GROOVE

Manual for the Digitalisation of the VET Sector

Co-funded by the Erasmus+ Programme of the European Union

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Introduction

Digital Transformation is a key priority across all major EU directives and policies. The European Commission has prioritized digital skills development and recognized education and training stakeholders as key players in making innovations mainstream to meet the education sector's needs (EC, 2018). Vocational Education and Training (VET) is an integral part of education providing lifelong learning systems equipping individuals with skills responding to the needs of the economy but also with skills important for personal development and active citizenship. Thus, the European Commission emphasizes the need for VET to become more fit for the digital age and align with the technological progress and market demands as it has a crucial role in helping people to find jobs, especially after the pandemic.

The present Toolkit is a practical guide that can be used by VET providers/trainers as supplementary material to advance their professional practices towards digitalisation. In particular, it provides knowledge and understanding of digitalisation in the VET sector, the importance of vital digital skills for educators and learners, and how to develop a digitalisation strategy.

This Toolkit aims to build the capacity of VET professionals to design and develop a digital action plan. Also, is contains strategies that aim to enhance educators' digital skills and learners' digital literacy. Another aim of this Toolkit is to allow VET providers and learners' to reflect on their digital readiness and improve their digital skills in order to align with the technological progress and market's needs.

The GROOVE Toolkit is organized into 6 main sections:

Section A: Digitalisation in the VET sector

Section B: The Digital Competence Framework for Citizens (DigComp 2.1)

Section C: The Digital Competence Framework for Educators (DigCompEdu)

Section D: The European Framework for Digitally Competent Educational Organizations (DigCompOrg)

Section E: Strategy development

Section F: Teaching Pedagogies and Instructional Strategies

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Section A: Digitalisation in the VET sector

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Overview

What is Digitalisation?

Digitalisation refers to the integration of cutting-edge digital technologies as a way to help organizations, society, and the market to improve the efficiency of their operations, make automation possible, and provide new revenue and value-producing opportunities. Yet, due to economic reasons (i.e., lack of funds), inaccessibility (i.e., for people that are located in rural areas, or people with low socioeconomic status), and other social reasons (i.e., people that belong to vulnerable social groups) not all individuals are able to easily improve their skills in accord with the technological progress. To provide a solution for this problem, and as an initial part of the digitalisation in the VET sector, both learners and educators are expected to develop new skills and knowledge in order to stay up to date with technological progress and market needs. This will increase both educators' and learners' competences, productivity, and efficiency in their current and future roles.

Also, the leveraging of digital technologies and digitized data will improve the organizational processes followed, and thus will transform the quality of the services provided through the use of advanced technology such as big data, the internet of things, artificial intelligence, robotics, computer-aided tools, and automation. Additionally, digitalisation will shift the local control of physical processes to remote monitoring and control of those same processes. Therefore, in an age of rapid changes and increasing requirements, digitalisation in the VET sector, as well as continuous training and learning, will be decisive for excelling and progressing.

- Some examples of the radical digital transformation in the VET sector in the post Covid times include Virtual and augmented reality (VR/AR) training. They can provide an effective way for VET providers to give students hands-on experience in a simulated environment, which can be especially useful for fields that require a high degree of technical skill, such as construction, manufacturing, and healthcare. This can be used to train students in dangerous or expensive environments, such as in construction site, or medical procedures, without putting the student or others at risk. Additionally, the use of VR/AR technology in training can also increase engagement and motivation among students, making the learning experience more interactive and immersive. The technology can also be used to create simulations that can be used for remote training, allowing students to learn from anywhere. Another example includes the various online learning platforms that are genuinely used in the VET sector to deliver courses and training materials to students remotely. These platforms can include a range of multimedia resources such as video lectures, quizzes, interactive activities, and other multimedia resources. This allows VET providers to reach a wider audience and offer more flexible learning options to students.
- Online learning platforms can also provide students with access to a range of resources such as online textbooks, journals, and other learning materials. Additionally, many platforms also include features such as discussion boards, chat rooms, and other social tools that allow students to connect with their peers and instructors. This can help to create a sense of

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community and support among students, which can be especially important for students who are studying remotely.

- Moreover, the use of online learning platforms can also enable VET providers to collect and analyze data on student performance, which can be used to improve the effectiveness of their training programs. This can be done through tracking student progress, providing feedback on their performance and providing support if needed.

Why is Digitalisation in the VET sector important?

The use of digital skills in education significantly influenced the quality of education as well as its forms and methods as they have altered the way people communicate ideas, learn and work. Yet, digitalisation in the educational sector is a phenomenon that still requires new knowledge and skills to remain aligned with the rapid technological progress, the needs of the market, and the competences required for individual learners and workers to excel.

The VET sector, similar to most industries today, is being challenged to remain aligned with the rapid technological changes and the digital world. With extensive lockdowns due to COVID-19, this digital transformation accelerated in the past years. Nowadays, due to the aforementioned reasons, the professional activity of labourers incorporates an additional intellectual component associated with working with advanced electronic devices, artificial intelligence systems, computers etc. At the same, not only the learners' but also the educators' digital competences need improving. As a result, the issues of digital transformation for educational institutions became highly important.

In addition, the development and support of digital transformation in the VET sector are important because digital education raises learners' participation and cooperation as well as independence in the learning process, which must be taken into consideration. Moreover, the cultivation of digital skills and competences is a way to decrease the discrepancy between teachers' and students' digital backgrounds, which is expected to benefit both the educators as well as the learners to excel in their careers and be prepared for the continuous technological progress that is still on the way.

VET is a wide sector in education, thus, people from numerous fields and with various experiences and skillsets can acquire digital knowledge. The knowledge and impact of using digital tools in the hands of different participants can have different performance results for individual learners based on their backgrounds. This consists of another reason for seeking efficient ways for supporting digitalisation in the VET sector.

Furthermore, certain observations conclude that the widespread use of digital portfolios is becoming prominent among VET providers and their students, as they can prove to be a valuable tool to help the above document and showcase the skills they have acquired throughout their

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training. These portfolios can include a wide range of multimedia content such as videos, images, audio recordings, and written work that demonstrate the student's skills and progress.

Digital portfolios can be used by students to document their learning journey and help them to reflect on their progress over time. They can also be used as evidence of the student's skills and learning outcomes, which can be useful when applying for jobs or further education.

Additionally, digital portfolios can also be used to support student assessment and evaluation by VET providers. They can be used to provide evidence of student performance, and to facilitate formative and summative assessment. This can help VET providers to understand students' learning progress and provide targeted support if needed.

Likewise, digital portfolios can also be shared with potential employers, allowing students to showcase their skills and experience to a wider audience. This can be particularly useful for students who are seeking employment in their field of study.

Lastly, the recent advancements in technologies such as automated tracking and data analysis can prove to be powerful tools that VET providers can use to monitor the students' progress and analyse data on the students' performance. This can include tracking the student's engagement with course materials, monitoring assessment scores and other metrics of student performance.

Using technology to automatically track student progress and analyse data can help VET providers to identify areas where students are struggling and provide targeted support. This can be done through providing personalized feedback, creating targeted interventions, and providing additional resources to students. This can help to ensure that students are on track to meet their learning objectives and can help to improve the overall effectiveness of the training program.

Moreover, the data collected through automated tracking can be used to identify trends and patterns in student performance, which can be used to improve the training program overall. This can include identifying common misconceptions and areas of difficulty, and then addressing them in future iterations of the program. Automated tracking and data analysis can also be used to evaluate the effectiveness of different teaching strategies, and to identify areas where additional resources or support may be needed.

What Digital Transformation entails?

Some of the most crucial parts of **digital transformation** in the VET sector are:

- **Integration of digital technology & Infrastructure**: It consists of the provision of modern digital equipment, and digital transformation processes, as well as opening up to new opportunities and requirements (i.e., the capacity to store, extract and process data while satisfying the requirement of trust, security and fundamental rights).
- **Human Capital**: The formation and development of digital competence for all the participants (educators & learners) in the educational space.

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- **Connectivity**: According to the Broadband Coverage in Europe, each and every EU member has to maintain some specific broadband coverage objectives that are essential to support any digitalisation-related goals.
- **Modes of Learning**: The use of remote learning, online learning (synchronous & asynchronous) and self-directed learning.
- **Innovation & Absorption**: It is interrelated to the aims of digitalisation, and by increasing the level of innovation we promote sustainable development, economic growth, prosperity, and citizens' welfare. Innovation also depends on the ability of the organizations to access, recognize and absorb knowledge from various sources, which is the absorptive capacity of the company. The concept of open innovation and the concept of "connect and develop" (C&D) sets the knowledge access and absorption activities at the core of the innovation development process.
- **Growth culture**: A growth organizational culture consists of employees that build their mindset and capacity to see through blind spots and acknowledge problems and potential solutions.

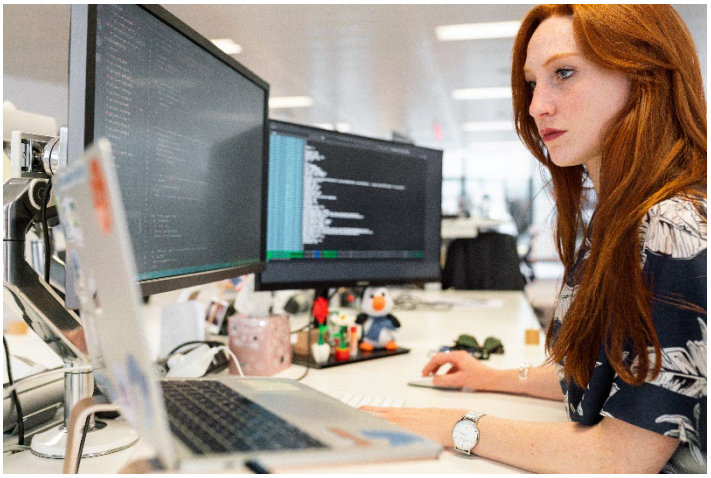
Basic pillars of digitalisation

Promote Digital Literacy and Tech Skills

Digital Literacy is an essential life skill which should be taught in all areas of education, but teaching tech skills can be complicated in traditional online training environments. Thus, the initial aim of digitalisation is to spread awareness regarding the importance and impact that digital knowledge and skills have on the society and economy, and then to help educators to become competent in using technical equipment as well as becoming technologically literate in order to educate the learners (i.e., VET learners).

Adopt and integrate emergent technologies

The technology we rely on today changes over time. To develop existing systems and improve the services provided, the incorporation of emerging technologies that align with positive learners' experiences is vital. To do so, the systems and processes used need to evolve to keep up with the VET sector's standards. By investing in technology and design consulting, your skills can be used to build more effective and efficient processes and more advanced learning experiences.



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Promote digitalisation by having a learner-centred approach

- Meet the evolving needs of your learners and the VET sector
- Predict the sector and economy's needs, as well as learners' demands
- Awareness of what others offer to the learners

A learner-centred approach is key to promoting digitalization in the VET sector. By understanding the needs and preferences of learners, VET providers can develop digital solutions that meet those needs and remain competitive in the market.

One way to do this is by conducting learner research through surveys, focus groups, and interviews to gather feedback on current training offerings and identify areas for improvement. This can help VET providers to understand the pain points of their learners and design solutions to address those issues.

Another way to promote digitalization is by keeping an eye on educational trends, including what other VET providers and educational institutions are offering. This can help VET providers to predict the future needs of their learners and develop digital solutions that align with those needs.

Additionally, by understanding the needs of their learners and the sector, VET providers can make informed decisions about which digital technologies to invest in and how to integrate them into their training programs. This can help them to create more engaging, interactive, and effective learning experiences for their learners and stay ahead of the curve.

Overall, a learner-centred approach is essential for promoting digitalization in the VET sector by ensuring that digital solutions meet the evolving needs of learners and the VET sector.

Promote digitalisation by paying attention to employees' experience

Transformation happens from the inside out. Understanding your people helps you get to those goals. Companies that are transparent with, value, and invest in people experience easier transformations because of the loyalty and support they've built among their teams. Keep in mind: Every interaction that the employee has within your organization is critical and will have a measurable impact on your organization, your technology, and your brand.

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Section B: The Digital Competence Framework for Citizens-DigComp 2.1

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Overview

Today, being digitally competent means that people need to have competences in all areas of DigComp. The most recent OECD TALIS research (2013) revealed that 18% of trainers and instructors felt that they need greater development of ICT skills for teaching and 16% on the usage of new technologies in the workplace. Providing teachers with adequate digital competence is a vital component (OECD, 2014). The European Digital Competence Framework, also known as DigComp, offers a tool to improve citizens' digital competence, help policy makers formulate policies that support digital competence building, and plan education and training initiatives to improve the digital competence of specific target groups (Vuorikaki et al., 2016). DigComp provides a common understanding of what digital competence is. It also provides a basis for framing digital skills policy.

The project originated in DG Education and Culture and was further developed on behalf of DG Employment, Social Affairs and Inclusion. It was first published in 2013 and has become a reference for the development and strategic planning of digital competence initiatives at both European and Member State levels. However, as the digitalisation of our society, work and education are moving fast, there is a need to update the concepts and vocabulary of the DigComp framework.

The **DigComp Framework** is descriptive rather than prescriptive. Several aspects of digital competence may include legal and ethical issues, for example, issues related to the illegal sharing of proprietary digital content. The person who engages in this illegal activity may be competent and aware of the licenses and rules being broken (Vuorikari et al., 2016).

The DigComp Framework identifies the key components of digital competence in 5 areas which constitute Dimension 1. There are 21 competences that are pertinent to these areas, their titles and descriptors are outlined in Dimension 2. Additional Dimensions outline 8 Proficiency levels for each of the 21 competences (Dimension 3), Examples of knowledge, skills and attitudes (Dimension 4) and Examples of the use of the 8 proficiency levels applied to learning and employment scenarios in 21 competences (Dimension 5) (Carretero Gomez et al., 2017).

Dimension 1

I. **Information and data literacy:** To articulate information needs, to locate and retrieve digital data, information and content. To judge the relevance of the source and its content. To store, manage, and organize digital data, information and content.

II. **Communication and collaboration**: To interact, communicate and collaborate through digital technologies while being aware of cultural and generational diversity. To participate in society through public and private digital services and participatory citizenship. To manage one's digital presence, identity and reputation.

III. **Digital content creation**: To create and edit digital content. To improve and integrate information and content into an existing body of knowledge while understanding how copyright and licenses are to be applied. To know how to give understandable instructions for a computer system.

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IV. **Safety**: To protect devices, content, personal data and privacy in digital environments. To protect physical and psychological health, and to be aware of digital technologies for social well-being and social inclusion. To be aware of the environmental impact of digital technologies and their use.

V. **Problem-solving**: To identify needs and problems and resolve conceptual problems and problem situations in digital environments. To use digital tools to innovate processes and products. To keep up-to-date with the digital evolution.

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Dimension 2

I. Information and data literacy
Browsing, searching and filtering data, information and digital content
Evaluating data, information and digital content
Managing data, information and digital content
II. Communication and Collaboration
Interacting through digital technologies
Sharing through digital technologies
Engaging in citizenship through digital technologies
Collaborating through digital technologies
Netiquette
Managing digital identity
III. Digital content creation
Developing digital content
Integrating and re-elaborating digital content
Copyright and licenses
Programming
IV. Safety
Protecting devices
Protecting personal data and privacy
Protecting health and wellbeing
Protecting the environment
V. Problem-Solving
Solving technical problems
Identifying needs and technological responses
Creatively using digital technologies
Identifying digital competence gaps

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Dimension 3

Eight proficiency levels for each competence have been defined through learning outcomes (using action verbs, following Bloom's taxonomy) and inspired by the structure and vocabulary of the European Qualification Framework (EQF). Moreover, each level description contains knowledge, skills and attitudes, described in one single descriptor for each level of each competence; this equals 168 descriptors.

1 Foundation	•Simple tasks •With guidance •Remembering
2 Foundation	•Simple tasks •Autonomy and with guidance where needed •Remembering
3 Intermediate	•Well-defined and routine tasks, and straightforward problems •Independent and according to any needs •Understanding
4 Intermediate	•Tasks, and well-defined and non-routine problems •Guiding others •Applying
5 Advanved	•Different tasks and problems •Guiding others •Applying
6 Advanced	•Most appropriate tasks •Able to adapt to others in a complex context •Evaluating
7 Highly specialised	•Resolve complex problems with limited solutions •Integrate to contribute to the professional practice and to guide others •Creating
8 Highly specialised	•Resolve complex problems with many interacting factors •Propose new ideas and processes to the field •Creating

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Dimension 4

Dimension presents the knowledge, skills and attitudes applicable to each competence. Knowledge means the outcome of the assimilation of information. It is the body of facts, principles, theories and practices that is related to a field of work or study. Skills are the ability to apply knowledge and use know-how to complete tasks. Attitudes are conceived as the motivators of performance and the basis for continued competent performance including values, aspirations and priorities (Vuorikari, R., Kluzer S. & Punie Y.).

Dimension 5

Dimension 5 contains use cases in a specific context, in this case in employment and learning. The examples for all 8 levels are only available in the first competence whereas, for the rest of the competences, only one example per level and area of use is provided. A "cascade" strategy is followed for the examples of use. This means that competence 1.2 has an example of use for level 1, competence 1.3 for level 2, competence 2.1 for level 3, etc. This way, the same number of proficiency levels and the same number of examples across the levels is given (Vuorikari et al., 2022).

Below there are examples of use retrieved from "The Digital Competence Framework for Citizens" (Carratero Gomez S., Vuorikari R. & Punie Y., 2017)

Example 1 - Learning scenario	
COMPETENCE	1.2 Evaluating data, information and digital content
PROFICIENCY LEVEL	1
I can identify, from a list in my textbook of blogs and digital databases containing available literature, those that are commonly used because they are credible and reliable with the help of my teacher.	

Example 2 – Learning scenario	
COMPETENCE	1.3 Managing data, information and digital content
PROFICIENCY LEVEL	1
I can identify an app in my tablet to organise and store links to those websites, blogs and digital databases related with a specific topic of literature and use it to retrieve them when needed for my report with the help of my teacher in the classroom.	

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Example 3 – Learning scenario	
COMPETENCE	2.1 Interacting through digital technologies
PROFICIENCY LEVEL	2
I can use a commonly-used chat on my smartphone (e.g. Facebook messenger or WhatsApp) to talk to my classmates and organise group work. I can choose other digital communication means on the classroom tablet (e.g. my classroom forum) that could be useful to talk about the details of organising group work. I can fix problems such as adding or deleting members to the chat group by myself.	

Description and Utility of the DigComp 2.1 Framework

From 2013 up until now, **DigComp** has been used for multiple purposes, particularly in the context of employment, education and training, and lifelong learning in three main areas: 1) policy formulation and support; 2) instructional planning for education, training and employment; and 3) assessment and certification. DigComp has been put into practice at the EU level, for example, to construct a European-wide indicator called "Digital skills" which is used to monitor the Digital Economy and Society. Another example is incorporated into the Europass CV enabling jobseekers to evaluate their own digital competence and include the evaluation in their Curriculum Vitaes (Vuorikari et al., 2016,).

It is quite essential to align national and transnational policies with widely accepted frameworks in order to form consistency, transparency and recognition. Therefore, DigComp is a beneficial way to create a common understanding of training and certification across a broad geographical and sectoral coverage. However, as there is little knowledge on the topic, not many people are aware firstly of its existence and secondly of its actions and further possibilities. The theoretical aspects of DigComp must be embedded into practical training and certification schemes in order to gain the most out of its use and benefits (CEPIS, 2021).

Following 5 steps, DigComp is adapted and specified to set the relevant digital competence and proficiency levels for a given target population or policy and strategic use. This step is often based on a preliminary identification and analysis of the needs and/or opportunities to develop digital competence of that target population and a certain context. It is used to assess the digital

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competence levels, strengths and weaknesses of an individual or target population. This helps understand where to focus efforts and then measure their success. Trainers who need to develop digital competences, as well as end-user training and learning experiences are the main target for DigComp use. Lastly, DigComp is used to assess, recognize and certify learning achievements and enhanced competence (Kluzer & Pujol, 2018).

Stakeholders find DigComp valuable as it is an inclusive, qualitative and flexible framework that has a European character and contributes to the creation of a common language and understanding of digital competences.

Applying the DigComp 2.1 Framework

DigComp is used within an educational, training and employment context and has three different target aims that have to do with:

- Policy formulation and support
- Instructional planning for education, training and employment
- Assessment and certification

Policy formulation and support

Many European and national policy documents use DigComp as a reference when formulating and implementing strategies. For example, the Digital Skills Index (DESI) developed by the European Commission, which helps policy makers obtain a macro-level view of citizens' digital competences, is based on DigComp competence areas. The ICDL digital certification program (former ECDL) which is currently being implemented in many countries, is fully aligned with the latest versions of the DigComp framework. The Basque Government uses DigComp as a supporting document for strategic policy formulation to boost the acquisition of digital competences in the educational and training sector. They developed "Ikanos" project to deploy the Digital Agenda. Moreover, the Italian National Plan for Digital School, the Maltese Green Paper: Digital Literacy and the Spanish Navarra Department of Education use it as a reference and guidance document (Vuorikari et al, 2016). The Ministry of Education in Portugal uses DigComp as an input for teachers' PD.

Apart from the European implementation of DigComp, several international organizations include this framework as a basis or a guideline. For example, UNESCO uses it in the 2018 report for a global framework of reference on digital literacy, UNICEF incorporated it in the 2019 report for digital literacy for children and the Worl Bank developed 2020 digital skills frameworks and programs (Vuorikari et al., 2022).

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Instructional planning for education, training and employment

The DigComp Community of Practice (CoP) hosted 575 members not only from European countries but mostly from educational organizations (university teachers, researchers and students), third-sector organizations, governments, businesses and international organizations (Vuorikari et al., 2022).

Professional development programs for teachers in various EU countries have embraced the DigComp Framework for teachers' digital competence building (Vuorikari et al, 2016). In Croatian primary and secondary schools, open educational resources, including learning cases based on the DigComp framework, were developed both for students and teachers. In addition to that, in Poland, many trainings and certifications were created by education companies under the DigComp framework and received funding from EU Programs (CEPIS, 2021).

Assessment and certification

The DigComp seems to have greater visibility across tools for assessing people's digital competences. For example, the Basque Government mentioned before offers a free-of-charge diagnostic tool for assessing one's own digital competence with online tests (Vuorikari et al., 2016). In Greece, the National Digital Skills Academy allows improving citizens' and professionals' digital skills - the skills they need in their everyday digital life - with a free choice of courses provided on its online platform (National Digital Academy, 2022).

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Section C: The Digital Competence Framework for Educators (DigCompEdu)

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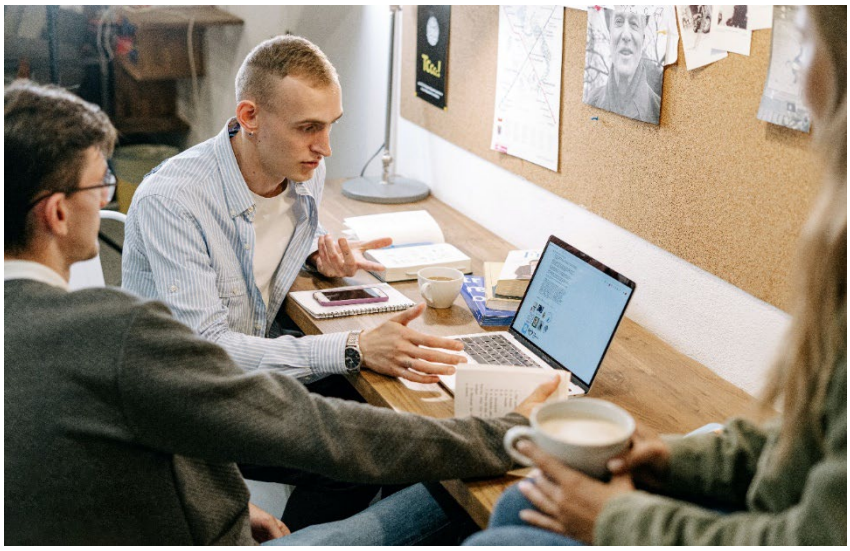
Overview



The **European Framework for the Digital Competence of Educators (DigCompEdu)** is a scientifically sound framework describing what it means for educators to be digitally competent. It provides a general reference frame to support the development of educator-specific digital competences in Europe. DigCompEdu is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational education and training, special needs education, and non-formal learning contexts.

DigCompEdu details 22 competences organised in six Areas. The focus is not on technical skills. Rather, the framework aims to detail how digital technologies can be used to enhance and innovate education and training.

Key Digital Competences of VET Trainers

The DigCompEdu presents a framework for the development of educators' digital competence in Europe. The framework is intended to support national, regional, and local efforts in fostering educators' digital competence by offering a common frame of reference, with a common language and logic that can facilitate the exchange of best practices amongst teachers across borders. It aims to help the Member States in their efforts to promote the digital competence of their citizens and boost innovation in education.

The DigCompEdu looks particularly at the intersection of education and digitalisation, from the perspective of teachers. Directed toward educators at all levels of education, from early childhood to higher and adult education, the DigCompEdu framework aims to capture and describe educator-specific digital competences by proposing 22 elementary competences organised in 6 areas that focus on different aspects of educator's professional activities:

- **Area 1 (Professional Engagement)** is directed at the broader professional environment, i.e., educators' use of digital technologies in professional interactions with colleagues, learners, parents, and other interested parties, for their own individual professional development and for the collective good of the organisation.
- **Area 2 (Digital Resources)** looks at the competences needed to effectively and responsibly use, create, and share digital resources for learning.

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- **Area 3 (Teaching and Learning)** is dedicated to managing and orchestrating the use of digital technologies in teaching and learning.
- **Area 4 (Assessment)** addresses the use of digital strategies to enhance assessment.
- **Area 5 (Empowering Learners)** focuses on the potential of digital technologies for learner-centred teaching and learning strategies.
- **Area 6 (Facilitating Learners' Digital Competence)** details the specific pedagogic competences required to facilitate students' digital competence.

To give an example, an educator proficient in Area 5 will select, create, and adapt digital resources to empower learners. In this respect, he or she will: make the resources accessible to all learners; foresee different, personalized learning pathways; and design the resources to actively involve and engage all learners. For each competence, a title and a short description are provided, which serve as the main point of reference.

The DigCompEdu also proposes a progression model to help educators assess and develop their digital competence. It outlines 6 different stages through which an educator's digital competence typically develops, so as to help educators identify and decide on the specific steps to take to boost their competence at the stage they are currently at. In the first two stages, Newcomer (A1) and Explorer (A2), educators assimilate new information and develop basic digital practices; in the following two stages, Integrator (B1) and Expert (B2), they apply, further expand, and structure their digital practices; at the highest stages, Leader (C1) and Pioneer (C2), they pass on their knowledge, critique existing practice, and develop new practices.

The DigCompEdu includes six different areas with a total of **22 competences** defining the recommended digital skills for teachers as the following:

1. Organizational communication (use a variety of communication methods to enhance communication within their organization)
2. Professional collaboration (collaborate and share resources)
3. Reflective practice (improve your practice through critical reflection and feedback),
4. Digital CPD (continuing professional development; engage in continuous professional development using sites such as MoodleNet)

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5. Selecting digital resources (locate, assess and select appropriate open content such as from MoodleNet)
6. Creating and modifying digital resources (create and share appropriately licensed open content)
7. Managing, protecting and sharing digital resources (respect and correctly attribute open content and apply privacy and copyright rules)
8. Teaching
9. Guidance (enhance interaction with learners, offering timely, targeted guidance to learners, exploring new ways to support them)
10. Collaborative learning (foster and enhance learner collaboration and knowledge creation)
11. Self-regulated learning (empower learners to plan, monitor and reflect on their own learning, sharing insights and creative solutions to problems)
12. Assessment strategies (use summative and formative approaches appropriate to your learners)
13. Analyzing evidence (track and support learner progress by the informed use of activity and course reporting)
14. Feedback and planning (provide timely, targeted support with a range of feedback options appropriate to your learners)
15. Accessibility and inclusion (create accessible and mobile-friendly courses to ensure inclusion)
16. Differentiation and personalization (create personalized and adaptive learning paths to meet learners' diverse needs)
17. Actively engaging learners (foster learner independence and creativity by using a range of strategies to motivate and reward learner success)
18. Information and media literacy (guide learners to source and critically evaluate online materials)
19. Digital communication and collaboration (encourage learner communication, collaboration and civic participation)
20. Digital content creation (provide opportunities for learners to co-create content relevant to them)
21. Responsible use (guide learners to be safe online)
22. Digital problem-solving (challenge learners with technical problem-solving activities and scenarios).

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The competences and their connections are visualized in the figure below.

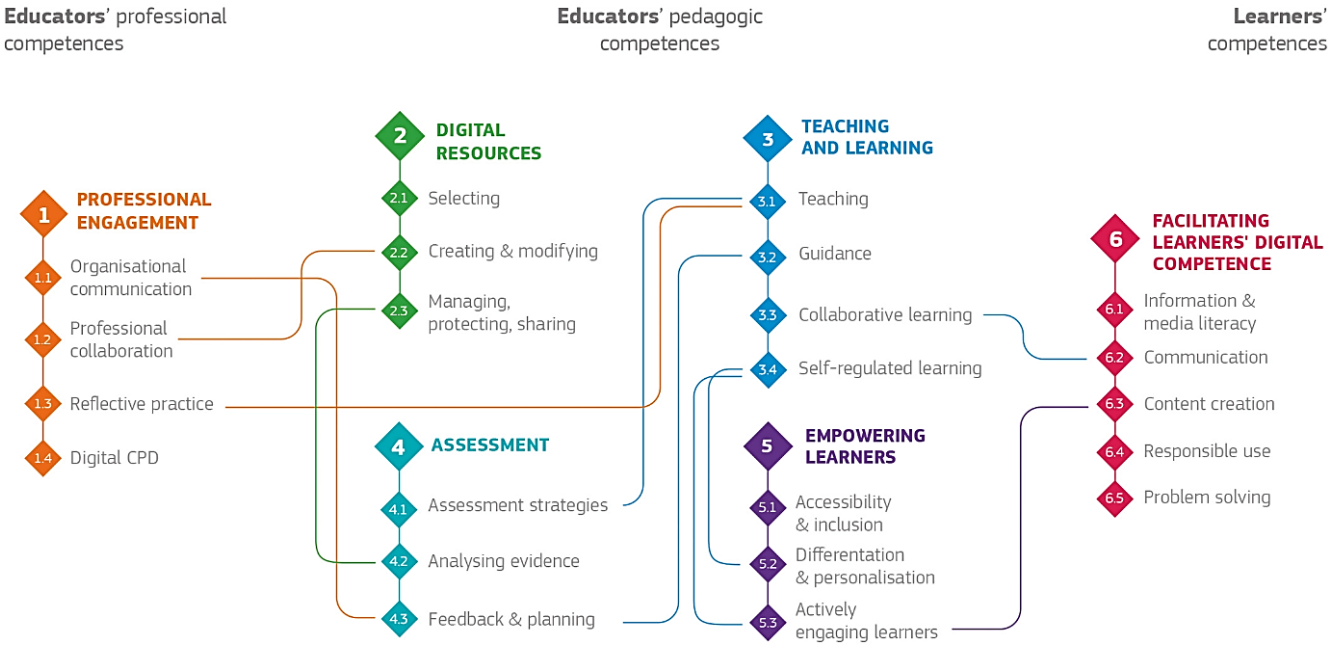

Figure 1 - DigCompEdu Competences and their connections

The focus is not on technical skills. Rather, the framework aims to detail how digital technologies can be used to enhance and innovate education and training.

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Applying the DigCompEdu Framework

The DigCompEdu is a scientifically sound framework describing what it means for educators to be digitally competent. It provides a general reference frame to support the development of educator-specific digital competences in Europe. It provides educators with a systematic approach to developing their digital competence and fostering their students' digital literacy. DigCompEdu framework is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational training, special needs education, and non-formal learning contexts. The framework is intended to support national, regional, and local efforts in fostering educators' digital competence by offering a common frame of reference, with a common language and logic that can facilitate the exchange of best practices amongst teachers across borders. It aims to help the Member States in their efforts to promote the digital competence of their citizens and boost innovation in education.

In order to transfer this competence model into practice, a self-assessment tool was developed. The European Commission designed and developed the so-called **SELFIEforTEACHERS**, a self-reflection tool, that aims to support teachers to develop their digital competence. By responding to the tool's 32 items, teachers can identify their strengths and gaps and design their learning paths to develop further their digital competence.

SELFIEforTEACHERS is based on the DigCompEdu conceptual framework while at the same time, it responds to new pedagogical needs and trends. Moreover, it allows teachers to initiate a self-reflection on their own at any point in time, or complete a self-reflection initiated by a group (that being a group of teachers, a school, an institution, or a regional authority) by accepting an invitation. Thus, it allows teachers to reflect on the state of their digital competence: "Where do I stand? Where do I see myself?" In this way, it is easier to understand where one's own strengths lie, but also where one's areas of development lie.

Institutions or organizations may be able to use the results from these self-assessments to develop their training and professional development strategies. The framework also allows organizations and projects to adapt to their particular needs and contexts.

Moreover, the DigCompEdu Community brings together people across Europe and the world who are interested in the digital competence of educators. The Community will share information,

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discussions and material related to the DigCompEdu and its related self-reflection tools, along with the ecosystem built around it.

The Community aims to engage teachers, trainers, researchers and other interested stakeholders in sharing ideas and experiences, promote the development of educators' digital competence and act as an expert network advising on the further development, adaptation and use of the framework and its associated tools and resources.

You can join the DigCompEdu Community through the EU login and by requesting a group membership:

- Form part of the European Commission expert network on DigCompEdu
- Connect with people who are also using DigCompEdu
- Learn how others use DigCompEdu and benefit from their experiences
- Make your DigCompEdu project known to others
- Share your DigCompEdu materials

DigCompEdu can be directly adapted to implementing regional and national tools and training programs.

In several EU Member States, the DigCompEdu framework has been applied as an explicit reference for national guidelines, particularly in guiding school education, or has been integrated in training courses and guidelines for teachers. In many instances, the framework report has been translated by national or local actors into different target languages to facilitate the take-up by national and regional actors (https://ec.europa.eu/jrc/en/digcompedu/supporting-materials). Other countries, such as Portugal and Croatia, are planning on including the framework in future guidelines.

In Germany, for example, the Kultusministerkonferenz (KMK) refined it for their framework of students' digital competence. In the region of Saarland in Germany the DigCompEdu has been integrated in training courses (http://tiny.cc/medienkurs). The German Adult Education Association (Deutscher Volkshochschul-Verband e.V.) and the Goethe Institut are interested in using the framework for the training of their lecturers.

In Spain, for example, digital competence for teachers have been implemented first nationally in 2015 by the National Institute of Educational Technologies and Teacher Training (INTEF), which is the unit of the Spanish Ministry of Education and Vocational Training. After the Joint Research Centre developed the DigCompEdu Framework in 2017, INTEF re-written and adjusted its framework to the European one. Moreover, the CRUE network of higher education institutions is planning to use the DigCompEdu as part of CPD activities for their academic staff

Ireland, for instance, has some considerable integration of digital competence development at both national and institutional levels. At the primary and secondary levels, the Irish Digital Strategy for Schools is underpinned primarily by the 2011 UNESCO ICT Competency Framework for Teachers. However, subsequent Digital Learning Frameworks make explicit reference to both the EU's DigCompEdu and DigCompOrg frameworks.

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Similarly, Austria has implemented the competence model DigComp 2.2 AT, namely the Austrian version of the DigCompEdu reference framework outlining the field of digital competences of citizens in a general and comprehensive way. Compared to the DigCompEdu, the model adapted for Austria was translated and slightly extended, where relevant. As an instrument for assessing and improving digital competence, the “Digital Competence Framework for Austria” is oriented toward social, economic and technical developments.

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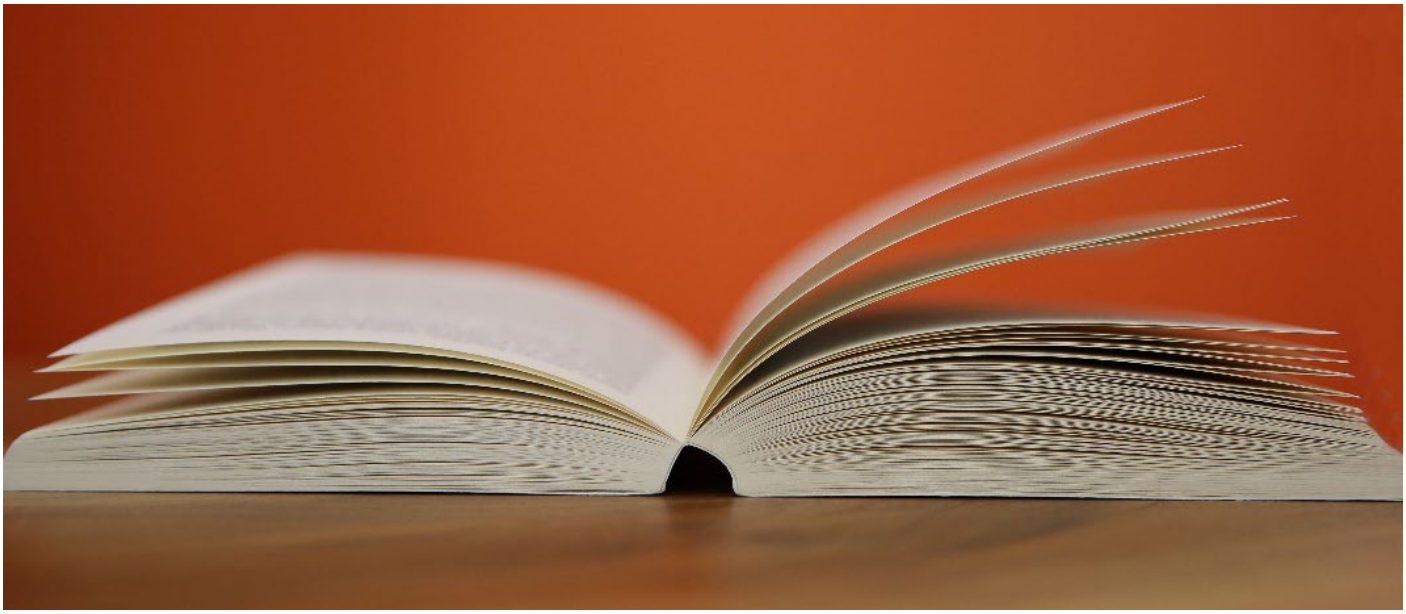
Section D: The European Framework for Digitally Competent Educational Organizations (DigCompOrg)



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Overview

The impact of digital technologies has been remarkable over time and increasingly transversal to the different educational sectors (i.e. schools, higher education and also informal and non-formal learning). The way educational organizations have adapted to this new digital era translates into new methodologies, techniques and skills that inevitably affect aspects of the educational value chain (e.g., the assessment of teaching and learning practices, curricular reform, initial and continuing teacher professional development, and so on). In addition, educational actors are proving to be resilient in all aspects (teachers, learners, school leaders, policymakers, and educational stakeholders).

Across Europe, digital technologies are being integrated into the education sector with significant impact. However, the digital transformation of educational organizations is progressing at different rates, with different aims and outcomes in different regions and countries. Thus, to consolidate, balance and equate teaching and learning, education institutions need to review their organizational strategies, in order to enhance their capacity for innovation and exploit the full potential of digital technologies and content.

It was through this need that the **European Framework for Digitally-Competent Educational Organizations (DigCompOrg)** emerged, a "*European reference framework that adopts a systemic approach can add value by promoting transparency, comparability and peer-learning*". The development and construction of this framework also facilitate the comparison and sincerity between the different realities and initiatives across Europe and is an added value since it can be used by any educational organization (i.e. primary and secondary schools, VET institutions and higher education institutions).

The DigCompOrg Framework

The DigCompOrg is targeted educational organizations, namely primary, secondary and VET schools, and higher education institutions, to guide a self-reflection on their progress towards comprehensive integration and effective deployment of digital learning technologies (Kampylis, Punie, & Devine, 2015). This integration and effectiveness in the use of digital technologies should lead to educational innovation, which implies a process of planning changes across 3 dimensions:

Pedagogical	Technological	Organizational

The DigCompOrg framework has **seven key elements** and **fifteen sub-elements** that are common to all education sectors. There is also scope for the addition of sector-specific elements and sub-elements. All of the elements are interconnected and interrelated and should be seen as parts of the same whole. In the image below a graphic representation of the Framework is presented (Figure 2).

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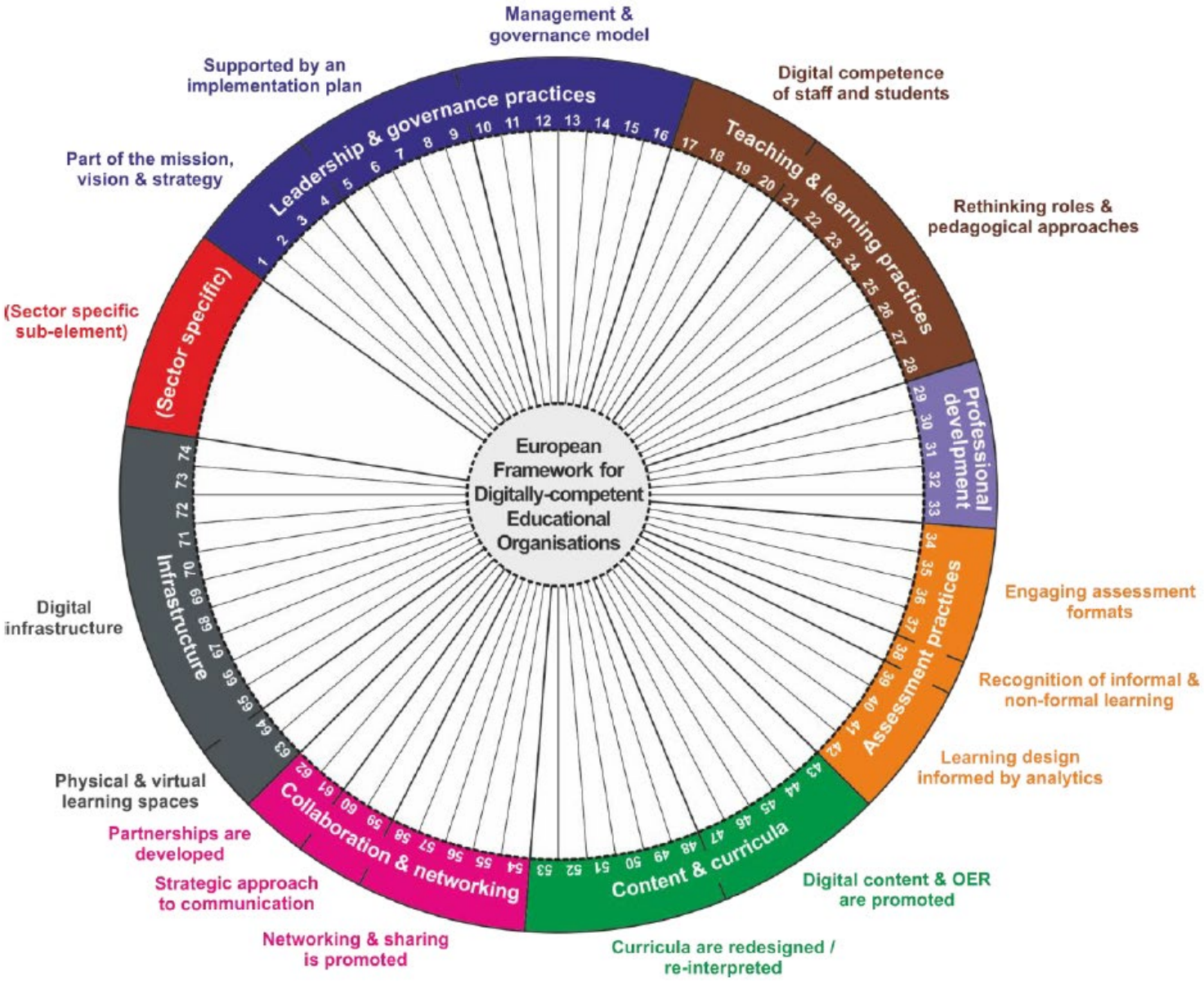

Figure 2 - European framework for digitally competent educational organizations (DigCompOrg)

Source: https://ec.europa.eu/jrc/en/digcomporg/framework

DigCompOrg's key elements

Observing the graphic, it is possible to see that besides the elements and sub-elements, each of them has a set of descriptors, namely, 74 in total, plus the sector-specific element. A brief resume of the descriptors is made below.

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Leadership & Governance Practices

It refers to the role of leadership in educational organizations in the organization-wide integration and effective use of digital technologies concerning its teaching/learning goal and activities. Within the organization, planning practices should follow a strategy and encompass digital learning technologies, which require a structured and communicated long-term educational vision. Thus, through leadership and governance practices, this vision will be secured and articulated in short- and medium-term strategic plans.

SUB-ELEMENTS	DESCRIPTORS
Integration of Digital-age Learning is part of the overall mission, vision, and strategy	1. The potential of digital learning technologies is clearly flagged 2. The benefits of digital learning technologies are communicated 3. The strategic plan encompasses digital-age learning 4. Open education is an aspect of public engagement
Strategy for digital-age learning is supported by an implementation plan	5. Planning builds on enablers while addressing barriers 6. Internal stakeholders have a degree of autonomy 7. Opportunities, incentives and rewards for staff are identified 8. Digital-age learning is aligned with broader priorities 9. There are twin goals of modernizing existing educational provisions and offering new opportunities
A Management and Governance Model is in place	10. There is a shared understanding of and commitment to the implementation plan 11. Management responsibility is clearly assigned 12. Resources are aligned with budgets and staffing 13. The outcomes, quality and impact of the implementation plan are reviewed 14. Specific initiatives or pilots are evaluated 15. Implementation status is benchmarked 16. Oversight of policy and direction is evident

Teaching and Learning Practices

For organizations to realize the potential of digital learning technologies as enablers of more effective learning experiences, there needs to be a modernization of teaching and learning practices, both internally and in the wider knowledge ecosystem.

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SUB-ELEMENTS	DESCRIPTORS
Digital Competence is promoted, benchmarked, and assessed	17. Staff and students are Digitally-Competent 18. Safety, risks and responsible behaviour in online environments are foregrounded 19. The Digital Competence (DC) of staff and students is benchmarked 20. DC is included in the staff appraisal
A rethinking of roles and pedagogical approaches take place	21. Staff are partners in change 22. New roles are envisaged for staff 23. New roles are envisaged for students 24. Pedagogical approaches are expanded 25. Personalized learning is developed 26. Creativity is promoted 27. Collaboration and group work is expected 28. Social and emotional skills are developed

Professional Development

This competence is linked to the continuous, comprehensive, and customized professional development (CPD) of staff in the educational organization. This broad development will enable trainees to integrate new modes of teaching and learning that use digital learning technologies to achieve broader learning outcomes.

SUB-ELEMENTS	DESCRIPTORS
-	*29. A commitment to Continuous Professional Development (CPD) is evident* 30. CPD is provided for staff at all levels *31. CPD is aligned with individual and organizational needs* *32. A wide range of CPD approaches is evident* *33. Accredited/certified CPD opportunities are promoted*

Assessment practices

The idea of integrating this dimension in DigCompOrg is related to the need to change the assessment paradigm in educational organizations from a traditional view to a more comprehensive repertoire of practices, through the support of digital learning technologies. This collection will include more student-centred, integrated, meaningful and personalized assessment practices based on the integration of knowledge, skills and competence developed in formal, informal and non-formal contexts.

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SUB-ELEMENTS	DESCRIPTORS
Assessment Formats are engaging and motivating	34. The scope of formative assessment is extended 35. Summative assessment is diversified 36. Self- and peer-assessment are promoted 37. Rich, personalized and meaningful feedback is encouraged and expected
Informal and Non-Formal Learning are recognized	38. Prior, experiential and open learning are recognized and accredited
Learning Design is Informed by Analytics	39. Learning analytics is given strategic consideration 40. A code of practice for learning analytics is in place 41. Learning is supported through learning analytics 42. Quality management and curriculum/program design are supported through learning analytics

Content and Curricula

To modernize teaching, learning and assessment practices and improve the scope of learning outcomes, curricula should be reviewed and updated regularly by educational organizations, making the best use of the leverage potential of digital learning technologies and digital content.

SUB-ELEMENTS	DESCRIPTORS
Digital Content and OER are widely promoted and used	43. Staff and students are the creators of the contents 44. Content repositories are widely and effectively used 45. Intellectual property and copyright are respected 46. Digital tools and contents are licensed as required 47. Open Educational Resources are promoted and used
Curricula are redesigned or re-interpreted to reflect the pedagogical possibilities afforded by digital technologies	48. Subject-based learning is reimagined to create more integrated approaches 49. The time and place of learning are rescheduled 50. Online provision is a reality 51. Learning in authentic contexts is promoted 52. Digital learning provision is evident across curriculum areas 53. Students' digital competence is developed across the curriculum

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Collaboration and Networking

The organization supports a culture of collaboration and communication and has processes and policies in place to enable staff and students to engage with internal and external stakeholders, share experiences and learn effectively within and beyond the organizational boundaries.

SUB-ELEMENTS	DESCRIPTORS
Networking, sharing & collaboration is promoted	54. Networked collaboration for staff to pool expertise and share content is the norm 55. Knowledge exchange efforts are recognized 56. Students engage in effective networking 57. Participation in knowledge-exchange activities and events is promoted 58. Internal collaboration and knowledge exchange are expected A strategic approach is taken to communication
A strategic approach is taken to communication	59. An explicit communication strategy is in place 60. A dynamic online presence is evident Partnerships are developed
Partnerships are developed	61. A commitment to knowledge exchange through partnerships is evident 62. Staff and students are incentivized to be actively involved in partnerships

Infrastructure

The infrastructures of an organization play a crucial role in facilitating innovative practices and pushing the boundaries of learning spaces (physical and virtual), in a way that promotes openness and flexibility ("*any individual/group learning anywhere, anytime, using any device, with mentoring provided by anyone*"). An organization with a modern vision for "going beyond" digital learning practices requires a strong set of digital services, which must be reliable, secure, and scalable.

SUB-ELEMENTS	DESCRIPTORS
Physical and Virtual Learning Spaces are designed for digital-age learning	63. Physical learning spaces optimize the affordances of digital-age learning 64. Virtual Learning Spaces are optimized
The digital infrastructure is planned and managed	65. An Acceptable Usage Policy is in place 66. Pedagogical and technical expertise direct investments in digital technologies

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	67. A range of digital learning technologies supports anytime/anyplace learning 68. Bring Your Own Device (BYOD) approaches are supported 69. Risks relating to inequality and digital inclusion are addressed 70. Technical and user support is evident 71. Assistive technologies address special needs 72. Measures to protect privacy, confidentiality and safety are well established 73. Effective procurement planning is evident 74. An operational plan for core ICT backbone and services is in place

Key Digital Competences of VET Trainers

In 2015, the Joint Research Centre and the working groups of the European Commission, namely the Digital and Online Learning (DOL) and Digital Skills and Competence (DSC) groups, developed the DigCompOrg Framework as part of the ET 2020 strategy. Based on existing national and international frameworks, *DigCompOrg provides a comprehensive and generic reference framework that reflects key aspects of the process of systematically integrating digital learning into educational organizations* (European Training Foundation, 2018).

As described in the previous subsection, DigCompOrg is composed of elements, sub-elements and the respective descriptors which can be described and divided into 'organisational responsibilities' (e.g., Leadership & Governance Practices) or 'individual responsibilities' (e.g., Teaching and Learning practices). Therefore, this framework proves that, for an educational organization to be digitally competent, it is necessary to have a full balance between strong leadership and governance, and competent staff and educational stakeholders capable of taking personal responsibility (Kampylis, Punie, & Devine, 2015).

The DigCompOrg is not intended to address administrative and management information systems, but to focus on the **teaching, learning, assessment and other learning support activities** carried out by educational organizations. In this sense, **how this Framework helps us identify the knowledge, key digital skills & competences necessary for the digital transformation of the VET sector?**

1.

Encouraging **self-reflection** and **self-assessment** within educational organizations as they progressively deepen their engagement with **digital learning and pedagogies**

2.

Enabling policy makers to design, implement and appraise programs, projects and policy interventions for the integration of **digital learning technologies** in Education & Training systems

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Besides, in order to complement the organizational perspective, educational organizations may **use DigCompOrg in combination with other frameworks and tools.** For example, the DigComp framework (Ferrari, 2013) or UNESCO ICT Competence Framework for Teachers (UNESCO, 2011) to develop the digital competence of individual staff and students.

Educational Organizations could also adopt the DigCompOrg to sustain the quality assurance mechanisms internally, to embrace digital learning and OER in VET, providing standards and criteria for monitoring and evaluating the progress and quality of learners', teachers' and trainers' digital skills and competences.

Digital skills and competences

CEDEFOP (2024) describes **digital competence** as the same of **digital literacy**, being the "*ability to use information and communication technology (ICT)*", emphasized by basic skills such as the "*use of computers to retrieve, assess, store, produce, present and exchange, information, and to communicate and participate in collaborative networks via the internet*". Since 2006, digital competence is one of the eight key competences in the EU for lifelong learning.

Making VET providers 'digitally competent'

At the center of the Education and Training Foundation's approach is the VET provider, who needs to become 'digitally competent' so that the necessary digital capacity for the key elements of the VET system can be fully developed (***bottom-up approach***). Although VET providers are mostly public and private schools and continuing training providers, companies and intermediary organizations are also playing an increasing role and should be considered. Focusing on the VET providers, in close cooperation with the relevant ministries and institutions in charge of VET and digital innovation, the ETF effects a strategic entry into the key elements such as leadership, teaching, quality assurance and learning practices (European Training Foundation, 2018) (table 2)

ETF priorities	ETF strategic actions	Tools
Making VET providers digitally competent	Support the analysis of the digital readiness of VET providers Support the digital competence development of VET providers	• DigCompOrg • SELFIE (self-reflection tool)

Table 2: ETF Priorities, Strategic Actions, and Tools

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Applying the DigCompOrg framework

For educational organizations:

It can be used by educational organizations (i.e., primary, secondary and VET organizations, as well as higher education institutions) to guide a process of self-reflection on their progress towards comprehensive integration and effective deployment of digital learning technologies.

For policymakers and education stakeholders:

It can be used as a strategic planning tool for policymakers to promote comprehensive policies for the effective uptake of digital learning technologies by educational organizations at regional, national and European levels. It can also be used as a means to create awareness about the systemic approach needed for the effective use of digital learning technologies.

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Section E: Strategy development

Dall-E prompt: strategic development in the style of Rembrandt

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Introduction to Strategies in the VET Sector

Considering the increasing use of digital technologies in the 21st century, human capital skills became critical for continuous economic and social development. In addition, the advancement of employees' digital competencies became vital for society and organizations as technological growth progresses. A proven way to overcome these challenges is through Vocational Education Training (VET). However, the VET and adult education sector in Europe is fragmented while comprehensive strategies or policies at European and national levels are absent. Therefore, organizations need to develop tailored strategic plans to align their aims and need with technological progress and development.

What is a strategy

Strategy is an organization's higher-level plan or a set of consecutive combined actions towards the achievement of a long–term aim. Such plans reflect the organizational goals and objectives. The strategy effects can only be assessed in the long-term and often include the vision and mission of the organization. Strategies are also closely interrelated to organizational policies and procedures (see Figure 3).

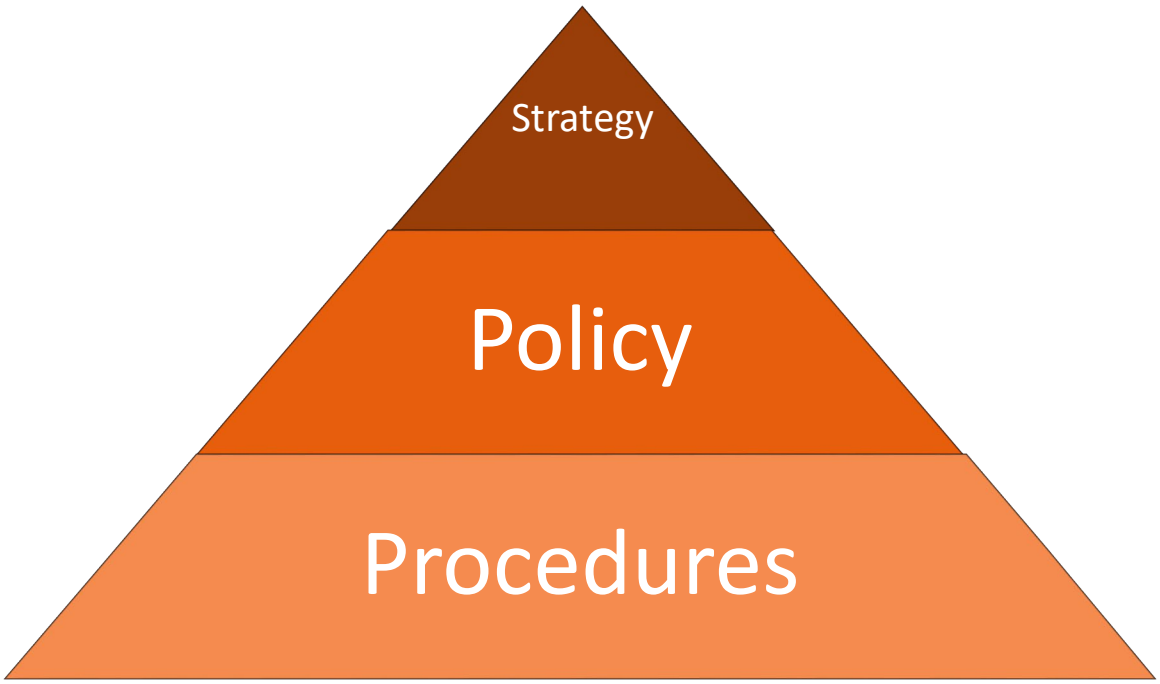

Figure 3 - Strategic Plan Framework

Policies refer to a set of guidelines, standards, rules and regulations designed and implemented by an organization to support rational decision-making for executing the strategy, with the ultimate goal to

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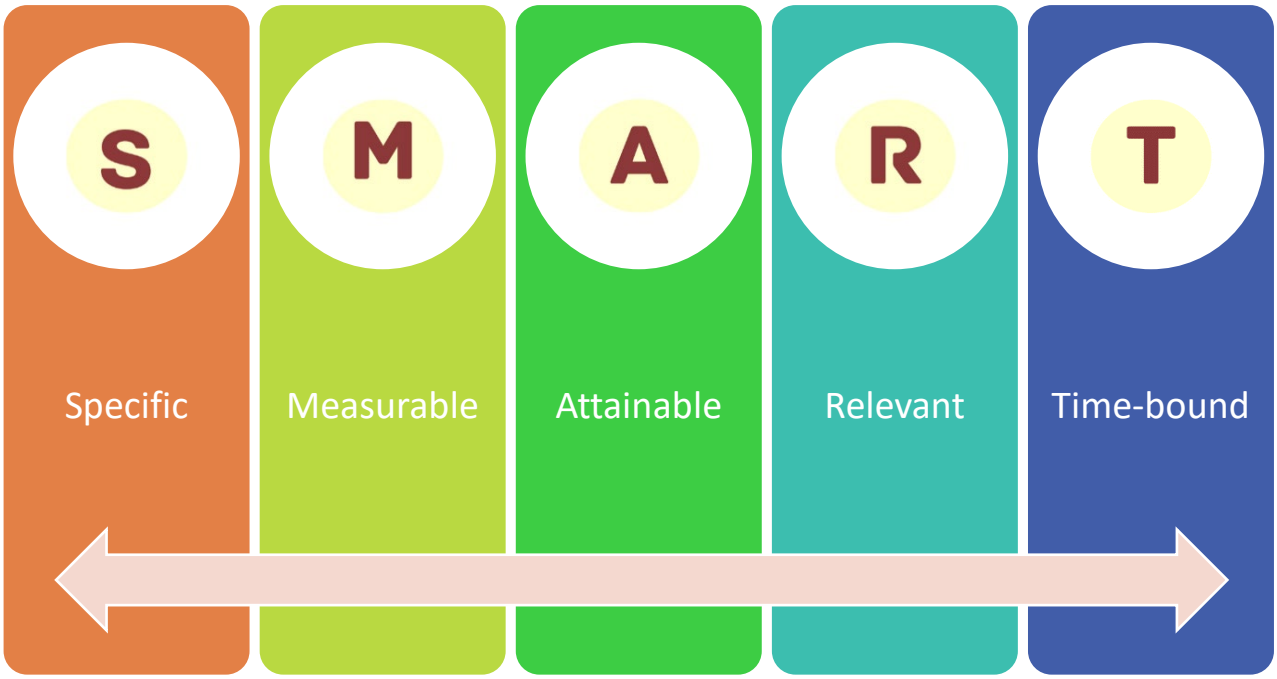
facilitate and support the achievement of the strategy's objectives. Policies answer the question "How your vision and objectives will be achieved?".

Procedures refer to the daily actions and activities that materialize policies. In other words, procedures refer to the ways the organization achieves the predefined goals - "What are you doing to realize policies". Procedures include training and tools, instruments, and devices, as well as specific steps that need to be taken.

Setting the objectives

Each strategy strives toward the endeavour of predefined goals (something to be achieved and defines success). The first task involves identifying the desired objectives and results. These could be specific quantitative targets (e.g., participation of VET learners and low-skilled adults, interested stakeholders) and qualitative goals (e.g., the prospect of learners' professional advancement after a course) that you would like to achieve within the next period. The timeframe for strategic planning is often 3-5 years (long-term), framed with a short-term operational plan. Keep in mind that a strategy must be regularly revised, evaluated, and improved if deemed necessary. Also, setting short goals to achieve larger strategic goals is important. Additionally, breaking down a long-term strategy into practical objectives is crucial. This can be achieved by using the S.M.A.R.T model (see Picture 1).

You can find more information on how to use the S.M.A.R.T model here.



Picture 1 - The S.M.A.R.T model

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Moreover, organizations that aim to develop a strategy need to also examine the national strategies and priorities of the country that are established. Also, they need to think about how they will contribute to those priorities and ask for support. Governmental agencies can provide valuable information such as data in the sector, funding, or guidance about the national qualifications framework. This will enhance the effectiveness of your VET programs, and your organization will gain trust and recognition from national authorities and the public. Additionally, being aware of the state-of-the-art and the future aspirations of your country can help you make better decisions for the future.

Another thing to keep in mind is the identification of the gaps by exploring national research data, national challenges, and guidelines. After doing so, specify how the development of a particular organizational strategy will assist in addressing the aforesaid national problems/challenges/questions either at an organizational or a social level.

In addition, despite the social contribution and impact, an organization is about to make, competition is always a challenge that you should be considered. Acquiring information about how other organizations deal with related issues regarding VET might be very helpful as this procedure can give you better insights into:

- VET and adult learners' expectations
- Successful or unsuccessful examples
- Strengths and weaknesses of your organization
- Existing programs and strategies.

Developing the Strategy

Defining Target Groups

VET trainers and institutions are responsible for shaping the future of society and the economy, by developing its most valuable resource: human capital.

Education is a continuous procedure that never ends. VET trainers are ambassadors of this idea striving to maintain the flame of learning alive. However, many adults are still not willing to participate in any form of education and training and that is for a good reason.

Among the responsibilities of each VET provider is to inform the audience about the importance of learning and the availability of programs, deliver quality and relevant education, develop specific skills and competences for learners, evaluate learners, and provide support, as well as explain to the learners how the skills will help them in their real-life duties. One thing that VET trainers need to have in mind is that most of the learners do not carry positive experiences of previous learning with them. They are not likely to see themselves excelling in a classroom. They previously felt inferior, disappointed, or unable to endeavour academically.

Market/Needs Analysis

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After you complete the first strategic goal which is to end up with a class that consists of aware learners ready to engage and benefit from the education that is going to be provided by you the next aim is to take into consideration their needs and identify which are their real demands from education and training programs.

How can you approach VET learners to get this information? Always be aware that especially low-skilled adults might not be familiar with the modern means of data collection (e.g., online questionnaires) due to their lack of basic digital skills. You need to get into their reality and think creatively. For example, the PIAAC survey (Program for the International Assessment of Adult Competences) run by OECD, uses a combination of paper-based and computer-based versions of the assessment. You can always use the results of other national relevant surveys (e.g., AES, PIAAC, GRALE, etc.). However, at this point, you might want to get more insights into your specified target groups.

Useful questions

- Do learners have an electronic device? Can they use it to answer a questionnaire?
- How can you deliver a paper-based questionnaire?
- Can you approach an organization or an association that affiliates with them?
- Can you assign this work to an external partner?
- Are phone surveys more effective in this case?

Examples of data collection diagnostic tools Quantitative

- Face-to-face questionnaire
- Web survey
- Phone
- Mail

Qualitative

- Face-to-face interviews
- Online forums and communities
- Focus groups

Correct content of questions:

- The content needs to be focused specifically on the theme of VET training. For instance, if VET training focuses on teaching the English language you could focus on their existing

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knowledge, the purpose they want to learn English, their background and qualifications, the future usage of the skills they aim to learn, as well as if they undertook any prior VET learning lessons or education

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- Some learners might want to learn new skills due to personal reasons (i.e., to increase their level of communication, and become more competent). Nonetheless, if they want to learn new skills in order to excel at their job it would be useful to know some more details about their job, the organization they work for, and their responsibilities at work. That information would help us to give them what they seek. Some examples of such questions would be:
    - Are there any particular aspects of the English language that you find difficult?
    - Where do you work?
    - What is your job title?
    - What are your main responsibilities?
    - What do you like to do in your leisure time?
    - What do you want to achieve from your English language lessons?
    - How long do you plan to stay working for this company?
    - When do you want to retire?
    - Did you go to university before starting work? What did you study and why?
    - Where do you want to be in 5 years?
    - Which activities do you like and dislike at work?

- Preference in learning (i.e., working alone, pair working, group working, whole class work)
- Exploring the learners' aptitude will provide you with some additional information about their competences (i.e., How often do you have difficulty with each of the following skills)
- Industry experience and prior duties at work
- What are their barriers to professional development (i.e., conflict with work schedule, lack of suitable opportunities which fit my learning needs, family responsibilities and work commitments, money-related barriers, lack of employer / institutional support, lack of time and/or space to work with colleagues)
- Exploring the learners' expectations in learning particular skills and competences (i.e., What skills and competences are you interested in learning)

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Organization's digital needs/requirements/aims

There is a ton of enterprise technology available in the marketplace. For example, ERP systems, HCM, CRM, supply chain management tools, robotics, artificial intelligence, and the internet of things, are all excellent choices for many organizations. However, each organization needs to stay focused on the solutions that are going to best enable its strategic goals.

Focusing on the right solutions is extremely important for an organization to enable future organizational strategies and invest in the right tools, competences and skills that are going to enhance their business strategies and thus increase the profits and the outcome of the services. More specifically, one significant challenge concerning digital transformation is that organizations become very dependent on third parties. They depend too much on their software vendors and system integrators to make their projects or products successful. An alternative key here is to use the organization's human capital and build internal competences, hire people whose skills are aligned with the new organization's digital strategies and needs to increase self-sufficiency.

There are two benefits to this with regards to the employees. Firstly, the employees are going to enhance their knowledge in alignment with the internal competences of the organization they work for. Secondly, they will be justified to ask for a raise as they will be able to use their skills to handle additional responsibilities. However, we need to acknowledge that this cannot happen overnight. Also, to increase the potential of achieving such a goal, you as a VET trainer need to be aware of your learners' organizations, digital needs, requirements and aims.

Change management

Change management is the process of planning, communicating, and implementing changes in an organization. It is a structured approach to transitioning individuals, teams, and organizations from a current state to a desired future state. Effective change management requires strong leadership, clear communication, and a well-designed plan. Additionally, it's important to consider the human aspect of change, which includes identifying and addressing the concerns and resistance of the people who will be impacted by the change.

Change management is critical for the success of any digital transformation initiative since it helps organizations navigate the challenges and uncertainties of change and to achieve the desired outcomes.

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The process of change management typically includes the following steps:

Assessing the need for change: This is the first step in the change management process. It involves identifying the problem or opportunity that requires a change. This step is critical to ensure that the change is addressing the right issue and that it is the best solution available. During the assessment phase, organizations should:

- Identify the problem or opportunity that requires a change. This can be done through conducting research, analyzing data, and gathering feedback from stakeholders.
- Evaluate the impact of the problem or opportunity on the organization. This includes assessing the cost of not changing, the potential benefits of change, and the impact on the organization's goals and objectives.
- Identify potential solutions to the problem or opportunity. This includes evaluating the feasibility, cost, and benefits of each potential solution.
- Select the best solution and develop a plan for implementing the change. This includes identifying the specific steps required to implement the change, and the resources required to make it happen.

Communicating the change: The next and equally important step in the change management process is to communicate the process effectively to the stakeholders and the ones that are expected to be influenced by it. During the communication phase, organizations should:

- Clearly communicate the plan and the reasons for the change to all stakeholders. This can be done through a variety of methods, such as meetings, emails, and presentations.
- Address any concerns or objections that stakeholders may have about the change. This can help to build support for the change and reduce resistance.
- Involve stakeholders in the planning and implementation of the change. This can help to increase buy-in and ownership of the change.
- Provide regular updates on the progress of the change. This can help to keep stakeholders informed and engaged throughout the process.
- Create a communication plan that outlines the key messages and the audience for each message, as well as the timing and the communication channels.

Effective communication is critical for gaining buy-in and support for the change, and it helps to ensure that all stakeholders are informed and engaged throughout the process. This can increase the chances of success and ensure that the change is meeting the intended goals and objectives.

Monitoring and evaluating the change: Tracking progress and assessing the impact of the change.

Sustaining the change: Ensuring the change becomes embedded in the organization's culture and processes.

Effective change management requires strong leadership, clear communication, and a well-designed plan. Additionally, it's important to consider the human aspect of change, which includes

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identifying and addressing the concerns and resistance of the people who will be impacted by the change.

Change management is critical for the success of any digital transformation initiative, since it helps organizations to navigate the challenges and uncertainties of change and to achieve the desired outcomes.

Organisations can combine design thinking tools by using them to inform and guide the development of the strategy. The can also prove effective in helping organisations navigate and implement changes in a user-centererd and effective way.

Organisations can add value and find use in powerfull tools such as **Empathy mappin**g. Empathy mapping can be used to identify the key stakeholders, their needs, wants and pain points, as well as their emotions, thoughts and behaviors related to the change. This information can be used to develop strategies to address potential resistance and to create a sense of shared ownership of the change. It can be a powerfull tool in change management, as it helps organizations to understand the human perspective and emotions of the stakeholders, and to develop strategies that address their concerns and needs.

Another useful tool can be **Prototyping and Testing**. By creating and testing prototypes of potential solutions, organizations can validate their plans, identify potential issues and get feedback from stakeholders before fully implementing changes. This can help to ensure that the changes are relevant and effective, and that they address the needs and preferences of the target audience. For example, if an organization is planning to introduce a new work process, it can create a prototype of the new process and test it with a small group of employees. This can help the organization to identify any potential issues or challenges with the new process, such as lack of clarity in the instructions or difficulty in completing tasks within the new process. By gathering this feedback and making adjustments to the process before it is fully implemented, the organization can increase the chances of successful adoption of the new process.

Prototyping and testing can also help organizations to identify and mitigate potential resistance to change by allowing stakeholders to experience the changes and provide feedback early on in the process. This can help to increase buy-in and acceptance of the changes among stakeholders, and ultimately increase the chances of success.

The next step, and also a popular tool and procedure is Iteration. Iteration is an important aspect of change management, as it allows organizations to continuously improve and refine their plans based on feedback from stakeholders. By iterating on change management plans, organizations can ensure that the changes are relevant and effective, and that they address the needs and preferences of the target audience.

Iteration involves a process of planning, implementing, evaluating and revising the change management plan. By reviewing the progress and feedback, organizations can identify areas for improvement and adjust the plan. This can help to ensure that the changes are aligned with the organization's goals and that they address the needs and concerns of the stakeholders.

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For example, if an organization is introducing a new performance management system, it can iterate on the plan by testing it with a small group of employees, gather feedback and adjust the system based on their feedback before rolling it out to the entire organization. Moreover, organisations can consider using the design thinking technique called Storyboarding, which helps to organize and communicate ideas by creating a visual representation of a story or process. In the context of change management, organizations can use storyboarding to create visual representations of the change process, and to explore different scenarios and potential solutions.

For example, an organization can create a storyboard to visualize the different steps of a change management process, such as communicating the change, training employees, and monitoring progress. By visualizing the process in this way, organizations can identify potential challenges and opportunities, such as the need for additional resources or the need to address specific concerns of certain stakeholders.

Additionally, storyboarding can be used to create visual representation of the problem, the change, the objectives and the plan to achieve them, by doing so, it helps to make the change process more accessible and understandable for the stakeholders, which can increase buy-in and acceptance of the changes among them.

Mapping stakeholders

Ministries/governmental bodies/local authorities: In many EU member states, national responsibilities and initiatives in adult education are often divided among various public bodies. Try to identify these bodies in your country and how they can help your organization.

Higher education institutions: Universities are considered sources of knowledge. Despite the insights they can offer regarding the sector of adult education in general, they may accept a different kind of collaboration. Research hubs and student associations are also possible stakeholders within their micro-community.

Businesses: Businesses are usually the desired destination of adult learners; therefore, they can give you vital information about the actual demands and needs of the labour market. You cannot exclude them from your network.

Youth organizations/social groups/NGOs: These organizations often work with certain adult groups. They have a network of groups which often educate or train.

Consultancy organizations/Career advising services/Employment offices: Career guidance is essential for the successful upskilling of low-skilled adults. They need expert consultations about their prospecting career paths.

VET & adult education organizations: A horizontal collaboration may be an excellent way for exchanging practices or strengthening your voice and raising essential issues, such as under-funding from the government. Representation is critical for a stronger social presence of adult education organizations.

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Key Directives & Policies

The **organizations' digital action plan** should be aligned with key directives and policies developed by the European Union (EU), which aim to support the adaptation of the education and training systems of Member States to the digital age.

Below relevant key directives and policies at a European level are presented:

Digital Education Action Plan 2021-2027

The Digital Education Action Plan (2021-2027) is a renewed European Union (EU) policy initiative that establishes a common vision of high-quality, inclusive and accessible digital education in Europe. The Digital Education Action Plan (2021-2027) aims to support the adaptation of the education and training systems of Member States to the digital age.

The Digital Education Action Plan (2021-2027) has two priorities. Firstly, to foster the development of a high-performing digital education ecosystem, and secondly to enhance digital skills and competences for digital transformation.

Pact for Skills

It is a central element of the European Skills Agenda and promotes joint action to maximize the impact of investing in enhancing existing skills (upskilling) and training in new skills (reskilling). The main objective of the Pact is to mobilize resources and all relevant stakeholders to take real action for upskilling and reskilling the workforce.

By joining the Pact, educators and VET providers will gain access to networking, knowledge and resource hubs. The Commission will also offer information and guidance on European Union (EU) funding and programs for skills development by offering a single-entry point at the EU level, which will help the development of digital literacy.

Council Recommendation on VET

The proposal for a **Council Recommendation on Vocational Education and Training** is an important part of the ongoing implementation of the European Pillar of Social Rights strengthening principle 1 "education, training and lifelong learning". The overall objective of the VET recommendation is to modernize the VET policy and meet the large upskilling and reskilling needs as well as to fit for the challenges of the 21st century and lead the recovery from the COVID-19 pandemic.

European Skills Agenda

The European Skills Agenda (ESA) is a plan that helps individuals and businesses to develop more and better skills and to put them to use. More specifically, ESA aims to reinforce sustainable competitiveness, ensure social fairness, access to education, training and lifelong learning for everybody, as well as to build resilience to react to crises

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European Quality Assurance in Vocational Education and Training – EQAVET

EQAVET is based on a quality assurance and improvement cycle (planning, implementation, evaluation/ assessment, and review/revision) applicable to quality management at both the VET system and VET provider levels. It provides a framework of common principles, indicative descriptors and indicators that may help in assessing and improving the quality of VET systems and VET provision.

OSNABRÜCK Declaration 2020

OSNABRÜCK Declaration 2020 refers to vocational education and training as an enabler of recovery and focuses on the transition to digital and green economies. Additionally, OSNABRÜCK Declaration aims to contribute to the post-COVID recovery and to develop the European Education and Training Area through future-oriented and innovative education and training systems to support the digital transition and improve employability and competitiveness with an ultimate goal to stimulate economic growth.

A common aim of the aforementioned Key Directives and Policies is to:

EU directives set out a series of objectives to be achieved, and it is then left to the individual countries to achieve this objective however they see fit. Thus, by following the EU key directives and policies you can make sure that you remain aligned with the given directions in the domain of VET digitalisation and also act towards specific goals set by the EU. Moreover, the EU key directives in the domain of VET digitalisation are also in accord with the aims of the GROOVE project which are to build the capacity of VET providers/trainers to digitize, modernize their practices and build the low-skilled adults' digital literacy skills and fill the gap between the demand for, and supply of, a digitally competent workforce through adjusting the VET sector we suggest that you.

Furthermore, as a VET trainer, by utilizing the aforementioned key directives and tools you will be able to follow key priorities set by the EU and benefit by learning how digital resources and activities can be used to respond to learners' expectations, abilities (e.g., individuals with special training needs). Also, you will be guided to address differentiation and personalization-related issues, such as how to use digital technologies to allow learners to advance at different levels and speeds and improve their digital skills while they follow individual learning pathways and objectives. Furthermore, by utilizing the use of such digital technologies and tools, you will equip yourself with the skills to actively engage learners in alignment with the market needs. By doing so, the learners will improve their articulating, and analytical knowledge, and learn to evaluate information in digital environments.

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Developing a Digital Action Plan

Many organizations in traditional and non-traditional industries aspire to reinvent their products, services, and business models to incorporate or use advanced technologies, like machine learning, in much more fundamental ways, and this is exactly what digital transformation is all about. Yet, an organization needs to first compose a solid digital action plan to maximize its benefit from the incorporation of digital technology and make sure it aligns with its purpose and aims.

To do so, some initial steps need to be followed:

Step 1: Setting the foundations

Establishing your goals and direction is critical for the success of a digital transformation action plan. One of the first things you need to do is to identify whether there is an already established mission statement or a vision that guides your long-term work. If it exists, you might need to amend or update your vision/mission to be aligned with the new organizational goals. Next, you need to define the priorities that will guide your work mid-term. Also, you need to think, is this a good time to initiate such changes? Do you need to cultivate your own skills first or your employees' skills? Digital transformation can give you an opportunity to review your overall business development and allows you to get an advantage against competitors. To do so the establishment of a vision and objectives for the transformation is crucial. This will allow you to determine the next steps of the digital transformation strategy to maximize the quality of the results.

Step 2: Assess the Current Market

Have you carried out a needs analysis in your target community or the country where your organization is established? What do the learners/customers need? What does the market need? How will your digital upgrades benefit both the learners and the market? What difference do you have to offer? What is the size of the market? Is there room for growth? What is your market share? Who are your biggest competitors and what is their progress over time?

Your digital transformation strategy should be customer-centric. Keep in mind that customers look for something personalized that responds to their needs. If you are a VET educator, you need to also pay attention to the motives of the learners. Analyzing the current market trends will help you create a more relevant strategy that will be more efficient both for the organization and the learners.

Key takeaways:

- Make sure you're solving a real problem or addressing an unmet need.
- Look at wider market trends to see if there is an opportunity.
- Develop your brand positioning in alignment with the digital upgrades to attract customers.

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Step 3: Prepare for Culture Change

- Who will be involved in developing a (new) digital strategy for your organization? Your executive board? Staff? Learners?
- How will you involve them? Through meetings? Consultations? Working groups?
- Does your current infrastructure support the planned amendments? Do you need to invest in technological equipment?
- What resources will you need to achieve your goals? Are they based on course fees? Governmental grants? Corporate partnerships? Voluntary contributions?

Everyone in your company will need to adapt to the idea of digital transformation. One of the key contributors to a successful transformation is the company's culture. Ensure that all the employees understand the motives behind the adjustments and must be willing to participate. Organizations with a culture that can embrace these changes, inspire collaboration, and motivate their employees for their digital transformation plan are more built for success. This means that the decision to implementation of a digital transformation plan is more collaborative than a single-handed decision and needs to be taken as such to minimize the risk of failure.

Also, you need to assess your current technology infrastructure and amend it according to the imminent changes and the technologies that will help you carry on with your digitalisation aims. Before investing in new technology, you also need to be certain that it aligns with your goals and fills the gap in your organization.

Various solutions can assist you with your digital transformation, but it requires a lot of decision-making. You need to take time choosing the right technology to avoid wasting time and money. In addition, creating organizational partnerships and searching for voluntary contributions or governmental grants can assist your goals and provide you with funding or tools that you can utilize.

Step 4: Building your Execution Team

- Who will help you achieve your goals?
- Have you already mapped your potential partners who share similar priorities? Where are they based – in your community, or perhaps also at the national or European level?
- How exactly will you execute your plan? Who will be responsible for it?
- How will you measure success (you need to be explicit on what you consider success)?

There might be cases when new employees need to join the team to help with building a competent execution team to better implement the digital transformation plan. For instance, Business-technology liaisons, Technologists, and IT specialists are critical for the execution and success of digital transformation planning.

Even if all employees are willing to participate and open to the potential amendments in multiple organizational factors, there is still the need to narrow the team down to the employees/people that are going to comprise the execution team. The employees or team who will lead the

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implementation should help everyone to feel secure in times of change. This can be your Chief Digital Officer (CDO) or Chief Information Officer (CIO), the HR officer, or even an external team. One important aim of the team is to make sure that everyone is aware that Digital transformation is a continuous process and not a short-term aim, and that it aims to increase the benefits of everyone (organization, learners, employees).

Step 6: Measure and Adjust

- How and when will you evaluate your strategy?
- How would you imagine a successful implementation plan?

Once you've implemented your plan, it's time to look at the results. Remember that the digital transformation process is a long-term goal. Thus, it is better to set some measurable short-term goals to be able to track the organizational progress.

Part of the measuring may be:

- Learners' experience
- Your impact on the market
- Employees' satisfaction and progress
- Return on Digital Investments
- Employee Productivity
- Adoption & Performance Metrics
- Customer Experience Metrics
- Cost-Benefit Analysis
- Revenue from Digital Technology

Best Practices

For the development of a digital action plan and instructional strategy for promoting learners' digital literacy, the GROOVE consortium suggests considering the following best practices:

Tools and Frameworks

For the identification of knowledge, skills and attitudes for the digital transformation of the VET sector, tools and approaches for delivering digital skills training, and for the designing of online learning and remote teaching, we suggest the following:

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1. The European Digital Competence Framework for Citizens is an online self-assessment test to measure the educators'/employees' digital competence and identify gaps in their knowledge, skills and attitudes.
2. The Digital Competence Wheel provides an overview of digital competences, and offers concrete tools for how these competences can be elevated and improved. The Digital Competence Wheel is theoretically based on DIGCOMP.

Some of its functions include:

- Creation of your own customized competence model that targets the digital competences relevant to your specific organization.
- Build measurable competence profiles, and personas, on the digital skill sets that matter most to you
- Get the full overview of your organization's digital competence levels, enabling you to initiate purposeful digital transformation
- Integrations of your own learning materials into the platform, allowing you to create a direct link between the results and your resources
- With just a few clicks you can generate visually impressive and interactive reports that allow you to measure your digital journey over time
- Get a databased foundation you can use for strategic development, performance reviews, recruitment and much more

1. DigCompEdu

The European Framework for the Digital Competence of Educators (DigCompEdu) is a framework that focuses on what it means for educators to be digitally competent. It provides a general reference frame to support the development of educator-specific digital competences in Europe (see Figure 4). DigCompEdu is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational education and training, special needs education, and non-formal learning contexts.

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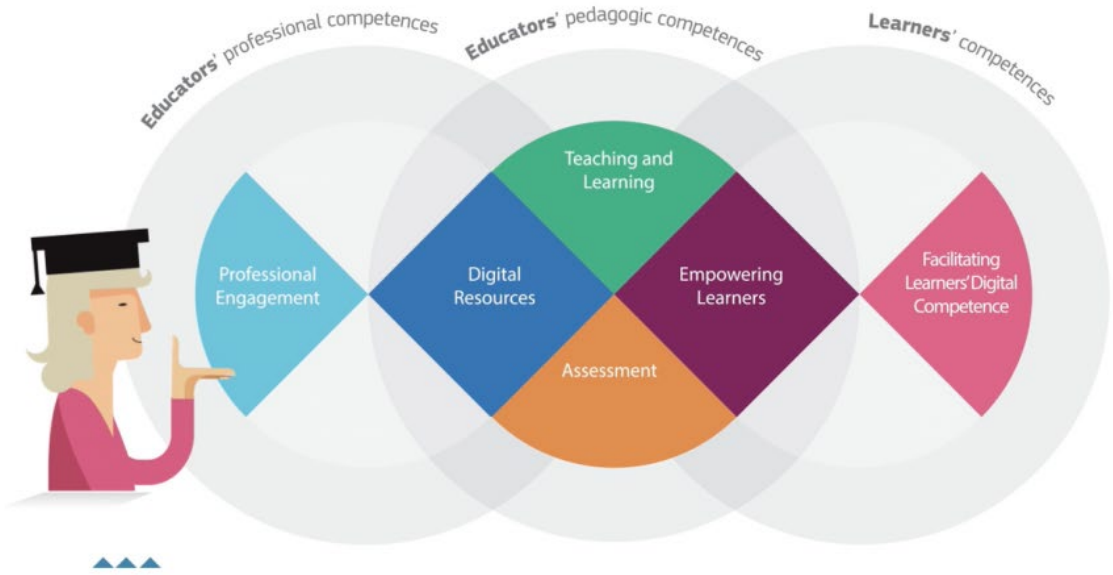

Figure 4 - Development of Educator-Specific Digital Competences

2. DigCompOrg Framework

The DigCompOrg framework has seven key elements and 15 sub-elements that are common to all education sectors. There is also scope for the addition of sector-specific elements and sub-elements. For each of the elements and sub-elements of DigCompOrg, a number of descriptors were developed (74 in total). Diagrammatically, the elements, sub-elements and descriptors of DigCompOrg are presented as the segments of a circle, with an emphasis on their inter-relatedness and inter-dependence.

3. Digital credentials

The European Commission has developed the **European Digital Credentials Infrastructure** (EDCI) in order to support efficiency and security in how credentials such as qualifications and other learning achievements can be recognized across Europe. The EDCI will support authentication services for any digital documents or representations of information on skills and qualifications.

A credential is a documented statement containing claims about a person issued by an educational organization following a learning experience. European Digital Credentials refer to learning achievements. Such achievements are activities (e.g. classes attended), assessments (e.g. projects), achievements (e.g. skills developed), professional entitlements (e.g. registration as a medical doctor) and qualifications.

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European Digital Credentials have various benefits over paper-based certificates: they can reduce administration work, they can decrease the impact of credential fraud and contribute toward paperless workflows.

1. SELFIE for work-based learning (WBL)

A free online tool that supports Vocational Education and Training (VET) schools and companies to make the most of digital technologies for teaching, learning and training. By answering a series of questions VET professionals will get a tailored report that can be used to create a digital action plan.

If you are a VET school and you'd like to use the new SELFIE WBL module you should:

- Log in to SELFIE (first-time users can see how to register)
- Set up a new self-reflection exercise
- Choose "Upper secondary vocational level" when selecting your education level
- Click the checkbox "Will companies take part in this survey?"

Pedagogies and instructional strategies for promoting learners' digital literacy

2. European Digital Credentials for Learning

Digital Credentials are multilingual and signed with a unique electronic seal (that is the digital equivalent of an institution's rubber stamp). This allows education and training institutions to easily authenticate, validate and recognize credentials of any size, shape or form.

European Digital Credentials for learning can describe and certify: qualifications (e.g. professional certificates, university diplomas and other learning achievements), activities (e.g. participation in classes and non-formal learning events), assessments (e.g. transcripts of records), and entitlements (e.g. right to enrol in learning opportunities or to undertake an occupation.

By using digital credentials Individuals can build an online portfolio to track all of their learning can reuse their credentials to get a job or apply for further training all across Europe and also can present and have their credentials verified at any point in their career, even if the institution who issued them closes, or if the data used to create them is lost.

On the other side, the employers are able to reduce the time and cost of verifying credentials and processing job applications can better understand the credentials of candidates, especially from the other Member States as they will be translated into their own language, and can trust tamper-proof credentials.

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3. Facing the Digital Transformation: are Digital Skills Enough?

Describes the skills that are needed to take advantage of the possibilities offered by digital technology and the VET sector, such as cognitive skills (i.e., numeracy, literacy and digital) and non-cognitive skills such as communication and collaboration skills, creativity and critical thinking.

Other components/remote teaching/content creation

1. Enabling VET teachers to be creators of digital education

- This project aims to improve teachers' digital competences and to empower them not only to use various ready-made digital resources in remote and hybrid teaching but also to be creators of digital content for vocational curricula by providing practical training on using various apps, software and learning environments
- Developing the guidelines that will facilitate the provision of remote/hybrid training for VET providers
- Implementing training activities for VET trainers to use the acquired knowledge and skills for the development of digital content and implementation of remote/hybrid training.

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Section F: Teaching Pedagogies and Instructional Strategies

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Principles of Adult Learning

Andragogy is the understanding of the science and practice of adult learning. Educating adults is different to educating children as adults have an existing source of understanding and life experience with which they seek out continuous education based on their own personal interests, wants, and needs (Smith, 2010). Adults can understand why they are learning and as a result, their motivation levels are high. Adult learning theory gives an insight into how to explore and utilize an adult's strengths when it comes to education.

This is important when considering techniques that should be used while educating adults. There are several different educational theories that are advised by multiple educational scholars in relation to digital competency. These theories include andragogic theory, experiential learning, and VARK.

Knowles & Andragogic Theory

Malcolm Knowles is considered the champion of adult education, especially in relation to self-direction in learning and informal adult education (Graham, 2017). Knowles' concept of adult education is centered around the idea that adult learning is founded on the characteristics of adult learners (Smith, 2010).

Knowles' theory centers on five core pillars of adult learning; which is based on the idea that as a person matures, their educational needs and wants change:

Self-concept	Experience	Readiness to Learn	Orientation	Motivation
adults move from being dependent on those around them to being a **self-directed person**	adults gain a **wealth of experience** that becomes an increasingly large bank of knowledge for learning	adults' readiness to learn **increases by necessity** as it is often needed for **social advancement** in employment and societal groups	adults' applications of learning become **immediate and more problem-orientated**	adults' motivation to engage in education is **internal,** i.e. it comes from within rather than from external influences

Figure 5 - Knowles' Five Pillars

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Knowles expanded upon this by providing advice for those providing adult education. This advice gives general oversight of the needs of adults while being educated:

- Involve adult learners in both the planning and assessment of their training;
- Learning is based on practice (both successes and mistakes);
- Topics that have immediate applicability and effect on their personal and professional lives are most interesting to adult learners; and,
- Adults learn better with problem-orientated education rather than content-orientated education (Pappas, 2013).

These are important considerations to remember when planning lessons for adult learners. Many adult learners are pursuing education because it is necessary to know these skills for their everyday life – both at work and at home (EPALE, 2020). These motivations are important to understand when forming lesson plans as adult learners have different educational needs than children. Exploring Knowles' pillars we can see that adult learners learn better when allowed to experiment with the educational material directly through problem-solving and hands-on experience. This is why experiential learning is highly successful with adult learners.

Kolb & Experiential Learning Cycle

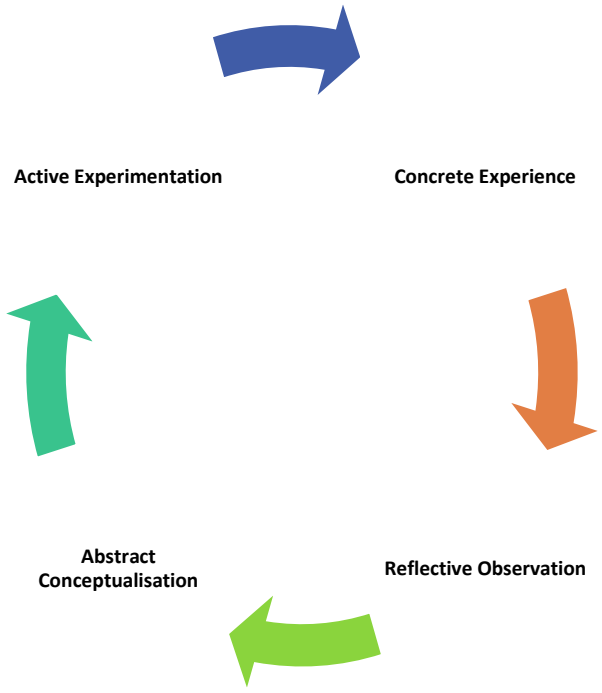

Figure 6 - Experiential Learning Cycle

An educational style that is helpful for adult education is experiential learning. Sometimes called learning through discovery, experiential learning was developed by David Kolb in 1984 and is based on a four-stage cycle of learning around educating through repetition. This process involves gaining new skills that can then be applied flexibly in a range of situations. Experiential learning is usually represented by a four-stage learning cycle in which learners discover by 'touching all the bases' of the cycle (McLeod, 2013). The four stages involve steps carried out by the learner to absorb as much information through practical use as possible:

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1. **Concrete Experience** - the learner has good hands-on experience with the material
2. **Reflective Observation** - the learner reflects on what they have just learned and compares it to their existing understanding of the educational subject
3. **Abstract Conceptualization** - the learner contrasts their new knowledge with their previous understanding and this gives rise to a new idea (i.e. the learner has learned from their experience)
4. **Active Experimentation** - the learner begins to use their new knowledge in their encounters with the subject going forward.

Kolb understood learning as an integrated process with each stage of the learning cycle being mutually supportive of one another and feeding into the next stage (McLeod, 2013). Experiential learning requires a hands-on approach that puts the learner at the center of the learning experience (Colman, 2019).

There are plenty of benefits of experiential learning. Firstly, it creates a real-world experience for learners while providing opportunities for collaboration with fellow learners which helps to stimulate learning (Peterson, 2020). Additionally, this method of learning can be very impactful on adults as they have extensive life experience that they can build on. They also have sufficient cognitive ability to reflect upon new experiences, develop new ideas, and take positive action for change.

Teaching Digital Skills

To promote **digital literacy** amongst adults, as well as to improve the digital skills of the educators delivering the training, educators should seek to provide a clear understanding of digital literacy including basic computer skills, and online reading comprehension skills, and then move forward to digital literacy skills (Barbara Bush Foundation for Family Literacy et al, 2022). By following this approach, educators can ensure that learners have a strong foundational base upon which they can build further digital skills. It is important for educators to understand where their own individual digital competency lies before providing digital education to learners as it ensures that the educators are digitally literate before providing training to adult learners.

As previously stated, The **European Framework for the Digital Competence of Educators (DigCompEdu)** serves as a general reference guide to support the development of educator-specific digital competences in Europe. Educators should assess their own digital literacy skills using the DigCompEdu self-assessment tool (SAT) to better understand their personal level of digital competence as educators. By understanding and improving their own digital literacy skills, educators can ensure that they are applying the DigCompEdu framework, which will support them ultimately to enhance the digital competence of their learners. By engaging in digitally-enhanced education that is effective and tailored to the skills and abilities of learners, educators can ensure they are supporting learners to indirectly and incrementally build their digital skills. It is important to ensure that educators can fulfil the learner's competences of DigCompEdu otherwise they would not be considered digitally competent under the framework themselves.

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The Importance of the Learners' Competences

The learners' competences set out in the DigCompEdu framework are as follows:

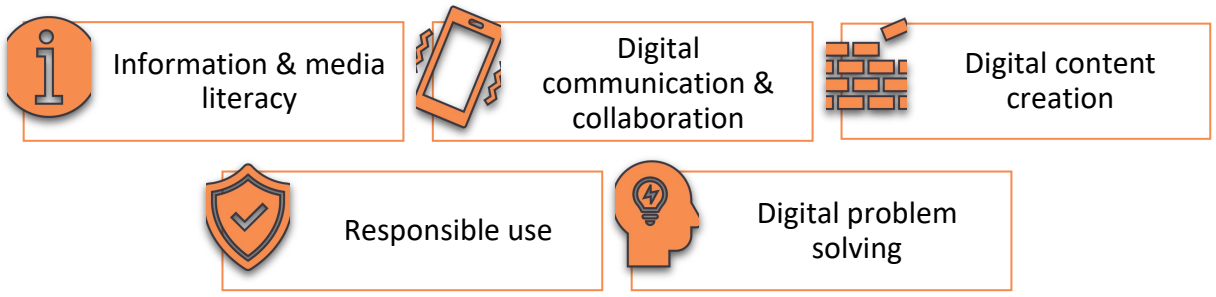

Figure 8 - The DigCompEdu Learners' Competences

Information and media literacy

To incorporate learning activities, assignments and assessments which require learners to articulate information needs; to find information and resources in digital environments; to organise, process, analyse and interpret information; and to compare and critically evaluate the credibility and reliability of information and its sources.

Digital communication and collaboration

To incorporate learning activities, assignments and assessments which require learners to effectively and responsibly use digital technologies for communication, collaboration and civic participation.

Digital content creation

To incorporate learning activities, assignments and assessments which require learners to express themselves through digital means, and to modify and create digital content in different formats. To teach learners how copyright and licenses apply to digital content, how to reference sources and attribute licenses.

Responsible use

To take measures to ensure learners' physical, psychological and social wellbeing while using digital technologies. To empower learners to manage risks and use digital technologies safely and responsibly.

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Digital problem solving

To incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations.

These competences exist to provide a blueprint for learners and educators to follow when seeking to develop the digital competence of learners of all age groups. Learners should ultimately feel competent in all the above to be considered digitally competent and literate. VET teachers and providers should ensure that their lessons and curriculum allow learners to develop these competences. Further explanations about what is meant by each competence can be found within the framework itself. These competences must be considered when applying teaching pedagogies and instructional strategies as they are the ultimate goal of any form of education and up-skilling related to digital skills.

Application of Learning Methods

Knowles & Adult Education

When seeking to apply the educational theories and methods set out above, Knowles' pillars should be considered by educators when planning lessons. Adult education should be self-driven and is usually self-motivated therefore adults are more likely to engage on a deeper level with authentic education experiences, that allow them to benefit from the educational content directly. Many adult learners will be engaging in education to increase both their digital skills and their professional competences and skills.

Using Knowles' principles of adult learning in designing educational activities for learners can be achieved through reference and application of Kolb's theory of experiential learning. As it is vital to support and involve adult learners in their education, using methods such as integrating technology in the classroom and emphasizing access to independent learning can be very useful for adult learning.

Kolb & Experiential Learning

The applicability of experiential learning in the digital workspace can be incredibly beneficial for adult learners. Following the learning cycle established by Kolb, we can see that there is a process that educators can use to aid learners. This can be achieved at the beginning by setting practical tasks such as using various software, learning internet terminologies, and basic computer skills. These activities allow learners to engage with digital content in a controlled and simple manner, and to build their skills incrementally. Actions such as these complete the *concrete experience* step. These actions also engage learners in developing their skills in relation to digital problem-solving,

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alongside digital content creation, digital communication & collaboration, and information and media literacy, depending on the task chosen.

Introduce experiential learning by assigning **real-world tasks** to learners. These can be very basic such as creating and saving a Word document, or more advanced such as uploading an assignment on Google Classroom

For the *reflective observation,* step educators could include some critical thinking and/or reflective questions at the end of the lesson to involve adult learners in contemplating and reflecting on what they have just learned. Worksheets, exercises, or WebQuests that are used to teach learners could include some concluding thought exercises or discussion topics to get adult learners thinking about other applications of the skills that they will have just learned.

These two steps actively encourage learners to compare and contrast their newfound knowledge with their existing experiences. Educators can encourage this further by inviting learners to apply their newfound knowledge to similar but different tasks. For example, if step one involved a person learning how to create a Google account, step three could be to step up a Microsoft account. These two tasks use the same skills but are different enough to encourage active thinking (*abstract conceptualization*).

To implement experiential learning in adult education settings, educators can use existing databases of online learning content. These platforms (shown below) are helpful for both educators and learners as the information has come directly from the source. All the examples listed below are tools that are regularly used in the classroom, at work and in everyday life.

Free Online Resources

Google for Education offers video-based lessons which aim to teach practical digital skills to adult learners. Available at https://applieddigitalskills.withgoogle.com/en/learn

Microsoft 365 Training offers video lessons on the Microsoft Office suite for products such as Outlook, Teams, Word, PowerPoint, Excel, etc. Available at https://support.microsoft.com/en-us/training

Zoom Learning Centre offers a variety of training videos, hand-outs and guides aimed at teaching basic skills as well as how to use Zoom for education. Available https://learning.zoom.us/learn.

Figure 9 - An infographic showing different educational resources available for free online

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Promoting digital skills

The best way to promote the acquisition of digital skills amongst adult learners is to give genuine recognition of their skills and education in this area. This grants some form of credential that showcases their digital skills. As these skills are universal and transcend borders, giving international recognition to these skills is important. That is why it is recommended that these skills are both digitally recognized, and recognized at a European Level. Below are some examples of credentials that can be offered.

Digital Credentials

Digital credentials describe a learning achievement from professional qualifications to classes attended. This credential is a "documented statement containing claims about a person issued by an educational organization following a learning experience" (European Commission). These are the EU standard for issuing educational credentials and are kept by the Database of External Quality Assurance Results (DEQAR) in the Accreditation Database for verification purposes (DEQAR, 2022).

EUROPASS

EUROPASS is an online platform that can assist in making skills and qualifications transferable and easily understood across all European countries (European Commission, 2022). It is a system that allows users to effectively communicate their skills and qualifications across Europe. The Europass learning model aims to capture all formal, informal, and non-formal learning across Europe. This will allow for a single format to be used in describing all forms of accredited learning achievements (European Commission, 2020).

Micro-credentials

Micro-credentials are short-term, accredited courses devised specifically to meet the needs of learners, businesses, and corporations. These courses offer learning opportunities which provide a flexible, bite-sized, and accessible way of upskilling and reskilling (IUA, 2022). As a result of their flexibility, micro-credentials can be created and presented by a range of providers in various formal, non-formal and informal learning environments (European Commission, 2021).

By designing and delivering your own digital skills course, you can provide accreditation that is recognized across Europe. This holds an attractiveness for learners as they are gaining a tangible qualification that will benefit them in employment and beyond. The guidelines for creating a micro-credential can be found on the European Education Area website (European Commission, 2021).

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Mandatory Elements

Identification of the learner

Title of the micro-credential

Country/region of the issuer

Awarding body

Date of issuing

Learning outcomes

Notional workload needed to achieve the learning outcomes (in ECTS credits, wherever possible)

Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF, QF-EHEA), if applicable

Type of assessment

Form of the participation in the learning activity

Type of quality assurance used to underpin the micro-credential

*Figure 8 - SEQ Figure * ARABIC 6 - A list of mandatory elements for designing a micro-credential, adapted from: https://education.ec.europa.eu/sites/default/files/2022-01/micro-credentials%20brochure%20updated.pdf*

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