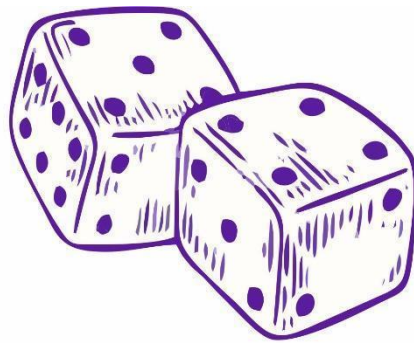


DICE KIT OF DIGITAL SKILLS AND KNOWLEDGE FOR COMPETITIVENESS AND INNOVATION IN ENTREPRENEURSHIP



DICE
DIGITAL COMPETENCES IN
ENTREPRENEURSHIP





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DICE TOOLKIT

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Executive summary

Chapter 1, Introduction, explains the subject of this document.

Chapter 2, Methodology, explains in more detail how the training activities will be developed and presents the teaching methodologies and structures. It also gives more details on the training structure, module topics and teaching specifications.

Chapter 3, Skills and Competences, presents the typologies of materials and documentation that will be used and created during the training.

Chapter 4, State of Digital Skills and Competences in Czech Republic, Greece, Poland, Portugal, and Turkey, provides an overview of digital skills and competences in these countries, particularly in relation to their acquisition and access among vulnerable groups.

Chapter 5, Challenges for Entrepreneurship in the Digital Era, introduces the currently challenges faced in the job market and corporate environment due to digitalisation.

Chapter 6, Case Studies, presents good practices, case studies, initiatives, and strategies developed with the aim of disseminating digital skills among EU citizens.

Chapter 7, Conclusion, synthesises the discussion presented and reflects on the relevance of the Toolkit.

Chapter 8, Bibliographic References, lists the references used in the creation of the document.

1. Introduction

The purpose of the Kit of digital skills and knowledge for competitiveness and innovation in entrepreneurship for vulnerable people is to empower individuals with the necessary digital skills to effectively participate in the entrepreneurial landscape. The Kit aims to bridge the digital divide and provide equal opportunities for vulnerable populations to thrive in the digital economy.

The scope of the Kit encompasses a comprehensive range of digital skills and knowledge needed for entrepreneurship, including but not limited to:

- 1. Digital literacy:** Understanding basic computer skills, navigating the internet, using email and social media, and maintaining cybersecurity.
- 2. Online presence and branding:** Developing a professional online presence through websites, social media platforms, and online marketing strategies.
- 3. E-commerce and online sales:** Understanding the fundamentals of online selling, including setting up an online store, managing inventory, and digital payment methods.

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4. Data analysis and insights: Utilizing tools and techniques for data analysis to make informed business decisions and optimize performance.

5. Digital marketing and customer engagement: Learning strategies to effectively reach and engage target audiences through online marketing channels and social media platforms.

6. Innovation and creativity: Encouraging entrepreneurial mindset and fostering innovation by leveraging digital technologies and tools.

The objectives of the Kit are:

- To equip vulnerable individuals with the necessary digital skills and knowledge to start and manage their own businesses.
- To enhance their competitiveness and innovation capabilities in the digital economy.

By focusing on this specific target group, the Kit can become crucial in reducing inequalities prior to the digital transformation, promoting the expansion of access to digital learning and its ensuing benefits. This is particularly effective when combined with entrepreneurial and business perspectives, for structurally vulnerable and marginalised groups such as women, migrants, and youth who have had low-skilled education. Consequently, this can enhance their opportunities for social mobility and progression in careers with higher salary prospects.

2. Methodology

Through an integrated methodology involving literature reviews, needs analysis, questionnaires, and interviews, the research team was able to gather both quantitative and qualitative data, ensuring a robust understanding of the state of digital skills and competencies for entrepreneurship, particularly for vulnerable groups. This approach not only provided insights into the existing landscape but also allowed for the design of a tailored framework to empower vulnerable populations in the digital entrepreneurial space.

Research Questions:

1. What is the current state of digital competencies and skills for entrepreneurship in partner countries, with a focus on vulnerable groups like low-educated young people, immigrants, and NEETs?



2. What are the existing approaches, project initiatives, studies, and publications related to digital competencies and skills for entrepreneurship in partner countries?
3. What are the specific needs and challenges of vulnerable populations in acquiring digital skills for entrepreneurship?

Methodology:

1. Literature Reviews: Conducted a thorough review of existing literature, publications, and studies related to digital competencies and skills for entrepreneurship, paying specific attention to research focusing on vulnerable groups. This helped gather insights and understand the existing knowledge landscape.

2. Needs Analysis: Carried out a needs analysis to identify the specific requirements and challenges faced by vulnerable populations regarding digital skills for entrepreneurship. This involved examining the skills gaps, barriers, and support systems available for these groups.

3. Questionnaires: Developed and administered questionnaires to target groups - vulnerable individuals. The questionnaires aimed to gather direct input, perspectives, and experiences related to digital skills and entrepreneurship.

4. Interviews: Conducted interviews with individuals from the target groups, representatives from the IT sector, VET/HEIs, and field experts. These face-to-face or virtual interviews provided in-depth insights, perspectives, and qualitative data regarding digital skills and entrepreneurship.

5. Analysis and Synthesis: Analysed the data collected from the literature reviews, needs analysis, questionnaires, and interviews. The research findings were synthesized to develop a comprehensive framework and curriculum for the Kit of digital skills for entrepreneurship. The analysis ensured that the Kit addressed the specific needs and challenges identified during the research process.



3. Skills and Competences

Skills and competences play a crucial role in fostering competitiveness and driving innovation in today's rapidly evolving business landscape. This importance is amplified for vulnerable groups, who often face additional barriers to economic participation. Here are the key reasons why skills and competences are vital for competitiveness and innovation, particularly for vulnerable groups:

1. **Economic Empowerment:** Acquiring relevant skills and competences empowers individuals to participate actively in the economy. By equipping vulnerable groups with marketable skills, they can gain financial independence, reduce dependency on social welfare, and improve their overall livelihood. Entrepreneurial skills, in particular, enable individuals to create their own opportunities, start businesses, and generate income for themselves and their communities.
2. **Increased Employability:** In today's digital age, job markets are highly competitive and constantly evolving. Having the right skills and competences makes individuals more employable and adaptable to a dynamic work environment. By developing a broad set of digital skills, vulnerable groups can position themselves for employment in various sectors and industries, thereby increasing their chances of securing stable and well-paying jobs.
3. **Entrepreneurial Opportunities:** Entrepreneurship holds significant potential for both economic growth and individual prosperity. By fostering entrepreneurial skills and competences among vulnerable groups, they can harness their creativity, identify market gaps or needs, and launch their own businesses. This not only creates income-generating opportunities but also contributes to job creation, innovation, and the overall economic development of their communities.
4. **Technological Advancement:** Competence in digital skills is essential for leveraging technology and driving innovation. Digital tools and technologies are increasingly shaping how businesses operate and compete. By equipping vulnerable groups with digital skills, they can leverage technology to streamline processes, enhance productivity, access new markets, and create innovative solutions to societal challenges.



5. **Overcoming Disadvantages:** Vulnerable groups, such as marginalized communities or individuals facing social or economic challenges, often face systemic barriers and discrimination. Building skills and competences can empower these individuals to overcome these disadvantages, level the playing field, and pursue meaningful opportunities. Enhancing their skills helps to break cycles of poverty, exclusion, and marginalization, enabling them to improve their socio-economic status.

The acquisition of these skills can be central for empowerment, especially through accessing opportunities and resources previously unattainable during their lifetime, allowing them to overcome socio-economic and cultural barriers, and making it easier for them to find the right paths for social advancement. Proficiency in tools such as digital marketing and social media, use of e-commerce, virtual management, among others, can positively impact the effective management of their own businesses. This provides access to independent income sources and reduces dependence on formal employment, which may often be inaccessible to certain groups. Furthermore, these skills enable them to tap into broader markets by expanding the reach of their services and products, potentially attracting a diverse range of clients and suppliers, likely unachievable without the advent of digitalisation.

Digital and Entrepreneurship Skills

Digital skills and entrepreneurship skills are key factors in enhancing opportunities for success, particularly for vulnerable groups. Here are the significant reasons why these skills play a crucial role:

1. **Access to Global Markets:** Digital skills enable individuals to leverage technology and access global markets. With the increasing digitalization of businesses and the rise of e-commerce, having digital skills allows entrepreneurs to reach a wider customer base beyond their local communities. This expands their market potential and opens up new opportunities for growth and success.

2. **Cost-effective Marketing and Networking:** Digital skills empower entrepreneurs to effectively market their products or services through online platforms and social media. They can leverage digital marketing strategies to target specific audiences, build brand awareness, and engage with customers



in a cost-effective manner. Additionally, digital skills enable entrepreneurs to network and collaborate with other professionals and organizations, opening doors for partnerships and business opportunities.

3. Adaptability and Innovation: The digital landscape is constantly evolving, and entrepreneurs need to be adaptable and innovative to stay competitive. Digital skills enable individuals to keep up with technological advancements, embrace new tools and platforms, and integrate digital solutions into their business models. By staying abreast of digital trends and leveraging technology, entrepreneurs can identify and seize opportunities for innovation, offering unique value propositions to their customers.

4. Efficient Operations and Productivity: Digital skills allow entrepreneurs to streamline their business operations and enhance productivity. They can leverage digital tools and software to automate repetitive tasks, manage inventory, analyse data, and improve overall efficiency. This enables entrepreneurs to focus on core business activities, make data-driven decisions, and allocate their resources effectively for maximum impact and success.

5. Enhanced Customer Engagement: Digital skills empower entrepreneurs to engage with customers in meaningful ways. Through social media, email marketing, and online communication channels, entrepreneurs can build strong relationships with their customers, understand their preferences, and provide personalized experiences. This heightened customer engagement leads to increased customer satisfaction, loyalty, and ultimately, business success.

6. Flexibility and Remote Work Opportunities: Digital skills empower entrepreneurs to operate their businesses remotely and embrace flexible work arrangements. This is particularly significant for vulnerable groups who may face limitations in accessing traditional work environments. Digital entrepreneurship allows individuals to work from home, create their own schedules, and balance their personal and professional responsibilities, providing enhanced opportunities for success and work-life integration.



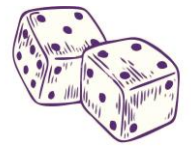
In summary, digital competences and entrepreneurship skills significantly enhance the opportunities for success among vulnerable groups. By equipping them with these tools, we empower individuals to tap into the global market, effectively employment and network, adapt to digital advancements, operate efficiently, engage customers, and embrace flexible work arrangements. These skills not only create pathways for entrepreneurship but also contribute to their overall socio-economic empowerment and success.

Background

The current state of digital skills and competences in Europe shows a mix of progress and challenges. On one hand, Europe has made significant strides in developing digital skills through various educational initiatives and training programs. Many Europeans have acquired proficiency in basic digital competences such as using computers, internet browsing, and social media.

However, there are still significant challenges to overcome. The digital skills gap remains a concern, as not all Europeans possess advanced digital competences required for entrepreneurship in the digital era. This gap includes skills such as coding, data analytics, cybersecurity, and digital marketing. Additionally, there is a need for continuous upskilling and reskilling as technology rapidly evolves.

1. **Skills Gap:** There is a significant digital skills gap in Europe, with many individuals lacking the necessary competences to fully participate in the digital economy. This gap exists across various demographic groups and industries, hindering economic growth and innovation.
2. **Varied Skill Levels:** The digital skills landscape in Europe varies across countries and regions. While some countries have made significant progress in digital skills development, others are still catching up. This disparity highlights the need for targeted interventions and standardized training programs to bridge the skills gap.
3. **Workforce Readiness:** Many employers in Europe report difficulties in finding candidates with the required digital skills. This indicates a mismatch between the skills possessed by job seekers and the demands of the labour market. Enhancing digital literacy and upskilling the workforce is crucial to ensure employability and competitiveness.



2. State of Digital Skills and Competences in Czech Republic, Greece, Poland, Portugal, and Turkey

Czech Republic

When analysing digital skills in the context of entrepreneurship in Czech Republic, there are barriers to companies integrating the wide - and growing - range of digital possibilities, especially due to the low digital skills of its population. According to information gathered in mid-2014 by the European Commission, over 50% of the population has only a basic level of digital skills. This issue is exacerbated by unequal access between different sections of the population, such as migrants and natives. The use of digital technologies for education-related matters is also low, and concurrently, young people with lower levels of education face greater challenges in overcoming digital deficits.

It is thus crucial that strategies in the realm of entrepreneurial digital skills, targeting this audience, which includes the focus groups of DICE (Digital Project Competences in Entrepreneurship) – comprising young adults outside the labour market, migrants, and other socially vulnerable groups, as well as the economically active population seeking to enhance their entrepreneurial skills – concentrate on digital literacy, programming workshops, and mentoring programmes to unlock their latent entrepreneurial potential, which will allow them to make a positive impact on the economy.

These unequal accesses mentioned are linked to pre-existing inequalities, such as age, education, and socioeconomic background, while also giving rise to new ones. For example, according to 2014 reports from the CZSO, 72% of households in the country had at least one computer and internet access. However, when considering the income and wages of Czech families, among those with higher purchasing power, 97% had these accesses, whereas among the most socially vulnerable families, this rate was three times lower, representing one of the largest disparities in the European Union. Furthermore, other factors like age – difficulties among the population over 65 years old – and generational elements – limited digital skills in children and teenagers linked to their parents' or guardians' occupations – are signalled.

The Czech Republic has been making efforts to address these needs, particularly in seeking to strengthen the ties between digital technologies and education, which will be fundamental in the long term. However, strategies focused on these skills in the field of entrepreneurship education should



also be pursued through start-ups and incubators in the region, by offering quality guidance, networking opportunities, and resources that help vulnerable groups overcome barriers and venture into business. For this, state participation is essential through targeted funding, grants, and incentives, aiming to motivate companies to create programmes that meet the specific needs of groups like those targeted by DICE.

Greece

The questionnaire, administered by the project to 50 Greek citizens via Google Forms in 2023 and presented in the National Report, provides key information about the general panorama of digital competences in the country. Regarding educational aspects, among the sample, the majority of participants hold a bachelor's degree, and 81% were employed at the time of the survey – although a minority of them owned their businesses. At the same time, the majority claimed to be comfortable using computers – only 8% indicated being "uncomfortable" or "very uncomfortable" using them.

This reality persists in relation to the use of mobile phones and social media. However, it intensifies when the question turns to the use of online productivity tools, such as word processors, shared documents, spreadsheets, and other software, with 26% of participants claiming discomfort using them. These data may indicate persistent obstacles in the using of digital technologies in spheres other than informal communication and leisure. Its use for professional marketing reinforces the analysis: 42% of the sample indicated they were uncomfortable with it.

Another element that corroborates this perspective is the discrepancy between the answers to the question about security in using digital tools in everyday life and social interactions versus for job searching or issues related to educational aspects. While only 12% of respondents indicated ineptitude in the first question, 30% did not feel confident using them in the professional and educational areas.

Simultaneously, when asked about which technologies would be useful for latter purposes, respondents pointed out that learning about social networks and video editing, Microsoft Office applications, marketing tools, web programming, Internet use, data analysis, information research techniques, and tools and techniques of artificial intelligence, would be important in the search for employment and other educational opportunities.

The questionnaire was also applied to 10 Information Technology professionals in the country, and all of them highlighted the primacy of mastering digital skills in the corporate field, including being the "backbone" of current operations. When asked to give examples of everyday actions in which digital



skills were needed, several of the responses mentioned aspects related to sales and e-commerce, which signals the indispensability of these tools in various spheres of the business environment, including at stages where greater interactivity with different subjects is required. In addition, the management of social networks, programming, data analysis skills and internet protocols also appear to be intrinsic to the digital skills considered fundamental for entrepreneurs.

As persistent gaps for the acquisition of these skills, professionals indicated that in Greece, digital transformation is still scarce, and hiring is hindered by the lack of experts in the field, as well as constant problems related to infrastructure and resources. These elements reiterate the relevance of acquiring qualified digital skills in order to broaden the professional horizons of the population – especially vulnerable segments, which are even more on the margins of access that is already complex and crossed by different barriers.

Poland

As in other countries of the European Union, in Poland, the need for digital competences is a central element in the business sector due to its massive presence in different areas of economic life. To align the reality of the Polish population with such needs, many initiatives are underway, both private and public, to expand the acquisition of these skills highly demanded by the global job market. The National Report of DICE in the country presents the main strategies currently being implemented:

- a) **National Digital Programme (NCP):** A government initiative aimed at improving digital skills by offering of various training courses, including for teachers, with the goal of developing young people's digital competencies.
- b) **"Digital School":** An educational program managed by the Ministry of Digitalisation aimed at educating students and teachers in digital competencies. It includes access to an e-learning platform with various educational materials.
- c) **Free online courses:** There are many platforms offering free virtual courses on digital competencies, such as e-kursy24.pl, Udemy, Coursera, edX, where it's possible to access training on programming, data analysis, software operation, etc.



- d) **Courses and workshops in libraries:** Many public libraries offer digital learning courses and workshops accessible to local communities.

- e) **Private initiatives:** Various companies and NGOs manage training programs and educational initiatives related to digital competencies. These can vary between online courses and in-person workshops.

Regarding the country's general panorama in the field of digital competencies, among the 50 interviewees, 38 individuals affirmed familiarity with using computers, while 44 reported feeling comfortable using mobile phones/smartphones, a reality similar to that of Greece and which reiterates the preference for utilizing the last one, although further studies are needed to deepen the reasons. At the same time, the data on the use of virtual tools that are fundamental for business and entrepreneurial participation in contemporary times is promising, among the sample, only 7 respondents stated they did not feel comfortable using videoconferencing platforms and emails, and 12 reported the same regarding virtual productivity tools like spreadsheets and word processors.

The data on entrepreneurial skills is also positive. When asked about their ability to manage and commercialise their own businesses, 42 respondents said they felt confident to do so. The same applies to the question regarding the ability to manage the finances of their own companies, 41 participants answered affirmatively. This reality, combined with observations about their own capabilities in the digital world, can result in important and necessary skills for the challenges posed by entrepreneurship permeated by information technologies.

Portugal

The Portuguese labour market increasingly demands professionals with digital competencies. However, despite the constant demand, studies indicate that Portugal's situation in terms of digital skills is still incipient, as large segments of the population do not keep up with the continuous digital evolutions. In 2015, the National Strategy for Digital Inclusion and Literacy report estimated that around half of the Portuguese population did not have sufficient digital skills to increase their employability. At the same time, 38% of employers faced obstacles in finding professionals with such



competencies for hiring. Nevertheless, the country's unemployment rate remained one of the highest in the European Union.

It is estimated that 30% of the Portuguese population has no digital competencies at all. Within the economically active population, this index falls to 18%, but in the rest of the European Union, this rate is 10%. The survey conducted in 2020 with young and adult students of the EFA (Education and Training of Adults) modality in the country, where the interviewees consisted of 40% long-term unemployed with low professional qualifications, brings relevant elements to consider the access of vulnerable groups to digital competencies.

The study indicates that the most accessible device for participants is the smartphone, representing almost 97%. Computer use, in turn, is drastically reduced, only half of the respondents have access to the device, a reality similar to other countries. Almost 16% of the participants do not have internet access in their homes, a significantly expressive index. Regarding the purposes for using the internet, it is mainly used for accessing social networks rather than for employability-related activities - 96.2% versus 46.2%. It is evident that actions related to leisure and informal socialization with friends and family are much more explored by the participants than those related to entering the job market, which require greater proactivity and personal mobilisation - especially considering that many of the participants are unemployed and this is one of their main concerns now.

There are persistent difficulties in acquiring and handling digital skills that can be used in the professional sector, whether in corporate environments or in their own businesses, particularly by vulnerable segments of the Portuguese population - which makes the development and creation of initiatives that seek to reduce gaps and provide access essential.

Turkey

Before introducing the general panorama of digital competences in Turkey, it is necessary to highlight some particular aspects of the region that may have an impact on this reality, as described in the DICE National Report, such as the mass migration of the Syrian population, especially since 2011. Due to the common cultural and civilisational elements between the two countries and the significant increase in migration, this issue has been relevant when analysing Turkey's political, economic, social, and educational framework.

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According to TUIK data, the proportion of households with Internet access was 94.1% in 2022. However, the proportion of families with access to a laptop at home is 36.1%, and the rate of those with a desktop computer falls to just 15.8%.

Furthermore, as of 2018, the rate of individuals using computers in Turkey was 59.6%. However, there is a significant difference in this indicator when considering geographical regions and gender, which reiterates the previously mentioned perspective that pre-existing inequalities are relevant markers for reflecting on unequal access to digital competencies. While the rate of men using computers is 68.6%, this rate drops to 50.6% among women - half of Turkish women do not use the tool. Additionally, according to the study Gender and Level 1 of the Classification of Statistical Regional Units, as of 2018, while the computer usage rate is 70.3% in the Istanbul region, in the Anatolia region, this index falls to 33.1%. These data, combined with the gender aspect, are even more disparate, from the same study, the rate of computer use among women in Istanbul is 63%, while in the Anatolia region it is 25.4%.

Another study mentioned in the National Report, the Digital Skills Gap Index (DSGI), shows that Turkey ranks 79th out of 134 countries. It is considered that Turkey still has archaic competences regarding positive scientific and technological education and information technology. The report of the Specialization Commission of the Eleventh Development Plan - Specialization Commission in Information and Communication Technologies (2019-2023) reiterates these observations by stating that Turkish universities are academically behind in the field of information technologies such as electrical, electronic, computer, and computational engineering. Simultaneously, Turkish students achieve very low results in PISA tests in science and mathematics, and the country reaches the fourth place in the OECD education index, elements that signal the importance of adopting measures that expand the quality of education, and concurrently, education in the digital areas.

Therefore, through agreements between the state and the private sector, it is essential that Turkey invests in initiatives that offer programmes and training aimed at digital literacy, provides access to the internet and devices in peripheral regions and communities, encourages innovation and entrepreneurship in the technology sector with the aim of creating new opportunities for employment and economic development, collaborates with international organisations and other countries in order to share knowledge, skills and resources in the development of learning, as well as learning from their experiences.

3. Challenges for Entrepreneurship in the Digital Era



To address these challenges, there are several opportunities for entrepreneurship in the digital era. The digital landscape offers vast market potential for innovative products and services. Entrepreneurs can leverage this by developing digital solutions, such as e-commerce platforms, software applications, or digital marketing agencies.

Furthermore, the digital era fosters global connectivity, enabling entrepreneurs to reach customers beyond their local markets. This opens up opportunities for international expansion and global collaborations. Digital technologies also enable entrepreneurs to streamline business operations, improve efficiency, and access real-time data for informed decision-making.

1. **Digital Divide:** The digital divide is a significant challenge, particularly for vulnerable groups. Limited access to technology, internet connectivity, and digital literacy hinder their ability to fully participate in the digital economy and leverage digital tools for entrepreneurship.
2. **Rapid Technological Change:** The fast-paced nature of technological advancements poses challenges for entrepreneurs. Keeping up with emerging technologies and navigating their impact on business models requires continuous learning and adaptation.
3. **Cybersecurity and Privacy Concerns:** Entrepreneurs need to be equipped with knowledge and skills to protect their businesses and customer data from cybersecurity threats and adhere to data privacy regulations. Adapting to changing security landscapes and ensuring compliance is critical.

Opportunities for Entrepreneurship in the Digital Era

1. **Global Market Access:** The digital era offers unprecedented opportunities for entrepreneurs to access global markets. Digital platforms and online marketplaces enable entrepreneurs to reach customers beyond geographical boundaries and explore new business opportunities.
2. **Scalability and Cost-efficiency:** Digital technologies allow entrepreneurs to scale their businesses rapidly and cost-effectively. Cloud computing, automation, and online tools enable efficient operations, reach, and customer engagement, levelling the playing field for small businesses.



3. Innovation and Disruption: The digital era offers fertile ground for innovation and disruptive business models. Embracing new technologies and leveraging digital skills can enable entrepreneurs to identify untapped market niches, develop innovative solutions, and challenge traditional industries.

4. Collaboration and Networking: Online platforms and digital communities create opportunities for collaboration, knowledge sharing, and networking. Entrepreneurs can connect with like-minded individuals, potential partners, mentors, and investors, fostering innovation and growth.

To fully leverage the opportunities presented by the digital era, it is essential to address the challenges through targeted initiatives focused on digital skills development, bridging the digital divide, and fostering an entrepreneurial ecosystem that supports and empowers entrepreneurs of all backgrounds.

In summary, Europe has made progress in developing digital skills and competences, but there are still challenges to overcome. The digital era offers various opportunities for entrepreneurship, including market potential, global connectivity, and operational efficiency. However, entrepreneurs must also navigate the competitive landscape and address challenges such as the digital skills gap and cybersecurity. Continuous upskilling and adaptation are key for entrepreneurs to thrive in the digital era.

The European Digital Competence Framework for Citizens (DigComp) is a tool developed by the European Commission and is a valuable reference model for defining and assessing digital competences across different domains and levels. It provides a common language and framework to describe digital skills and competences required for individuals to thrive in the digital era.

The DigComp framework consists of five areas of digital competence: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety, and Problem-Solving. Each area comprises a set of competences and related proficiency levels to assess individuals' digital skills.

The framework consists of five key areas of digital competence:

1. Information and Data Literacy: This involves the ability to search, evaluate, and manage digital information effectively. It includes skills such as information retrieval, critical evaluation of sources, and data handling.



2. **Communication and Collaboration:** This area focuses on the ability to communicate, collaborate, and connect effectively using digital tools and platforms. It covers skills such as digital communication, sharing and co-creating content, and online collaboration.
3. **Digital Content Creation:** This refers to the ability to create and edit digital content. It includes skills such as digital design, multimedia creation, programming, and content development.
4. **Safety:** This area focuses on promoting safe and responsible use of digital technologies. It covers skills such as understanding online risks, protecting personal data, and practicing digital citizenship.
5. **Problem-Solving:** This involves the ability to use digital tools and strategies to identify, analyse, and solve problems effectively. It includes skills such as computational thinking, troubleshooting, and creative problem-solving.

DigComp provides a common language and set of proficiency levels to describe digital competences. It defines eight proficiency levels ranging from basic to advanced skills, allowing for a detailed assessment of an individual's digital competence level. Besides, provides a valuable tool for educators, policymakers, and employers to understand and develop digital competences at different skill levels. It helps in designing training programmes, curriculum development, and assessing individuals' digital competences in various contexts such as education, workplace, and personal development.

Educators can use DigComp to design curriculum and training programs that address specific digital skill requirements. Policymakers can leverage DigComp to develop digital skills policies and strategies that align with a recognized European framework. Employers can use DigComp to assess the digital competences of job candidates and employees, helping them make informed decisions regarding recruitment and training.

By using this tool, organizations can align their digital skills development initiatives with a recognized European framework, ensuring a consistent approach to digital competence development and assessment across different domains and levels. It has played a significant role in shaping digital skills policies and strategies in Europe, contributing to the overall advancement of digital competences among European citizens.

Furthermore, DigComp has been widely adopted and recognized across Europe as a tool to promote digital competence development and assessment. It has contributed to the advancement of digital skills and competences among European citizens and has been instrumental in shaping digital skills policies and initiatives at both national and European levels.

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In conclusion, the adoption of the DigComp Framework, by providing well-defined standards and references for the assessment and development of digital skills and abilities, beyond the individual training of subjects, enables the construction of effective and efficient public policies and programmes that can address the gaps that still exist in the area of digital skills and their use for participation in economic life, and consequently, in the possibilities for social advancement and stability, especially for marginalised groups that urgently need such progress.

4. Case Studies

The DIGITALEUROPE Association introduces several case studies in the quest to broaden the population's digital competences, with the aim of making it more inclusive. Among the examples mentioned, we can highlight Amazon Web Services' initiative for training in the use of its cloud computing platform. The demand for professionals with expertise in this area makes AWS Certification extremely relevant, as it expands the professional horizons of those interested in this growing field, as well as increasing their chances of higher earnings and, consequently, their chances of career progression. For instance, an employee with AWS Certification may be eligible for promotions and leadership roles in the cloud team of various companies, as well as enhancing the productivity and efficiency of the work performed. Achieving this certificate can help reduce the gaps between digital business skills and what is currently demanded by the labour market.

Another initiative presented by DIGITALEUROPE is developed by Microsoft through its Professional Programme, offering courses in AI, Data Science and Cybersecurity, designed to help acquiring technical skills for the work and gain real-life experiences through online courses, practical labs, and specialised instruction. The instructors of the Microsoft Professional Programme courses combine business aspects and academic knowledge, providing unique perspectives that are useful for everyday and qualified work. Moreover, it's not just technology authorities teaching the students, many of the tutors and mentors belong to the teams that developed the actual tools.

Combining technology and entrepreneurship, HP LIFE is one of the Learning Initiatives for entrepreneurs. In 2016, USAID, Italian cooperation, the HP Foundation and UNIDO joined forces with the Tunisian Government to launch the second phase of the MASHROU3I project. Through qualified training in entrepreneurship, in-depth mentoring and technical assistance, the project supports entrepreneurs in learning the skills necessary to create and develop a business or to find jobs with better career progression prospects.



These private initiative strategies have the potential to offer vulnerable groups - such as the project's target groups, opportunities and access that may have been previously inaccessible due to socioeconomic and cultural disparities that prevented equal access to professional and educational qualifications. In this sense, they can be translated into tools to promote social and professional advancement for disadvantaged people that previously did not have the opportunity to seek adequate qualifications on their own or through their families.

Greece can also be recognised for adopting good digital practices, especially in the public administration sector. The Institution of the Digital Governance Awards annually distinguishes, through the Ministry of Digital Governance, institutions and public bodies that have implemented relevant and innovative strategies in the field of digital competencies for the advancement of the country. Among the initiatives honoured are those relating to improvements in the sphere of digital transformation in entrepreneurship and the digital business environment. One of the thematic areas that can compete for the award is Economy, Development and Entrepreneurship, where innovative ideas for rural development, tourism, maritime transport, investment, openness, innovation, industry, trade, consumer protection, fiscal and budgetary policy and, in general, ideas related to improving the business environment and reducing bureaucracy for companies are valued.

This measure is emblematic in mentioning good practices, as it promotes the development of advanced digital competencies and supports the exchange of knowledge to accelerate the development of innovative solutions and applications through its creative approach to traditional administration and bureaucracy. At the same time, it helps to consolidate the perspective that digital technologies are a way of working and living in Greek and European society in general, as well as strengthening national competitiveness, as the region's population can receive the latest information on all national policies in the digital field and analyse for themselves the benefits of implementing the country's digital strategy.

Portugal is also making significant progress with good practices to address the demand for digital skills and competences in the search for qualified employability. The Portugal Digital Skills and Jobs Coalition coordinated by the INCoDe.2030 Programme is one of the responses to the European Commission's challenge to reduce the "digital gaps". Created in 2015 and relaunched in 2021, this coalition brings together public and private institutions, companies, NGOs, and university centres, with the aim of increasing the digital competencies and employability of the Portuguese population. To this end, INCoDe.2030 and the Foundation for Science and Technology have developed a National Platform for



Digital Skills and Jobs that functions as a repository for digital training and jobs linked to the EU platform.

The objectives of this initiative include expanding access to digital technologies for different social groups from childhood, qualifying them for the job market, which is essential for individuals who have not had equal access opportunities at other times in their lives, and to match the demand of the labour market in the information technology sector with the level of education and competences of the region's population. This strategy can requalify people who have not previously received adequate training and guidance in developing digital skills - such as disadvantaged and vulnerable groups.

5. Conclusion

This Kit aims to empower and provide tools for vulnerable groups such as young people outside the labour market, NEETS, and immigrants to acquire qualified competencies and skills to enhance their employability and entrepreneurial capacity. First and foremost, this kit aims to provide crucial information for the development of a digital competences curriculum for the target groups.

Digital skills have become essential for proper integration into the labour market and for expanding the possibilities of socio-economic advancement through entrepreneurship. The massive digitalisation of the business environment therefore increasingly requires individuals to develop skills for the efficient management of these tools, whether in operating software, using the internet for digital marketing or social media purposes, as well as adapting to the frequent and continuous digital transformations. It is considered that these competences to be acquired should go beyond the technical domain, in order to train individuals in these subjects also in the social and interpersonal sphere for their use in different contexts.

However, although the availability of these skills is widespread, it can be restricted by various social, economic, political, and cultural factors over the course of individuals' trajectories. Access to tools, the internet, infrastructure, and adequate resources remains a challenge for vulnerable segments of the population, who do not have equal conditions of access to goods, services, and products. This inequality has a major influence on the career progression and entrepreneurial opportunities of people from these groups, who are faced with a labour market that demands such skills.

This is why initiatives to promote digital learning, virtual design and branding, e-commerce and data analysis are fundamental to guaranteeing equal conditions for insertion and reintegration the labour market, as well as for building their own businesses. These should be developed in partnership

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between the public and private sectors, academic environments, and civil society in the quest to reduce the persistent gaps in acquiring useful digital competencies and skills, which consequently have the potential to reduce socio-economic and opportunity inequalities. Public policies aimed at reducing these gaps, combined with initiatives by private companies - whether by offering workshops, programmes for trainees, scholarships, or adequate funding for programmes on the topic - are essential for boosting social mobility, which requires commitment and interest from all involved parties - including the willingness of the beneficiaries to dedicate themselves to seeking relevant opportunities and progression.

To conclude, we should revisit the questions we asked at the beginning:

1) What is the current state of digital competencies and skills for entrepreneurship in partner countries, with a focus on vulnerable groups like low-educated young people, immigrants, and NEETs?

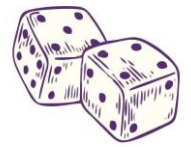
Even though access to digital devices and the internet has become more widespread in recent decades, different groups affected by pre-existing inequalities such as income, gender, age, education, and territory, are still digitally excluded - or may only use them for leisure and informal communication, and not for employability and entrepreneurship. Meanwhile, the labour market and corporate environments are increasingly demanding mastery of these skills in response to such needs.

2) What are the existing approaches, project initiatives, studies, and publications related to digital competencies and skills for entrepreneurship in partner countries?

Initiatives across the European Union to expand the digital skills of the population have been undertaken by Public Administration and private initiatives. Strategies like the INCoDe.2030 Programme in Portugal and the National Digital Programme (NPCP) in Poland aim to reduce existing gaps and boost the digital skills of their populations - which will certainly reflect in their employability conditions, as discussed throughout our Toolkit.

3) What are the specific needs and challenges of vulnerable populations in acquiring digital skills for entrepreneurship?

It is well known that conditions of access to products, consumer goods, and services differ between vulnerable and other segments of the population. Access to digital tools is no exception to this trend. This lack of access makes it difficult for these groups to enter and reintegrate into an increasingly digitalised labour market that requires mastery of digital skills, making it essential to develop initiatives aimed at reducing such inequalities, as is the case with the Toolkit.



Challenges permeate this process, and pre-existing inequalities prior to digital exclusion significantly impact it. Qualified training for the acquisition of digital skills requires initiatives and strategies anchored in serious analyses of this reality in different countries, so that intervention projects can be developed in a qualified manner. Partnerships between Public Administration, private sectors, and civil society organisations are fundamental in the pursuit of digital access for disadvantaged groups. Initiatives like the Toolkit are among these, seeking to introduce the digital tools that need to be mastered.

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