

Policy paper

# Boosting the digital transition through lifelong learning

Nordic Initiatives

”Digital competences  
can best be strengthened  
by co-creation”

/KomDigital/

Produced by Hanne Smidt

# Foreword

Lifelong learning has always been an important way to keep employees updated with the latest knowhow in response to new demands of the industry in the Nordic countries. This has been an essential part of the Nordic countries industrial success and societal development.

Today the technological development, and now also the Covid-19 pandemic, challenge the existing practices and test how well society and professional groups respond to change. Lifelong learning has stepped into our workplaces and our lives by reclaiming its well-deserved right to be prioritised. The European Skills Agenda 2020 and the recent European Council Conclusion also point to the importance of “reskilling and upskilling as a basis for increasing sustainability and employability, in the context of supporting economic recovery and social cohesion.”

The challenges that the digital transition pose have to some degree already been addressed in the Nordic region - often regarded as a digital frontrunner in Europe and globally due to its capability to access and use digital infrastructure. However, closing the digital skills gap and ensuring adequate provision of lifelong learning courses is still a challenge for the region. Therefore the Association of Nordic Engineers, ANE, and the Network of Nordic and Baltic Universities of Technology, NORDTEK, have joined forces to support the development of lifelong learning and promote the provision of continuing education in support of digital transition in the Nordic Region.

The partnership was established to jointly explore what type of lifelong learning opportunities existed for STEM/ICT professionals already having a higher degree. Ultimately, the partnership strived



**Inese Podgaiska**  
Secretary General  
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for raising awareness of the growing demand for the higher education institutions to secure the provision of relevant lifelong learning courses for STEM/ICT Professionals.

The report, which we present as the outcome of this cooperation, provides an insight into some inspiring initiatives from the Nordic countries. These initiatives point out the importance of cross border collaboration between different stakeholders to better match the demand with the supply of courses.

Moreover, there is a growing interest in learning together and in supporting the digital leadership. Lastly, the report finds that the provision of lifelong learning and continuing education offers many advantages for both higher education institutions and society. They build important bridges between education, research, and the business sector, in particular when addressing the digital and green transformation.

We hope the findings and the recommendations in this report will stimulate a more active Nordic cooperation in the field of lifelong learning for highly skilled professionals.

Finally, we want to thank colleagues from the Danish IT Society and the Copenhagen Business Academy, as well as all interviewed stakeholders who contributed to the production of this report. Our special thanks to Hanne Smidt Sodergard for her dedication and great work in writing this report.



**Peter Göranson**  
Secretary General  
Network of Technical Universities in Nordic and Baltic countries, NORDTEK

# Introduction

## Context

Ensuring the provision of relevant lifelong learning seems to be a hard nut to crack, but the transition into the digital age demands that we find new ways to do this. For many decades, our education and professional paths have been defined by the so-called 70 – 20 – 10 model, where 10 is the formal university degree, 20 is non-formal courses and 70 is learning on the job. In other words, higher education has traditionally been a one-stop shop for most university graduates, followed by on-the-job development. The current disruption in our societies makes this model non-sustainable. Presently the disruption caused both by digitalisation and COVID-19 demands that all partners or stakeholders work together to develop new solutions and offers that can ensure lifelong learning and boost the digital and green transition as highlighted in the EC Skills Agenda 2020<sup>1</sup>.

The consequences of the 2020 crisis will require new ways of thinking, working, and learning. The pandemic is impacting our labour markets, as is the digital and green transformation that we all need to engage in. The expected changes are huge. According to the World Economic Forum estimations, 54 % of employees will require imperative reskilling by 2022<sup>2</sup>. Many other research findings and policy papers point out the need to quickly close the skills shortage, and in particular the need to support the digital transition through lifelong learning – also for the part of the workforce that already have a higher education. What is often missing is taking into account the great potential of those who already have relevant higher degrees and who would be able to become frontrunners or provide digital leadership in the digital transition with the provision of relevant continuing professional development (CPD). Consequently, the development of purpose-driven lifelong learning opportunities to boost digital skills is an important building block for the restructuring of the job markets and supporting the changes in societies.

The challenges that the digital transition bring up are to some degree being addressed in the Nordic Region due to its capability to access and use digital infrastructure, the engagement in innovation and development and the tradition of engaging in lifelong learning when changes are needed. The Nordic Council of Ministers has in its declaration from 2017<sup>3</sup> voiced their political commitment to make the region a digital frontrunner. The Nordic countries have also engaged in the EU Digital Skills and Jobs Coalition (DSJC)<sup>4</sup> where one of the ambitions is to make use of available funding to support digital skills<sup>5</sup> development, underlining their importance for employability, competitiveness and participation in democratic societies. However, moving to the implementation phase to close the digital skills gap and ensure adequate provision of relevant lifelong learning courses is still a challenge for the region.

## Background

The Association of Nordic Engineers, ANE<sup>6</sup> and the Network<sup>7</sup> of technical universities in the Nordic and Baltic countries, NORDTEK have joined forces to support the development of lifelong learning and promote the provision of continuing education courses in support of digital transition in the Nordic Region.

The partnership was established in order to jointly explore what type of lifelong learning opportunities exists for STEM/ ICT professionals who already have a degree, and thereby to help raise awareness of the need for and the right to the continuing professional development for this target group, too. Another motivation of the partnership was to promote policy recommendations from the ANE survey<sup>8</sup>, namely the growing demand for higher education institutions to secure the availability of relevant lifelong learning courses for STEM/ICT Professionals and the need for mapping and communicating the provision of lifelong learning courses.

1. <https://ec.europa.eu/social/BlobServlet?docId=22832&langId=en>
2. [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs\\_2018.pdf](http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf)
3. <https://www.norden.org/en/declaration/nordic-baltic-region-digital-frontrunner>
4. <https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition>
5. <https://ec.europa.eu/digital-single-market/en/potential-funding>
6. ANE is the cooperation organisation between the trade unions representing engineering profession: in the five countries of the Nordic region: <https://nordicengineers.org/>
7. <http://nordtek.net/>
8. Continuing Professional Development as viewed by Nordic Engineers: Policy recommendations (2019) <https://ipaper.ipapercms.dk/IDA/ane/report2/#/>

The partnership has been extended to include the Danish and Swedish national platforms in the Digital Skills and Jobs Coalition. ANE being the member of the latter adheres to its mission of sharing digital practices, which strongly depends on cooperation among relevant stakeholders. Copenhagen Business Academy “Cphbusiness” has also joined the partnership and contributed with their work on the development of digital leadership<sup>9</sup>.

The policy paper, commissioned by ANE and NORDTEK, outlines different initiatives identified as Nordic frontrunners, which support the development of lifelong learning particularly for those with higher education. It highlights the lessons learned, as well as the challenges and opportunities, from which preliminary policy recommendations have been drafted. The finalization of policy recommendations has been foreseen as a collaborative effort at the digital conference organised on October 1, 2020.

The objective of this policy paper is to inspire, motivate and upscale the further development and implementation of lifelong learning opportunities to boost digital skills both in the Nordic region and beyond.

### Methodology

This policy paper is based on desk research and online interviews carried out between February and June 2020 with more than 30 stakeholders from Nordic universities, trade unions, employers’ organisations, national authorities, research councils, companies, and governments in the five Nordic countries (see list in annex II).

The interviews were semi-structured and their point of departure was to investigate if and in which form the provision of continuing professional development in artificial intelligence, IT systems and other digital skills were available or seen as a catalyst for co-creation of new and innovative offers for professionals already having a degree. However, the scope of the initiatives included in this paper is not limited only to STEM/ICT professionals as some of the identified initiatives had a much larger scope.

### The desk research was carried out by looking into a range of different approaches:

- new and innovative forms of cooperation and/or strategic partnerships between different stakeholder categories, be it universities, trade unions, employers’ organisation, academia, business, and public authorities
- modes and models of provision, be it online, on-campus or in blended formats
- didactic and pedagogical models
- engagement and communication with target groups
- funding

As some of the interviews were conducted in the period April-June, it became important to include lifelong learning initiatives that target those who have become unemployed or temporarily laid off due to COVID-19. Also, to learn if COVID-19 has encouraged the development of new strategic partnerships and a more wide-spread focus on the use of online learning.

Lifelong learning is presently a fast-moving agenda, but it is also an area with a long history. A large corpus of research is available on **why** lifelong learning is an important support for societal development (covering both theory and practice) and the importance of supporting the digital transition. The publications also include many policy reports, green and white papers. There is a clear evidence that access to lifelong learning is a key building stone for societal change, even though the approaches to its implementation differ from country to country.

## Summary of the Nordic initiatives

	Digital Dogme	FiTech	Kom-digital	NITO	University of Iceland	University of Agder	Iceland-Education Fund	KTH Vision	Sitra report	KKSExpert competence programme
Strategic partnerships	Yes, between private companies	Yes, with other universities	18 different stakeholders	Yes	Yes	Yes	Yes, between employers organisations and trade union	No	Yes, Stakeholders	Yes, between companies and HEIs
Funding	Yes, private	Yes, project government funding	European Social Fund	No	No	Yes, new government funding	Employer funding	Not relevant	Not relevant	Research Council funding
Visions for the future	Yes	Yes	Yes	Yes	Yes	?	?	Yes	Yes	Yes
Platform	No	Yes, one-stop-platform for information and application	No	No	No	No	No	Not relevant	Not relevant	Not relevant
Engagement of researchers	No	Yes	Yes	No	?	Yes	No	Not relevant/yes	Not relevant	Yes
Focus on the digital transition	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
New educational formats and modes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes, short courses

9. Cphbusiness is an applied science university. The leadership courses invite the participants to work and learn together. They learn how to reflexively relate to new technologies and lead the digital transition. Leadership is essential in the digital transition. The employees constitute the most important competitive advantage. Matching the knowledge in the academic environment with the competence needs of the business and public sectors makes it possible for the companies to retain and strengthen their renewal and competitiveness. The flexible and digital forms make the education possible regardless of the geographic locations.

# Nordic initiatives

## Trends and lessons learned

The interviews and the desk research confirmed that currently there is a very high level of new activities supporting or developing new lifelong learning initiatives in the Nordic region. Ten initiatives have been chosen to represent the scope of different types of initiatives and strategic partnerships, but many more deserved to be included. The initiatives were chosen to reflect different types of **partnerships and stakeholder co-operation and co-creation**, different **models, and types of offers**, different **funding** models, different **platforms for communication and cooperation** and a vision for more **flexible and adaptable learning paths**. The common denominator between the initiatives is that they all have been developed in strategic partnerships and support hybrid education models for renewing the continuing education offers - also for those with a degree. In particular short courses, micro-credentials, and flexible learning offer.

The Nordic national policy approaches differ as the educational systems and cultures are different – even if the usual perception is that they are similar. However, they share a number of views on **how** to use lifelong learning in practice to boost the digital transition:

- Experiments with different models and type of offers. Several different modes were identified, ranging from full-time formal degrees to MOOCs (Massive Open Online Courses), short courses, micro-credentials, workshops, and webinars. The offers are provided in different modes: online, on-campus, blended learning, face-to-face, targeted, tailor-made, and mixing lifelong learners with the young learners. Some offers provide formal qualifications, degrees, short courses or micro-credentials with ECTS-points and some non-formal qualifications like badges.
- Experiments with new forms of (joint) offers created in a strategic partnership between stakeholders were considered by many of the interviewees to be the most important renewal of successful lifelong learning offers in the 21st century, though modes and formats differ and many have been developed to

ensure that recent digitalisation research reach the target groups that can implement them.

- Experiments with funding through projects and partnerships are many and include partnerships between ministries of education and research, finance and labour market, between unions and employers' organisations, between higher education institutions and companies, and between research councils, universities and companies – or between some or all of these stakeholders. Many considered this a new, important trend.
- Experiments with using platforms to cooperate and communicate lifelong learning offers to the target group was also considered a key development, but many found that it is a challenge to find the right format. Creating a platform and communicating its existence is a challenge in itself, but the bigger challenge is the long-term funding for the maintenance and curation of a platform to ensure that offers are current and hold relevant information for the learners. Funding for maintenance can be precarious but is discussed in the majority of the Nordic countries as important for reaching the target groups.

Thus, to engage proactively in lifelong learning requires a change in mindset, political and financial support, strategic partnerships, and ensuring these changes benefit the individual learners, and to this end **digital leadership is required**. All parts of the workforce need to understand the need for adaptability, flexibility, and readiness for an uncertain future. **The complex challenges of providing lifelong learning can be solved only in partnership and by working together** as the EU Skills Agenda underlines<sup>10</sup>.

## Denmark

### 1. Digital Dogme: Sharing and developing digital upskilling within companies and organisations through cooperation between public and private companies

Digital Dogme was founded in 2018 by Netcompany, TDC, Copenhagen Airports and Danske Bank as a private initiative. In the autumn of 2019, Digital Dogme was established as an association and set up a board consisting of the four founders and has received support from the Danish Industry Foundation to boost its activities and build a secretariat. The project build on the perception that talent, competence, and skills should be cultivated from within the workplace. To recruit staff with the right digital skills is only one of the solutions to the digital transformation, but that is not always enough. Many companies forget that their own employees constitute their most important competitive advantage.

The Digital Dogme supports the digital transformation with a broad understanding of what digital skills are. The objective is to create value for members of the Digital Dogme Association (knowledge, experience exchange) and develop digital learning modules that can be spread to other companies with similar challenges. The focus is simply to provide companies with courses that can develop their digital change management and digital business development. The initiative builds on the participation of companies that want to participate and co-create concrete solutions and initiatives that can contribute to the lifting of the competence level.

Digital Dogme now engages with about 30 of the largest Danish companies that have decided to work closely together to provide courses that promote digital skills and technological solutions building on the experiences for staff development in the companies. The courses are not based on academic articles, textbooks, and good intentions, but on how to help one another through hard and practical work with the upgrading of digital skills and leadership – or digital excellence. To achieve a world class IT competence level, most companies employ digital experts, but Digital Dogme wants companies to consider the use of training courses on advanced technologies and up-grading of existing staff, too. The courses also include cyber security and external threats and disseminate knowledge and upskill the necessary competencies in the field.

Digital Dogme has a very good understanding of how the need for skills differ between different types of employees and how they can benefit and learn from one another by studying with different people from different companies. Digital Dogme thinks that this is where innovation occurs and where companies really can learn together. By working together and learning together employees can learn to reflexively relate to new technologies and see digitalization as an opportunity to get work that is more exciting and create more value for customers, citizens and users.

In order to co-create the courses, companies must be members of Digital Dogme and undertake to share knowledge with other member organizations. The goal is to reduce the skills gap in digital competencies in Denmark by upgrading digital integrators and specialists across industries, sectors, and companies of all sizes. However, it is planned that non-member companies can access Digital Dogme's digital modules through the Digital Dogme Learning Academy.

The Digital Dogme Learning Academy offers courses that has been developed and tested with Denmark's largest companies, and the Academy experiments with certification through micro credentials.

**Focus:** Providing digital skills development.

**Responsible:** CEO: Martin Grønbæk Jensen.

**Target group:** All Danish employees and businesses with a digital skills gap.

**Period:** Permanent.

**Funding:** Initial funding for 2020-2022 from The Danish Industry Foundation DKK 739 M.

**Cooperation with others:** Wide circle of partners in private and public sectors, i.e. on content, technology and distribution (see <https://digitaldogme.dk/en/partners/>).

**Number of people and/or companies reached:** The goal is to get 40 members (companies) in 2020 and reach 20.000 employees.

**Does the initiative target COVID-19 challenges?** Not yet.

**Does the initiative directly target the digital transformation?** Yes.

**Link to the project:** <https://digitaldogme.dk/en/frontpage/>

10. <https://ec.europa.eu/social/BlobServlet?docId=22832&langId=en>

## KomDigital

### 2. KomDigital: Developing digital competences within companies and organisations through cooperation between multiple stakeholders

KomDigital is a project that targets the development of digitalisation and digital competences for public and private organisations and companies. It aims to support the introduction of innovative technologies, digitalisation, and new learning formats in 50 development-oriented small and medium-sized companies (SMEs). The project's objective is to lift digital competences in SMEs, by creating short tailor-made learning programmes that are adapted to the participating companies and their organisational pre-conditions and the needs of the employees, management, and the company to grow. The intent is to increase employees' and management knowledge, skills and use of digital solutions, and to ensure an understanding of how best to use the possibilities that digitalisation offer for operational change. The project is a partnership between 18 organisations and represents different stakeholder organisations. It is funded by the European Social Fund (ESF).

The project is anchored at the Technical University of Denmark and the objective of the KomDigital project is to increase the digital competences in the Copenhagen Capital Region and target industries with special digital transformation needs, by developing new competency formats with workplace-friendly digital competences. There is currently a poor match between the professional IT and ICT courses offered by providers in the market and the digital skills gaps in the workforce. The concept is to bridge the competence gap and to develop the basis for a growth-oriented skills development of employees at all key job functions in the implementation of smart technology and digitalisation in the participating companies or organisations.

**Active leadership is important for the development of a common language and understanding of how smart technology and digitalisation is implemented.**

#### KomDigital builds on three key principles:

- Involvement of the users (employers and employees):** A fundamental starting point for creating the KomDigital learning solution is first to identify the needs, challenges, and potentials of companies. Furthermore, the learning project is always developed in an iterative learning process, which is continuously presented and tested with the end users.
- Third party engagement:** The planning and implementation of the learning offers are done in a co-creation process that typically includes external expertise from content specialists, higher education institutions, existing course offers etc. In this way, tailor-made learning packages are created by using both new and existing building blocks so that they match the company's or organisation's specific needs and pre-conditions.
- Commitment from development partners:** The project's circle of partners is a key part of the project. The circle includes knowledge partners and representatives from both employers' organisations and unions. Their combined knowledge and participation are essential for the success of the project and ensures its relevance.

11. The Capital Region of Denmark, Business House Copenhagen, Municipality of Copenhagen, Service Cluster Denmark, Copenhagen Fintech, Danish Employers' Association for the Financial Sector, The Danish ICT Industry Association, Copenhagen Business School (CBS), IBM Denmark, Copenhagen School of Design and Technology (KEA), The Danish Confederation of Professional Associations (AC), Danish Trade Union Confederation (FH), The Financial Services Union in Denmark (Finansforbundet), Danish Association of Masters and PhDs (Dansk Magisterforening), Federation of IT-professionals (PROSA), LO Hovedstaden, The Danish Confederation of Professional Associations (DJØF), and The Danish Society of Engineers (IDA)

## Finland

### 3. FITech, the Finnish Institute of Technology: Joint platform created by all technical faculties in Finnish universities to support the digital transition in Finland

The Finnish Institute of Technology (FITech) was founded in 2017 by all seven Finnish universities with technological faculties<sup>12</sup>. The mission of FITech is to contribute to the development of Finnish innovation capacity and to respond to competence demands arising in the field of engineering.

FITech initiative offers university courses - free of charge - for both degree students and lifelong learners and it is possible to choose courses from all technical universities in Finland. FITech offers beginner, intermediate and advanced courses, and thus have a very wide target audience. As FITech aims to respond to a challenge on a national level, the courses are offered in Finnish, Swedish and English to serve the whole workforce in Finland. The courses are presented on **the FITech platform, which is a one-stop shop** where it is possible to apply for the universities' courses and gain access to learning platforms.

The FITech initiative started as a STEM project, but has been expanded from degree education to adult education. Cooperation between higher education institutions has widened the educational offers and developed a focus on adult pedagogics and alternative credentialing presented through the joint platform.

Thus, FITech enables professionals in working life to update their ICT competences and the participating universities offer about 150 ICT courses which everyone can attend. An additional aim is to knock down organizational barriers between higher education institutions and create new opportunities for adults with a degree to engage in studies.

The range of courses covers a broad variety of topics, from programming to data analytics to machine learning. The advanced (level) courses target people with professional experience in the field of ICT and these courses provide knowledge in the latest emerging technologies for people with prior experience and skills enabling them to grasp complex phenomena and methods. The free offer target professionals who want to deepen existing skills and develop new areas of expertise and can be attended both on the member universities around the country and (flexibly) online.

The FITech network is presently funded by the Ministry of Education and will continue on the current funding until the end of 2021. All initiatives collaborate with companies in their field. Company representatives are included in the executive groups of all the initiatives. >

12. Aalto University, LUT University of Technology, University of Oulu, Tampere University, University of Turku, University of Vaasa, and Åbo Akademi University), Industries of Finland (Teknologiateollisuus and the Academic Engineers and Architects in Finland TEK. University of Jyväskylä has joined the FITech consortium in 2020.

FITech is required to report the number of completed ECTS credits to the Ministry of Education, and thus the focus at the up-start of the project was on formal credits, but it has become evident that the adult learners with a degree often do not have the need for the formal ECTS-credits. In order to prevent dropout from the courses and to support the full completion of the courses, FITech provides the possibility to get a digital badge instead of ECTS points. The introduction of the digital badges is perceived as an easy way to show completed courses and the skills acquired by the adult learners. The badges can be shared on a LinkedIn profile or other social media platforms.

The teachers engaged in the FITech initiative found that they **faced a new pedagogical challenge** with the very diverse groups of students and the learning happening mostly online. FITech has therefore created tools and frameworks especially for the creation and development of online courses to support the teachers engaged in the network. The tools provided by FITech have been published as the **Learning Design Toolkit**. The **Design Book** functions as a user manual for the Learning Design Toolkit. Its content is based on the science of learning and the guidelines for university pedagogy and digital pedagogy at the FITech member universities. FITech has chosen the approach of student-centred learning design, which is described in their Design Book.

## Finland

### 4. SITRA: The project “Towards lifelong learning” by the Finnish Innovation Fund: Supporting the national development of lifelong learning through stakeholder consultation

The aim of Sitra’s Lifelong learning focus area - and project - is to support the development of **a cross-sectional Finnish policy for lifelong learning**. The aim of the three-year project is to speed up the transition to a lifelong learning policy in which competence development and work are seen as the building materials of the well-being of Finnish citizens. The resources used to build up continuous competence development are regarded as a profitable investment in Finland’s competitiveness.

Sitra’s role is to act as a neutral bridge builder between different stakeholders to prepare for a new lifelong learning policy. Sitra provides an arena for joint discussion, support interaction between participants and has carried out background preparation work to create a basis for the discussion. The results of the work in the focus area is openly available through the Sitra website and can be used by everyone interested in the development of continuous learning. The participation of the 30 stakeholder representatives<sup>13</sup> has been realised by discussions in different forums and the use of online working format. The work has made use of relevant research carried out in Finland and abroad.

The Sitra report “Towards lifelong learning”, published in March 2019, is based on a shared understanding of the main objectives of lifelong learning of 30 key stakeholders, the challenges to lifelong learning and the principles of its funding. Based on the Sitra report the Finnish government is currently in the process of forming a shared view and preparing a roadmap for the future lifelong learning policy. This process is co-ordinated by key representatives from central government and the fields of employment and education. A national policy is expected to include an effective steering and funding system and an education system, which guarantees a broad competence base and the capabilities required for lifelong learning to everyone in Finland. With this competence base, people will be able to use the opportunities available to build extensive, high-quality expertise and have job flexibility at different stages and situations throughout their lives.

Sitra continues to work in the focus area of lifelong learning and will continue to produce research on lifelong learning, contribute to **the creation of a roadmap for the development of lifelong learning** and explore the potential for implementing collaborative or experimental projects.

**Focus:** Developing university courses to degree students and life-long learners, which correspond with the industry’s needs and demand for specialists in the ICT and energy sectors.

**Responsible:** The FITech consortium is coordinated by Aalto University. The FITech project team runs the operative actions.

**Target group:** Degree students and life-long learners: adults in the working life and high school students.

**Period:** 2017-2021 (current funding).

**Funding:** €28.5M from the Ministry of Education and Culture for three sub-projects (€18 M, €10 M ICT, < €0.5 M).

**Cooperation with others:** Network of eight universities, Industries of Finland (Teknologiateollisuus) and the Academic Engineers and Architects in Finland TEK. Companies are involved in the initiatives through executive groups and different forms of collaboration.

**Number of people and/or companies reached:** Degree students within the network’s member universities, all adults in the Finnish workforce, high school students in Finland.

**Does the initiative target COVID-19 challenges?** Yes. The number of adult learners participating in FITech’s courses has risen significantly during the spring 2020 following the temporary lay-offs and redundancies in the Finnish companies.

**Does the initiative directly target the digital transformation?** The FITech ICT initiative targets digital transformation directly. The ICT initiative aims to further educate ICT professionals in the front line of development and digital transformation and to give a basic understanding of ICT and digital transformation for a larger group of people. The initiative looks forward to equipping adults in the working life with the ICT skills needed to utilize and develop digital solutions, digital business development, and custom-oriented services.

**Link to the project:**  
<https://fitech.io/en/about-fitech/>

**Information about the initiative:**

The Sitra lifelong learning project is to support societal actors in developing and promoting lifelong learning and competence in Finland.

**Focus:** To support different actors in Finland in order to develop a cross-sectional policy for lifelong learning and to speed up the transition to a lifelong learning policy in which competence and work are seen as the building materials of well-being.

**Responsible:** Sitra, Finnish Innovation Fund supported by representatives from 30 key societal organisations and companies.

**Target group:** political actors, employers and companies, higher education institutions and all citizens of Finland.

**Period:** spring 2018 – autumn 2021.

**Funding:** Sitra, Finnish Innovation Fund.

**Number of people and/or companies reached:** The target group is the whole population of Finland, 5.5 million. 2,000 people answered a citizen survey, thousands of people have participated in Sitra events over the past two years, and the organisation has interviewed and heard from hundreds of companies. The project has already touched the lives of Finns through government programme registration, from about hundreds of people to 5.5 million people.

**Does the initiative target COVID-19 challenges?** Not directly.

**Does the initiative directly target the digital transformation?** No.

**Link to the project:**  
<https://www.sitra.fi/en/topics/lifelong-learning/#latest>

13. Cooperation includes ministries and other policy makers and companies and key partners from 30 societal organizations: Confederation of Unions for Professional and Managerial Staff in Finland, Akava, Rectors’ Conference of Finnish Universities of Applied Sciences, Arene Finnish, Association for the Development of Vocational Education and Training, MAKE, Confederation of Finnish Industries, EK, The Finnish Education Evaluation Centre, FINEEC, Ilmarinen Mutual Pension Insurance Company, Varma, Mutual Pension Insurance Company, The Finland Chamber of Commerce, Keva KT, Local Government Employers, The Trade Union of Education, OAJ, The Finnish National Agency for Education, The Ministry of Education and Culture, Finnish Education Employers, The Ministry of Social Affairs and Health, The National Union of Vocational Students in Finland, SAKKI, The Central Organisation of Finnish Trade Unions, SAK, The Association of Finnish Local and Regional Authorities, Suomen Opiskelija-Allianssi – OSKU Suomen opiskelijakuntien liitto – SAMOK, Universities Finland, UNIFI, The National Union of University Students in Finland, SYL Suomen Yrittäjät, The Finnish Confederation of Salaried Employees, STTK The Finnish Pension Alliance, TELA, The Ministry of Economic Affairs and Employment, The Prime Minister’s Office, The Office for the Government as an Employer, The Ministry of Finance, The Finnish Adult Education Association.

## Iceland

### 5. University of Iceland, Graduate Continuing Education Centre: Meeting the needs of the lifelong learner

The University of Iceland Continuing Education Centre was established in 1983 and has since then become the largest provider of CE (Continuing Education) in the country by offering courses and certificate programmes at academic level. The number of courses and participants has grown year by year. The centre provides a variety of daytime, evening, and weekend courses whose subjects range from professional development courses to personal development and general interest courses.

The Continuing Education Centre has a close cooperation with 31 companies and governmental organizations as well as 25 professional associations. Thus, the Centre works actively in **bringing together the academic and the professional fields** with the aim of improving the educational level for adults. The CE-centre is self-financed. Participants pay tuition fees in accordance with the length and the cost of the course.

The institute has placed increased emphasis on offering longer courses and programmes in recent years, ranging from 1-3 semesters. The CE-centre offers courses and workshops provided by speakers from abroad who are experts in their field. In order to bridge a certain knowledge gap, which often occurs in a small community like Iceland, the project leaders of the CE-centre are asked to organize courses in cooperation with professionals from abroad.

In May 2020, the Icelandic government announced a new campaign to expand study options for unemployed people and students who cannot get a job during the summer. The CE-centre has taken part in those measures along with the University of Iceland and offers around 30 study programmes during the summer, subsidized by the government. Those programmes are for current students and new students starting university studies in autumn 2020, people on unemployment benefits and others who are seeking new job opportunities. By participating in this governmental measure, the CE-centre contributes to the society by providing opportunities for individuals who are on standby, but would like to use their time to up- or reskilling to be prepared for studies or re-employment

**Focus:** The institute works actively in bringing together the academic and the professional fields with the aim of improving the educational level for adults. It offers both shorter courses for individuals, companies, governmental and non-governmental organizations, and certificated study programmes.

**Responsible:** The CE-centre operates as a separate unit according to rules no. 844-2001 of the University of Iceland.

**Target group:** Professionals and individuals looking to enhance their skills. The CE-centre also focuses on developing courses for businesses, organizations, associations, and unions.

**Period:** The CE-centre has been operating since 1983 and growing ever since.

**Funding:** It is a self-financed unit in the competitive market.

**Cooperation with others:** The institute has a close cooperation with a variety of organisations outside the University as with employers' federations, enterprises, research, and cultural institutions.

**Number of people and/or companies reached:** Around 400 short courses and study programmes are held yearly with more than 12.000 participants.

**Does the initiative target COVID-19 challenges?** Yes, both in formal and non-formal ways.

**Does the initiative directly target the digital transformation?** Yes, with courses being offered regarding change management, digital transformation in certain sectors (building, healthcare, etc.), IT-developments and more. As a part of the centre's strategy of 2020, it will start a formal project involving the development of digital learning courses, looking deeper into what the centre requires for high-class digital learning programmes which meet the demands of the market today.

**Link to the project:**  
<https://en.endurmenntun.is/about>

## Iceland

### 6. Verkfræðingafélag Íslands: Education Funds for lifelong learning, Iceland: Partnership between the trade union for engineers and the corresponding employer's organisation to ensure funding for lifelong learning

In Iceland there has been a long tradition for the public sector employers to contribute to continuing professional education funds, which are administered by relevant labour unions (the first was introduced in 1989, and today each union has its own education fund). The continuing professional education funds operate according to regulations that are part of the work agreements. For the public sector, the current contribution from the employer's side is set to 1.72% of the employee's salary, paid monthly directly to the fund. A fund has a board, which consists of members from both the union and the employer's organisation.

Recently, the private sector has also started to contribute to similar education funds. The contribution to an education fund is set to 0.22% of the employee's salary.

Members apply to the education fund for their continuing education, typically courses, conferences and workshops, and there is a possibility for a grant to buy a laptop, software etc. The individual member of the union or the employer on behalf of an employee can apply for the continuing education funding. In the public sector, the members can get grants up to EUR 2.900 (ISK 480.000) every four years. In the private sector, the education fund gives the members access to grants up to EUR 750 (ISK 120.000) every five years.

**Information about the initiative:**

Joint Education Funds that target the competence development of members of the engineers' union (Verkfræðingafélag Íslands), VFÍ (Association of Chartered Engineers in Iceland). There is one fund for the private sector and one for the public sector.

**Focus:** The aim is to encourage members to seek life-long education.

**Responsible:** Both funds have a board consisting of members from the union of the employer's organisation. The union (in this case, VFÍ) runs the funds.

**Target group:** Up-skilling and competence development of union members.

**Period:** From 1989, with various changes over time.

**Funding:** Funded by the employers and the percentages vary from 0,22-1,72 %.

**Cooperation with others:** Companies can apply to the fund to pay the cost of continuing education courses for the members of VFÍ.

**The number of people and companies reached:** 400 last year; approx—5000 over the last three decades.

**Does the initiative target COVID-19 challenges?** No.

## Norway

### 7. NITO: Moving the reskilling and upskilling agenda forward - strategic partnerships for the development of lifelong learning between the union and other stakeholders

The Norwegian Association of Engineers and Technologists, NITO is very active in the political debate on the importance of lifelong learning. It has supported the proposals in the Norwegian government's White paper on lifelong learning from April 2020, in particular the proposals on the programmes for re- and upskilling for the oil- and gas industry and the maritime sector, and new incentives for SMEs to engage in competence development called "Kompetansefunn". The fund will provide tax reductions for small and medium sized companies (SMEs) who invest in staff competence development similar in set-up to the "Skattefunn", which gives tax reduction for SMEs that invest in research and development.

#### Other adopted initiatives that NITO supports are:

1. For the social partners to investigate together how best to ensure the right format for supporting the continuing education and competence development of employees.
2. Overseeing the funding of the higher education sector in consultation with the social partners to ensure that degrees are relevant for the labour market, that continuing education offers are flexible, and that higher education institutions will develop short and flexible courses, which are relevant for the labour market and can be studied in parallel with working.

The COVID-19 crisis has prompted NITO to engage very proactively with a great number of stakeholders (employers' organisations, other trade unions and universities) in developing courses – or their access to some courses are online courses - that support the digital transition and provide free relevant courses for those who have become unemployed or been laid off due to COVID-19. The creation of these strategic partnerships – which have an informal character – have been discussed before. The present crisis has promoted a joint understanding of the need for staff competence development – particularly in areas where the digital transformation is changing the way companies work. New important areas of cooperation, where NITO plays an important role have emerged:

- Branch organisations (employers' and employees' organisations) have engaged with universities to develop CPD courses in e.g. electricians – an initiative which started prior to COVID-19 and has been funded by the government (NOK 15 million).
- The Federation of Norwegian industries (NHO), Forbundet for Ledelse og Teknikk (FLT), NITO and Norwegian universities and universities of applied science have formed an informal network where together they define or find relevant up- and reskilling courses that can support the digital transition, and some courses are online. The courses are free for the unemployed and those temporarily laid off and funded from the NOK 100 million that the government has provided for lifelong learning courses as part of addressing the changes in the labour market brought on by COVID-19. These courses are typically online, short courses, available on a first come, first served basis. Candidates apply directly to the relevant university. ►

- NITO provides their own CPD that are both traditional trade union courses in lean project management and have recently added courses that support the digital transition through up-skilling in AI-related subjects. These courses are almost 100% paid by the employers and are offered online.
- #Delningsdugnad is a COVID-19 inspired strategic partnership, where the Federation of Norwegian industries (NHO), some of the large Norwegian companies (e.g., Telenor, DNB, the Norwegian Post office and Norgesgruppen) and a number of organisations have opened up their internal competence development programmes for the unemployed and people temporarily laid off and provide them for free – for a limited period on a joint platform #Delningsdugnad. NITO has opened some of their courses at a 50% reduced rate.

NITO considers it important politically to point out that these initiatives only have been possible to develop with government funding. Since April 2020 the government has provided a total of NOK 190 million for re- and upskilling courses specifically for those who have lost their job due to COVID-19 or those who have been temporarily laid off, of which NOK 170 million target highly skilled professionals or the ones with tertiary education. NITO has asked the government to ensure that funding is made available in the future by revising the funding model for higher education institutions.

**Focus for the initiative:** Addressing the future skills need through up-and reskilling of NITO members.

**Responsible:** A joint responsibility by tripartite cooperation (Government, employers and workers' associations and educational sector).

**Target group:** Individuals with a higher degree who needs to re- or upskill, unemployed or temporarily laid off staff.

**Period:** 2020 -

**Funding:** Government funding. Cooperation with others: Government, social partners, higher education institutions and public and private companies.

**Number of people and/or companies reached:** 37% of non-employed people participate in formal education.

#### SSB report by June 2020:

<https://www.ssb.no/utdanning/statistikker/lvm/aar>

(The numbers for the new initiative will probably be shown in the next report from SSB).

**Does the initiative target COVID-19 challenges?** Yes.

**Does the initiative directly target the digital transformation?** Yes.

#### Link to the projects:

<https://www.nito.no/aktuelt/2020/6/kompetansereform-skuffende-fra-regjeringen/>

<https://www.nito.no/kurs-og-arrangementer/>



## Norway

### 8. University of Agder: Regional co-creation to support the provision of lifelong learning courses during Covid-19

The Norwegian government has provided COVID-19 support/funding for higher education institutions to deliver free continuing education online courses for those who have been temporarily laid off and/or are unemployed (prolonged till 31 December 2020). Several rounds of funding have been made available until the end of 2020. The Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education (Diku) and Competence Norway have announced that funding up to NOK 50 million will be available for upscaling of digitized educational services that could be offered quickly and online.

To find the right type of courses in the COVID-19 context, the University of Agder turned to their regional network with regional authorities, trade unions, employers' organisations, industry and businesses and the regional research clusters (the EYDE<sup>14</sup> and NODE<sup>15</sup> clusters which support the process industry and (renewable) energy), the co-creation of education and research and regional and societal changes). The network identified a number of key issues that the **online provision should include such as support for the changing labour market, the climate change and the digital transition**. The process helped to ensure that the courses offered would answer to the current demands of the labour market.

The network made a wish list which was given to the faculties, who within four weeks were able to offer courses responding to the list. Then the courses were presented to the network for confirmation to ensure that the courses met the needs of their organisations and companies. The courses were provided online and open up new research results to society in the areas of: 1) digitalisation (both basic and advance knowledge and use); 2) interdisciplinarity where digitalisation meets climate change and business models; and 3) human relations and management. They are provided in short modules of 5, 7.5, 10 and 15 ECTS points. Courses without ECT points are also available. The first batch of short and semester-long courses were offered on a first come, first served basis, and were filled within a week.

COVID-19 is regarded as an example of the types of disruption that we all face in the 21st century and is expected to have a spill-over effect for the higher education, while the universities expect that the COVID-19 crisis has accentuated the need for more flexible learning and perhaps a new business model. **The crisis has also shown that it is possible to reprioritize with short notice.**

**Focus for the initiative:** The Norwegian government has provided COVID-19 support/funding for higher education institutions to deliver free continuing education online courses for those temporarily laid off and/or unemployed.

**Responsible:** The Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education (Diku) and Competence Norway together with the education sector in Norway.

**Target group:** People temporarily laid off and/ or unemployed.

**Period:** June – December 2020.

**Funding:** As a consequence of the corona situation the Norwegian government has given NOK 50 million earmarked for online education for people who have been temporarily laid off and/ or are unemployed.

**Cooperation with others:** The specific need for different courses are identified by the network in close cooperation with the regional authorities, the trade unions, the employers' organisations, industry and businesses and the regional research clusters.

**Number of people and/or companies reached:** The University of Agder has made places available for approximately 800 people.

**Does the initiative target COVID-19 challenges?** Yes. Most of the available courses were filled up within a week by people who are temporarily laid off or unemployed as a result of COVID-19 challenges.

**Does the initiative directly target the digital transformation?** The University of Agder has made 10 courses available related to digitalisation for both beginners and experts.

## Sweden

### 9. The Knowledge Foundation, Sweden: Implementing Graduate Professional Development Programme

The Knowledge Foundation finances research and competence development at Sweden's university colleges and new universities with the long-term purpose to strengthen Sweden's competitiveness. The foundation provides funding when research or educational activities at an advanced level are conducted in collaboration between academia and partners from the business sector. The foundation was established in 1994 with a founding capital of SEK 3.6 billion and has now invested SEK 10.3 billion in over 2,500 higher education and research projects. The funding opportunities increasingly focus on competence development and knowledge transfer between universities and their partner companies. The Graduate Professional Development Programme is such an initiative.

#### The Graduate Professional Development Programme

The Graduate Professional Development Programme enables the development and implementation of research related courses and training at master's level for working professionals and provides companies with a competence boost for knowledge-intensive business development and innovation. Courses and training are developed to meet competence and development needs in the business sector and build on the research knowledge developed by the university colleges and new universities that the Knowledge Foundation supports.

Since the course participants are working professionals, flexible forms of learning are in high demand. Through programme funding, universities can strengthen their knowledge and competence regarding new learning formats such as MOOC, web-based classrooms, and digital laboratories.

At the same time, the academic environment captures a new student category and gains a good insight into the knowledge and competence needs of the business sector. This has resulted in the identification of important research issues and newly started research projects.

For companies, the Graduate Professional Development Programme enables employees to assimilate relevant knowledge produced at the universities, including recent research findings. Matching the knowledge in the academic environment with the competence needs of the business sector makes it possible for the companies to retain and strengthen their renewal and competitiveness. The flexible and mostly digital forms make the education accessible regardless of the companies' geographic locations.

Several higher education institutions (HEIs), research institutes and industry organisations can collaborate as partners in the programme if it increases the quality or relevance of the education. The developed courses must be integrated in the regular course offerings at the university and should be quality assured according to established routines. >

14. <https://www.eydecluster.com/en/>

15. <https://gcenode.no/about-node/>

### Targeted COVID-19 call for competence development in the business sector

As the COVID-19 crisis has created a great need for rapid skills development efforts within the business sector, the Knowledge Foundation recently invited the Swedish university colleges and new universities to apply for funding from a SEK 50 million COVID-19 related targeted call.

The purpose of the call was to rapidly meet the need of competence development within business sectors affected by the COVID-19 crisis, and to support educational offers targeting working professionals having been laid off as a consequence of the crisis.

The setup of applied projects could be in the form of development of new educational offers at advanced or research level, or further development of already existing ones. The projects should last for 1-2 years, but show tangible effects already within one year from the start. Projects should start no later than 1 September 2020. Individual projects could apply for SEK 1-3 million, but more extensive projects could be granted more funding if well justified.

The call closed 8 June 2020 and the Knowledge Foundation received 37 applications, 17 projects were granted funding in a total of SEK 39 million totally.

**Focus:** Master training programmes/ courses for working professionals with content based on the needs of the business sector.

**Responsible:** The Knowledge Foundation.

**Target group:** Working professionals in areas of great importance to the business sector.

**Period:** An ongoing programme with annual calls for proposals.

**Funding:** From the Knowledge foundation: Step 1 – maximum SEK 3 million, Step 2 – maximum SEK 25 million. In addition, contribution from the university and the business sector is required.

**Cooperation with others:** The courses and training are co-produced by universities and the knowledge intensive business sector.

**Number of people and/or companies reached:** So far 2,500 people from around 350 companies have followed courses developed within the programme. The ambition is to educate more than 10,000 individuals over the next five years. Most major high-tech companies in Sweden participate or have participated in the programme.

**Does the initiative target COVID-19 challenges?** Yes.

**Does the initiative directly target the digital transformation?** Yes.

**Link to the programme:**  
<http://www.kks.se/om-oss/in-english/our-programmes/graduate-professional-development-programme/>

## Sweden

### 10. KTH Royal Institute of Technology: Presenting the vision for flexible and continuous learning - Education 2027/ 2028

To contribute to a discussion of education in the future, KTH Royal Institute of Technology has created a concrete example of what education in 2027/2028 could look like to encourage further work for developing programmes for the 200th anniversary of the university in the 2027/2028 academic year.

One of the key elements of a possible future scenario is the need for future generations of students always to be newly qualified or up-to-date in their expert areas. Therefore, KTH should be a natural partner for today's lifelong learning path with multiple career changes by a structure of the educational provision that enables students to engage in continuous education.

In the vision for 2027/2028, rigid educational programmes, unnecessary courses and stressful exams have been relegated to the past in favour of truly individualised learning paths (student-centred learning) that lay the foundation for a successful career. KTH thus offers its students to engage in a relationship with continuous knowledge development that never ends: They become members of KTH with full and indefinite access to all the educational offers of the university.

If the vision paper was to become a reality, KTH would no longer apply concepts like 'graduate' or 'life after obtaining a degree'. An AI mentor is included as a part of the life-long KTH membership. It will remind its members when it is time to upgrade knowledge and indicate which courses would suit the student best. The AI mentor can also serve as a lifelong academic and career counsellor. In addition, it is a natural way to maintain contact with KTH for alumni.

The personal AI mentor follows students on their educational journey. In fact, some will have had an AI mentor since the KTH Junior Academy. From the first day at KTH students will plan their path to a work life together with the mentor. The AI mentor is always available to provide advice or guidance. It can serve as an advisor in theoretical courses and provide long-term advice when selecting courses – whatever is required to help the student to develop relevant knowledge and to find the most effective approach to do so.

Furthermore, the KTH coaches ensure that the education follows the developments in their fields. All KTH coaches teach using digital teaching tools, both on campus and virtually. The tools will be updated continuously and create opportunities for coaches to individually customise the education based on the abilities of each KTH member.

The vision paper KTH Education of Tomorrow describes possible scenarios for students, teachers, alumni, and employers some years from now. The KTH vision may never become a reality, but it includes key elements for ensuring that knowledge, skills, and competences are readily available for graduates, alumni, and employers.

**Focus:** Flexible learning paths and student-centred learning.

**Responsible:** Gunnar Karlsson, Professor.

**Target group:** Faculty and future students and graduates.

**Period:** The academic year 2027/2028.

**Funding:** Government funding.

**Cooperation with others:** Yes, integrated in the vision

**Number of people and/or companies reached:** Future students and graduates.

**Does the initiative target COVID-19 challenges?** No.

**Does the initiative directly target the digital transformation?** Yes, both at the KTH and the companies the graduates will work in.

**Link to the initiative:**  
[https://intra.kth.se/polopoly\\_fs/1.853652.15501551931/KTH%20Design%20Fiction\\_Education%202027-2028.pdf](https://intra.kth.se/polopoly_fs/1.853652.15501551931/KTH%20Design%20Fiction_Education%202027-2028.pdf)

# Key challenges and opportunities

The ten initiatives are selected to show **how** it is possible to develop initiatives that address both the digital and the green transitions as well as the climate change and the COVID-19 crisis through lifelong learning and continuing professional development. Although they reveal a number of challenges for developing relevant continuing education offers, more importantly they also demonstrate the power of cooperation. Through a shared responsibility and by working together, the public sector, social partners, employers, and individuals can, by thinking out of the box, create innovative offers that open new opportunities

The identified key **challenges** are reflected in ANE's key recommendations on the need for more investment in continuing professional development and ensuring that the relevant courses are developed, that employers need to include staff development in the strategic planning, and that communication to the target groups for a given course needs to be improved.

There is a general agreement that these are the key challenges and that innovative thinking in how to solve these is needed. It also opens for the opportunity to create a **new eco-system for education, which promotes access to education and continuous learning** and further develops mechanisms for the recognition or validation of previous non-formal and informal learning. There is a need for education and research jointly to support flexible learning paths and student-centred learning.

It is a key **opportunity** to use the digital transition as a catalyst for co-creation and innovation in education in response to the disruption that the world is now facing.

## The main opportunities are:

1. One way to address the identified needs would be **to place the learner at the centre**, as KTH Royal Institute of Technology in Sweden has envisaged in the vision paper presented a couple of years ago: Education 2027/2028 (see above). Once an individual has accessed a higher education institution, he or she can design his/her own learning path and combine education, work, and international experiences.
2. Another important factor, also underlined in the above-mentioned vision paper, is the **role of alumni** in the provision of continuous education. The concept is like Hotel California: "You can check out, but you can never leave"; alumni will stay part of a learning community supported by research and innovation. This would ensure the alumni's continuous inclusion in learning communities, researchers' engagement in the provision of education in a much more proactive way, and

provision of course offers that would be much more flexible, available in different formats (on-campus, online or in a blended format) and accessible through a platform.

3. The ten practices show a unique opportunity to create networks that work and learn together to co-create the 21st century's lifelong learning educational offers and embrace the importance of **learning together** also as adults. **Not only working together, but also learning together is one of the key success factors of the new Nordic experiments with lifelong learning.** Learning together is a successful practice, which reaches back to the Nordic tradition of the folk high schools that brought young people with different backgrounds together to engage in learning to become citizens in the then developing democracies, but also to get specific new knowledge on farming, support the co-operative movement and develop "bildung". Learning together was considered important, because it gave the individual a much better possibility to create a change with the new knowledge acquired, because one becomes part of a network for change. The folk high school movement that quickly swept across all the Nordic countries can be seen as a key factor for the Nordics to have reached the status that they enjoy today. 150 years ago, the Nordic countries were among the poorest in Europe, and today they are some of the richest countries in the world.
4. Learning together is of course the key in all higher education, but it is important to remember the change factor that this can also provide for the digital transition. **Communities of learners** can be a key success factor for motivating individuals to keep the engagement in learning throughout our lives.
5. The KomDigital project is a good example of how **strategic partnerships of stakeholders, employees and employers learning together can be the key to the digital transition in the Nordic region.** By ensuring that more than one employee in a company get an understanding on how to implement and use digitalisation together with a management representative has been an important success factor to create momentum for change particularly in small and medium-sized companies (SMEs). The project focuses not only on staff development, but also on **how the leadership and staff together can make the digital transformation transversal** as it cannot be the responsibility of a single department or unit. The question of **digital leadership** as well as peer support creates added value.

# Policy recommendations

To be prepared for the unprepared is something that we can learn from history, as is the importance of being adaptable, agile, and flexible in our societal responses to challenges. The need for a swift updating of knowledge, skills and competences both for those with and without degrees has grown larger almost overnight as it is reflected in the conclusions from the European Council from 8 June 2020 on "Reskilling and upskilling as a basis for increasing sustainability and employability, in the context of supporting economic recovery and social cohesion"<sup>16</sup> and the Skills Agenda 2020. A key message is the **importance of working together to achieve results.** The ten Nordic initiatives showcased in this report support this by emphasising the concept of learning together.

The ten chosen initiatives show how quickly we can adapt, rethink, and react when required. The acquisition of education, training, and competence building benefits both society and individuals, so all parties must bear joint responsibility for the continuing development of skills and competences. To achieve the best effect, it is important to consider both the individual and the power of partnerships of stakeholders. Stakeholders who together can ensure the up- and reskilling of individuals, which in turn enhances the well-being of both the individuals and society by developing a successful continuing education offer as a joint effort.

## Recommendation 1

**All stakeholders including social partners at transnational, national, regional, and local levels have a shared responsibility. They should actively create and engage in strategic partnerships or networks that can support the development of lifelong learning offers in a public or private context.**

It is essential that the lifelong learning offers are flexible and adapted to the changing needs of the labour market. This is best ensured by engaging stakeholders in a dialogue and through a joint need assessment, identifying and sharing relevant offers - as has happened in the COVID-19 crisis (in an online, on-site or blended format) while assuring that the offers are relevant to the stakeholders.

16. [https://www.consilium.europa.eu/media/44351/st08682-en20.pdf?utm\\_source=dsms-auto&utm\\_medium=email&utm\\_campaign=Employment+and+social+affairs%3a+the+Council+adopts+conclusions+on+well-being+at+work%2c+upskilling+and+reskilling+and+demographic+challenges](https://www.consilium.europa.eu/media/44351/st08682-en20.pdf?utm_source=dsms-auto&utm_medium=email&utm_campaign=Employment+and+social+affairs%3a+the+Council+adopts+conclusions+on+well-being+at+work%2c+upskilling+and+reskilling+and+demographic+challenges)

In the future, it will be important to produce continuous competence development in increasingly wider-based networks, rather than base the responsibility on a single actor: individuals, businesses, the social partners, higher education institutions, governments. The dialogue produces a more innovative co-created offer.

## Recommendation 2

**Develop measures that ensure a faster transmission of research-based knowledge throughout society by offering short courses or micro-credentials and opening access to courses that have been accessible only for the full-time degree students.**

The Nordic countries and the European Union have in recent decades made major investments in research and the results are coming with increasing speed that is changing the way we live and work. However, there has been too little focus on ensuring a rapid transfer of the new and often revolutionary research results. Knowledge transfer has taken place through different types of joint research projects, but generally without modules for competence development for staff. The knowledge transfer of research findings is still achieved mainly through teaching young students with the assumption that they in the course of time will be able to ensure the transfer of knowledge.

In the Nordic context this is now changing through creating strategic partnerships that particularly are focused on supporting SMEs in engaging in the digital transition through targeted continuing education offers (e.g. on AI, robotization, big data, etc.).

## Recommendation 3

**Ensure that the offers build on the knowledge, skills, and competences that individuals have achieved through formal and non-formal education and throughout their working life.**

When initiatives and continuing education offers are developed in partnership (co-creation) between different stakeholders these should aim to support new, innovative, and flexible learning

paths. It is too costly for the individuals, the companies, and the taxpayers if continuing education does not build on the total sum of knowledge, skills, and competences that individuals have achieved. To this end, micro-credentials, shorter courses and modules – that can be with credits or have another type of non-formal certification (i.e. badges) – are very relevant and can more easily be adapted to fit different communities of learners.

It will be important to use the current digital momentum to ensure a diversity of the offers – online, on-campus, in a blended format – using the experiences for didactic and pedagogical development. Thus, there is a need to develop offers that meet the needs of learners independent of their educational level.

#### Recommendation 4

**Assure that continuing education offers can be very successful if the didactic and pedagogical format includes learning together or in communities of learners online, on-site or in a blended format.**

If networks of learners are created either within their own workplace or with learners with different experiences, then the impact of the new skills and competences have a higher potential to benefit not only the individuals, but also their workplace. Learning together has greater value if it involves different groups of employees and management representatives (leadership) from the same company. For instance, the ability and agility to implement AI and digitalisation grow with the number of staff who gains digital competencies. The importance of focusing on up- and reskilling of individuals and acknowledging the benefit of a collective competence lift through peer support and learning goes back to the Nordic tradition of folk high schools. The concept was developed in order to ensure that all parts of society had democratic competencies and skills and an understanding of their own culture.

In a broad sense, lifelong learning is about ensuring the continuous competence development, competitiveness, and well-being. It is also about the core values of our societies: access to education, inclusion, democracy, and mitigation of social inequality.

#### Recommendation 5

**Engage actively in the development of digital leaders and transversal competencies for AI-experts, a key priority for companies to be fit for the digital age.**

It will be essential for the competitiveness of the Nordic region and the European Union that all citizens become digital natives. The KomDigital project shows that digital leaders, digital frontrunners, and AI-experts play an important role in the transition towards digital public and private sectors. To create digital leadership that builds on the latest research results should be a key priority. The development of AI systems brings a potential for economic growth and social benefit, but also causes concerns about the ethical, legal, and societal risks. AI experts need training programmes to deepen an understanding of ethics and skills for ethical reflection. To develop AI systems in a responsible way, it is not enough to focus only on ethics. AI experts should have the time and space to acquire skills from other social science disciplines, too.

Employees are an important raw material, and they will lead the digital revolution and develop the products and services that will benefit all of us. The digital transformation also demands leadership to orchestrate the change. An important success factor for the creation of momentum for change is that the digital transition engages more than one employee together with a management representative. It is essential to develop digital leadership to succeed with the digital transformation.

#### Recommendation 6

**Development of a joint online platform where courses can be made available to different types of learners.**

The interviews indicate that it is not so much a lack of relevant educational offers, but that the offers are not always available outside their specific environment and can be very hard to identify by the potential users (individuals and companies). One-stop platforms that include both information and the possibility to apply for a course can facilitate access to information for both individuals and employers. Education is increasingly international or transnational and digital, therefore a Nordic or a European platform would be an important step towards ensuring engagement in continuing education as learners and employers would be able to compare the offers and find the ones that fit their needs.

#### Recommendation 7

**Evaluate and develop the current funding models for continuing education. Models that encourage and motivate both individuals and higher education institutions to engage should be introduced.**

To encourage innovative approaches the “seed funding” is essential for creating the strategic partnerships that are the key for developing adaptable and flexible offers appealing for those looking for continuing education, and which supports the digital and green transitions.

It is evident that a “seed funding” is important for the development of the partnerships, but it will be equally important to ensure that diverse funding mechanisms are developed to ensure that up- and reskilling will be available at a larger scale. Good examples are the Icelandic Education Funds that focus on ensuring that individuals have the possibility to access lifelong learning (learning account), and the Knowledge Foundation that supports the development of continuing education courses in higher education institutions as part of their research programme funding.

The traditional government funding structures for universities do not make it attractive for university staff to engage in the development of continuing education. Core funding for education and research does not typically include funding of engagement with HEIs' third mission.

Different types of education or competence funds are being developed in the Nordic countries prompted by the tripartite negotiations, but typically they are not explicitly targeted for the highly skilled professionals. Changes to the student support system are being introduced, which target individuals who want

to upskill or reskill, and COVID-19 can also be expected to drive investment changes for continuing education. The report findings indicate that targeted funding for pilot projects including small and medium-sized enterprises (SMEs) has been the key to engage with this group. Larger companies have often developed in-house training, and some have started to provide these for others, as Digital Dogme is an example of.

#### Recommendation 8

**Capitalize on the knowledge from the existing initiatives and further advance the multi-stakeholder co-creation. This could be accomplished through a dedicated network anchored on the political level.**

It could be envisaged to mandate the existing Nordic Network for Lifelong Learning, NVL established by the Nordic Council of Ministers to sustain the collected knowledge. This could be accomplished by creating a special meeting space for ICT/STEM experts and other relevant stakeholders to engage in knowledge sharing, getting inspired from each other and turning the best initiatives in the joint Nordic effort. Therefore, the scope of existing thematic networks in NVL should be broadened to have an explicit focus on digital skills for all professional categories and a dedicated network for ICT/STEM professionals.



# Annex 1

## Literature and links

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# Annex 2

## List of interviewed stakeholders

### Denmark

**Bente Nørgaard** - Aalborg University (AAU)  
**Frank Skov Kristensen** - Corebit  
**Hanne Shapiro** - Hanne Shapiro Futures  
**Helle Glen Petersen** - Nordic Council of Ministers  
**Helle Rootzén** - Technical University of Denmark (DTU)  
**Martin Grønbæk Jensen** - Digital Dogme  
**Peter de Thurah Toft** - Nordic Council of Ministers  
**Peter Leth** - Danish Society of Engineers (IDA)

### Finland

**Helena Mustikainen** - Sitra, Finnish Innovation Fund  
**Jonna Korhonen** - Ministry of Education Finland  
**Katri Ventus** - Finnish Institute of Technology (FITech)  
**Tapio Heiskari** - Academic Engineers and Architects in Finland (TEK)

### Iceland

**Arni Björnsson** - Association of Chartered Engineers in Iceland (VFÍ)  
**Hugrún Geirsdóttir** - University of Iceland  
**Kristín Jónsdóttir** - Njarðvík, Director of Continuing Education at University of Iceland

### Norway

**Charles Skipperstoen** - Norwegian Society of Engineers and Technologists (NITO)  
**Christen Krogh** - Kristiania University College  
**Geir Torstveit** - University of Agder (UiA)  
**Gøril Hannås** - University of Agder (UiA)  
**Marianne Barland** - Norwegian Board of Technology (NBT)  
**Marianne Bevum** - Norwegian Society of Engineers and Technologists (NITO)  
**Ragne Berge** - Norwegian University of Science and Technology (NTNU)

### Sweden

**Anna-Nilsson-Ehle** - Chairperson Vinnova  
**Ebba Ossiannilsson** - Independent Consultant  
**Eva Schelin** - KK-stiftelsen  
**Fredrik von Essen** - The Swedish IT and Telecom Industries (IT&Telekomföretagen)  
**Gunnar Karlsson** - The Royal Institute of Technology (KTH)  
**Jan Smith** - Chalmers University of Technology  
**Jenny Grensman** - The Swedish Association of Graduate Engineers  
**Malin Rosqvist** - Mälardalen University  
**Robin Vetter** - Fores  
**Tord Hermansson** - Lindholmen Science Centre

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