University to Society Collaborations for Inclusive Digital Transformation in the Western Balkans

DIGITAL LITERACIES ACCELERATOR PROGRAMME

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Approved by the Steering Committee on 26th of February, 2024

[**February,2024**]

EXECUTIVE SUMMARY

The Digital Revolution continues to reshape industries, creating new job opportunities and organizational structures while challenging traditional models. As a result, there is a growing demand for qualified professionals equipped with both foundational and specialized technological skills.

This deliverable focuses on the development of a digital literacy program tailored to the needs of Balkan countries, identified through a comprehensive pre-evaluation survey involving lecturers from partner universities, as well as representatives from civil society organizations and public agencies.

Beginning with an exploration of the evolving skills landscape, we highlight the necessity for updated competencies, as recognized by various studies and international organizations. We then present a framework of digital competencies encompassing essential skills across multiple dimensions. This framework serves as a valuable resource for individuals striving to enhance their digital proficiency and adaptability in an increasingly digitized world.

Drawing from the insights gathered during the survey phase of the project, we introduce the Digital Literacies Accelerator Programme for Albania and Montenegro. This program is designed to facilitate the horizontal transfer of knowledge and includes components such as mobilities, workshops, online learning modules tailored for students, lecturers, and stakeholders at each partner university, as well as mentoring opportunities and public engagement initiatives aimed at disseminating program achievements and fostering collaboration.

In conclusion, the Digital Literacies Accelerator Programme represents a strategic response to the emerging needs of the digital age in Balkan countries. By equipping individuals with the necessary skills and competencies, this initiative aims to empower them to thrive in an increasingly digitalized environment, ultimately contributing to regional development and competitiveness. Through collaborative efforts and a commitment to lifelong learning, we can navigate the challenges and opportunities presented by the Digital Revolution, ensuring a brighter future for all stakeholders involved.

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PROJECT SNAPSHOT

Project Title	University to society collaborations for inclusive digital transformation in the Western Balkans
Project's acronym	U2SID
Webpage	[insert project website]
Project's budget	EUR 398,650.00
Funded by	Erasmus+ Programme Capacity building in Higher Education
Project number	101083131
Project duration	24 months
Project Coordinator	University of Shkodra Luigj Gurakuqi
Countries involved	Albania; Serbia; Montenegro; Italy
Project partners	University of Shkodra Luigj Gurakuqi
	University „Fan S. Noli" of Korca
	Mediterranean University of Albania
	Center Science and Innovation for Development
	Center for Comparative and International Studies
	National Agency for Scientific Research and Innovation
	University of Montenegro
	University of Belgrade
	University of Salento
Aim and objective	Project's aim: To foster inclusive digital transformation in the Western Balkans through increased collaboration between universities with other stakeholders such as businesses, policy makers, civil society, and media.
	The specific objectives of U2SID are:
	SO1 – To strengthen digital competences of teachers, students, and professionals through the development of a Digital Literacies Acceleration Programme as a collaborative programme among universities on one side and businesses, civil society, local decision makers and media on the other.
	SO2 – To improve innovative teaching methods through piloting a Digital Transformation Challenge for students as a project-based and solution-oriented learning based on mentoring, coaching and placement at businesses, civil society, local decision makers and media.
	SO3 – To raise awareness on the importance of inclusive digitalisation by including vulnerable target groups in the digitalization process.

ABBREVIATIONS

- ➢ Artificial Intelligence (AI)
- ➢ Digital Transformation (DT)
- ➢ Higher Education Institutions (HEIs)
- ➢ Information and Communication Technologies (ICT)
- ➢ European Union (EU)
- ➢ Vocational Education and Training (VET)

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1. INTRODUCTION

The digitalisation of societies has rapidly increased technological developments in all spheres of society and education. Digital Transformation has a wide variety of definitions and dimensions reported and integrated over the years in scientific literature (Gawel et al. 2022). To explain this phenomenon enabled by the introduction of digital technology and the changes it is bringing to organizations and modes of work, it is appropriate to focus on the Digital Innovation perspective, which has its roots in the IS (Information System) literature (Tilson et al., 2010; Yoo et al., 2010). In today's economy, given the constant changes in the marketplace, IS with Information Technology (IT) systems are constantly evolving, so companies must be able to readjust to the pace of technological and market changes (Zhang et al., 2018).Computer technologies started to dominate today, and manual work has been replaced by intelligent computers (artificial intelligence). The rapid increase in the rate of digital innovation implies waves of change and disruption in various industries and organization causing a transformation of competitive dynamics and the creation of new business models (Sia et al., 2021). These changes how people's work, communicate, and work(Halid H, 2020). At the same time, universities must adapt to rapidly evolving technological developments and changing conditions and cope with unpredictable uncertainties and crises. Universities, just like companies, often define technological innovation strategies based on the development and use of ICTs, focusing on infrastructure management (Matt et al., 2015).

So, digitally transforming an organisation is much more than just digitalising it. It results from an organisational change where people, processes, and the entire business model understand technology as a tool to generate value among its consumers and collaborators (Schwab, 2016). Adopting new methodologies, processes, and technologies tends to be unbalanced depending on the age of the employees. As a rule, with some exceptions, this process tends to be more troublesome for those who have been in the organisation for a more extended period, pushing them out of their comfort zone. On the other hand, people who have joined the organisation more recently, even if they find it easier to incorporate these methodologies, processes, and technologies, must internalise the culture and values that experience brings.

To facilitate intergenerational cohabitation, reverse mentoring (Chaudhuri & Ghosh, 2012) is understood as the pairing of a younger, junior employee who acts as a mentor to share their technological skills with an older person with extensive experience in a company becomes essential. This solution can also help create an adequate organisational climate where the most senior members share their expertise while the youngest share their technological skills (Díaz-García et al., 2023).

Digital technologies are crucial for education (Gupta and Bharadway, 2013; Al-Atabi, M. & Deboer, 2014; Holzmann et al., 2018). So, Digital Transformation (DT) has become a priority for higher education institutions (HEIs), like in other organisations of society in the second decade of the 21st century (Benavides et al., 2020). Historically, universities have held an essential role in society, serving as centres of knowledge, research, and innovation and preparing generations of new entrants in the labour force. However, societal changes of the last century and rapid technological developments have led to an evolution of the labour

market and have caused a shift in expectations towards universities. Additionally, socio-economic phenomena and adverse events, such as those caused by the COVID-19 pandemic and the climate emergency, are exerting further pressure on universities, urging them to transform and innovate. (Wahabi, 2020).

Universities have responded to these pressures by embracing the so-called 'Third Mission,' a concept that sees them as complex, multidisciplinary, and evolving actors, contributing to education, research, and social, economic, and cultural development. Universities also embraced the Triple Helix Model of cooperation among universities, industry, and government, acting as intermediaries of innovation efforts and promoting a knowledge-based society. Considering the critical role that civil society and media play in societal development, the Triple Helix Model was later expanded with additional. In the last decade, a pervasive use of digital technologies has been promoted also in the entrepreneurship education domain, where MOOC providers, incubators and accelerators offer specific contents to individuals and teams that undertake the entrepreneurial process (Vorbach et al., 2018; Cirulli et al., 2016). Digitalization of entrepreneurship education is supported by the use of different virtual educational platforms, reuse of digital contents, and integration of new complementary technologies, with the resulting widespread use of online courses, simulators, interactive whiteboards, projectors, 3D printers, etc. (Vinogradova et al., 2019).

This represents only one dimension of digital technologies' more pervasive impact on education, by introducing significant changes at both individual and organizational level, as well as at cultural and professional level (Facer, 2011).

In Albania and Montenegro, universities need help regarding research quality, knowledge transfer, collaboration with external stakeholders, and generation of innovation with impact. Although part of important EU schemes, universities in the country still struggle to effectuate meaningful collaboration with other societal actors and generate added value in the developmental process.

Mobilising young digital savvy as game changers for decision-making and inclusion is crucial. Young people have higher digital skills, but at the same time, they are more vulnerable to the dark side of digitalisation, so balancing protection and participation is essential. Marginalised youth, rural youth, and other disadvantaged youth at the margin of society often need more digital skills or an internet connection, thus impeding their access and opportunities for participation. It is essential to fill the gap by raising awareness of public institutions and other relevant stakeholders and fostering solidarity among youth to enable all digital access. In addition, it is essential to use digital tools to involve young people in civic life, the local public sphere, and policy development.

To this end, digital skills, literacies, and digital rights are crucial to tackle the dark side of digitalisation and empower youth participation. The future of learning, working and civic engagement is also online. Using digital tools for civic engagement can improve the quality of education at the university level and help prepare proactive, agile, and critical thinkers as young professionals for the future.

The digital transformation must be done inclusively and safely, and for this, the role of universities and their collaboration with civil society, business, policy, and media is of

paramount relevance. Digital transformation can only be safe by raising awareness and building capacity on privacy threats, data protection, and digital literacy, thus leading to overall digital rights.

The success of digital transformation initiatives, in fact, is not only dependent on technology, but is also related to the active efforts of employees willing to engage in such a complex change process (Allen, 2020). In other words, for a digital transformation process to be functional for a company, employees should develop a digitally oriented mindset and organizational culture. Not only that, but employees should also independently deepen this type of culture and spontaneously propose business process improvement initiatives by sharing knowledge and teaching others how to leverage new technologies (Solberg et al., 2020). Alternatively, organizations should provide for attracting workforce with developed digital skills that can replace the existing unskilled and change-averse workforce (Verhoef et al., 2021).

2. DIGITAL TRANSFORMATION: DRIVERS AND BARRIERS

An organisation's digital maturity correlates with the scope of its digital transformation efforts. The primary motivation is to have an accurate and clear vision of how universities are transforming themselves, discovering the most relevant digital transformation initiatives (DTI) they have applied and if they are doing it through an integrated plan aligned with a digital strategy, as recommended by experts (Fernández et al., 2023).

According to (Rampelt et al., 2019), DT influences all activities of HEIs. It permeates all processes, places, formats and objectives of teaching, learning, researching, and working in higher education. This transformation includes the development of new infrastructures and the increasing use of digital media and technologies for teaching and learning, research, support services, administration, and communication. It also needs students and staff to develop new digital skills for their current and future workplaces. The use of digital technologies can be crucial to build effective, cost-efficient and flexible solutions aimed to develop mindset and competencies, facilitate continuous learning for employees, and sensitize HEIs to face global technological, economic and social challenges (Kenney & Zysman, 2015; OECD, 2019). Moreover, digital technologies increase engagement and allow managing and implementing effectively synchronous discussion in online education (Klotz and Wright, 2017; Wolverton, 2018). The success of online collaborative learning depends on team dynamics, team acquaintance and instructor support (Ku et al., 2013). Team dynamics is related to the degree of participation in the communication process, collaboration, trust and cohesion (Greenlee and Karanxha, 2010).

A comprehensive literature review (Castro et al., 2020) provides a systematic analysis covering 19 academic studies about DT in higher education institutions (HEIs) from 2016 to 2019. They identify three perspectives: Technological, organisational, and social. The tendency has evolved from the technological view, then executive, to consolidate in the social perspective finally. In the same way, they show the dimensions within an HEI that have received the DT or have been forced to intervene in DT processes. In Figure 1, the actors became more relevant in the DT in HEIs from the social, organisational, and technological perspectives, and essential actors revolved according to their influence on the relationship.

Figure 1. Actors of DT in HEIs (Castro et al., 2020)

From a more recent literature review (Mele et al, in press) it is possible to understand the most researchers involved in the theme of digital transformation and HEIs (figure 2). The analysis of the publication trend underlines how the research paper in the field are published from 2019 to 2023.

Figure 2. Authors of DT and HEIs (authors'elaboration)

In order to extract the most common keyword and topics of the paper selected, an analysis of keyword occurrences was performed. Specifically, the analysis was focused on the keyword used by authors, editors and publisher to link the articles published. The analysis of authors' keyword allows to analyze "very large amounts of text without losing touch with focusing on small amounts of the material in considerable depth" (Silverman, 2013, p. 275). Keyword

were extracted from the articles selected in latest SLR analysis and subdivided in different clusters (Ribiere and Walter, 2013) according to their co-occurrence in the same work. The results of this kind of analysis showed 5 clusters related to: digital transformation, higher education institutions, higher education, e-learning and students.

Figure 3. Key-word map (authors' elaboration)

2.1. Challenges of the Digital Age for Universities

Society and the professional world continue to evolve and change with the growth of technology and the beginning of the Fourth Industrial Revolution. Current scenario developments characterized by new EU regulations on AI, economic crises and disrupted supply chains, scarcity of skilled workers, and climate change, question the effects of digital transformation in the future perspective for the sustainable development of Industry 4.0, identifying the opening to a new scenario denoted as Industry 5.0 (Maddikunta PKR et al., 2022). In 2021, the European Commission defined Industry 5.0 as "*more future-proof, resilient, sustainable and people-centered*" (European Commission Directorate General for Research and Innovation, 2021).

Zizic et al. (2022) affirm that as Industry 5.0 evolves, attention is being paid to the human-centered perspective focusing particularly on the employee, who plays a key role in the production process (Zizic et al., 2022). Therefore, human-centered or worker-centered approaches will be the main innovation driver for Industry 5.0 in the coming years. In terms of digital transformation, focusing on humans means primarily centering on people's needs, interests, and welfare rather than seeing technology as the only actor that can improve production processes and companies (Coronado et al., 2022; Wang, 2022; Hein-Pensel et al., 2023). From this perspective, implementing a new digital process would mean developing new staff skills, but more importantly exploring the possibility of easing the workload on

employees (e.g., handling huge amounts of data) and increasing their autonomy (Xu et al., 2021).

These changes, in turn, has had a tremendous impact on the educational sphere, leading to several growing trends in the world of education. For educators to properly engage their students, they must remain abreast of these latest changes and critical factors that affect learning in the classroom. Their understanding of these trends can help them create more effective learning environments.

Digital transformation challenges are sometimes directly related to technological concerns or technical barriers. They also include people-centric issues, organisational structures, and other non-tech factors. The best way to overcome them is to identify and assess which problems affect your business.

1. People are used to the status quo- Higher education institutions should set up strategies with clear and specific goals towards their DT. Universities need a strategic vision that allows the whole institution to join efforts in implementing digital initiatives. It is essential to have strong leadership and a specialised team that can confidently explain and implement their plans.

2. A lack of a clear strategy or direction for the digital adoption- A strategy that guides the DT in all perspectives is required. The plan should be designed from a holistic perspective of the DT in the HEI.
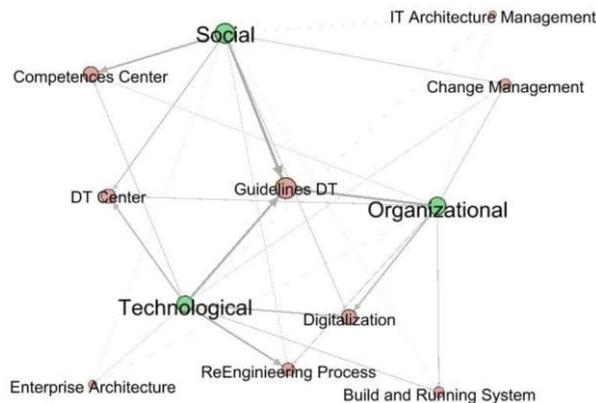

Figure 4. Methods applied in DT in HEIs (Castro et al., 2020)

A clear vision will make the team and stakeholders more involved and invested in digital transformation. Only institutional conviction of the need to exploit the boost of the digital revolution and the solid commitment of students, professors, researchers, staff, and managers will allow the university to be successful in the digital era.

3. Incomplete knowledge of the skills needed to achieve meaningful digital adoption- The skills gap remains an important consideration when successfully transforming educational institutions. Therefore, schools need to find ways to incorporate key learning opportunities into their digital transformation plan. Including workshops and seminars that will empower educators and administrators to take advantage of the full potential of education will play a vital role.

4. Unclear data pictures for the institution - With a clear picture of the school and students, the institution will make decisions regarding everything from marketing to creating their classes based on complete and accurate data. The university must accelerate its digital transformation, the transformation induced, driven and supported by the technological revolution, which will allow, on the one hand, to take advantage of the enormous potential offered by the field of educational technology and, on the other, to provide new generations of students from anywhere in the world, new educational opportunities and training, as well as to provide further training and accreditation alternatives to professionals in the social, administrative, business and industrial sectors. A vital part of any digital transformation needs to include breaking down these data silos to gain a complete understanding of how students interact with the school. This data and the available technology create an opportunity for schools to develop a more rewarding educational experience, so find the tools to help analyse this critical data correctly to enhance capabilities moving forward.

5. The capability of existing systems - Since technology has already begun to infiltrate the world of education over the past two decades, many educational institutions already have various tools and systems to employ some limited forms of technology. Unfortunately, since these systems were not used as an integrated system, many of the systems do not work well with each other, which creates a mismatched system across the institution. Therefore, schools usually need to find that the best path will be to upgrade or otherwise adapt their current systems to enhance their compatibility and enable the systems to work together.

The following figure summarize the main elements that HEIs should take in consideration in the definition of a digital transformation strategy aimed to sustain the re-design of interna processes and objectives thanks to the adoption of digital technologies for the final objective to increase students learning experience and capabilities.
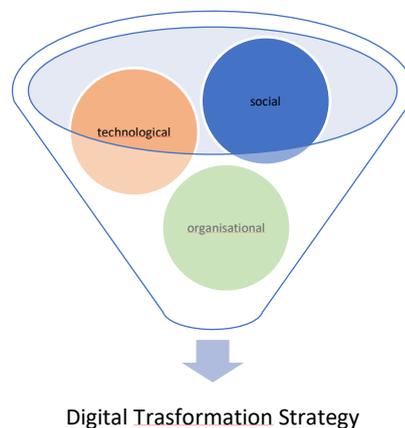

Figure 5. Digital Innovation Strategy for HEIs (authors' elaboration)

2.2. Social Innovation and the HEIs' Third Mission

Social innovation is a concept of growing importance in both academia and society. Several authors (Jongbloed et al., 2008; Goddard & Chatterton, 1999, among others) consider that greater exchange between universities and interest groups demands a different type of commitment, the so-called third mission. This mission would focus on the university's contribution to social development and complement the traditional teaching and research functions. Therefore, among HEI objectives, we should add the purpose of generally leading change and improving individuals and society. While technological innovation is a critical component of future economic growth, social innovation is equally important in building social capital and improving life chances through social inclusion, community building and higher-level skills development (Elliott, 2013).

The traditional missions of HEIs comprise (1) the generation and accumulation of academic knowledge and (2) the diffusion of knowledge via academic education. Attention has also been drawn to the regional development role of HEI activities: their "third mission". As society undergoes digital transformation, entrepreneurship education has evolved from merely equipping students with the skills to start a new business to encompassing the identification of entrepreneurial opportunities and the initiation of digital ventures (Nowinski et al., 2019). Consequently, there has been a surge in demand for entrepreneurship education programs at universities worldwide (Siivonen et al., 2019; Alghamdi, 2020), prompting a reconsideration of collaboration with various stakeholders to foster economic development (Duval-Couetil et al., 2021). Universities are intensifying their efforts to design entrepreneurship education programs that enhance students' ability to recognize, evaluate, and pursue entrepreneurial opportunities (Volery et al., 2013; Schuelke-Leech, 2020; Duval-Couetil et al., 2021).

Many authors pointed out that the success of HEI's knowledge transfer is geographically unevenly distributed, with some regions being able to profit from knowledge transfer more effectively than others. Their research focused on an essential factor influencing the success of knowledge transfer: the 'fit' between HEI and region. A close correlation between HEI's focus on education and research on the one hand and regional economic structure on the other might indicate a higher potential for the HEI's regional engagement and third mission activities.

Traditionally, the university's third mission has focused on commercialising knowledge through spin-offs, patents or forming relationships with firms and other stakeholders. In contrast, the so-called developmental university considers addressing societal needs as the primary mandate of the university's third mission (Arocena et al., 2018). Beyond knowledge and technology transfer, universities should seek to broaden the scope of university engagement in social innovation and inclusion. These concepts focus on democratising knowledge through teaching and research, reducing the knowledge gap (Arocena & Sutz, 2017).

The 2015 Bologna Implementation Report, among others, exposes that, in general, the European goal of providing equal opportunities to quality higher education still needs to be reached. Similarly, more progress is required concerning lifelong learning (European Commission, 2015). In this context, DT can be a powerful driver of social goals. This view allows us to ascertain the objectives that have led the HEI to immerse themselves in the DT

processes. It is important to note that HEI's goals can change depending on the perspective being addressed.
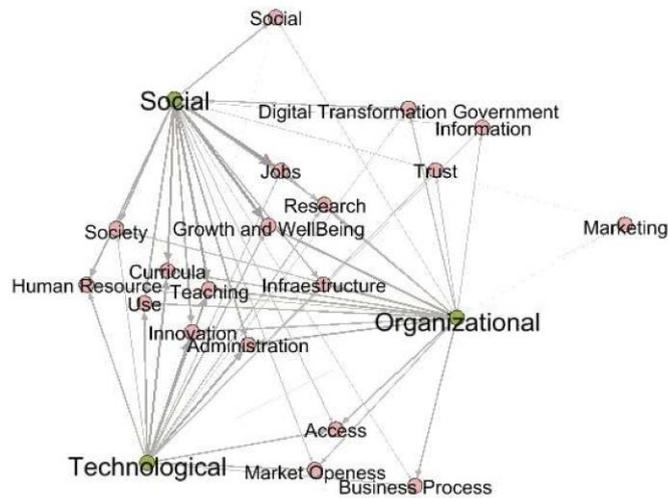

Figure 6. Goals of DT in HEIs (Castro et al., 2020)

Successful implementation of digital transformation projects in higher education institutions depends on many factors. Although the studies focus on improving activities on information systems, the human factor, which includes the end users and developers of the systems, is critical for the success of the projects. Access to adequate and competent human resources by the universities, the creation of influential working groups and the corporate internalisation of digitalisation are the steps to be overcome before any technological activity. Many universities need the opportunity to employ more competent software development experts due to their geographical locations, budgets, or other reasons.

2.3 Digital skills for the future

The rapid pace of digitization, accelerated by the global COVID-19 pandemic, has highlighted the critical need for new workforce skills to meet the demands of the future. According to Coursera's 2021 Industry Skills report, the pandemic spurred two years' worth of digital transformation in just two months, underscoring the urgency of upskilling employees. Failure to address these skill gaps risks exacerbating existing disparities across various sectors.

The OECD report (Manca & Oses, 2022) titled "Skills for the Digital Transition: Assessing Recent Trends Using Big Data," outlines the latest trends regarding the relationship between the labour market and the required skills in the digital transition. It argues that the adoption of new technologies, such as artificial intelligence, robotics, automation systems, and the Internet of Things (IoT), is revolutionizing how people learn and work, consequently reshaping educational and work systems. Therefore, it is necessary to monitor these new learning and work processes to create policies aimed at helping individuals effectively acquire the digital skills necessary to participate in rapidly transforming labor markets and societies.

Digitalization presents a unique opportunity to develop new skills useful for ongoing work transformation. Progress in technology adoption and increasing digitalization will cause significant turnover in the labor market, with an overall positive effect on job creation.

Digital skills are the true key to technological transformation, as new highly qualified professional figures in the technological field are developed.

The Digital Revolution creates new jobs and new organizational models, while questioning others. Therefore, new qualified professional figures are needed, equipped with the right set of basic and specialized technological skills.

Indeed, the Future of jobs report of World Economic Forum (2023) argues that although technology continues to pose challenges and opportunities to labor markets, employers expect most technologies to positively contribute to job creation. The report suggests that nearly a quarter of jobs (23%) are set to change over the next five years, with a growth of 10.2% and a decline of 12.3%. According to estimates from the 803 companies surveyed for the report, employers anticipate the creation of 69 million new jobs and the elimination of 83 million among the 673 million jobs corresponding to the data series, resulting in a net decrease of 14 million jobs, equal to 2% of the current employment.

The fastest-growing roles are driven by technology and digitalization. Big data ranks first among technologies expected to create jobs, with 65% of respondents anticipating job growth in related roles. Employment for data analysts and scientists, big data specialists, AI and machine learning specialists, and cybersecurity professionals is expected to grow by an average of 30% by 2027. Worker training in AI and big data usage will be the priority for 42% of surveyed companies over the next five years, following analytical thinking (48%) and creative thinking (43%). Digital commerce will lead to the largest absolute increases in jobs: approximately 2 million new roles focused on digital, such as e-commerce specialists, digital transformation specialists, and digital marketing and strategy specialists.

At the same time, even the fastest-declining roles are driven by technology and digitalization, with clerical or secretarial roles, including bank tellers, cashiers, and data entry clerks, expected to decline more rapidly.
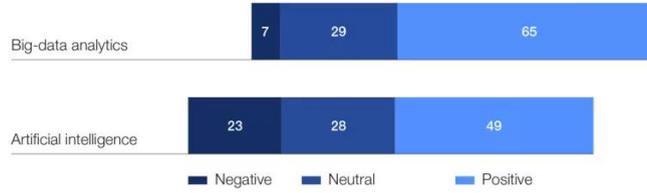
Artificial intelligence, a key factor in potential algorithmic displacement, is expected to be adopted by almost 75% of surveyed companies and is expected to lead to high turnover, with 50% of organizations expecting this to create job growth and 25% expecting job losses (figure 7).

Figure 7: Expected impact of technologies on jobs (WEF, 2023)

It is expected that employment for Data Analysts and Scientists, Big Data Specialists, Artificial Intelligence and Machine Learning Specialists, and Cybersecurity Professionals will grow by an average of 30% by 2027 (figure 8).
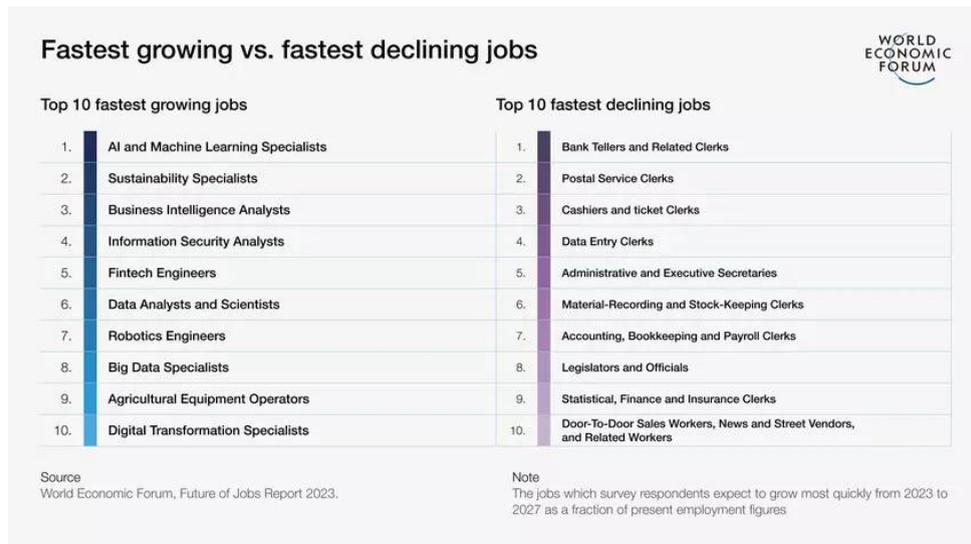

Figure 8: Jobs loss and jobs created (WEF, 2023)

Also, investments in the green transition and climate change mitigation are driving significant job growth in the green, education, and agriculture sectors. With increasing consumer awareness of sustainability issues, there is a shift towards industry transformation, creating new opportunities in the labor market. Over half of respondents predict that investments facilitating the green transition of companies will lead to the largest net job creation effects. As countries aim to expand renewable energy sources, roles such as renewable energy engineers and solar energy system installation engineers are expected to be in high demand. Additionally, investments will promote the growth of generalist roles

in sustainability, including sustainability specialists and environmental protection professionals, with an expected growth of approximately 1 million jobs.

However, the largest absolute increases in jobs will come from education and agriculture. The report finds that employment in the education sector is expected to grow by about 10%, bringing 3 million additional jobs for vocational training teachers and university and higher education lecturers. Jobs for agriculture professionals, especially agricultural machinery operators, selectors, and sorters, are expected to increase by 15%-30%, resulting in an increase of 4 million jobs.

Although some repetitive tasks will be delegated to machines, it is important to note that digital tools, require programming and monitoring by qualified personnel. The use of advanced technologies for cognitively demanding tasks highlights the importance of "human" skills such as empathy, intuition, and creativity in anticipating the evolution of new labor markets.

The most important skills for workers in 2023 are considered analytical thinking and creative thinking, and this is expected to remain unchanged over the next five years. Technological literacy, particularly in AI and big data, will become increasingly important, and business skills strategies will focus on this over the next five years (figure 9).
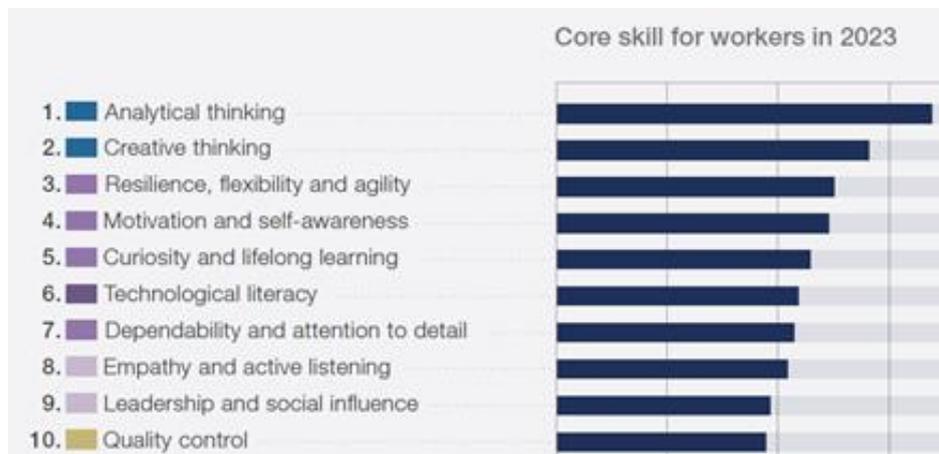

Figure 9: Core skills for the future (WEF 2023)

The revolution of retraining is increasingly urgent. Companies report that skills gaps and the inability to attract talent are the main obstacles to transformation, highlighting a clear need for training and retraining in all sectors. Six out of 10 workers will need training before 2027, but it is believed that today only half of employees have access to adequate training opportunities. At the same time, the report estimates that, on average, 44% of a single worker's skills will need to be updated.

The gap between workers' skills and future business needs requires the initiation of a reskilling and upskilling revolution to create learning and retraining opportunities related to Digital competencies. According to 45% of surveyed companies, government funding for skills training would help connect talent to employment.

Therefore, it emerges as vital today to create digital competencies and to upskill current workforces, with key skills such as cloud computing, cybersecurity, data analysis, and software development as essential for future success.

Digital competencies have been defined as "confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It is defined as a combination of knowledge, skills and attitudes." (Council Recommendation on Key Competences for Life- long Learning, 2018).

This definition includes both hard and soft skills, meaning that Digital competencies is not related just to technical competencies, but also the ability to understand the complexity of the environment in which we work, flexibly manage the challenges of an ever-changing context, and leverage digital tools to support the business. The ability to innovate, to think outside the box, moreover, are necessary skills to lead the change imposed by digitalization."

The DigComp framework outlines five core dimensions of digital competence, each encompassing key areas essential for navigating the digital landscape effectively. These dimensions provide a comprehensive framework for individuals to develop and enhance their digital skills (figure 10).
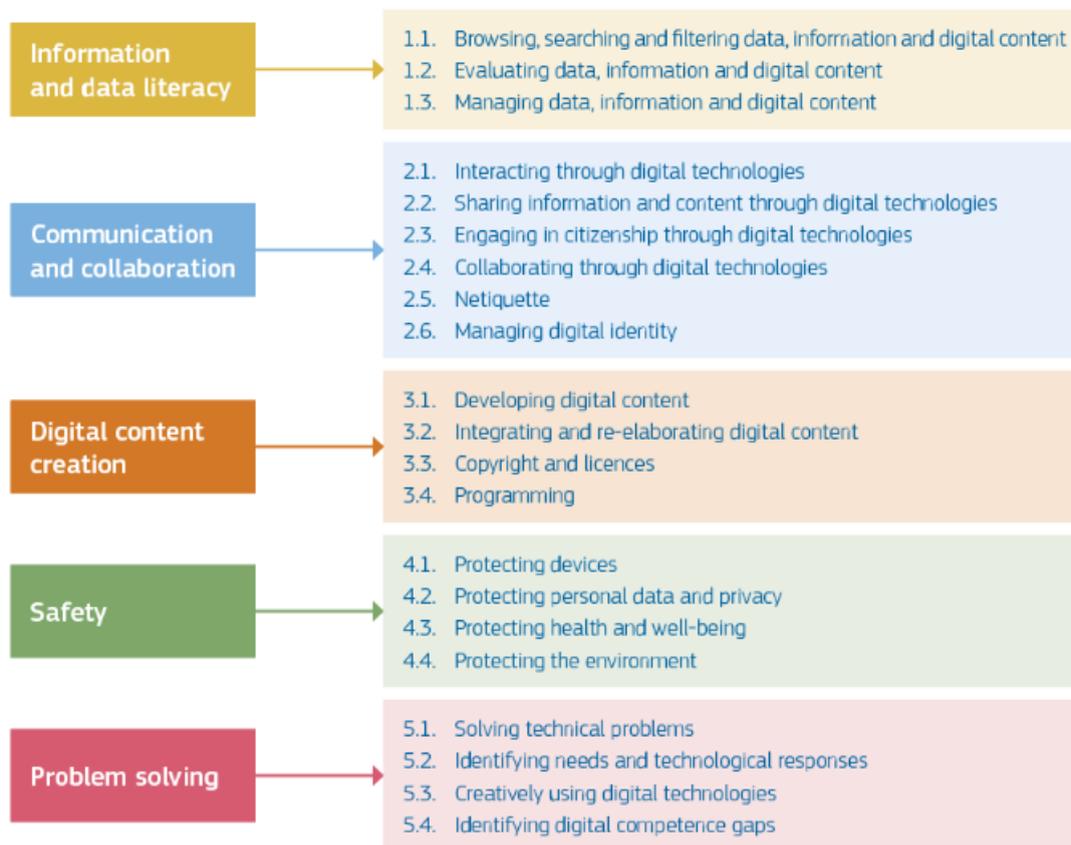

Information and data literacy
1.1. Browsing, searching and filtering data, information and digital content
1.2. Evaluating data, information and digital content
1.3. Managing data, information and digital content

Communication and collaboration
2.1. Interacting through digital technologies
2.2. Sharing information and content through digital technologies
2.3. Engaging in citizenship through digital technologies
2.4. Collaborating through digital technologies
2.5. Netiquette
2.6. Managing digital identity

Digital content creation
3.1. Developing digital content
3.2. Integrating and re-elaborating digital content
3.3. Copyright and licences
3.4. Programming

Safety
4.1. Protecting devices
4.2. Protecting personal data and privacy
4.3. Protecting health and well-being
4.4. Protecting the environment

Problem solving
5.1. Solving technical problems
5.2. Identifying needs and technological responses
5.3. Creatively using digital technologies
5.4. Identifying digital competence gaps

Figure 10: DigiComp reference model (Vuorikari, et al. 2022)

More specifically the dimensions deal with:

Information and Data Literacy: This dimension involves the ability to articulate information needs and effectively locate and retrieve digital data and content. It also includes

the capacity to assess the relevance and credibility of sources, as well as the skills to manage and organize digital information. Furthermore, individuals should be proficient in storing, managing, and organizing digital data to facilitate efficient access and retrieval.

Communication and Collaboration: In today's interconnected world, effective communication and collaboration through digital technologies are essential. This dimension emphasizes the ability to interact and collaborate with others using digital tools while being mindful of cultural and generational diversity. Individuals should also be capable of engaging with digital services for both public and private purposes, demonstrating participatory citizenship. Additionally, managing one's digital presence, identity, and reputation is vital in maintaining a positive online image.

Digital Content Creation: This dimension focuses on the creation and editing of digital content, encompassing various forms such as text, multimedia, and graphics. Individuals should possess the skills to produce high-quality digital content and integrate it into existing knowledge domains. Understanding copyright laws and licensing agreements is crucial for ethical content creation, along with the ability to provide clear instructions for computer systems.

Safety: Ensuring safety in digital environments is paramount, encompassing the protection of devices, personal data, and privacy. Individuals should be equipped to safeguard themselves against cyber threats and understand the importance of maintaining physical and psychological well-being in digital spaces. Awareness of the environmental impact of digital technologies and responsible usage practices are also integral aspects of this dimension.

Problem Solving: Digital competence includes the ability to identify and address needs and problems within digital environments. This dimension emphasizes problem-solving skills, both conceptual and practical, to navigate challenges effectively. Individuals should leverage digital tools to innovate processes and products, staying abreast of technological advancements to adapt and thrive in a rapidly evolving digital landscape.

In summary, the DigComp framework provides a holistic approach to digital competence, encompassing essential skills and competencies across various dimensions. It serves as a valuable guide for individuals seeking to enhance their digital proficiency and adaptability in an increasingly digitalized world.

This indicate that to remain competitive and adaptable in the evolving digital landscape, HEIs have a pivotal role to play to ensure that the human capital of the future is equipped to navigate the digital challenges of tomorrow and to contribute in retraining and upskilling of existing workforce.

2.3. Digital Competences Framework of Educational system in Albania and Montenegro

Digital transformation of the education system was selected as a critical priority to strengthen future workforce competencies and create new opportunities in the emerging information and communication technologies (ICT) sector by peer-learning participants from Albania. Application of digital technologies implies the use of computers and technologies for several purposes: to access the internet, to obtain and share knowledge among students and teachers, to use learning analytics to collect data and measure performance, and to set up collaborative learning networks to solve problems and foster creativity among students (van der Vlies, 2020). However, digital technology alone does not generate outcomes: skilled teachers must complement these tools (OECD, 2015). Skill in using digital technologies also offers growth opportunities in the emerging ICT sector. It is a key means to boost productivity in all economic sectors, highlighting the importance of ensuring that adults acquire relevant digital skills.

All economies are connected to European and international research networks, and international research collaboration is growing, but its results vary across economies. There are few linkages between academic research and industry and no strategic policy to promote them. While all economies have experimented with financial incentives for business-academia collaboration, non-financial incentives must be available. The institutional support for such collaboration has expanded but often requires a systemic approach, and efforts collide with broader policy measures to create an innovation ecosystem focusing on start-ups. (OECD, 2021)

Albania should develop frameworks for digital skills and competencies and define IT qualifications and curricula, especially in collaboration with the private sector. While the Albanian Digital Agenda 2015–2020 highlights the importance of integrating the use of ICT in the education system, and the National Pre-University Curriculum Framework mentions it as one of seven critical competencies for general and vocational education, both documents lack any concrete framework on how digital skills and competencies should be integrated into the learning practice (ETF, 2018). IT qualifications and curricula are not yet defined within the Albanian Qualifications Framework (ETF, 2018). For curricula development, industry representatives should collaborate in defining learning outcomes (OECD, 2021). Establishing a coherent approach to developing digital skills across all levels of the education system is essential (OECD, 2021).

Montenegro is the first economy in the Western Balkans to adopt a Digital Competence Framework aligned with the European Digital Competence Framework. The Education System Digitalization Strategy 2022–2027 was prepared following the Policy Development Methodology 2020, which the Decree defines as the Manner and Procedure of Drafting, Harmonizing and Monitoring the Implementation of Strategic Documents ("Official Gazette of Montenegro", 54/2018). In 2021, Albania approved the National Education Strategy for 2021-2026, which integrates the pre-university and university education strategies (Ministry of Education, Sport, and Youth/UNICEF, 2021). The strategy gives excellent importance to inclusiveness and equality in education, strengthening teachers' competencies, mastery of lifelong learning competencies, digitalisation of education, and quality management and assurance. In recent years, a new law for vocational education and training (VET) has encouraged engagement between vocational schools and the private sector, primarily through work-based learning. Additionally, the Assessment of Multi-dimensional Review of

the Western Balkans identified education and competencies for economic transformation as the top priorities for Albania and all economies across the region (OECD, 2021).

Both countries have issues with the labour force's skills gap, and digital skills should also become integral to adult learning. Albania's current Employment and Skills Strategy 2019–2022 does not prioritise digital skills. Other regional economies like Serbia have already started to address the digital skills gap among adults. Serbia's Digital Skills Strategy from 2021 includes a framework for adult learning and local coalitions for digital skills through which diverse stakeholders will participate in developing curricula. In addition, the public employment service in Serbia launched an IT requalification programme and a particular programme targeting women in rural areas (OECD, 2021). As stressed by the peer-learning participants, learnings from the digital skills gap analysis could guide training programmes and frameworks for lifelong learning. The following figure 11 summarize the main element of the digital literacy framework useful to systematize the main element of a digital literacy strategy. The framework includes stakeholders involved in the development of digital capabilities, the learning contents and strategy.
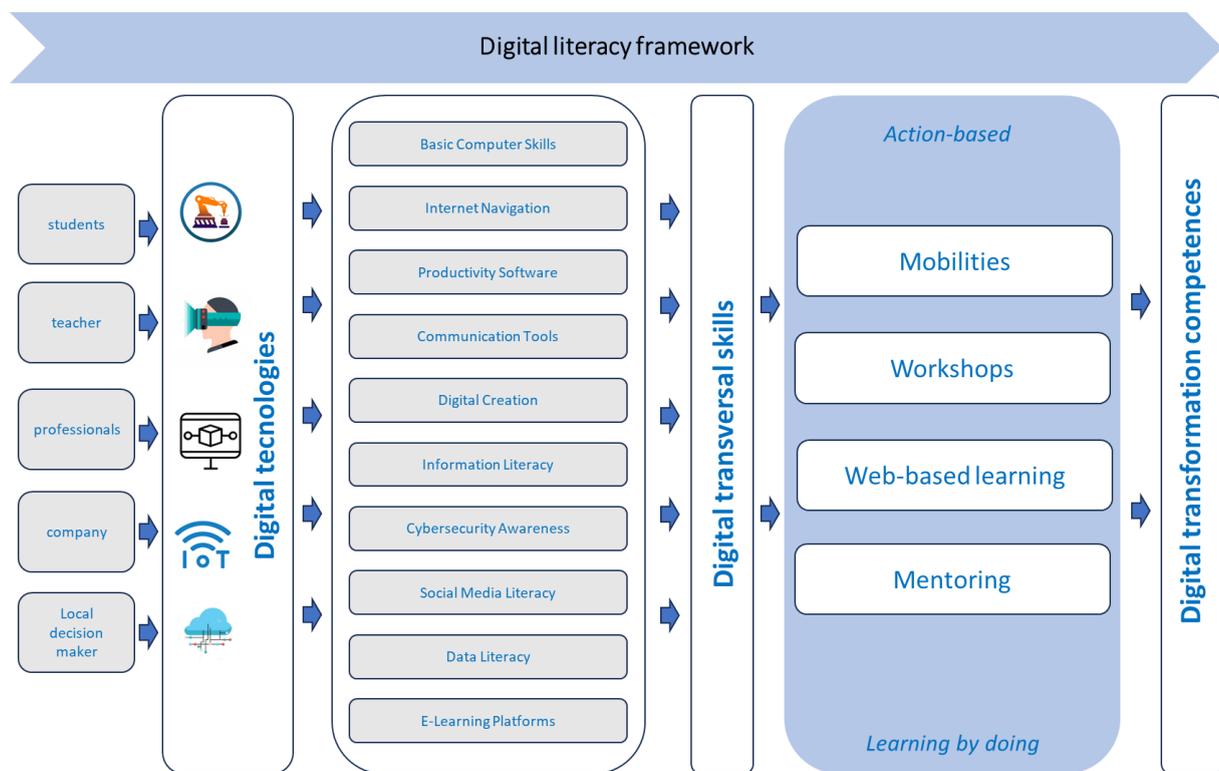

Figure 11 Digital Literacy Framework

3. METHODOLOGY ON RESULTS OF U2SID DIGITAL LITERACY RESEARCH IN ALBANIA & MONTENEGRO

3.1. Why is it essential to boost the introduction of digital Transformation in Albania's and Montenegro's HEI's?

Digital transformation (DT) deals with the changes that digital technologies can bring in an organisation's business model, which result in changed products/services or organisational structures or the automation of processes.

Digital transformation is the profound transformation of business activities and organisations, processes, competencies, and models for the maximum transformation of the changes and opportunities of a technology mix and its accelerated impact on society in a strategic and prioritised way (Gobble, 2018). This kind of transformation does not happen by chance, and it is rarely organic. Transformation of this type requires a clear roadmap guided by a digital strategy. This claim is supported by the research conducted by Geraldo Kane and other researchers in the study published in 2015, proving the claim that "*Digital strategy drives digital maturity*". Through research, they proved that 80% of organisations with digital maturity also had a clear digitalisation strategy. Only 15% recognised the importance of digital strategy in the early stages of their establishment (Kane, 2015).

Digitisation is no longer an IT project. It is a transformation that should include all segments of the organisation, which is why an organisational strategy that will refer to the digitisation of each segment of the organisation is needed. The goal of the U2SID Erasmus+ project is to boost inclusive digital transformation in the Western Balkans through increased collaboration between universities and other stakeholders such as businesses, policymakers, civil society, and the media.

More concretely, it aims to improve the quality of higher education in Montenegro and Albania through horizontal knowledge by third countries not associated with the Erasmus programme. At the same time, by strengthening the digital literacy of students, teachers, and professionals at the local level, the U2SID project enhances the relevance of universities for the local and national labour market and regional development. Considering the scope and broad need for digitalisation of the educational system, the need to involve many institutions and the interconnection of activities, it is necessary to develop an Education System Digitalization Strategy to ensure planned development in this area.

The Strategy aims to:
1. Develop new electronic services, improve the work of the public sector, and encourage cross-sector cooperation.
2. Create appropriate conditions in educational institutions for the successful improvement of all digital processes and thus contribute to the quality and inclusiveness of education.
3. Develop and improve students' digital skills, which they need for further learning/ lifelong learning, the labour market and functioning in a society and economy that are knowledge- and innovation-based and encourage students to choose ICT occupations. (Ministry of Education of Montenegro, 2020)

Therefore, it can be clearly defined that the project's general goal is **to foster inclusive digital transformation in the Western Balkans through increased collaboration between universities and** other stakeholders such as businesses, policymakers, civil society, and the media. The general goal will be implemented through the realisation of specific goals that include:

1. To strengthen the digital competencies of teachers, students, and professionals through **developing a Digital Literacies Acceleration Programme** as a collaborative programme among universities on one side and businesses, civil society, local decision-makers, and media on the other.

2. To improve innovative teaching methods by piloting a **Digital Transformation Challenge** for students as project-based and solution-oriented learning based on mentoring, coaching and placement at businesses, civil society, local decision-makers, and media.

3. To **raise awareness** of the importance of **inclusive digitalisation** by including vulnerable target groups in the digitalisation process.

To achieve the set goals, it was necessary to start mapping the knowledge and competencies of lecturers and students in 4 partner universities of the U2SID project, namely the University of Shkodra, the University of Korca, the Mediterranean University of Albania and the University of Montenegro. Mapping led to a study that aimed to look at the increasing role of digital competencies that are becoming significant in both delivering and accessing higher education. By assessing the needs, the study has highlighted gaps in knowledge, skills, and infrastructure that may be hindering the effective use of digital tools and resources in teaching and learning environments in the universities involved in this project in Albania and Montenegro.

Furthermore, the study has contributed to incorporating diverse perspectives by engaging all stakeholders who directly or indirectly impact the digital literacies of lecturers and students. These stakeholders include administrative staff, IT personnel, policymakers, and employers. The input from these groups provided a multi-dimensional understanding of digital literacy needs, expectations, and the potential barriers to implementing digital literacy programs.

3.2. Methodology approach

The methodology for this need assessment on digital literacies at the university level is designed to facilitate an understanding of the subject within academic contexts of partner universities involved in the project and to inform with evidence the following activities to be implemented by the project partners such as the Digital Literacies Accelerator Programme (WP2) and Digital Transformation Challenge (WP3). This approach embraces quantitative and qualitative data collection methods, harmonising them to draw a reliable picture of the needs and gaps in digital literacy in these academic contexts.

The quantitative dimension of research is supported by online questionnaires (Anex), as instruments designed to quantitatively assess lecturers' and students' self-reported digital literacy competencies, habitual use of digital resources, preferences for specific technologies, and perceived needs for further support and development. After ensuring a representative sample at each partner university, the study encompassed a diverse cross-section of

departments, faculties, and educational levels, both Bachelor's and Master's. Subsequent statistical analyses scrutinised quantitative information to identify prevalent patterns and trends, providing insights for recommendations for implementing the following activities at the project partner institutions.

Parallel to this, the qualitative component, through structured focus group discussions, delved into the more subjective dimensions of digital literacy. These sessions revealed the attitudes, personal experiences, and various contextual factors shaping individuals' engagement with digital tools and resources. Discussion guides, prepared in advance and based on literature reviews, contributed to the discussion to meaningful depths. The discussions were recorded via audio-visual means, transcriptions, and detailed notes, ensuring that none of the nuanced discourse was lost. Focus groups were organised by each partner with lecturers, students, and stakeholders.

The deliberate integration of quantitative and qualitative data—data triangulation—has brought credibility to the findings by cross-verifying data points and minimising the biases that any single method might introduce. The breadth of understanding was drawn from quantifiable data, while the qualitative data added context and depth, providing a fuller understanding of digital literacy needs. All this was additionally combined with a literature review. The synthesis of findings from these dual streams of research was generated in a detailed Report, laying out the digital literacy landscape within the participant universities and identifying specific needs. The assessed findings are relevant for participating partner universities and cannot be generalised to entire academic contexts in Albania and Montenegro.

3.2.1. Data management method

For the quantitative portion of our study, data were collected through specially designed questionnaires. These were distributed to lecturers and students to measure their perceptions of their digital literacy skills, how often and in what ways they use digital tools, and what they feel they need to improve. This activity aimed to get a sample that captures the full spectrum of university life from various undergraduate and postgraduate disciplines to provide well-rounded findings. Questionnaires were administered online.

Alongside the questionnaire, a study has incorporated and structured focus group discussions to develop the more nuanced aspects of digital literacy. The individuals were convened to participate in guided conversations that shed light on their attitudes, experiences, and the specific circumstances that shape their use and understanding of digital tools. These discussions were steered by discussion guides informed by the initial literature review and the early results of the questionnaires, ensuring that each session probes the topics most relevant to research questions.

The discussions among members of focus groups were recorded using audio-visual equipment and detailed notetaking. This approach has provided the full breadth of discussion for subsequent detailed analysis. Focus groups have been organised in person.

3.2.2. Definition of the Digital literacies

- Basic Computer Skills: Using an operating system, managing files, and understanding basic hardware.
- Internet Navigation: Using search engines, evaluating online sources, and understanding internet safety.
- Productivity Software: Proficiency in word processing, spreadsheets, and presentation software.
- Communication Tools: Email, instant messaging, video conferencing, and collaboration platforms.
- Digital Creation: Basic photo editing, video production, or website creation.
- Information Literacy: Finding, evaluating, using, and citing digital information.
- Cybersecurity Awareness: Understanding personal data protection, password security, and awareness of phishing scams.
- Social Media Literacy: Creating content, understanding digital footprints, and privacy settings.
- Data Literacy: Understanding of data collection, analysis, and interpretation.
- E-Learning Platforms: Navigating online learning systems and digital libraries.

3.2.3. Survey sample

The study presents two aspects of Digital Literacy knowledge and needs for Students and Lecturers. Four universities in Albania and Montenegro are part of the study, specifically: in Albania, the Mediterranean University of Albania, the University Fan S. Noli of Korca, and the University Luigj Gurakuqi of Shkodra in Montenegro, Montenegro University.

Four universities were part of the study, attached in the Annexe of this document, in which 705 students took the survey and 199 lecturers. The survey was conducted online.

The margin of error for the students' study for the four universities is 3.6%, meaning that the confidence interval of every result is +- 3.6%. The results of each university have a different margin of error. The Mediterranean University of Albania results have a margin error equal to 5.5%, University Fan S. Noli of Korca 7.4%, University Luigj Gurakuqi of Shkodra 7.8%, and Montenegro University 10.4%. The highest margin of error for the results from Montenegro University is due to the low number of surveyed students.

Data Analysis is conducted using IBM SPSS. Data for students were weighted to be representative of each university and overall. This was done so that the contribution of each university's male and female respondents was proportional to the actual population of students in each specific university and the total.

The results of lecturers are presented in this study without any adjustment for their weight in the total population. Furthermore, a qualitative approach was used as well. In total, 12 focus groups were conducted in four universities, including one focus group with students (4 universities = four focus groups), one focus group for lecturers, and one focus group with stakeholders. Their findings are used to confirm whether the data from the quantitative approach.

3.2.3.1. Descriptive statistics about participants in the survey

The sample of the student's survey is composed by 64% of females, and 35% males. The proportion differs from one university to another. In the below presentation of results, the weighted proportion of males and females is the same as the proportion of the total students for each university and the total.
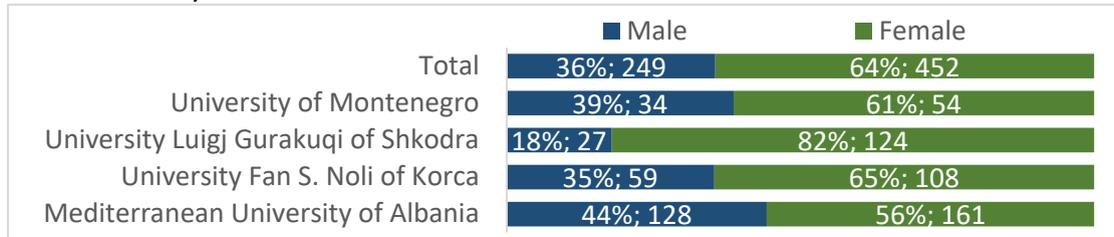
	Male	Female
Total	36%; 249	64%; 452
University of Montenegro	39%; 34	61%; 54
University Luigj Gurakuqi of Shkodra	18%; 27	82%; 124
University Fan S. Noli of Korca	35%; 59	65%; 108
Mediterranean University of Albania	44%; 128	56%; 161

Figure 12 Students by Gender

About 76% of surveyed students are from urban areas, and 24% are from rural areas.

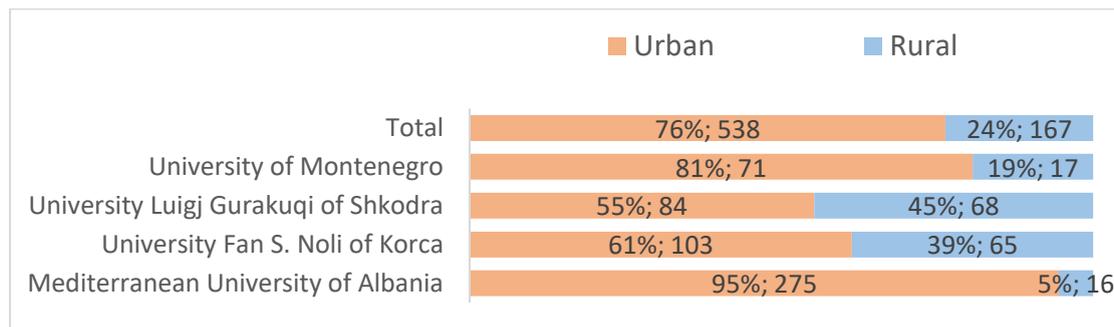|	Urban	Rural
Total	76%; 538	24%; 167
University of Montenegro	81%; 71	19%; 17
University Luigj Gurakuqi of Shkodra	55%; 84	45%; 68
University Fan S. Noli of Korca	61%; 103	39%; 65
Mediterranean University of Albania	95%; 275	5%; 16

Figure 13 Students by urbanity

Most surveyed students study Business (34%), Natural Sciences (18%), etc.

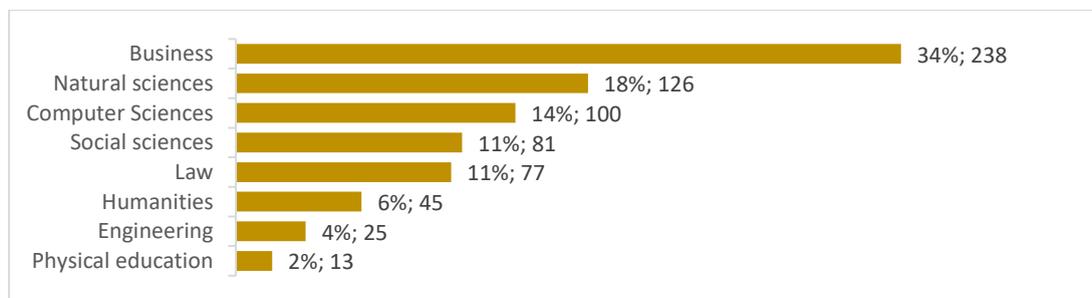| Discipline	
Business	34%; 238
Natural sciences	18%; 126
Computer Sciences	14%; 100
Social sciences	11%; 81
Law	11%; 77
Humanities	6%; 45
Engineering	4%; 25
Physical education	2%; 13

Figure 14 Students by discipline of studies

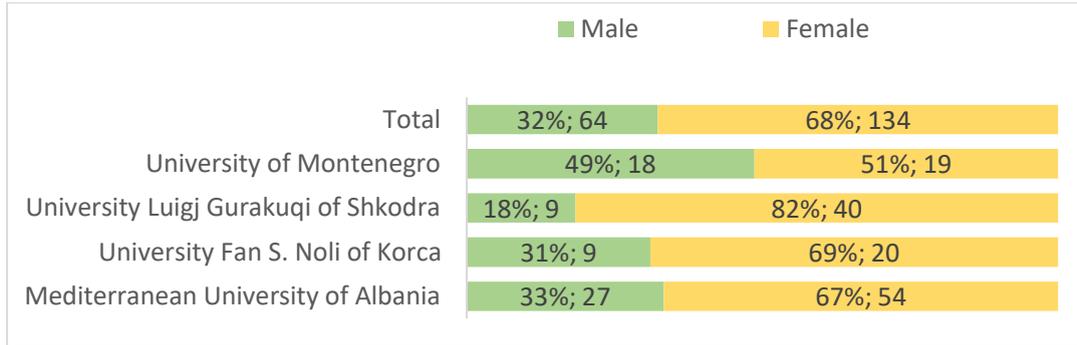About 68% of Lecture respondents are females, and 32% are males.

Figure 15 Lecturers by gender

Regarding the discipline of expertise of lecturers, 23% have a social science profile, 22% are business, 21% are humanities, etc.
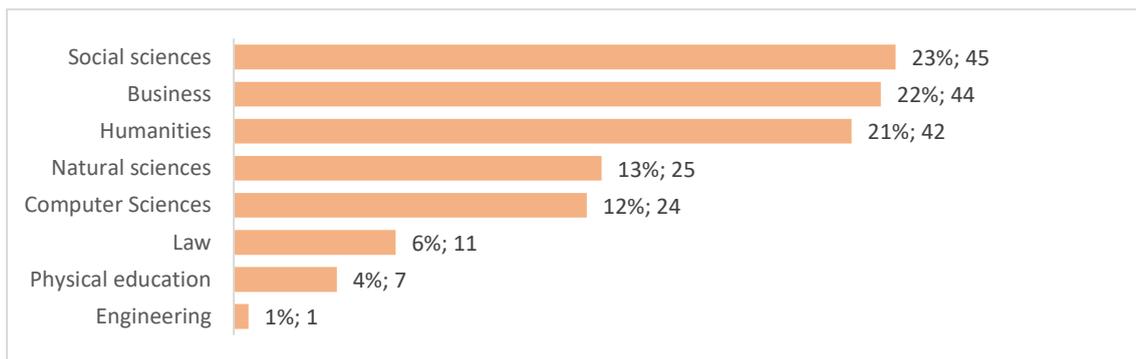

Figure 16 Lecturers by discipline of expertise

3.2.4. Results Regarding Level of Knowledge Digital literacies

3.2.4.1. Results on students' knowledge of digital literacies

Analysing the results collected by a questionnaire among students at all four universities, a conclusion was reached that half of the students (50%) have "no proficiency" or "limited proficiency" in Website Creation. The second indicator with the most significant portion (36%) of students who declared to have "no proficiency" or "limited proficiency" is also in Digital Creation related to Video Production.

While students at all four universities declared the most significant lack of knowledge on Website Creation, the third lowest knowledge on Digital Literacy for students of Montenegro is on Generative AI related to learning (34% declare "no proficiency" or "limited proficiency").

The second lowest level of knowledge on Digital Literacy for students at Mediterranean University is in Understanding Basic Hardware (35% declare "no proficiency" or "limited proficiency"). In comparison, the third is Presentation Software (34%).

For students of Luigj Gurakuqi of Shkodra, the second lowest knowledge in Digital Literacy is Proficiency in modelling and usage of applications in Spreadsheets (37%). About 42% of students at University Fan S. Noli declare "no proficiency" or "limited proficiency" in Collaboration Platforms (the second lowest for students at University Fan S. Noli).

The same findings are obtained in the focus groups. Students mentioned that the most used digital tools they use are Microsoft Office, PowerPoint Presentations, Photoshop, Canva, media networking platforms, Viber, Voice Recording, Instagram, Google search engines, ChatGPT, Zoom, Google Meeting, Microsoft Teams, online dictionaries, online translations, word spelling, and some specific tools related only to their field of studies (for instance: the Nursing order Platform used by nursing students at the University Fan S. Noli of Korca; or programs like Java, Python, C++, JavaScript, SPSS, MATLAB, SAS etc., used by programming students. When taking apart only the educational platforms, the most mentioned platforms are Microsoft Teams, Zoom, Edmondo, Google Classroom, etc.

Another way of presenting results is by calculating the average score and comparing it to all the indicators used to measure Digital Literacy Knowledge. The lowest average score is in Website Creation, meaning there is the lowest level of proficiency. Next is proficiency in modelling and using applications in spreadsheets.

The highest score for proficiency in Email and Instant messaging as communication tools is calculated.

3.2.4.2. Results on professors' knowledge of digital literacies

When it comes to the Digital Literacy Knowledge of the professors at all four universities, it indicates that half of the Lecturers (52%) have "no proficiency" or "limited proficiency" in Website Creation. The second indicator with the most significant portion (37%) of Lecturers

who declared to have "no proficiency" or "limited proficiency" is also in Digital Creation related to Video Production.

Results show that lecturers at the University of Montenegro declare having a lower level of knowledge on most of the digital skills mentioned in the questionnaire. Lecturers of the Mediterranean University of Albania and University Luigj Gurakuqi of Shkodra declare that they have a higher knowledge of digital skills than the other two universities in this study.

There are significant differences in the preferences of what lecturers of different universities want to improve. For example, 34% of lecturers of the University Fan S. Noli of Korca prefer the most to improve skills in E-Learning platforms, compared to only 18% of lecturers of the University of Montenegro, 15% of those in the Mediterranean University of Albania, and 12% of University of Luigj Gurakuqi of Shkodra. A significant difference is shown in the preference for basic computer skills, where 16% of lecturers at the University of Montenegro are interested the most in improving them, compared to only 4% of those at the University of Luigj Gurakuqi, 2% at the Mediterranean University, and 0% of those at the University of Fan S. Noli.

When professors were asked to choose more than one skill they are interested in improving, half (51%) chose Generative AI Literacy, 38% chose Data Literacy, 37% chose E-Learning Platforms, and so on. Lectors at the University of Montenegro are more interested in improving Productivity Software (45% of respondents) and Digital creation (37%). Also, lectors of the Mediterranean University (48%) are interested in improving Cybersecurity Awareness, compared to less than 30% of other professors in other universities.

The preferred format of Digital Literacy training for professors of four universities is Interactive group sessions (52%). Interactive Group Sessions are more preferred among professors of University Fan S. Noli of Korca (72%) and University Luigj Gurakuqi of Shkodra (63%) than those of Mediterranean University (46%) and University of Montenegro (37%). Online Video Tutorials are the preferred format of Digital Literacy training by 52% of lecturers at the Mediterranean University of Albania. On the other hand, live online classes/webinars are the preferred training formats for the lecturers of the University of Montenegro (39%).

Results of Focus Groups confirm the quantitative data about the preferred format of Digital Literacy training. Most of the lecturers prefer their sessions to be face-to-face so they can be interactive with each other and stay more focused. On the other hand, many other professors would like a combination of face-to-face and online training. The most significant difference regarding the preference for face-to-face training over online training is for lecturers at the University Fan S. Noli of Korca. The same is noticed in the results of quantitative data.

4. IMPLEMENTATION OF THE DIGITAL LITERACIES ACCELERATION PROGRAMME

The U2SID project builds and strengthens partnerships for transformation in higher education. Additionally, it contributes to the innovation in higher education to enhance relevance to the labour market, regional development, and society by strengthening university-to-society collaborations and setting up a Digital Literacies Accelerator Programme and Digital Transformation Challenge. The project impacts the modernisation of HEIs not simply by transferring knowledge but also by creating economic and social value by transferring teaching and research results to the community and society.

The University of Belgrade and the University of Salento, as EU partners, are responsible for developing the Digital Literacies Accelerator Programme.

4.1. Literacies Acceleration Programme Components

EU partners of the U2SID project have developed the programme on digital literacies based on specific needs identified in the need assessment survey in partner project universities. The programme aims to strengthen teachers, students, and professionals' digital competencies by developing a Digital Literacies Acceleration Programme as a collaborative programme among universities on one side and businesses, civil society, local decision-makers, and media on the other.

Digital Literacies Accelerator Programme that is developed in order of horizontal transfer of knowledge includes the following components:
- Mobilities
- Workshops
- Online learning for students, lecturers, and stakeholders per each partner university
- Mentoring for students, lecturers, and stakeholders per each partner university
- Public engagement with stakeholders disseminating and sharing the programme and achievements.

Targeted indicators of progress:
- 1 Digital Literacies Acceleration Programme set up at each partner university (1 document prepared by the University of Belgrade and University of Salento and then adapted and published at each partner university)
- 50 university lecturers and staff trained part of the Digital Literacies Acceleration Programme (workshops/training based on need assessment survey by each university – see WP2 detailed Work Plan)
- 100 students trained within the programme (workshops/trainings based on need assessment survey by each university – see WP2 detailed Work Plan)
- 40 staff from business, civil society, business, and media training on digital literacies as part of the programme (workshops/training based on need assessment survey by each university – see WP2 detailed Work Plan)

4.1.1. Mobility Initiatives

Mobility is one of the ways foreseen to transfer the experiences of the program countries to the partner universities in Albania and Montenegro. The University of Belgrade and the University of Salento are responsible for coordinating and implementing this activity.

The first mobility occurred at the University of Belgrade from December 13-16, 2023, at the Faculty of Organizational Sciences. The "Inclusive Digital Transformation in Higher Education U2SID Workshop in Belgrade" workshop brought together the U2SID project participants to explore contemporary technological advancements impacting the academic sphere based on exchanges with partners at the University of Belgrade.

Participants delved into the critical issues surrounding artificial intelligence, focusing on its ethical application and its challenges in higher education, under notable experts Professor Vladan Devedžić, PhD, and Professor Jelena Jovanović, PhD. This session was engaging, calling for active involvement and pre-prepared contributions from all U2SID partners.

They pointed out that AI has the potential to revolutionise the education sector by providing personalised learning experiences, automating the grading of student work, and facilitating administrative tasks. However, implementing AI in education requires careful consideration of ethical, legal, and social implications. One of the most impactful areas of AI in education is generative AI, particularly tools like ChatGPT and Google Bard. This technology allows users to generate text, translate languages, write creative content, and answer questions informally. While this offers exciting possibilities for personalised feedback, adaptive learning, and accessible education, the content produced by generative AI could be inaccurate, inappropriate, biased, taken out of context, or without permission.

Initial reactions to the use of ChatGPT in education have been mixed. Some educators consider it a powerful tool for fostering creativity, critical thinking, and collaboration. Others fear its potential for academic dishonesty, bias, and declining student engagement. Despite these concerns, ChatGPT is already being used by educators in various ways. For example, ChatGPT can offer students individualised feedback on writing assignments, helping them identify areas for improvement and refinement of their skills. Furthermore, AI can adapt to each student's learning pace and style, providing them with personalised learning pathways and resources. It can also translate languages and simplify complex concepts, making education more accessible to students with disabilities or language barriers.

Tools like ChatGPT can play distinct roles in supporting learners by taking on the role of a tutor (offering direct instruction), coach (supporting the development of metacognitive skills), teammate (helping student teams be more effective), and others. However, teachers and students need to be aware that the content produced by ChatGPT can be inaccurate, inappropriate, and not aligned with learning objectives.

The debate about generative AI often centres around a banning or enforcement. Instead of a binary approach, we need to consider more nuanced solutions. One crucial step is revisiting the concept of plagiarism in the context of AI-assisted learning. Instead of focusing solely on the content source, we should emphasize understanding, critical thinking, and the ability to

evaluate and synthesise information. There is also the question of trust: Can we trust generative AI in education? Concerns about plagiarism, bias, and the potential for misuse are valid and require careful consideration. To build trust, it is crucial to raise awareness among educators and students about the capabilities and limitations of AI tools. They should also be provided with guidance on how to use generative AI effectively and responsibly. Furthermore, educational institutions should establish policies on the responsible development and use of AI in education.

In conclusion, they have highlighted that AI in education presents exciting opportunities and significant challenges. By embracing a proactive and ethical approach, we can harness the power of AI to transform learning while safeguarding the integrity of education and ensuring equitable access for all students. The journey ahead requires open communication, collaboration among educators, policymakers, and tech developers, and a continuous commitment to responsible innovation. Only then can we ensure that AI becomes a genuinely positive force in the educational landscape.

Another session was conducted by Mr. Filip Milošević, representative of the Share Foundation, who enlightened attendees on strengthening cybersecurity, emphasising academia's pivotal role in heightening awareness and building essential competencies. Mr Filip Milošević has opened a new topic: Strengthening Cybersecurity: The Critical Role of Academia in Advancing Awareness and Competency Development and pointed out that today's hyper-connected world has become a vast and ever-expanding digital footprint. Therefore, his presentation delves into the fundamentals of personal digital security and explores the ever-evolving landscape of cyber threats.

Individuals can significantly enhance their digital security posture by understanding the core principles of secure passwords, multi-factor authentication, data encryption, and awareness of phishing and social engineering tactics. Implementing these practices, regular software updates, anti-virus and anti-malware software, and control over privacy settings empowers individuals to navigate the digital landscape safely and protect themselves from harm.

The agenda included practical engagements, such as the Blockchain Exercise with professor Marijana Despotović Zrakić, which provided a hands-on experience for participants to get direct insights into the application of blockchain technologies in both the e-business ecosystem and Industry 4.0. This section was additionally guided by notable experts Professor Aleksandra Labus, PhD, Professor Zorica Bogdanović, PhD, MSc Tamara Naumović and MSc. Petar Lukovac. The lecture aimed to get an overview of the essential blockchain components and an analysis of the role of blockchain technologies in modern electronic business ecosystems.

The first part of the lecture presented the flow of transactions in the blockchain. After that, essential blockchain components such as blocks, consensus algorithms, and peer-to-peer networks were explained, after which their presentation continued with presenting characteristics of blockchain transactions such as decentralisation, anonymity, transparency, security, reliability, and immutability, and they gave an overview of consensus algorithms and blockchain platforms for the realisation of transactions. They discussed different blockchain types: public, private, hybrid, and consortium.

They mainly explained the role of smart contracts in blockchain-based business systems and the process of designing smart contracts, modelling algorithms, and executing transactions on the Algorand and Ethereum blockchain platforms. In the second part of the lecture, they explained the possibilities of applying blockchain technology in the e-business ecosystems, e-commerce, digital marketing and social media, loyalty programs, real estate, industry supply chains in the fashion industries, and healthcare. In the continuation, the workshop participants were addressed by Professor Zorica Bogdanović, PhD, and MSc. Tamara Naumović. They organised their lecture under *Blockchain Technologies in Industry 4.0* into two segments.

The first part of the lecture aimed to give an overview of Industry 4.0 concepts and technologies and present how they all fit together. They mainly analysed technologies such as blockchain, the Internet of Things, Artificial Intelligence (AI), digital twins, and 5G and explained their role in new industry ecosystems. The goal of the second part of the lecture was to address the role of blockchain technology in Industry 4.0 more specifically. The focus of supply chain management is where blockchain, in combination with IoT and mobile technologies, can provide new means for tracking information across the supply chain and provide transparency and traceability of data. The concepts were illustrated using the example of the food supply chain and the problems related to data management, transparency of business transactions, trust in data handling, security and privacy, scalability and interoperability issues, stakeholder relationship management, food safety, and fake products.

In this context, blockchain can inform consumers about product development, origin, and value. The tracking mechanism increases stakeholder cooperation through the supply chain: production, processing and packaging, certification, storage, distribution, retailing, and consumption. Further, they presented examples of the application blockchain system for tracking honey production. Besides theoretical concepts, they analysed the problems of technology adoption and presented the preliminary results of a study of stakeholders' readiness to use blockchain technologies.

The learning outcomes of this lecture were:
- Understanding the technology stack of Industry 4.0,
- Understanding the role of blockchain in Industry 4.0,
- Understanding how blockchain can be used to track information across supply chains,
- Understanding how blockchain interacts with IoT technology in the context of supply chains and Industry 4.0,
- Understanding the problems of blockchain technology adoption and incentives that motivate stakeholders to use this technology.

There was a break for lunch, after which the MSc carried out the practical workshop. Tamara Naumović and MSc. Petar Lukovac who introduced participants of the workshop to the world of PyTel. It was a practical lecture where participants could explore critical aspects of blockchain technology and smart contracts. The main goal of the lecture was to familiarise participants with blockchain technologies, features, and components. *This was demonstrated*

by applying blockchain technologies in natural systems on the Algorand platform. The participants had the opportunity to create a minor smart contract, enabling them better to understand the role of smart contracts in process improvement. During implementation, different technologies were used. This includes the PyTeal library for innovative contract development and the Beaker framework. Testing was done using the Algorand platform's test environment—architecture explanation.

Additionally, the workshop dedicates time for project meetings to discuss progress and chart further steps. This intensive workshop is designed to educate and foster collaboration among educators, encouraging exchanging ideas and strategies for navigating the ever-evolving digital transformation landscape in higher education. The workshop concludes on December 16, allowing the participants to reflect on the knowledge gained and connections made as they depart from Belgrade.

Workshop 2: Unisalento University

The upcoming workshop is scheduled to take place from April 15th to April 19th, 2024, at the University of Salento.
Explanation of the Event: Organized by the University of Salento, the workshop aims to convene participants from the U2SID project to engage in discussions centered around the theme "Accelerating Digital Innovation and Growth with the Right Digital Skills."
Details of the Event:
Location & Timing:
The workshop will be held at the University of Salento from April 15th to April 19th, 2024.
Participants & Speakers:
The event will bring together academic professors, industry experts, and practitioners involved in digital technologies and innovation.
Purpose and Approach:
The workshop seeks to explore the role of digital skills in driving innovation and growth across various sectors, focusing on topics such as artificial intelligence (AI), blockchain, Internet of Things (IoT), and big data analysis.
Agenda and Expected Results:
The workshop will concentrate on the theme of "AI Opportunities and Challenges for Higher Education Institutions (HEIs)." Distinguished professors specializing in AI-related issues across various fields will engage participants in discussions on topics such as "AI and Ethical Issues for HEIs" and "AI Use for Research and Innovation Projects." Additionally, key figures from the academic community of Unisalento, including the Rector and directors of various departments, will share their experiences and emphasize the significance of digital innovation in HEIs.
Another significant topic to be addressed during the workshop is "Digital Skills for Digital Transformation (DT)," focusing on blockchain, IoT, and big data analysis. Esteemed academic professors and experts in digital technologies will delve into various subjects, encompassing the utilization of AR/VR technologies in education and research, the advantages and prospects of 3D printing technologies, and the profound impact of big data. The workshop will with an overview of the "Digital Transformation Canvas" and a discussion on eco-design skills for sustainable digital transformation.
Outcome:

The forthcoming workshop promises to be an enriching platform for knowledge exchange, vibrant discussions, and meaningful networking opportunities among participants. Designed to facilitate collaboration and exploration of emerging digital technologies, the event will serve as a catalyst for fostering innovative solutions and strategies across diverse sectors. Attendees can anticipate gaining invaluable insights into the effective utilization of digital skills to propel transformative change and drive sustainable growth in today's dynamic landscape.

4.1.1.1. Workshops and training by each partner university

The U2SID project is a continuation of the USIA project, which was supposed to contribute to the transformation in the sense that partner institutions become much more entrepreneurially oriented, that is, to establish contacts with experts and professionals of the civil society, policy, and business sectors. It is precisely on this principle that all the workshops developed by the University of Belgrade and Salento University representatives for their partners from partner countries in Albania and Montenegro are based.

The objectives and principles of the Education System Digitization Strategy for Albania and Montenegro are based on the standard European goals and principles for adapting the education and training system to the digital age. The **EU Digital Education Action Plan 2021– 2027** identifies two priority areas:

> 1) Encouraging the development of a thriving digital education ecosystem and
> 2) Developing digital skills and competencies for digital transformation [(Ministry of Education of Montenegro, 2021)](#).

Based on the recommendations of the State Audit Institution, another strategic goal related to the Improvement of the Education Information System has been identified in the Education System Digitalization Strategy.

The education and training process should start with the teaching staff employed at the universities. The training should be prepared together by teachers and experts (professionals) from the economy, with whom all four university centres in the partner countries have established cooperation. Their task was to develop tailor-made education for at least two days, i.e., at least 8 hours of classes, based on the research results. The workshops should be attended by representatives of the middle generation of teachers and associates, who would later pass on their knowledge and experience to older and younger teachers, associates, and students. Experience shows that the representatives of the middle generation of 30-50 years are the most adaptable and adaptable to all changes.

All four universities should organise lectures for at least two days of at least 8 hours each, referring to web design (basics). Professors could record lectures that would later be used for an e-platform, enabling other teachers to follow the lessons. Furthermore, teachers should contact lecturers from practice whom they would periodically invite to their lectures as guests from business to teach assigned lessons instead of them or, even better, together with them, which would ensure availability and cooperation and inform teachers about the latest trends, in the area where they studied.

During the second 8 hours of classes, the teachers had to adapt to the research results. Their own diverse needs and the needs of the students they educate. In this light, at the Mediterranean University, as students expressed interest in better understanding the basics of knowing the potential of hardware, its software and support, networking, and protection in the pool of 12 hours, professors should expand their knowledge on this topic.

Students Luigj Gurakuqi of Shkodra indicated that their knowledge is the least in modelling and using applications in Excel spreadsheets. Therefore, all professors who sign up to listen

to this education, especially those who teach subjects that rely on Excel modelling, should listen to this course. Finally, students from the University Fan S. Noli need to be provided with training that would offer the basics of the potential of using Collaboration Platforms. Teachers from the University of Montenegro should listen to additional classes on Generative AI, through which they would learn what it is, how it can be used in business, and its potential and limitations. Finally, teachers from the University Fan S. Noli from Korca must attend training to enable them to use Collaboration Platforms much more in the future.

After the training of professors, it will be possible to conduct much more intensive and dynamic training of students. Students also need to be provided with representatives from the civil and business sectors who will not only point out the importance of digitization and hold training sessions but also guide them on the dangers that digitisation brings. Without censorship, the availability of information can lead to misinformation and problems that cyber security seeks to eliminate, so it is essential to have accurate and precise information at all times. Workshops, as in the case of preparing workshops for teachers employed at higher education institutions, ensure that they are tailor-made and based on the needs assessment survey findings. At the same time, after coordinated education and workshops, it is important to consider the options to include development of personalized learning paths:

- **Pre-Assessment Tools:** Implement pre-assessment tools to understand the existing proficiency levels of students. Use the data to create personalised learning paths, allowing students to focus on areas where they need improvement.
- **Self-Paced Modules:** Develop self-paced learning modules that allow students to progress at their own speed. Incorporate interactive elements to engage students and reinforce practical skills.

This kind of approach will have consequently recognition and incentives, by:

- **Digital Literacy Certification:** Introduce a Digital Literacy Certification program to recognise students' achievements. Collaborate with industry partners to make the certification valuable in the job market.
- **Incentivize Participation:** Provide incentives, such as scholarships, recognition ceremonies, or access to advanced training programs, for students who actively participate and excel in the digital literacy accelerator.

At each university institution, one training should be held that will last at least two days with a duration of 4 working hours each for education). Website (basic level).

In addition, the students at the University of Montenegro would have another two days of 4 hours of classes on Generative AI through which they would learn what Generative AI is, how it can be used in business, as well as what are its potentials and what are its limitations.

At the same time, it would be possible for Mediterranean University students to understand the basics of the potential of hardware, its software and support, networking, and protection in a pool of at least 8 hours. Students Luigj Gurakuqi of Shkodra indicated that their knowledge could be better in modelling and usage of applications in Spreadsheets. In this sense, the second part of the training should be prepared for them. Finally, students from the University Fan S. Noli need to be provided with training that would offer the basics of the potential of using Collaboration Platforms.

All training at all four universities must be recorded and prepared in tutorial formats, which could later be used by other students studying at those university centres and those who attended. In addition, it would be good if the best university students, who have great potential to be involved in various student organisations or retained by professors as potential assistants at the university, are included in these free education programs. They would then transfer their knowledge and experience (as they probably do informally in other subjects) to the other candidates.

About 120 students of all levels of study at the faculties and junior lecturers at four partner universities in Albania and Montenegro will attend the training. Additionally, over 30 teachers, associates and students will attend the training in Serbia and Montenegro program countries. Finally, over 60 teachers and colleagues will attend specialised training at four university centres in cooperation with representatives of politics, business, and the civil sector. All these activities should contribute to accelerated digitisation at four university centres in Albania and Montenegro.

4.1.1.2. Online Learning Modules

During the training sessions that were held at the Faculty of Organizational Sciences, University of Belgrade, the importance of the application and use of open platforms that enable the expansion of knowledge to be interested parties was discussed. Through training and education, which will be received by professors and students at their higher education institutions, they will be able to research and use the free professional and professional knowledge offered by certain platforms.

Furthermore, it is important that through cooperation with stakeholders with whom higher education institutions have developed cooperation, they create the conditions for the development of online platforms and online programs that will enable digitization of programs at the faculties of partner universities. It would be good to start with master's programs since they are easier to digitize, because there are fewer subjects that need to be digitized. In the preparation of classes, it is desirable for university centres to include the hardware and software companies they cooperate with, which will help them develop platforms and subjects.

It would also be desirable for all professors, staff engaged in the realization of digitized modules and e-programs to improve their skills, following the following online learning modules for digital literacy skills. These are also platforms that can be suggested to students who choose to listen to digitized modules, i.e. e-programs.
  - https://www.coursera.org/
  - https://www.futurelearn.com/?main-nav-submenu=main-nav-courses
  - https://www.themuse.com/advice/13-cheap-or-free-online-classes-you-can-take-to-boost-your-digital-skills
  - https://www.classcentral.com/subject/digital-skills
  - Discover The Best eLearning Webinars - eLearning Industry
  - Digital Engineering & Technology | eLearning Solutions | Digital Content Solutions (hurix.com)
  - Skillshare

- ➢ LearnWorlds: create & sell training programs all in one place
- ➢ Edx, e-learning platform that offers a wide range of courses and programs from top universities and institutions, founded in 2012 by Harvard University and the Massachusetts Institute of Technology (MIT)
- ➢ The Education Training Foundation (etfoundation.co.uk)

FREE AI resources (:

- ➢ Introduction to Generative AI by Google Cloud URL: https://lnkd.in/dz7sypS9
- ➢ AI Foundations for Everyone by IBM URL: https://lnkd.in/dJh28x9n
- ➢ Programming for Everybody by University of Michigan URL: https://lnkd.in/d5ytQea8
- ➢ Prompt Engineering for ChatGPT URL: https://lnkd.in/dHTiW7hV
- ➢ Machine Learning for All by UOL URL: https://lnkd.in/d9uY6XWa

4.1.1.3. Mentoring Programs

After the realization of the U2SID project and the digitization of the modules or programs, it is important that those modules and programs are monitored and continuously modernized by the competent teacher or associate. Also, students' work should be monitored, by creating some kind of Anthology platform that will allow teachers to follow the progress of students and in terms of listening to prepared online courses and taking quizzes and submitted project tasks.

Additionally, students should have the possibility of continuous communication and consultation with teachers in case something is not clear to them, or they need help through one-on-one or group mentoring sessions. This way of working should contribute to easier mastering of the material, but also to the high quality of the teaching process. In addition, the monitoring process would ensure that teachers and associates, as well as students and stakeholders with whom the higher education institution cooperates, make better use of digital skills.

4.1.1.4. Public Engagement and Dissemination

Digital transformation must be done in an inclusive and safe manner and for this, the role of universities and their collaboration with civil society, business, policy, and media is of paramount relevance. Digital transformation cannot be safe without awareness raising and capacity building on privacy threats, data protection, and digital literacy, thus leading to overall digital potentials. The project proposal's aim is to foster inclusive digital transformation in the Western Balkans through increased collaboration between universities with other stakeholders such as businesses, policymakers, civil society, and media. The U2SID project supports the development and uptake of digital skills to make the digital transformation as comprehensive and inclusive as possible.

The specific objectives of the U2SID project are: To strengthen digital competencies of teachers, students, and professionals through the development of a Digital Literacies Acceleration Programme as a collaborative program among universities on one side and

businesses, civil society, local decision-makers, and media on the other; To improve innovative teaching methods through piloting a Digital Transformation Challenge for students as a project-based and solution-oriented learning based on mentoring, coaching and placement at businesses, civil society, local decision-makers, and media; To raise awareness on the importance of inclusive digitalization by including vulnerable target groups in the digitalization process.

U2SID project has, in its focus, dissemination reached results in an open fashion, through the website of the project, social media, media, events, meetings, and conferences for target groups, relying on the Dissemination strategy. Dissemination activities aim to make project results available and public to target groups, foster knowledge transfer and outreach, and strengthen project exploitation practices.

Public engagement and dissemination strategy are embodied in U2SID projects communication and dissemination strategy, which should serve as a guide for the organization of the project-based learning and providing solutions to businesses. It will ensure employability of solutions in the long run, building on project impact and results. Key audiences are grouped in three main categories:

     (i)   U2SID Project Implementation, that includes the project's steering committee, project coordinator and partners;

     (ii)   project support, that includes EU funding authorities and other EU supported projects working in relevant areas to U2SID;

     (iii)   and (iii) target audience and wider audiences, including students, faculty members of project partners, and other HEIs in Albania, Montenegro, and the region, businesses, policy institutions, and media.

The key messages aim to ensure coherent and coordinated communication and advocacy messages to reach all stakeholders and the broad public. Carefully crafted vital messages will be included in all press releases, communications, and other visibility materials.

Key messages are as follows:

- Inclusive digital transformation is paramount for the equitable and sustainable development of the society.
- Digital transformation and innovation at the University level contributes to its strengthening, increases quality in teaching and learning.
- Digital competences for teachers, students and professionals are imperative to succeed in the digital area.
- Closer collaboration between universities, businesses, civil society, policy makers and the media provide for qualitative interventions, and builds and cultivates value in each entity.

Other messages include:

- Fostering Inclusive Digital Transformation. Collaboration for a digital future in the Western Balkans.
- Innovative Teaching for Digital Progress. Empowering students through project-based learning.
- Advocating for Inclusive Digitalization. Bridging the digital divide and ensuring equal opportunities.

- Catalysing Collaboration for Digital Empowerment. Driving positive change through partnership.

4.2.   Resource Allocation

Lack of financial resources is often cited as one of the biggest challenges when it comes to implementing digital literacy. Thanks to the USIA and U2SID projects financed by the European Commission, university centres in partner countries received financial resources that enable them to strengthen their capacities and use the equipment they acquired thanks to the mentioned projects, that is, the laboratories they have at their disposal.

In addition, all partners have funds that allow them to participate in the horizontal transfer of knowledge in workshops organized for them by the Universities of Belgrade and Salento, but also to use subcontracted business professionals, mentors, or supporting stuff with whom they have established cooperation during the implementation of the USID project.

In addition, all partners could rely on resources from the economy (Quadruple Helix Collaboration), that is, companies with which the universities have developed cooperation. Both in personnel and professional potential, but also in research and finance, they can certainly expect help and support during the implementation of horizontal knowledge transfer. This concept relies on:
- **Cross-University Collaboration:** Facilitate collaboration between universities to share best practices and resources. Establish a network where universities can learn from each other's successes and challenges in enhancing digital literacy.
- **Joint Initiatives:** Create joint initiatives that pool resources and expertise. For example, collaborate on developing advanced modules in areas such as Generative AI and Cybersecurity Awareness.
- **Foster partnerships with industry professionals and organisations** to provide guest lectures, workshops, and real-world projects.
- **Integrate industry-relevant case studies and scenarios** into the program to bridge the gap between academia and the professional world.

It should also be mentioned a resource that universities in Albania and Montenegro need to use more, namely the alumni network of students who have graduated from the faculties and who have been employed. Indeed, with their knowledge and expertise, they will be more than open to helping the universities they graduated from.

4.3.   Monitoring and Evaluation

The higher education sector is an area with high potential and relevance for the overall development of Albanian and Montenegro society and economy. For the pro-European development of the country, young academics, researchers, project managers, innovators, and students are of crucial importance. Thus, it is the main motivation for this consortium to enhance an enabling higher education environment that supports university to society collaborations to co-produce knowledge and research with an impact that is not only academically insightful but also applicable to the development of Albania and Montenegro considering European integration.

The universities have established and expanded a Quadruple Helix structure, which will boost networking, matchmaking, brokerage, dissemination, competencies development, support, and valorisation for academic and non-academic actors. This kind of approach will bringing together different typologies of HEIs in Albania and Montenegro, and actors from civil society, public and private sectors. Additionally, this approach should support Gender-Inclusive Strategies that include:

- **Diverse Learning Resources:** Offer various learning resources that cater to different learning styles and preferences. Ensure that content is inclusive and appeals to both male and female students.
- **Mentorship Programs:** Establish mentorship programs were experienced individuals, irrespective of gender, to guide students in enhancing their digital literacy skills. Encourage mentorship relationships to foster a supportive learning environment.

The overall objective is to foster effective and sustainable university to society collaboration in Albania and Montenegro, with an impact on the development and European integration process of the country. These objectives have been designed to directly address the needs identified, namely:

- The need to foster the university to society links and cooperation in the sense of the collaboration between all actors in the Quadruple Helix: university, business, policy, civil society, and media.
- The need to establish adequate structures and processes that enables and foster sustainable and meaningful collaboration between university and business, policy, civil society, and media.
- The need to strengthen competences and capacities to co-produce knowledge and research with impact, i.e. to collaborate in the Quadruple Helix and thus contribute to development and EU integration.

Strengthening of the digital innovation, creativity, and entrepreneurship among higher education institutions through gaining valuable experience in problem-solving, teamwork and communication and developing a range of digital skills and competencies is necessary for the current job market. The challenge fosters collaboration and networking among partners and promote the exchange of ideas and the best practices in the field of digital transformation by implementing agile implementation and iteration approach throughout:

- **Agile Approach:** Adopt an agile implementation approach, allowing for quick adjustments based on emerging needs and feedback. Continuously iterate on the accelerator's structure and content to remain responsive to evolving digital trends.
- **Feedback Loops:** Establish regular feedback loops with students, faculty, and industry partners. Use these loops to identify emerging digital literacy needs and swiftly integrate them into the accelerator.

The strengthening of the institutional and human resources capacities in HEIs in Albania and Montenegro contributes to the modernization of HEIs governance and their integration in the European Higher Education Area. This kind of approach includes ccontinuous Feedback and Evaluation, which includes:

- **Regular Assessments:** Conduct regular assessments to measure the impact of the digital literacy accelerator. Use feedback from students to refine and improve the training modules continuously.
- **Industry Feedback:** Establish channels for feedback from industry professionals. Ensure the accelerator aligns with industry expectations and equips students with practical skills relevant to the evolving digital landscape.

All activities related to the monitoring and implementation of the digitization acceleration program will be carried out relying on the Quality Assurance, Evaluation and Monitoring Plan. That is, the team of the Quality Assurance Committee will serve as a facilitator and coordinator for partners, ensuring that quality assurance actions extend beyond control and compliance, but rather aim at identifying inefficiencies and shortcomings at early stages. In this role, the Committee will identify project and quality-related risks and will work out the necessary corrective and preventive measures. Overall, the Committee's main task is to support partners and to help them achieve higher quality of the project outputs.

Project sustainability can be considered from several perspectives, including the financial sustainability, organizational sustainability, operational sustainability, and project results. So, the project sustainability is ensured through the **human resources** that will take participation in trainings of the partner countries, and who are involved in the implementation of the Digital Literacies Accelerator Programme implementation. In particular, the members trained within the project will ensure that the received skills will be used after the project is completed through Outreach and Awareness Campaigns that are including:
- **Promotion of the Benefits:** Launch awareness campaigns to highlight the benefits of enhanced digital literacy. Showcase success stories and emphasize how improved skills contribute to academic excellence and future career prospects.
- **Engage of the Alumni Community:** Leverage the support of alumni who have excelled in the digital landscape. Please encourage them to share their experiences and serve as role models for current students.

The high quality of the project implementation, of the project results and activities is a prerequisite for the sustainability of the project after its end.

5. CONCLUSION

Digitisation of business is an obligation; it is no longer an option. Modern business relies on elements of digitalisation as an accelerator that speeds up business and makes it much more transparent, reliable, and rational from the aspect of using available resources. At the same time, business that relies on digitisation also has their weaknesses, as it is exposed to the need for continuous improvement of employees' knowledge but protection from various types of malfeasance that accompany cyberspace. That is why the process of speeding up digitisation rests on the rational use of resources and the knowledge and competencies of employees.

The main goal of U2SID was to design a program that will accelerate the process of digital literacy at partner universities in Albania and Montenegro. The Accelerator Program is a program that envisages continuous monitoring and modernization of knowledge in the field of digital literacy at each partner university. As such, it should enter the strategies of higher education institutions as one of the important priorities, which will enable the modernization of programs of all levels of studies, but also the networking of higher education institutions, both with the economy and with representatives of the political, business, and civil sector.

In addition, to realize the full potential of the program that accelerates digital literacy at partner institutions in Albania and Montenegro, it is necessary to continue the continuous cooperation of the university with the stakeholders with whom the university cooperated during the engagement in the USIA and U2SID project. It is necessary to continue with the digitization of those university modules and programs that will not be included in the implementation of this project. And it is necessary to use the existing trainings on the free or low-fee platform to strengthen the digital literacy of employees and students at partner universities.

During the creation of a program that would speed up the digitization process at 4 partner universities, a lack of national digital platforms was noticed that would enable the use of materials that were jointly developed in national languages and that would additionally enable the acceleration of the digitisation process, to all those who are not successful in using the tutorials prepared in English language.

The Digital Literacies Accelerator Program should contribute to the accelerated digitization process of four higher education institutions of partner countries in Albania and Montenegro. It should also contribute to the better integration of higher education institutions with the economy and the training of personnel in a manner and with competencies that are a response to the expectations and needs of the economy.

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