo facilities	Don't know where to get help
	Belgium (Flanders)									
1	SME Growth Subsidy	x	x			x				x
2	SME e-Wallet	x	x			x	x			x
3	Digital Journey Tracker				x	x				x
	Denmark (Copenhagen)									
4	Digitalisation Boost	x				x				x
5	Digital Escalation (Digitaliseringsløft)					x				
6	Partnership for Advanced Production	x	x	x	x		x	x	x	
7	Growth Escalation (Vaekstløft)	x	x	x					x	
	Estonia (Tallinn)									
8	Digidiagnostics									
9	Digitisation of industry hackathons	x	x							
10	Digitisation seminars		x			x				x
11	Enterprise Development Programme	x	x	x	x		x		x	
	Germany (Bayern - Nürnberg)									
12	Digitalbonus.Bayern				x		x	x		
13	Silicon Vilstal			x		x				
14	Trendmapping			x	x					
15	Zentrum Digitalisierung.Bayern			x	x	x			x	x
16	Zollhof Incubator					x			x	x
	Sweden (Stockholm)									
17	Digileap		x							
18	Startup Sweden		x			x	x	x		
19	Vouchers for Digitisation			x			x	x		

What we see in comparison of all initiatives is that **the majority of them are designed to increase the knowledge about the opportunities that digitisation brings along for SMEs and the process of digitisation**. This means that awareness and information about why and how to digitise are seen as the most crucial factor in getting meaningful results for SMEs in going digital. Of the other management related barriers, lack of the right competences and no obvious benefits in the business cases of digitisation projects are prevalent. This indicates that it often would make sense to include an experienced expert when planning and assessing the digitisation projects to increase the chances of getting management support for these.

In organisation related barriers – not surprisingly – **lack of capacity/time and IT-skills** are the most addressed challenges. This makes complete sense, because the lack of internal resources is often the main reason why SMEs turn to outside help and look for support from local and national support mechanisms. This also makes sense considering the job market situation both in manufacturing and in IT-sector in the past decade, where skilled and specialised labour has always been in shortage.

Logically, the third group of barriers addressed by the support initiatives are related to financing. The support initiatives are designed to **ease the process of obtaining loans or attracting funds for investments**. Supporting financing seems to have higher priority in Sweden than in the other countries, however all the countries include at least one financing scheme. Viewed together with the awareness related barriers, this indicates a difference in mindset of countries in terms of whether to focus on creating impact by raising awareness or by giving money.

Barriers in the consortium regions

Flanders

The main barriers for digitalisation of SMEs in Flanders are the lack of awareness about effort and what they could gain through digitisation. Companies have inadequate competences, lack of knowledge of processes and opportunities, and in some cases already bad experiences. Therefore the governmental and local initiatives support their access to the necessary network, who can support them within their innovation processes.

Denmark

The main barriers for the companies to implement digitalization are, like in the other countries, a lack of knowledge and a lack of a clear business cases which would direct them to the best decisions. The supporting initiatives can help the companies to find the best testing or demo opportunities, and in some cases can support their actual digitalisation implementation processes with loans or funding.

Estonia

The main barriers within digitisation processes in Estonian companies arise when implementing the actual digitisation processes. For example, how to evaluate the needs, how to select IT partners, where to start, and what to expect. Estonian companies are open for innovation and for new IT processes but lack of assurance that the digitalization will support their business models and lack internal IT skills. Therefore the main activities are designed to support the companies with their decision-making processes.

Germany

The most common barriers were found to be a lack of IT skills, unresolved issues relating to data security and data protection, problems in adapting their corporate structure and workflow management and the unsatisfactory quality of their internet connection. In addition, the

companies had difficulty accessing loans/credit for digitisation projects, a problem that can be addressed with targeted voucher programs and loans.

Silicon Vilstal in Bayern is a unique, community-based initiative that arranges festivals and meetings to support creative exchange between the rural region, international experts, creatives, start-ups and initiatives from all over Germany.

The initiative is almost entirely privately funded. Donations are in kind rather than Euro from local companies.

Sweden

The main barrier that the companies face is the lack of adequate competences within their companies. Therefore, the initiatives are designed to increase their IT competences and to assist with finding the opportunities for loans or financial investments, which is already a big step in their path to digitalisation.

Supported Activities by initiatives

We investigated the different activities covered by each of the initiatives in this study, to see how the barriers were addressed.

These activities can be divided into two categories:

- Financial support and
- Awareness, knowledge and inspirational support.

One third of the initiatives are providing financial support through a voucher. In some cases, the entire amount of the voucher must be used for external advice.

In other cases, the voucher can be used for advice as well as for soft-, hardware and other relevant expenses outlined in the application or project. In these cases, it could be regarded as project

financing. In most cases the voucher covers part of the total project cost, and the balance must be financed by beneficiary. Typically, this recipient financing is based the time spent by the SME.

Awareness and inspirational support is typically provided through workshops, coaching or networking made available to SMEs. Facilitation of these activities is carried out by either public- or private-sector consultants.

LARGEST GRANT SIZE

The largest grant size is found in the **Enterprise Development Programme** in Estonia, where a SME can obtain up to 500 000 Euro. The program is estimated to fund approximately 120 SMEs, who face high barriers to be eligible to apply for the programme.

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Type of activities supported

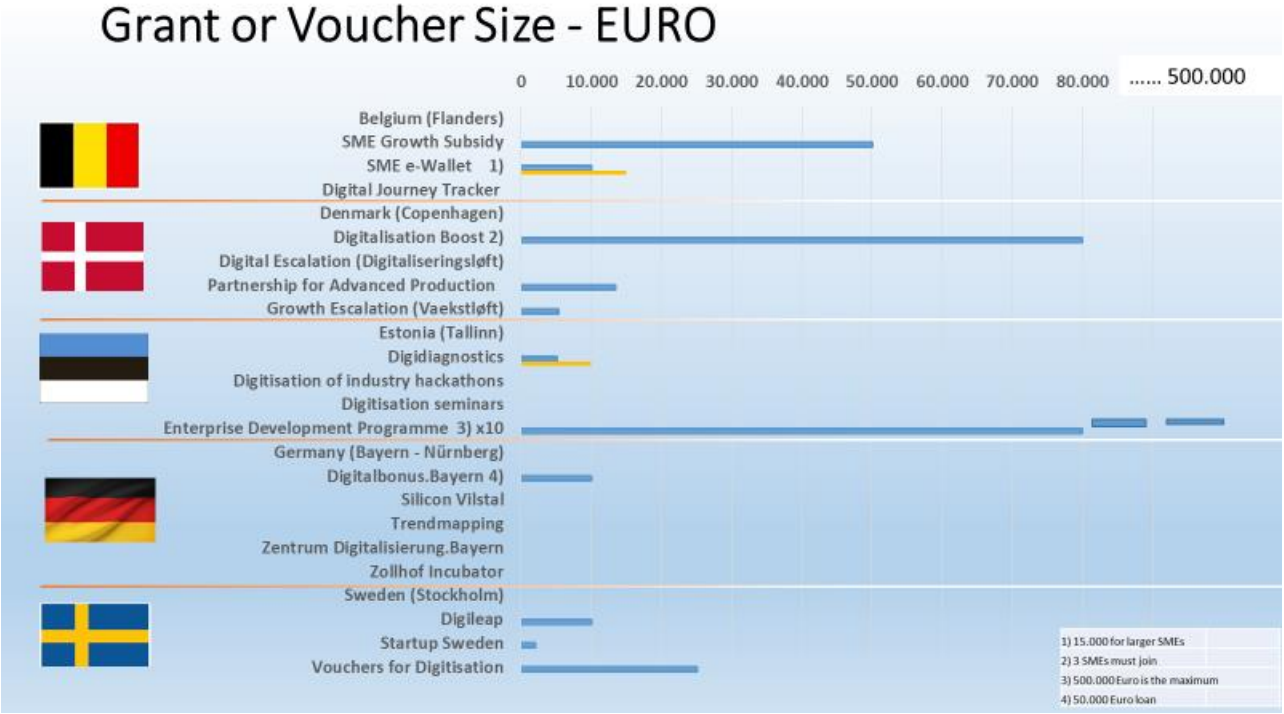
	Initiatives	Voucher	Grant	Project funding	Loan	Festival - inn	Work shops	Tool	incu bator	Coaching	Network
	Belgium (Flanders)										
1	SME Growth Subsidy	■									
2	SME e-Wallet 1)	■									
3	Digital Journey Tracker							■			
	Denmark (Copenhagen)										
4	Digitalisation Boost		■								■
5	Digital Escalation (Digitaliseringsløft)						■				
6	Partnership for Advanced Production 2) 3)	■					■				■
7	Growth Escalation (Vaekstløft)	■									
	Estonia (Tallinn)										
8	Digidiagnostics							■			
9	Digitisation of industry hackathons						■				
10	Digitisation Workshops										
11	Enterprise Development Programme		■				■				
	Germany (Bayern - Nürnberg)										
12	Digitalbonus.Bayern 4)	■		■	■						
13	Silicon Vilstal					■					
14	Trendmapping							■			
15	Zentrum Digitalisierung.Bayern			■							
16	Zollhof Incubator								■		
	Sweden (Stockholm)										
17	Digileap						■			■	
18	Startup Sweden										■
19	Vouchers for Digitisation	■									

Grant or Voucher Size

Most of the initiatives operate with a grant or voucher size of
10000 - 15000 Euro, some with a substantial number of recipients, as shown later.

The SME Growth program in Flanders operates with a grant of 50 000 Euro, which is among the highest. The programme provides 500-600 grants per year.

In the Danish Digitalisation Boost programme the grant is 80 000 Euro. It does, however, require a minimum of 3 companies to apply, and the applicants will split the grant according to the work plan provided with the application.



1) 15.000 for larger SMEs	
2) 3 SMEs must join	
3) 500.000 Euro is the maximum	
4) 50.000 Euro loan	

Number of Recipients

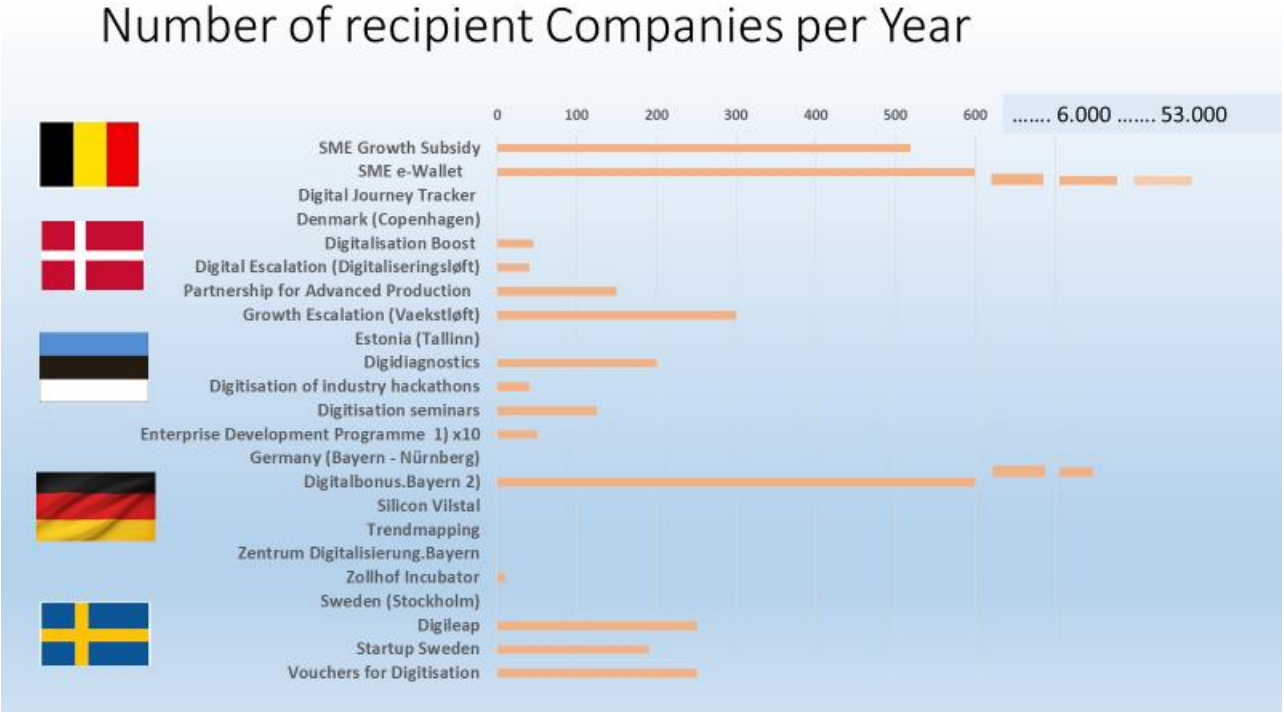
The bulk of the initiatives we looked at have 200-300 annual recipients. Two programmes differ quite a bit from this, namely the German Digital Bonus Bayern and Belgian E-Wallet in Flanders.

This design option reflects a main differentiation in strategy: many initiatives are based on a relatively small number of participants, where the screening process and the evaluation of the project content requires many resources. In contrast, the Digital Bonus Bayern and E-Wallet have a large number of participants, and the administration and evaluation of content is kept to a minimum.

Digital Bonus in Bayern has turned out to be in higher demand than originally budgeted.

Consequently a maximum of 500 grants are approved per month on a "first come first served" basis. The grant is 10.000 Euros, and more than 90% of the applicants are approved, but it can be challenging to apply before the monthly limit has been reached.

The online application closes when the limit has been reached, which usually happens within the first two days at the beginning of each month. A SME that does not make it must try again the following month.



SME e-wallet in Flanders has already provided 136.000 vouchers – and in 2018 the number of vouchers issued is 53.000. Every SME has up to 10.000 Euro (15.000 for larger SMEs) available each year in its e- wallet.

Parts of, or the entire amount, can be spent on one or more of the 1.800 approved suppliers of services.

SME Wallet – approving service providers

The SME Wallet is the regional voucher scheme of Flanders. The services funded are training and advice for the professionalization of SMEs. Regular business support services are excluded -- the funds need to have a boosting effect on the entrepreneurial services.

Service providers play a crucial role in the management of the SME Wallet: they check if the application is eligible (eligible service?,…) and they check if the application is correct (within the accepted term?, correct aid amount?,…).

Essential features of the approval of service providers are:

1. Accreditation by accredited certification bodies
2. Public database of all service providers
3. Sample checks based on fraud risk analysis

<u>Accreditation</u>

Service providers must comply with “SME Wallet standards”. These standards were developed in order to investigate the activities related to the SME Wallet, so they are cheaper and more effective than ISO or other standards. Key issues of the audit scheme are the kind of activity the service provider wants to deploy, how much experience the service provider has, the level of customer satisfaction, their knowledge of the SME Wallet, and the integrity of the service provider.

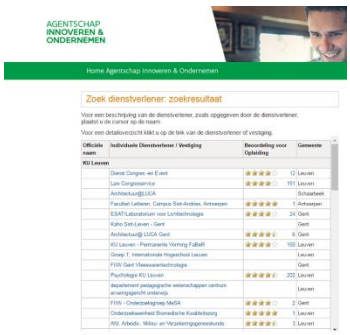
8 accredited certification bodies perform the audit by SME Wallet standards. The recognition is valid for a period of 5 years.

Public database of all service providers for SME Wallet

The database of service providers is available publicly on the agency webite (only in Dutch): https://inkom.vlaanderen.be/op/bezoeker/initZoekCriteria.do

SME are asked to rate their service provider, so the database has become a powerful search engine, open to everyone, with reliable reviews (similar to Trip Advisor).

A positive side effect is the extra service for SMEs who are searching for an advisor in a specific field but don't know where to start: they also check this database to find good consultants.



Sample checks based on Fraud Risk Score

By 2017 the agency had managed 1800 service providers who handled 130 000 vouchers from 53 000 SMEs over a 5-year period. This is big data which can easily be used for analysis!

Recently, a study was conducted to define a Fraud Risk Score. Together with a learning algorithm, the data and the fraud risk score lead to a number of "suspected samples" that require a deeper look. This focused control investigation is done by civil servants from the agency, in addition to the regular, more random control system. This is an extra guarantee for a reliable system.

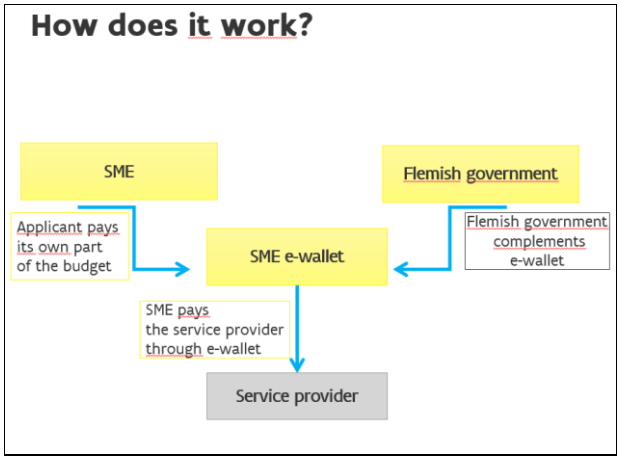
In order to improve the focus of the controls, we are currently investigating the possibilities of big data and AI.

If you'd like more information about the fraud risk score and the AI being used, please contact kmo-portefeuille@vlaanderen.be

SME Wallet – Reimbursement Scheme

The SME Wallet is Flanders' regional voucher scheme. The services funded are for training and advice that improves the quality of SMEs. The voucher scheme is set up to be smart, simple and effective so there is no need for manual approval of an application.

In 2009 it was renamed to “SME e-wallet”: to lower administrative burdens between the agency, the service providers and their clients, an electronic system was installed to handle the reimbursement.



The SME applies for funding via an interactive web application. The SME e-wallet is a special online bank account: the SME pays its own part of the budget as a transfer to the online bank account. Automatically the subsidy is granted and transferred into the same bank account.

As soon as the SME receives the invoice, the service provider can be paid by using this online banking account.

The banking account or “electronic wallet” is managed by Sodexo. Sodexo is a financial service provider specialized in voucher systems. There has been a partnership for several years between Sodexo and the agency.

For more info on the SME e-Wallet, please contact dieter.goossens@vlaio.be

Initiatives by Target Groups

When comparing the initiatives regarding their target groups we found some common trends. All initiatives target companies within the SME definition. [21]

There are some exceptions, however. For example, the Swedish voucher criteria has narrowed it down to companies with 2-49 employees, because the need for financing is seen as a bigger obstacle within this group.

The manufacturing industry is the main target group for most of the initiatives. One of the reasons is that some of the initiatives have their origin in the national strategies based on Industry 4.0 strategy. This is the case for Denmark and Sweden. In Denmark almost all initiatives address manufacturing companies. Estonia's "Digidiagnostics" initiative and their digitalisation seminars focus on manufacturing companies and SMEs within smart specialisation areas. Manufacturing companies are also the target group for the Swedish initiative "Digileap", even though they also include industry-related service companies. Only Germany did not include initiatives focusing on the manufacturing sector within the sample initiatives we studied.

The average SME with growth ambitions

All the voucher schemes are targeting a broad spectrum of SMEs and are offered to all sectors. The Bavarian, the Flemish and the Swedish vouchers are open both for producing and service companies from all sectors.

Though not a target group, the contractors and service providers within digitisation are indirect beneficiaries of the voucher systems, because the vouchers increase demand for digitalisation services on the private market. They are also a direct target group in the Estonian Digitisation of Industry Ideation Days and Hackathons and the Belgian Digital Journey tracker, as providers of digitalised or automatized solutions.

Start-ups are not in focus in this project, but they are to be mentioned as they appear clearly as a target group in the incubator/accelerator initiatives (Start-up Sweden, Zollhof Tech Incubator in Bavaria) and also as contractors in the cooperative projects such as above-mentioned Ideation Days and Hackathons (Estonia).

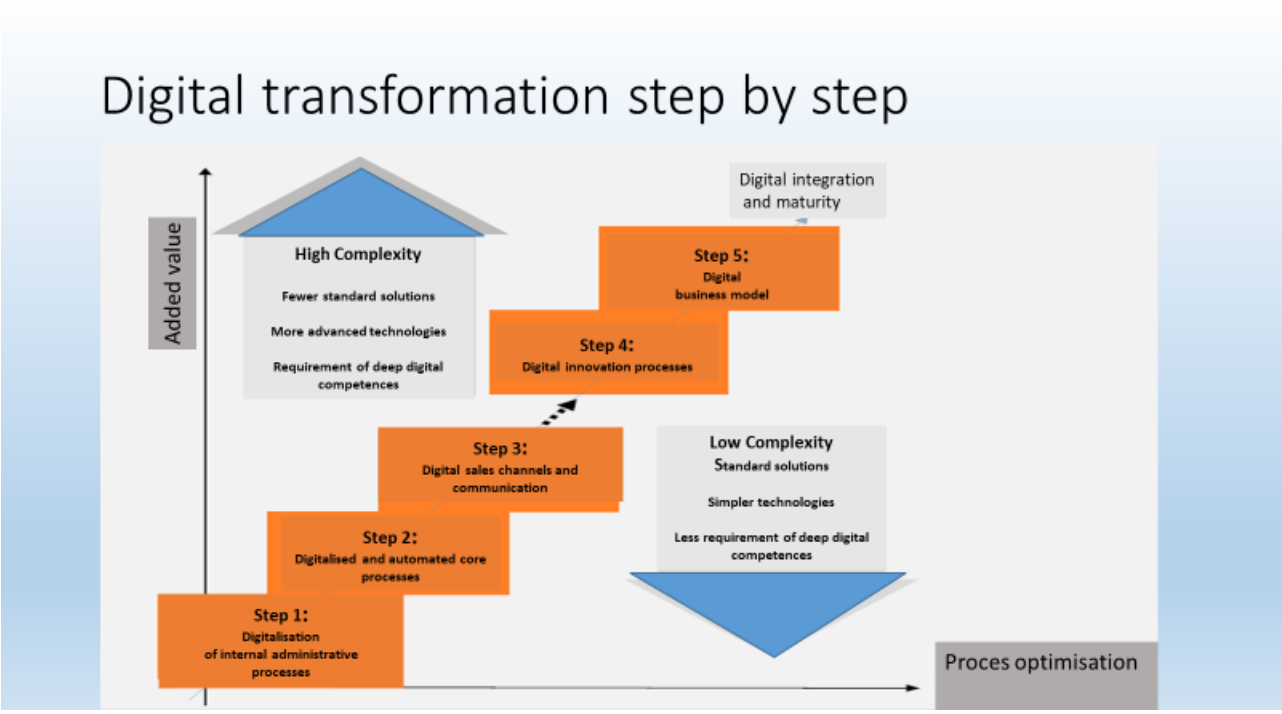
None of the initiatives which offer seminars or coaching on digitisation are open to companies in the service sector. However, statistics shown in previous chapters demonstrate that construction and hotel/restaurants are some of the least digitalised sectors. Therefore, one recommendation could be that seminars and coaching should be offered to a broader range of sectors.

[21] http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en

Digital Maturity

The P2P Digital project partners discussed whether we could identify initiatives that target different groups according to their level of digital maturity, with the goal of bringing the company from one level to the next.

The Danish research institution RegLab has defined a model for sequential steps of digital maturity.[22]



The model is relevant for manufacturing SMEs, as it seen as a logical way of increasing the digital maturity in such companies.

However, when looking at SMEs that provide digital services or who sell through digital sales channels, we found that the progression in this model needs to be reversed. Companies who have already digitalised their customer-facing processes often still need to digitize and automate their administrative and core processes, which are at the lower steps in this model.

We did not find any initiatives that distinguish between recipients according to their digital maturity, since they were basically open to SMEs at all maturity levels.

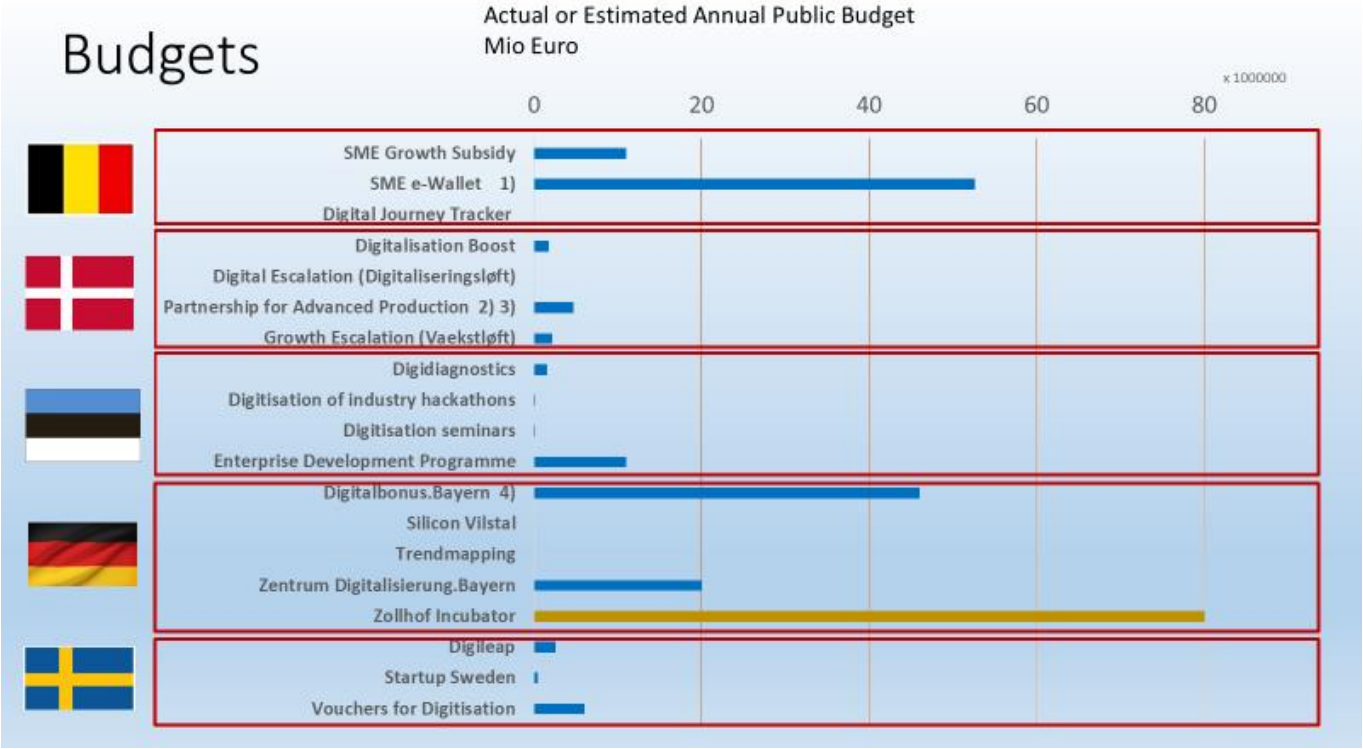
[22] http://reglab.dk/analyser/artikel

Initiatives by Annual Budget Size

The studied initiatives vary in budget size. Some initiatives operate with an annual budget, while others vary according to participation.

We have estimated the annual budgets where appropriate, based on the annual number of participants and the average grant size.

The two programs SME e-wallet in Flanders and Digital Bonus Bayern, with annual budgets of more than 50 million Euro, benefit the largest number of recipients by far.



Financing of Initiatives

Several financing options are being used to fund the initiatives we have studied.

In Denmark and Estonia financing of initiatives is based on EU funding in combination with national funding. The Danish initiatives also involve regional funding as well as participant funding, based either on the value of the work hours the recipients put into their projects or through a participation fee. In Flanders, Bavaria and Sweden, national or regional financing is the main source of funding in combination with participant funding.

Initiatives	EU Financing	National Financing	Regional Financing	Local Financing	Partictipant Work-Hours	Participant (Co)-Financing Cash	Sponsors	Program-oprator Financing
Belgium (Flanders)								
SME Growth Subsidy			■					
SME e-Wallet			■					
Digital Journey Tracker			■					
Denmark (Copenhagen)								
Digitalisation Boost						■		■
Digital Escalation (Digitaliseringsløft)	■		■		■			
Partnership for Advanced Production	■	■	■		■			
Growth Escalation (Vaekstløft)	■	■	■		■			
Estonia (Tallinn)								
Digidiagnostics	■	■						
Digitisation of industry hackathons	■	■						
Digitisation seminars	■	■						
Enterprise Development Programme	■	■						
Germany (Bayern - Nürnberg)								
Digitalbonus.Bayern			■			■		
Silicon Vilstal					■	■	■	
Trendmapping			■		■	■		
Zentrum Digitalisierung.Bayern			■					
Zollhof Incubator			■				■	
Sweden (Stockholm)								
Digileap		■				■		■
Startup Sweden		■						
Vouchers for Digitisation		■				■		

Knowledge Resources Involved in the Initiatives

Having looked at the barriers addressed, the target groups, budget and grant size, we also looked at how the relevant "content" of the initiatives was procured.

The majority of the programs are based on the involvement of private knowledge suppliers. In some initiatives the selection of these consultants or suppliers is made by the SMEs. In these cases, the controlling mechanism in terms of project content, quality and relevance is based on the fact that the SMEs co-finance the project, usually carrying 50% of the cost.

In other initiatives consultants and suppliers are selected by a number of criteria or even by following public tenders.

Initiatives	Private consultants or suppliers selcted by SME's	Private service providers selected by tender or approval	Seleced knowledge institutions	Project facilitators	Public, project mentors	Private sponsors role model SME's	Universities or research institutions
Belgium (Flanders)							
SME Growth Subsidy	■						
SME e-Wallet		■					
Digital Journey Tracker	■						
Denmark (Copenhagen)							
Digitalisation Boost			■				
Digital Escalation (Digitaliseringsløft)	■						■
Partnership for Advanced Production	■						
Growth Escalation (Vaekstløft)		■					
Estonia (Tallinn)							
Digidiagnostics	■						
Digitisation of industry hackathons				■			
Digitisation seminars						■	
Enterprise Development Programme					■		
Germany (Bayern - Nürnberg)							
Digitalbonus.Bayern	■						
Silicon Vilstal						■	
Trendmapping			■				
Zentrum Digitalisierung.Bayern			■				■
Zollhof Incubator						■	
Sweden (Stockholm)							
Digileap		■		■	■		
Startup Sweden						■	
Vouchers for Digitisation	■						

7. Lessons Learned and recommendations

All of the organizations are using voucher systems, but they are very different in terms of volume (number of vouchers given) and consulting effort.

- Some are very high volume, but with next-to-no consulting for the SMEs. The application process is very simple and fast with an online form.

  However, the SMEs need to already know what they'd like to digitise, as there is very little possibility for the support organisation to discuss plans with the SME before they apply for the voucher.

  The high-volume approach tends to focus on "doing things right".

  High-volume programs can be a useful first step in getting knowledge in an easy way. They tend to be agile when business challenges are changing, and they can address a broad spectrum of issues relevant to SMEs. In many cases companies seem to already know what they need to do and use the programs to get the work done. In some cases, one lesson learned is that availability of independent consulting from experts could ensure that the activities are sensible.

  The high-volume programs we studied have a voucher size of around 10 000 Euros. In many digitalisation projects this is a relatively small amount, which might not attract the best consulting capacities. In one program this issue is handled by a system of approved or accredited suppliers, who are rated by the SMEs. The co-financing required by the recipients is also considered to be a quality assurance factor in the studied high-volume initiatives.

  A benefit of high-volume programs that have been running over a longer period, is that they become well known. This means, that the marketing effort to recruit participants is reduced to minimum level.

  The high volume of project cases also justifies, and necessitates, digitised automated procedures, which brings down the administrative cost of the programs.

  Within the high-volume programs a number current of issues can be covered and marketed by project operator and approved suppliers, to encourage SMEs to use their voucher or part of it to work with these issues.

  This ensures that high-volume programs can be sustainable over a long period of time and still be a current well-known resource possibility for SMEs.

- Other voucher systems involve close contact with the SME before they apply for a voucher or enter a program. Or the application requirements involve a thorough business or project plan, which will qualify the SME for a grant.

  These systems ensure that the SME has a reasonable plan for how and what to digitalise, so there is less risk of the voucher being "wasted" on something that doesn't really serve the SME well.

  However, with these systems, the support organisation must be able to provide time-consuming consulting or approval of applications, which results in fewer vouchers being granted, and in some programs a high or moderately-high rejection rate, when only the best projects are approved.

  The low volume approach focuses on "doing the right things".

  In some instances the experience is that SMEs consider the low-volume, high-consultancy programs to be difficult to apply for with success.

  A learning has also been, that the projects in low-volume programs become more complex and challenging in terms of achieving the desired results.

  Some programs have experienced that SMEs apply for the complex programs because they follow the opportunity, but during the project it becomes apparent that other issues are more in need of attention. The complex programs also tend to involve more bureaucracy which is counterproductive to the image of the programs and to the achievement of the desired results. Some of the bureaucracy relates to the issue of eligible cost. The SME will look at the entire budget for the project, and do not necessarily distinguish between different project-related types of cost, as they are defined by the project. This has in some projects added to the perception of bureaucracy around the program.

  Some applicants tend to commit to carry out several activities required by the program to get the grant, ending up spending time on peripheral relevant efforts, or having trouble complying with the requirements of the program.

  It is our conclusion that project creators must keep in mind that project take SMEs on a learning curve. From the funding point of view this learning curve is desired to be as steep as possible, but a dynamic approach with achievable "sprints" and change of scope as the learning matures, is seen as a vital element of a successful program. This could be a circular "plan-do-check, plan-do-check, ……." approach to avoid complex programs and projects that are too difficult to follow.

  In several cases we have seen that recruiting to these programs, to find participants with the desired profiles, is time and resource consuming. Time for recruitment and awareness-building is crucial.

  And, in relation to recruitment, screening of participants must be comprehensive in order to ensure that they have their "other current" issues and daily business issues under

control, as these will constantly compete with their resources for project activities.

In one program the lesson learned was that it is better to limit each event to a specific narrow topic, but to allow SMEs to bring "any" problem of priority to them.

In terms of recruitment another lesson learned is that it is difficult to find skilled people to make the assessments.

A low-volume program of short duration requires many resources for planning, marketing, and recruiting of participants that is disproportional to the outcome. Leanings cannot be used for continuous improvement. Isolated initiatives like this should only be carried out as a pilot, and only if there is intention and resources for a continued effort to make the initiative known by relevant operator employees and in the target group.

- *Support organisations must carefully consider whether their region is better served by high-volume low-consulting voucher systems or by low-volume high-consulting systems*.

Companies must take the initiative to participate. Systems where companies are selected at random from a registry have very low uptake rates.

- One initiative wished to compare companies who receive support with those who do not.

  In order to have statistically relevant results, they randomly selected companies from a national register to receive funding and consulting.

  The response rate from the companies who were selected was extremely low. The companies had not expressed interest in participating before they were selected, and the offer of (partial) funding was not enough incentive for them to actively participate.

  This example shows that the SME's motivation is an important key to success.

"One face to the customer" simplifies access to initiatives for the SME.

- An SME who has little or no previous experience dealing with support agencies is easily overwhelmed when faced with multiple similar-sounding agencies.

  It is very helpful to the SME to have a single initial point-of-contact who can then direct them to the best agency. This prevents them from being bounced around between agencies while they search for the best fit.

- *In some regions there are hundreds of small agencies in operation, with a lot of overlap in the services these agencies offer. This is very confusing for the SME.*

Continuity is vital for developing successful programs and an efficient eco-system

- It takes time and resources to establish awareness and knowledge of a program in the SME target group. New programs need time to "ramp up". It is counter productive to keep replacing existing programs with new ones.

- It also takes time to develop awareness in the consulting community among the best qualified advisors.

- In order to establish an efficient eco-system of advisors it is important to keep track of the performance of these advisors to guide the SME's in the their selection.

Peer to peer learning and best practices sharing is successful

- Several programs demonstrated that learning from role models, case studies and peer learning seem to one of the most powerful activities.

  The most effective case studies are those from other SMEs. While cases from larger organisations with more resources can be interesting, they don't have the same inspiring impact.

- One of the programs we studied is based entirely on community involvement and demonstrated a remarkable engagement from volunteers, sponsors and participants.

  One important conclusion is that local companies are willing to contribute. They seem to prefer to contribute in kind rather than money – it's easier for them (perhaps for reasons of avoiding internal and external bureaucracy).

Programs should be managed by experienced industry leaders, not by academics, even when the program is meant to support academia.

- One of the studied programs aims to stimulate the infrastructure around research in digitalisation and engage universities in this task.

  Some of the learnings has been that there has been a need to run such a program like a start-up: it requires a lot of flexibility and being allowed to pivot.

  For this reason, the program leadership should be from industry rather than academia.

  Funding programs need to be run like companies, not like research centres. As such, hands-

on experience in industry is needed.

- Programs meant to support young researchers (eg PhD students or post-docs) also need to offer a career path to these young people. Otherwise it is difficult to retain good academics.

- In programs where academics are meant to engage and educate industry or the general public, it is sometimes better to ignore or even hide academic titles, because people can be intimidated by an “expert” coming to them.

Organizing events, conferences and workshops can be done in partnership with other support organisations.

- Organizing events is very time consuming, so it may be better to cooperate with other support organizations, to organize a shared event.

- The world doesn’t end at your regional border, and cooperation with companies/institutes outside the region is to be encouraged rather than blocked.

- Pull walls down rather than building new ones. The perfect consultant or technology partner for your client may be in another region or country – make it possible for your client to work outside the region. This may mean adapting the rules for voucher systems to permit cross-border cooperation.

Evaluation

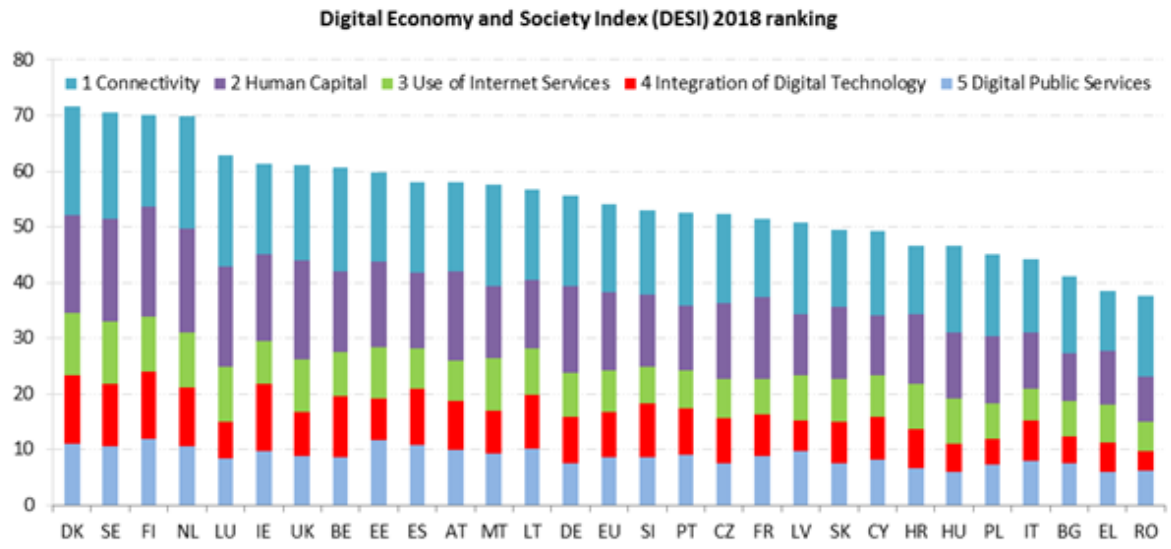
- None of the initiatives we studied presented an extensive evaluation scheme, and we are therefore not able to pin point the most effective programs.

- We could identify Activities and Output in terms of number of beneficiaries, participants, number of projects and program budgets.

- When it comes to evaluation of Outcome and Effect none of the initiatives had analysis of these elements. In several cases it was however expected that a post project evaluation would address these or some of these issues.

8. Appendices

Enclosure 1: Digital Economy and Society Index (DESI)



Enclosure 2. EU Digital Intensity index 2017

The index level of digitalisation is measured by the availability and degree of implementation of twelve digital technologies/features in organisations. The twelve technologies are:

Nr.	The index is derived from the following features:
1	Enterprises where more than 50% of the persons employed used computers with access to the internet for business purposes
2	Employ ICT specialists
3	The maximum contracted download speed of the fastest internet connection is at least 30 Mb/s
4	Provide more than 20% of the employed persons with a portable device that allows a mobile connection to the Internet for business use
5	Have a website
6	Website has at least one of : description of goods or services, price lists; possibility for visitors to customise or design online goods or services; tracking or status of orders placed; personalised content in the website for regular/ recurrent visitors
7	Use any social media
8	Have ERP software package to share information between different functional areas
9	Have CRM
10	Share supply chain management information electronically with other enterprises, either suppliers or customers
11	Used any computer networks for sales (at least 1%)
12	Enterprises where web sales are more than 1% of the total turnover and B2C web sales more than 10% of the web sales

Source: Europe's Digital Progress Report 2017 (https://ec.europa.eu/digital-single-market/en/european-digital-progress-report and (https://circabc.europa.eu/sd/a/85e9f133-c930-4453-84d0-2161469b1695/DIGITAL%20INTENSITY%20INDEX.pdf)

Enclosure 3. Data sheets on all presented initiatives

Name of program	1. SME Growth Subsidy
Purpose of program	It is a strategy support measure. Impact the growth & competitiveness of the company. Subsidize the missing strategic knowledge that is necessary to establish new growth strategies. Processes impacted: Innovation, business transformation or internationalisation
Country/Region	Flanders 
Operator	Flanders Innovation & Entrepreneurship
Duration	The minister decides upon the duration of this subsidy program – program runs since 2016
Target Group	All SME's located in Flanders with a sufficient verifiable growth ambition – the project amount must be at least €20 000 excl. VAT.
Number of companies Participating	2017: 519 projects
Barriers Addressed	Lack of strategic knowledge and expertise on a turning moment
Activities	Criteria: - Well-defined vision on growth opportunities - A turning moment - A clear path of development and implementation- growth trajectory - A need of strategic knowledge and expertise Some examples of growth trajectories: bringing an innovative development on the market, growing by exploring foreign markets, transforming the digital way in order to grow, implementing a new business model, … SME's decide on their own how projects are going to be conducted and how they are going to achieve the goals they have settled down How to apply for funding: Online application with automated filled-in fields 1 hour interview People are key
Promotion, Approaching, Recruiting	Promotion is done by the VLAIO-business advisors. Their main task is advising SME with their business plan, look for state aid, regulatory issues and bring specialised partners to the SME in order to realise a growth trajectory. Promotion is also done by the general information actions from the agency and partners: website, database of subsidies and financial tools in Flanders, newsletters, information sessions.
Economics/ Financing	Annual maximum €50,000 50% of the purchase of external strategic advice and/or 50% of the labour costs when recruiting a strategic employee. The maximum aid per advice of recruitment is €25 000.
Budget spent / Budget allocated	Budget € 11,000,000/ year 2017: Subsidy granted: € 9.246.121,36
Lessons Learned	
KPIs	
Impact	
Recommendations	While the Sme e-wallet is useful as a first step in getting knowledge on a easy way, the Sme growth subsidy is the logical next step when a growth trajectory is made clear. It is a 2-step approach in the Flemish voucher system that goes with the natural awareness raised in the head of the entrepreneur.

Name of program	2. SME e-wallet
Purpose of program	Regional voucher scheme of Flanders. Aims to improve the quality / professionalisation of the company. Provides funding for training and advice. Demand driven. Automated process via web application. Management through accredited service providers
Country Region	Flanders 
Operator	Flanders Innovation and Entrepreneurship. Management of the SME E-wallet is done through service providers (1800 service providers in 2017)
Duration	Since 2006 – the minister decides upon it
Target Group	SME's located in Flanders
Number of Companies Participating	2017: 53.000 SME's
Barriers Addressed	Lack of knowledge to improve the quality of the company. Low entrance. Easy to use / no administrative burden. For every entrepreneur. Ready to use when you need is, fast system.
Activities	Services funded: Training & Advice - General business advice: marketing advice, developing a communication plan, etc. - Technological research - Advice for internationalisation: market analysis, … - Strategic advice: investment analysis, digitalisation, … ! Regular business support services are excluded, the funds need to have a boasting effect to the entrepreneurial services. The SME-E wallet is an automated service system: Demand driven Easy & fast access via interactive web application No evaluation of the applications Service providers play a crucial role: check if the application is eligible (SE or ME?, eligible service?,…) check if the application is correct (within the accepted term?, correct aid amount?,…) How does it work: 1. Applicant pays its own part of the budget 2. Flemish government complements e-wallet 3. SME pays the service provider through e-wallet Management through service providers: Accreditation procedure - Sample checks based on Fraud Risk Score (Big data & network analyses define the Fraud Risk Score) organised by Flanders Innovation and Entrepreneurship
Promotion, Approaching, Recruiting	Public database of 1800 accredited service providers on the website : powerful search engine + reliable reviews 'trip advisor' + open to everyone Voucher system since 2006 in Flanders Publicity done by the service providers themselves and by the general information actions from the agency and the economic partners in Flanders (who are service providers themselves).
Economics/ Financing	Small Enterprises: Annual maximum €10,000 / 40% Medium size Enterprises: Annual maximum €15,000/ 30%
Budget spent /	Budget € 51,000,000/ year; all is spent

Budget allocated	
Lessons Learned	Even if this voucher system has started in 2006 it is still a useful tool for companies who want to get on the road to digitalisation.
KPIs	
Impact	2017: 53.000 SME's - 130.000 vouchers - 1.800 service providers - 52,6 milion euro spent. An eco-system close to the entrepreneurs. A well known voucher system, easy to use, fast.
Recommendations	A voucher system with a general aim – improving the quality of sme – seems to be a good choice and agile at use when the business challenges are changing. But at the condition that the voucher system is combined with an eco-system (government initiatives + partners) focused on a specific theme as is digitalisation. At the same time, it is easy to maintain the system for a long term because of its general aim so the entrepreneur get used to it and appreciate as a useful instrument from the government. The automated application in combination with accredited service providers creates an efficient system for the government still fast and easy to handle for the entrepreneur.

Name of program	3. Digital journey tracker
Purpose of program	Digital Journey Tracker is a tool that offers a broad overview in digital tactics: - a guidance to a digital journey for companies on how and where to digitalise - an overview of starting points for different types of business
Country /Region	Flanders 
Operator	Sirris + Agoria Sirris is the collective centre for and by the technological industryand a non-profit organisation. Sirris is an organisation with members and founded in 1949 by Agoria, the Federation of the technological industry.
Duration	open
Target Group	- Settled companies/sme as well as start ups in Belgium with questions on digitalisation - Companies with an offer on digitalisation
Number of Companies Participating	Approx. 100 reached in individual and collective workshops Over 1000 visitors website
Barriers Addressed	companies have enormous difficulties to get an overview and set concrete goals. Companies have difficulty finding the right ICT-partner.
Activities	digitaljourneytracker.be Simple framework based on: 3 impact areas: offering, business model, organisation 3 types of businesses: physical products, digital products, services 18 recurring tactics with success stories/examples of Belgian companies A tool for companies with questions on digitisation: a way to get an overview of opportunities and to help determine the strategy and learn from examples of peers A tool for companies with an offer in digitisation: a way to clearly position your own offer and a way to understand new challenges of industry & service companies Free consultation of the information and cases A tool that can be used by companies and their service providers. Sirris and Agoria developed paid services for their target group with discount rates for members.
Promotion, Approaching, Recruiting	Sirris and Agoria do their own promotion: workshops with their partners, newsletter, social media Other organisations like Flanders Food, VIL, Voka, … have also used this tool towards their companies, autonomously or in cooperation with Sirris/Agoria for workshops
Economics/ Financing	Free
Budget spent / Budget allocated	Fully financed bij Agoria & Sirris Cluster project grant for the enlargement to Flanders Food and VIL (Flanders innovation cluster for logistics)
Lessons Learned	Big need for neutral advice to get orientation on possibilities of digital technology Case studies from local companies (also sme's) in own sector are great help to address this need
KPIs	
Impact	
Recommendations	Enlargement of private initiatives by the government (grant + communication) is an important lever for regional business activity.

Name of program	4. Digitalisation Boost (DigitaliseringsBoost)
Purpose of program	To encourage SME's to engage in "Industry 4.0" activities (digitisation, automation, advanced technology and materials, …….) in product development in the cross field between digitalisation and design
Country Region	Denmark, National 3 year program
Operator	Vaeksthus, in each of the 5 Danish regions (after winning a tender by The Danish Business Authority)
Duration	3 years
Target Group	Production SME's 5 -250 employees (EU SME definition)
Number of Companies Participating	25 – target is 45
Barriers Addressed	Lack of network, and cooperation with research institutions
Activities	With the purpose of developing a product grounded in Industry 4.0 technologies, a group of minimum 3 SME's together with a knowledge institution (3 designated) can apply for DKK 600.000 (80.000 Eur) (+ 150.000 (20.000 Eur) for the knowledge institution). Vaeksthus promote the initiative, discuss with relevant SME's and match with knowledge institutions, receive applications and evaluate them for final decision about the grants.
Promotion, approaching, recruiting	1-3 calls per year, Promotion and information to recruit applicants entails : • Colleagues • Newsletters • Website • Information meetings for municipality business offices • Local newspapers • Network partners • Individual 1:1 meetings • Telephone guidance
Economy/ Financing	3 Companies (2 must be SMEs) can apply for 80.000 Euro covering 33% of project labour cost.
Budget spent Budget allocated	DKK 40 mill (5,3 mill Euro), 50 % EU, 25% Government and 25% Regions
Lessons Learned	It takes a great effort to find the right projects, the required number of partners and establish cooperation with 3 designated research institutions
KPIs	The project shall result in 350 new jobs, 750 mio. DKK (100 mill. Euro) in additional turnover, and 40 mill Euro hereof frem additional export, within 5 years from project start.
Impact	New jobs, turnover and export
Recommendations	

Name of program	5. Digital Escalation, (Digitaliseringsløft)
Purpose of program	To give SME's an overview of digital technologies and possibilities.
Country Region	Denmark, 3 of 5 regional Vaeksthus' have participated
Operator	Vaeksthus Centres
Duration	2017, one year
Target Group	Production SME's 5 -250 employees (EU SME definition) –
Number companies participating	Target 50 participating SME's
Barriers addressed	Knowledge of opportunities, process, mindset
Activities	3 Workshops with 12-15 participating SME's dealing with : • Digital strategy and action plan for the SME • Understanding of digital megatrends and the opportunities • Insight to priorities relevant digitalisation initiatives in the SME • Individual sparring • Exchange og experience with other participants.
Promotion, approaching, recruiting	Each Vaeksthus has recruited a number of participants mainly done by the designated consultant, who has engaged and initiated: • Colleagues • Newsletters • Website • Individual 1:1 meetings • Telephone canvas
Economy/ Financing	DKK 385.000 (52.000 Euro) financed by participating SME's paying DKK 8.500 (1.130 Euro) per participant
Budget Spent Allocated	Budget was raised and spent
KPIs	50 participants (3 groups)
Impact	Increased awareness
Recommendations	A small project of short duration requires many resources in planning, marketing, recruiting of participant not proportional with the outcome. Leanings can not be used for continuous improvement. Isolated initiatives like this should only be carried out as a pilot, if there is an intention of and resources for a continued effort making the initiative known by relevant operator employees and in the target group.

Name of program	6. Business Partnership for Advanced Production (Erhvervspartnerskabet for Avanceret Produktion) –> Changed name to SMV:Digital
Purpose of program	To encourage SME's to engage in "Industry 4.0" activities (digitisation, automation, advanced technology and materials, …….), from 2018 also E-commerce
Country Region	Denmark, National 3 year program, extended to 2021
Operator	Vaeksthus, in each of the 5 Danish regions (after winning a tender by The Danish Business Authority)
Duration	Ongoing – started 2017 , revised end of 2018
Target Group	Production SME's 5 -250 employees (EU SME definition), From end of 2018 target group was expanded to all sectors
Number of Companies Participating	Appr. 400
Barriers Addressed	Knowledge of opportunities, risk avoidance, process
Activities	Voucher principle, where SMEs can apply for DKK 100.000 (13.333 Euro) to buy independent counselling regarding clarification of challenges, options and recommendations prior to making decisions. Alternatively, or subsequently the SME can apply for DKK 100.000 (13.333 Euro) for independent counselling to implement a chosen solution – in order to realise the full potential of the investment. The Voucher represents 50% of the total budget and the SME can finance the remaining 50% with the value of spent hours. The program has 1-2 calls per year, and receive 100 – 150 applications per call. An estimated 70 % of the applicant receive a grant/voucher. Councillors must be independent, and cannot be suppliers of solutions. They are chosen by the SME by core competences on the program website. Vaeksthus promote the initiative, discuss with relevant SME's, receive applications and evaluate them for final recommendation to the Danish Business Authority.
Promotion, approaching, recruiting	Application 2-3- month after call. Promotion and information through: Colleagues, Newsletters, Website, Information meetings for municipality business offices, Local newspapers, Network partners, Exhibitions, Writing classes, Individual 1:1 meetings, Telephone guidance
Economy/ Finansing	100.000 DKK (13.333 Euro) per case application (only one pending case at the time)
Budget spent / Budget allocated	DKK 48 mill (6,4 mill Eur), 50 % EU, 25% Government and 25% Regions, extended to 2021 with 20 mill DKK (2,7 mill Euro) per year
Lessons Learned	It takes more effort to make the production SME's aware of and interested in the program than expected. Awareness is only established slowly. Some projects are hard to get stared – due to business in the SMEs
KPI	150-200 participating SMEs per year
Impact	
Recommendations	Increase the volume of the project, and maintain form and name for a longer period of time, in order to make SMEs aware of the program, and make it relevant

Name of program	7. Growth escalating, (Vaekstløft)
Purpose of program	To encourage SME's to engage in" Industry 4.0" activities (digitisation, automation, advanced technology and materials, …….)
Country Region	Denmark, National program
Operator	Vaeksthus, in each of the 5 Danish regions (after winning a tender by The Danish Business Authority)
Duration	3. years, started in 2016, terminated by the end of 2017
Target Group	Production SME's 5 -250 employees (EU SME definition)- 3.000 companies
Number of Companies Participating	Target was 1.000 SMEs
Barriers Addressed	Business plan and digitalisation, Industry 4.0 opportunities
Activities	Voucher principle for independent counselling. The manufacturing SME is chosen by random selection to apply for DKK 79.000 (10.500 Euro) to buy independent counselling and consulting regarding clarification of challenges, options and recommendations prior to making decisions. The Voucher represents 50% of the total budget and the SME can finance the remaining 50% with the value of spent hours. Consultants were chosen based on a tender, with a target to have 8 consortia with app. 50 consultants available in each region.
Promotion, approaching, recruiting	Participants are chosen by random drawing, as is the control group of companies that did not get the offer.1010 SMEs are selected per round and contacted prior to meeting with Vaeksthus consultants
Economy/ Financing	DKK 79.000 (10.500 Euro) (50% of budget)
Budget spent / Budget allocated	DKK 48 mill (6,4 mill Euro), 50 % EU, 25% Government and 25% Regions
Lessons Learned	It takes more effort to make the production SME's aware of and interested in the program than expected. SMEs does not necessarily have a project when they are randomly chosen. The small project grant does not attract the best consultants
KPIs	Number of participating SMEs - not achieved
Impact	Will be measured over time, where recipients are compared to reference group not having received a grant.
Effect	**Agreement has been made with Copenhagen Business School (CBS) to evaluate effect compared to control group. Applicants are asked to fill in a pre-questionnaire to be followed up by CBS**

Name of program	8. Digidiagnostics
Purpose of program	Increasing the awareness about digitisation and automation of industry and related opportunities
Country Region	Estonia 
Operator	Coordinated, managed and funded by Enterprise Estonia. Diagnostics actually performed by industry-specialised consulting companies (qualification criteria defined).
Duration	2018 - … (no time limit, programme will be run until the budget is spent)
Target Group	Companies in manufacturing industry and mining industry
Number of Companies Participating	No limitation to the number of companies. Programme was launched in the beginning of October 2018 – until the end of Oct no companies have applied yet (requires pre-work, requesting proposals from different service providers, approval by Enterprise Estonia etc).
Barriers Addressed	No awareness, no knowledge of opportunities, no knowledge of process, inadequate competences, risk avoidance, bad experiences, unclear business case
Activities	Diagnostics (questionnaires, interviews) (+ pre-requisite: self-assessment questionnaire)
Promotion, Approaching, Recruiting	Through industry associations mainly. Articles and interviews in the media. Special conditions to applicant companies: - min turnover in the previous year at least 200K eur - unpaid taxes max 100 eur - has to be operational
Economics/ Financing	Max 70% of the diagnostics project is funded, min 30% has to come from the company itself. Concrete amount depends on the turnover of the company in the previous year: - turnover 200K – 1M = funding 5K eur - turnover 1-5M = funding 10K eur - turnover 5M or more = funding 15K eur
Budget spent / Budget allocated	Total budget of the programme is 4,2M eur
Lessons Learned	Too early – no results yet
KPIs	The number of diagnostics performed.
Impact	Expectations are that companies will implement the recommendations given in the diagnostics reports but it will not be monitored or measured.
Recommendations	Too early – no results yet

Name of program	9. Digitisation of Industry Ideation Days and Hackathons
Purpose of program	- Increasing the interest from manufacturing companies towards applying digital and automated solutions - Fostering contacts between manufacturing companies and IT-solutions providers - Developing solution ideas and prototypes for manufacturing companies' problems requiring digital and automated solutions
Country Region	Estonia
Operator	Funded by Enterprise Estonia, organised by Tallinn Science Park Tehnopol
Duration	January 2018 – December 2019 (2 years)
Target Group	Industry sector companies; IT-companies; companies in the fields related to industry; students
Number of Companies Participating	No limitation to the number of companies but at least 80 participants (persons) are expected at each event.
Barriers Addressed	No awareness, no knowledge of opportunities, no knowledge of process, mindset, unclear business case, capacity/time, no IT-competences
Activities	- 4 x Ideation Days (1-day event to find solution ideas to companies' digitisation related problems) - 4 x Hackathons (48h event to prototype the solution ideas and develop business model)
Promotion, Approaching, Recruiting	- Dedicated Smart Industry website - Tehnopol network and online and offline channels - Tehnopol's cooperation partners' network - Enterprise Estonia network - Via professional industry associations - Via universities - Articles and interviews in the media (magazines, radio, etc)
Economics/ Financing	Participation in both events is free of charge for companies.
Budget spent / Budget allocated	Budget per event: - Ideation Day – 10 900 eur +VAT - Hackathon – 31 500 eur + VAT Total budget 169 600 eur + VAT.
Lessons Learned	- Difficult to get relevant participants (with desired profiles), especially for the weekend - Despite of the defined topic companies come with their any problems relevant to them at the moment - Many problems are still from Industry 3.0 era – just replacing manual work with digital processes
KPIs	- Number and profile of participants - Number of idea solutions and prototypes from each event
Impact	Expectation is that at least some of the solution ideas designed and prototyped would be developed further and turned into improved or new products on the market.
Recommendations	- Better to have companies' problems pre-defined to manage participants' expectations - Better not to limit each event to a specific narrow topic but allow companies to bring any problem of priority to them

Name of program	10. Digitisation seminars
Purpose of program	Raise manufacturing companies' awareness of digitisation processes
Country Region	Estonia 
Operator	Enterprise Estonia (with the Ministry of Economic and Communication Affairs)
Duration	Sept 2017 - …
Target Group	Industrial companies
Number of Companies Participating	About 250 participants
Barriers Addressed	No awareness, no direct actions for the digitisation processes implementation directly
Activities	Industrial companies that have already implemented digitisation processes share their experiences and talk about it directly to their peers
Promotion, Approaching, Recruiting	Wide promotion to all the industry sectors in Estonia, using all the possible channels to attract the right contacts
Economics/ Financing	Free for participants
Budget spent / Budget allocated	60 000 EUR/1 year, also set 60 000 EUR for year 2019
Lessons Learned	Raising the awareness and studying about the digitisation practices already implemented in Estonia, a lot of new user cases in different areas (textile, machinery, electronics etc)
KPIs	Number of industry participants on seminars
Impact	Get the better feeling and approach towards digitisation processes
Recommendations	Peer to peer learning and best practices sharing

Name of program	11. Enterprise Development Programme
Purpose of program	To support companies within their process of developing their products, including improving their inner processes including digitisation purposes
Country Region	Estonia 
Operator	Enterprise Estonia (with the Ministry of Economic and Communication Affairs)
Duration	January 2016 - …
Target Group	Industrial companies and SME-s of smart specialisation areas
Number of Companies Participating	About 120 companies
Barriers Addressed	Little product development and low number of new products on the market, little implementation of digitisation processes
Activities	The enterprise development programme consists of three stages: 1. Identifying the enterprise's ambition and readiness for change – no grant attached, mentoring/counselling advice 2. Preparing the development plan – no grant, except the costs for mentors/councellors and trainings 3. Implementing the development plan – actual grant attached up to 500.000 EUR/per company
Promotion, Approaching, Recruiting	Actively promoting and looking for companies who could be ready to apply. 1:1 sales by client managers, no overall promotion
Economics/ Financing	Grant up to 500 000 EUR + support for mentors, trainings. Total budget 73 mill EUR
Budget spent / Budget allocated	32,9 mill euro spent by Oct 2018
Lessons Learned	There is expectancy for new products and services but real life activities by SME-s do not end up in brand new products all the time. A lot of bureaucracy involved that SME-s and industrial companies are afraid of. Too difficult programme to follow. Although a lot of activities are listed as eligible, still a lot of costs are not. Barriers to apply for the grant are really high.
KPIs	New products and services on the market up to 2024 – 100. Brand new products and services that have never be seen before up to 2024 – 20 . Growth of the added value. New markets reached.
Impact	Main idea is to help industrial companies in their field of product development, but it also gives them the opportunity to apply digitisation methods.
Recommendations	3-steps action plan is too difficult to implement (time and human resources).

Name of program	12. Digitalbonus.Bayern (https://www.digitalbonus.bayern/)
Purpose of program	Voucher program to promote digitisation for SMEs
Country Region	Bavaria 
Operator	Seven local district councils, together with the Ministry of Economics
Duration	Ongoing. Started Oct. 2016
Target Group	Small and mid-sized companies (EU definition 2003/361/EG)
Number of Companies Participating	6000 (as of May 2018) Limited to 500 applications / month.
Barriers Addressed	Funding.
Activities	Grants are for new/improved products, processes and services, and IT security. Consulting services, implementation, hardware and software are included. Voucher for 30% or 50% of project costs (depends on company size). Vouchers: 10000€ for digitisation, 50000€ for innovation, and low-interest loans
Promotion, Approaching, Recruiting	Companies must apply on the website. Not actively recruiting companies – the companies are coming to the program.
Economics/ Financing	Grants of 10000€ or 50000€, which can be combined with low-interest loans of up to 2 Million €
Budget spent / Budget allocated	140 Million € so far (as of May 2018). Total budget not known. Expect the program to be continued as part of Bayern Ditigal II, but details not known yet.
Lessons Learned	“Easy money” and a simple application process are successful. Most are applying for the 10K grant – very few are “innovative”, and few need a loan. Companies seem to already know what they need to do and use the program to get the work done.
KPIs	Measurement/evaluation hasn’t taken place yet. Ca. 94% approval rate for initial applications. Not yet known how many successfully complete their projects.
Impact	Many companies have plans/ideas for digitisation and this program gives them the last little push to get started.
Recommendations	Perhaps include consulting from experts to make sure the activities are sensible. Make it clear that “expensive” is not the same as “innovative”.

Name of program	13. Silicon Vilstal (http://www.siliconvilstal.de/)
Purpose of program	Private regional initiative to support innovation, entrepreneurship and creativity in the Vils Valley, lower Bavaria
Country Region	Vils Valley, a rural area in lower Bavaria 
Operator	Private citizens
Duration	Ongoing. Started 2016.
Target Group	Private citizens and local companies
Number of Companies Participating	Ca. 40 sponsors and contributing companies Ca. 25 speakers
Barriers Addressed	Awareness, Knowledge, Mindset Overcome negative stereotypes
Activities	Festivals and meetings to support creative exchange between the rural region, international experts, creatives, start-ups and initiatives from all over Germany.
Promotion, Approaching, Recruiting	Local press, other events
Economics/ Financing	Almost entirely privately funded. Donations in kind from local companies.
Budget spent / Budget allocated	Non-profit. Most donations in kind rather than in euro.
Lessons Learned	Engaged local community can accomplish great things. Listen before you act. Listen carefully to what the actual needs are, not what external “experts” think the needs are. Local companies are willing to contribute. Seem to prefer to contribute in kind rather than money – easier for them (avoid internal and external burocracy)?
KPIs	No hard KPIs.
Impact	Places rural communities on par with urban areas.
Recommendations	Use your ears – Listen carefully to figure out what they need to be able to start right NOW.

Name of program	14 Trendscouting/trendmapping for SMEs as a service from Bayern Innovativ
Purpose of program	Give SMEs access to advanced tools for trendscouting and roadmapping that are normally only available to large companies (due to costs)
Country Region	Bavaria 
Operator	Bayern Innovativ
Duration	2018 onwards. Just starting up.
Target Group	Bavarian SMEs
Number of Companies Participating	None, yet. Program is just starting.
Barriers Addressed	Access to technology. Awareness, Knowledge, Risk Taking, Staff, Financing
Activities	Bayern Innovativ provides a software platform and knowledgeable administrators for SMEs to use trendscouting and roadmapping software tools. Using digital tools to support innovation in SMEs.
Promotion, Approaching, Recruiting	Not actively recruiting companies yet. Doing pilot projects with some existing partners.
Economics/ Financing	Not yet clear how to change for the service. Not yet clear how much SMEs are willing to pay for such a service.
Budget spent / Budget allocated	Bayern Innovativ pays for the software license and uses the software to provide services to SMEs.
Lessons Learned	The concept is difficult to explain – need to take lots of time up front to be sure all participants understand the goal and what input is needed. The software requires input from human experts. Significant effort to collect the required background information and to keep it up-to-date. Open collaboration requires a lot of trust – need to build up this trust first.
KPIs	Number of projects performed with/for SMEs.
Impact	Program is just starting, so no impact yet.
Recommendations	Find groups of SMEs who work in a similar industry, to provide input to the tools.

Name of program	**15. Zentrum Digitalisierung.Bayern (Center for Digitisation Bavaria) https://zentrum-digitalisierung.bayern/**
Purpose of program	Support digitisation projects and cooperation between universities, research institutes, companies, organisations, govt ministries, and public services
Country Region	Bavaria 
Operator	ZD.B
Duration	Ongoing. Established 2015.
Target Group	Support digitisation projects and cooperation between universities, research institutes, companies, organisations, govt ministries, and public services
Number of Companies Participating	Not known.
Barriers Addressed	Significant focus on education/research at universities. Addresses: • Knowledge • Staff Thematic platforms to address digitisation in specific industries. Main barriers addressed are: • Awareness • Knowledge • Financing

Activities	• 10 Innovation Labs
	• 20 new professor positions
	• 7 Topic platforms, 4 more proposed:
	  ○ IBCCnet (ITC Cluster)
	  ○ Cybersecurity
	  ○ Digitisation for Energy
	  ○ Digital Health/Medicine
	  ○ Digital Production & Engineering
	  ○ Connected Mobility
	  ○ Digitisation in Education, Science and Culture
	  ○ (proposed) Smart City and Smart Building
	  ○ (proposed) Workplace of the Future
	  ○ (proposed) Land Management
	  ○ (proposed) Consumers
	• ZD.B Central Office
	• 30 PhD Students per year
	• 10 Junior Research Groups
	• Entrepreneurship ecosystem and meetups at universities and incubators

Promotion, Approaching, Recruiting	Significant press coverage of announcements of “Bayern Digital I and II” funding .
Economics/ Financing	Co-financed by the Bavarian Ministry of Economics and Ministry of Education
Budget spent / Budget allocated	Not known exactly. ZD.B is the flagship project to implement the goals of Bayern Digital I and II:

	• Bayern Digital I (2015-2018) – 2.5 billion € • Bayern Digital II (2018-2022) – 3 billion €
Lessons Learned	Needs to be run like a start-up: requires a lot of flexibility and being allowed to pivot. Senior leadership should be from industry rather than academics. Companies need to be run differently that universities. Hands-on experience in industry needed. Sometimes better to ignore/hide your academic title, because people are sometimes intimidated by an “expert” coming to them. Takes time and lots of experimentation to find effective methods. Difficult to retain good academics (PhD students and research group leaders) if you can’t offer them permanent professorships. Focus less on organizing events: too time-intensive and covered better by others. The world doesn’t end at the Bavarian border – make cooperation with companies/institutes outside Bavaria easier, not harder. Pull walls down rather than building new ones. Difficult to define KPIs. Evaluation will be largely interview based, not based on easily measurable factors.
KPIs	Project has not been formally evaluated yet, but will be evaluated next year. Evaluation will be based on a few hard KPIs (e.g. number of events organized) but mostly on subjective interviews with project partners.
Impact	Has not been measured yet. ZD.B is very active in both universities and industry – main visibility through the topic platforms.
Recommendations	

Name of program	16 Zollhof Tech Incubator (https://www.zollhof.de/)
Purpose of program	Support digital and tech start-ups from all over Europe.
Country Region	Bavaria, but teams from all across Europe can apply. 
Operator	Zollhof
Duration	Ongoing. Started Oct 2017.
Target Group	Start-ups in digital and tech fields, with a focus on 1. Urban Mobility / E-Mobility 2. Internet of Things 3. Artificial Intelligence (AI) 4. Big Data 5. Digital Health 6. Virtual Reality (VR) / Augmented Reality (AR)
Number of Companies Participating	22 start-ups so far. Five startups in each batch. There will be two new batches/year. The second batch was just selected in May, 2018.
Barriers Addressed	Funding
Activities	Five teams per round will move into the Zollhof. They receive office space, training, IT services, access to business experts and access to investors.
Promotion, Approaching, Recruiting	Start-ups apply to be accepted by Zollhof.
Economics/ Financing	Funded by Ministry of Economics (80 Million €) and several large companies. Zollhof does not take shares in the startups they support. Rather, has corporate and public funding to run the incubator.
Budget spent / Budget allocated	80 Million € from the Ministry of Economics, mostly to purchase and renovate an office building. Additional funding from corporate sponsors (amount unknown).
Lessons Learned	They are receiving high-quality applications. Too soon to tell how many of the start-ups are successful.
KPIs	
Impact	Vibrant community of tech start-ups, which will lead to tech SMEs.
Recommendations	Establish KPIs to determine whether this support for start-ups has a impact on the market.

Name of program	17 .Digileap
Purpose of program	Digileap is aimed at helping industrial companies and industry-related service companies benefit from digital technology.
Country Region	Sweden 
Operator	20 regional projects led by local organisations such as IUCs (Industrial Development Centres) around Sweden One national project (Kickstart) led by Teknikföretagen (The Association of Swedish Engineering Industries). An online tool to be launched in 2019
Duration	2016-2019
Target Group	Industrial companies and industry-related service companies
Number of Companies Participating	400 in coaching projects 350+ in Kickstart
Barriers Addressed	Awareness, skills
Activities	Seminars, workshops and individual coaching. Online training.
Promotion, Approaching, Recruiting	The projects run the recruitment of companies. Tillväxtverket contributes, for example by sending a letter to 4800 companies and distributing a film with the Swedish Minister for Enterprise and Innovation.
Economics/ Financing	The projects are co-financed by the local organisations, municipalities, universities, county councils or EU-funding.
Budget spent / Budget allocated	Special Assignment 78 000 000 SEK
Lessons Learned	Difficult to recruit participants to some projects, companies needs are more basic than expected.
KPIs	Number of participants. Increased knowledge about digitisation and increased use of digital technology in the participating companies.
Impact	An evaluation is planned to 2020.
Recommendations	Begin with the recruitment of companies at least three months before the activity starts Two people from the corporate management team should participate

Name of program	18. Startup Sweden
Purpose of program	To offer the country's most promising digital start-ups access to networks, skills, role models and investors.
Country Region	Sweden 
Operator	Tillväxtverket
Duration	2016-
Target Group	Start-ups from all over Sweden who base their business on a digital platform
Number of Companies Participating	40/year (boot camp) 150/year (international tech events)
Barriers Addressed	Network, skills, funding.
Activities	1) A week-long boot camp at Tillväxtverket in central Stockholm four times per year, max ten start-ups per round. 2) Internationalisation through four pre-selected conferences / events in various international markets. Between 6-40 companies are selected to attend each event. 3) Sweden DemoDay is Sweden's largest demo day with over 250 companies and 200 investors.
Promotion, Approaching, Recruiting	The start-ups are selected by an external assessment group consisting of private and public investors, incubators and tech experts from the Swedish start-up scene.
Economics/ Financing	The events/ boot camps are financed by Tillväxtverket. The companies pay for their travel costs and accommodation.
Budget spent / Budget allocated	SEK 4 million 2017 from Tillväxtverkets budget
Lessons Learned	Better quality of the applications when having general boot camps rather than niche boot camps
KPIs	The number of companies that have been part of the boot camp each year
Impact	12 out of 80 participating companies (during boot camp weeks) have got 75 MSEK in external financing, of which 75% of the companies are outside Stockholm
Recommendations	Make tech experts within EU available to companies in all EU countries regardless of national boundaries.

Name of program	19. Vouchers for digitisation
Purpose of program	To help small sized businesses develop the business through digitisation. The voucher is intended to contribute to the sustainable growth and competitiveness of the business.
Country Region	17 out of 21 regions in Sweden 
Operator	Tillväxtverket in cooperation with county administrative boards and business support organisations.
Duration	2016-
Target Group	Small enterprises 2-49 employees, an annual turnover of between SEK 3 million and SEK 100 million
Number of Companies Participating	200-300/year
Barriers Addressed	Funding. Skills.
Activities	Regional assessment meetings where the businesses are invited to come and present their projects.
Promotion, Approaching, Recruiting	A decentralised model where each region is responsible for marketing the vouchers within their region. Tillväxtverket offers promotional kits for them to use.
Economics/ Financing	SEK 50 000 – SEK 250 000 per voucher. Can fund up to 50% of eligible cost.
Budget spent / Budget allocated	SEK 50 million/year from Tillväxtverket's own budget. 2017 SEK 59,9 million spent
Lessons Learned	Big interest. Basic level project. Difficult to find skilled competence to make the assessments. The model needs to be adjusted.
KPIs	Age/sex/origin of CEO. Increased competitiveness. Turnover, employees, value added compared to control group.
Impact	96,8% find that the voucher has helped to increase the company's competitiveness 94% consider that the company's digital maturity has increased because of the project
Recommendations	Offer companies coaching or advice on digitisation before applying for a voucher

9. Acknowledgements and Contacts

This report is the result of a consolidated effort by the partners in the consortium around this P2P learning project. More information be obtained from the following contacts:

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