==Working paper==

Erasmus + **KA2**

ERASMUS-EDU-2022-CBHE-STRAND-1
Capacity Building in the field of Higher Education: Strand 1 - Fostering access to cooperation in higher education

PROJECT: E-le.G.A.N.T.S.
E-Learning Gamified and Networked Training for Startupper

WP2. A.4:

Report on the Balkan innovation scenario

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ABOUT WP2:

"Preparation"
Analysis of emerging technologies applied to the cultural and creative industries

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The crucial aim of WP2 is to deepen the knowledge of the needs of the following target groups: HE students, HE teachers, Small and Medium sized Enterprises to define the contents of the topics to be included in the introductory course and, especially, in the advanced modules.

This WP will pay attention, beyond the educational framework, to the structure of the creative value chain, starting from education to employability. Matching partner countries' needs and European standards related to knowledge and market skills, will occur in two phases: identify EU and Western Balkan experiences and best practices to design a possible exploitation model.

The WP will also widen the project's reach by linking current partners with other relevant organizations working in the partner country. This will include relevant public and private stakeholders in the education and business sectors that can share best practices in the fields of education, business innovation, enterprise and entrepreneurship. This WP is necessary to identify the framework that will serve as a basis and frame for the rest of the project WPs. It analyses state-of-the-art and recent trends in Knowledge Technology Transfer (KTT) referring to the exploitation of research in Western Balkan countries. The WP activities will consist of Contextual review: Business and Academic, Surveys & interviews, and Mapping/networking of stakeholders.

Both national experiences and attainments of international academic networks will be considered. A "common denominator" - essential generic "business research" will be identified and classified - an interactive database of such a descriptor will be created to facilitate comparison of various research lines, identify market opportunity and state of development in base of Technology REadness Level (TRL). Stakeholders' opinions (employers, professional organizations, etc.) will be sought and considered.

The added value of these activities will also be raising awareness of the importance of research in higher education among the academic community, educational decision-makers and external stakeholders, as well as strengthening the ties among project partners (better mutual understanding of curricular structures).

This deliverable will be developed as a printable textual document. The training needs analysis will be set by the different project partners, starting from the active degree courses, with a particular focus on the world of youth entrepreneurship, new technologies and innovative practices recently spread in the corporate world, and on the analysis profiling of the participants (students and former students).

BALKAN RESEARCH AREA PARTNER DATA

"Partner P4" Address: Sheshi Nene Tereza – 1013, TIRANA - **Albania**
The Universiteti i Arteve – UART – is a public institution of higher education with artistic character in Albania, which offers Bachelor Degree for the first cycle of studies, "Master of Science"/ "Master of Art", "Professional Master Degree", "Integrated Master Degree", in Music, Fine Arts, and Scenic Art. Established in 1966, the Higher Institute of Arts put together three artistic institutions: the State Conservatory of Tirana, School of Fine Arts, and High School of Actors "Alexander Moses". In 1990, according to the changes in the education system, the Higher Institute of Arts was established at a University level and was named "Academy of Arts". According to the DCM nr. 234, dated 23.03.2011, University of Arts was established on the foundations of the Academy of Arts, maintaining unchanged the structure of its Faculties.

University of Arts has three faculties:

- Faculty of Music
- Faculty of Fine Arts
- Faculty of Performing Arts

Its main purpose is to offer higher professional education and creative activities in the field of art and culture, to deepen the professional qualification of scientific specialist in the field of art and culture, as well as contribute to improving democracy and civilization standards. The entire path for over 40 years of the University of Arts has been a systematic growth path for the specialties, also the implementation of the Bologna Card in the recent year had it's own importance.

Admissions at the University of Arts are realised only by means of competition, the criteria of which have their specifics about the required specialty. Currently in its auditoriums study 947 students, who are led by a teaching staff of 386 assistants, pedagogues, associate professors and professors, of which 119 are part of the internal academic staff of UART. The internal environments of the University of Arts as studios, Atelier, auditoriums, Great Hall of Concerts, "Çesk Zadeja" Hall, Experimental Theatre "Black Box", Gallery of the Faculty of Fine Arts and

the Library, create an interactive relationship, where students have the opportunity to study in a specialized environment and get engaged in creative works too. The Artists educated in this institution constitute a generation force in the Albanian cultural life.

The Collaboration and the ongoing contacts with Schools and Academies of Art in Europe and beyond, being a membership of the International Organisation of Art Institutions and the active participation in activities of international workshops have contributed to the introduction and use of new teaching methods.

Strengthening institutional links with the European Academy of Art and universities is a priority of the current stage of the University of Arts.

"Partner P5" Address: Rektorati, Sheshi No. 2 Prilli - 4001, SHKODER - Albania

University of Shkodra "Luigj Gurakuqi" – UNISHK – The High Pedagogical Institute of Shkodra, by the Decision of the Ministers' Council no. 167, dated 28.05.1991, changed its status to "University". The number of students in the existing study programs increased significantly and many new study programs were opened at the University of Shkodra "Luigj Gurakuqi" at that time. The University has a full structure organized in 6 faculties and 21 departments.

After 2000, the University of Shkodra was engaged in policy making in order to reach the objectives set out in the Bologna Declaration, the inclusion in the European Higher Education Area and the promotion of the European Higher Education System. The qualification of the academic staff of Shkodra University has always been at the center of the scientific work of the Faculties and Departments. During these years, especially after 2012, there has been an increase in the qualification and training of the academic staff, which is reflected in the increased number of the academic titles of the staff. An attention was paid during this time to the integration of young pedagogues and students into the scientific research. Our teachers have successfully participated to many international and national conferences and symposiums. Throughout these years, the University of Shkodra has established cooperative relations with many universities and Higher Education centers. It has permanent cooperative relations with different Universities from the Balkan, Austria, Italy and America.

Significant developments have been made in the democratization of the university life, especially for the governing bodies and structures of the University. An important factor is the decision of the leaders at all University level to apply the competition on the academic staff, teaching and administrative staff hiring. Another important step in the democratization of university life is the selection of Students' Councils of the faculties and institution itself.

The growth of the students' role and placing them at the center of university activity is another important

democratization achievement. Students have the right to participate in the University's decision-making processes, express their assessments on the quality of teaching and staff as well as organize themselves in student councils.

"Partner P6" Address: RR UCK-SE PN - 30000, PEJE **Kosovo**
Universiteti "Haxhi Zeka" – UGHZ – continues its positive academic and artistic tradition, creates environment and transformative academic experiences in order to achieve the full potential of students, implements advanced scientific standards and helps the economic development of Peja region and the country in general.

A modern and respected university, offering quality teaching, research and artistic creativity, acts as a reliable partner for businesses, the community and local and international higher education institutions, as a promoter of regional development and a supporter of sustainable development of Kosovar society in general. In order to achieve its vision and fulfill its mission, University "Haxhi Zeka" has incorporated and functions based on academic integrity, transparency, accountability, partnership, diversity and multiethnicity. The University "Haxhi Zeka" has five faculties:

- The Faculty of Business
- Law Faculty
- Faculty of Management in tourism, hospitality and environmental
- Faculty of Agribusiness
- Faculty of Arts

"Partner P7" Address: Lagja Kalabria – 10000, PRISHTINA - **Kosovo**
Universiteti per Biznes dhe Teknologji – UBT – was established in Prishtina, Kosovo in 2001 as IEME – Institute for Enterprise Management and Engineering and in October 2004 has become the name UBT – University for Business and Technology. UBT holds the license of the Ministry of Education, Science and Technology (MEST) No.808/02-1 dated 18.10.2004 in

Kosovo and it is Accredited by Kosovo Accreditation Agency – the National Body for Accreditation. UBT is based in Prishtina, Lagjja Kalabria PN. It operates in six different campuses: UBT Prishtina, UBT Innovation Campus (Science and Technology Park) – Lipjan, UBT Prizren, UBT Ferizaj, UBT Gjilan and UBT Peja. It is also activie with its centers in Vienna, Budapest and Tirana.

"Partner P8" Address: Josipa Broza BB - 81000, PODGORICA - Montenegro

University "Mediterranean" – UNIMED – The Mediterranean University is the first private university in Montenegro which provides academic degrees in the field of Tourism, Hotel Management, Information Technologies, Economics and Business studies, Visual Arts, Law, and Foreign Languages. Since its foundation on 30th of May, 2006, the Mediterranean University functions as an independent, fully recognized legal entity in accordance with the Bologna Declaration, of which it is a signatory. The University is fully committed to enhancing the quality of studies in a systematic and organized manner in order to be modern, flexible, competitive, and efficient. To that end, and in compliance with the Bologna Declaration, there is a continuous effort towards increasing the quality level of all activities at the University – teaching, study programs, grading system based on the European Credit Transfer System – ECTS – textbooks and literature, equipment, information system, scientific research, publishing, selection of teaching and administration staff, library, lifelong learning, international cooperation and other standards. The Mediterranean University offers Bachelor's, Master's, Doctoral degrees and a continuing education program, with 120 faculty members, an administrative staff of 20 and a total enrollment of 1100 students. Finally, the bulk of the instruction is in Montenegrin, although courses in English are taught at all faculties at both Bachelor's and Master's levels. The UNIM was externally evaluated by EUA in 2013, and there was a follow-up evaluation in 2018.

"Partner P9" Address: Cetinjska No. 2 - 81000, PODGORICA - Montenegro

University of Montenegro – UOM - The University of Montenegro was founded in 1974 representing the oldest higher education institution in Montenegro. The University has over 20.000 students. It is the largest and the only comprehensive higher education institution in

the state comprised of nineteen faculties and three institutes of science. Since 2004, lessons and exams are organized in accordance with Bologna Declaration principles. The University is organized according to modern European universities. Its seat is in Podgorica, and units and study programs are also located in Niksic, Cetinje, Kotor, Herceg Novi, Bar, Budva, Bijelo Polje and Berane.

The University of Montenegro is a member of European Universities Association (EUA). Day of the University is celebrated on April 29th since on that day in 1974, the Assembly has been formed that will govern the University in Titograd which is comprised of Faculty of Economics, Technical and Law Faculty, Pedagogy Academy, Higher Maritime School, Institute of History, Agricultural and Institute for Biological and Medical Research. A year later, the University changed its name into the University "Veljko Vlahović", and since 1992 its name has been the University of Montenegro. From Pedagogy Academy, later Teaching Faculty, has been formed the Faculty of Philosophy and 1978 form department of Technical Faculty, Electrical Engineering, Mechanical Engineering, Metallurgy have been formed. In forthcoming years, the University had been through different periods of reorganization. New university units were formed, so in 1999, 25 years since its foundation, the University was comprised of 13 faculties, 4 independent scientific institutes and one a three- year-school.

EU AGENDA ON INNOVATION, RESEARCH, EDUCATION, CULTURE, YOUTH AND SPORTS

This agenda outlines a comprehensive, long-term strategy for cooperation with the Western Balkans. Through increased investment, the agenda and its proposed actions will contribute to developing the region's economic and societal development. The EU supports stronger cooperation between the Western Balkans' stakeholders and EU countries to successfully implement the deliverables of the agenda.
The agenda and its action plan is built on 3 main pillars: Political, Thematic, and Regional.
EU cooperation with Western Balkans offers unparalleled opportunities. The Agenda for the Western Balkans will open these opportunities to students, researchers, innovators and cultural operators so that they access new markets, become more competitive and build sustainable prosperity. It's a positive and forward-looking vision for all[1].

THE EU-WESTERN BALKANS LEADING PROJECTS IN R&I

EUSCREEN: the project works on comparing vision and hearing screening programmes for children in EU. A cost-optimisation model is used by the project to address the existing inequity in the provision of childhood vision and hearing screening programmes.

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[1] EU cooperation with Western Balkans offers unparalleled opportunities. The Agenda for the Western Balkans will open these opportunities to students, researchers, innovators and cultural operators so that they access new markets, become more competitive and build sustainable prosperity. It's a positive and forward-looking vision for all.

ANTARES: the projects aims at developing a European Centre of Excellence for advanced technologies in sustainable agriculture and food security.

EU4TECH: the project offers support to 40+ promising technology based projects from the region. It offers support to help validate and protect technology, develop a robust business model and move local projects closer to the market.

SEEIIST: the project aims towards a green research facility for cancer therapy by promoting scientific and technical cooperation in the region.

iMARECULTURE: the project uses immersive technologies such as augmented and virtual reality to make Europe's underwater cultural heritage more accessible.

Smart Specialisation Strategies: aim to enhance the innovation potential in all the Western Balkan economies,
which are part of the S3 Platform and in the process of developing their national Smart Specialisation Strategies.

CONTEXTUAL ANALYSIS: MONTENEGRO

Introduction

Montenegrin HEI background and structural design

Montenegro as a small country located in Southeast Europe with 625 000 of inhabitants has several higher education institutions (HEIs) that provide a range of academic programs and research opportunities. Considering the main public founded University, Montenegro has a unified university system, and all higher education institutions in the country are part of the University of Montenegro. Established in 1974, the University of Montenegro is the largest and oldest public university in the country. It comprises 19 faculties, three institutes, and one academy. The university offers a wide range of undergraduate, graduate, and doctoral programs in various fields.

In addition to this public University there are also three private universities in Montenegro, including the University "Mediterranean" Podgorica (co-partner in this research), the University of Donja Gorica and the University Adriatic – Bar, accompanying with some standalone Faculties as solely organisational units. The private institutions offer programs in fields such as economics, social sciences, law, engineering, arts and humanities, as well as many others academic study programmes and disciplinary fields od research. Students of all universities pursue bachelor's, master's, and doctoral degrees in all of these fields.

The HEIs in Montenegro operate under the same rule of law, namely the Law of Hiher education which has a status of Lex specialist among the other constitutional laws. The Agency for Control and Quality Assurance of Higher Education is responsible for ensuring the

quality of higher education in Montenegro. It conducts evaluations and accreditations of study programs and institutions to maintain and improve educational standards particularly because Montenegro has adopted and implemented Bolognia process principles from 2007.

Montenegrin HEIs also focus on research and innovation. They undertake various research projects and collaborate with domestic and international partners to contribute to scientific advancements and knowledge creation.

Montenegrin public education policies, trends and needs

Montenegro's Smart Specialization Program (SSP) is a strategic framework that aims to promote economic development and innovation in the country. This project, implemented in partnership with the United Nations Development Programme (UNDP) and the Government of Montenegro, aimed to develop a smart specialization strategy for the country. The SSP in Montenegro was developed as part of the country's efforts to align its economic development with the European Union's Smart Specialization concept. It was introduced to foster sustainable economic growth by focusing on areas of competitive advantage and innovation.

Montenegro's SSP identifies specific sectors and areas of specialization where the country has the potential to develop a competitive advantage and stimulate economic growth. These areas are selected based on the country's strengths, existing capabilities, and potential for innovation. The identification and prioritization of areas of specialization in Montenegro involve a comprehensive analysis of the country's economic structure, innovation potential, and market opportunities. This process includes consultations with stakeholders from academia, industry, government, and civil society. The SSP provides a framework for aligning public funding and support mechanisms with the identified areas of specialization. It aims to allocate resources strategically to support research and development, innovation activities, entrepreneurship, and infrastructure development in the selected sectors. The SSP emphasizes collaboration and partnerships among different stakeholders, including academia, research institutions, businesses, and government agencies. It encourages the formation of networks and clusters to facilitate knowledge transfer, technology adoption, and joint projects.

The SSP aims to strengthen Montenegro's innovation ecosystem by fostering entrepreneurship, supporting startups and SMEs, and promoting knowledge-based industries. It seeks to create an environment that encourages research and innovation, enhances the commercialization of intellectual property, and attracts investment in innovative sectors. The implementation of Montenegro's SSP involves a monitoring and evaluation system to assess the progress, impact, and effectiveness of the program. This helps ensure that the objectives are being met and adjustments can be made if needed.

Montenegro's innovation public policies, strategies and programes

Montenegro has been actively developing and implementing innovation public policies to promote economic growth, technological advancement, and innovation-driven development. So here, we will mention some of the key aspects of Montenegro's innovation public policies:

Montenegro has developed a National Innovation Strategy that sets the long-term vision and goals for fostering innovation and research and development (R&D) activities in the country. The strategy provides a framework for enhancing the innovation ecosystem, promoting collaboration, and supporting the commercialization of research.

"National Program for the Development of Research Activities in Montenegro": This program, implemented by the Ministry of Science of Montenegro, aimed to promote and support research activities in the country. It included measures such as funding for research projects, scholarships for researchers, and the establishment of research centres and laboratories.

Montenegro has established mechanisms to support research and development activities. This includes funding programs, grants, and incentives for R&D projects undertaken by businesses, academia, and research institutions. The government encourages public-private partnerships and collaboration between academia and industry to foster innovation. Montenegro actively participated in the European Union's Horizon 2020 program, which is a major research and innovation funding initiative. Montenegrin researchers and organizations could apply for funding and collaborate with European partners on various research projects addressing societal challenges and promoting scientific excellence.

Montenegro recognizes the importance of protecting intellectual property rights (IPR) as a means to encourage innovation and technology transfer. The country has implemented legal frameworks and institutions responsible for the registration, protection, and enforcement of intellectual property rights. Montenegro has also established a special Agency for the protection of copyrights, although in the sector it is possible to identify complementary institutions that deal specifically with the protection of the rights of music authors (PAM) and the rights of producers of audio-visual works (A Prava).

Montenegro encourages technology transfer and knowledge exchange between academia, research institutions, and the business sector. Initiatives have been launched to facilitate the transfer of research findings and technologies to commercial applications and promote innovation-driven entrepreneurship.

Montenegro has been actively supporting the growth of start-ups and fostering entrepreneurship. Various initiatives, such as incubators, accelerators, and mentorship programs, have been established over the years to provide support, funding, and guidance to startup ventures. The government also promotes access to financing options for start-ups and encourages the establishment of innovative companies. Montenegro actively participates in international cooperation initiatives in the field of innovation. The country collaborates with international organizations, such as the European Union and the United Nations, as well as

neighbouring countries, to exchange knowledge, best practices, and expertise in innovation policy development and implementation.

For abovementioned purposes Montenegrin Government has established "Montenegrin Innovation Fund (MIF)" which has been involved in various knowledge technology transfer projects. The fund provides financial support, grants, and incentives to businesses and research institutions for collaborative projects aimed at transferring technology and fostering innovation. MIF is a specialized institution and it is organised to gather internal and external experts from the field of research and development, technology transfer, EU funds, financial management and evaluation. MIF is also dealing with the monitoring of projects necessary for the implementation of government programs which contribute to increasing the technological capacities of Montenegrin companies. Their role is also significant in encouraging technology transfer and commercialization of innovations. Numerous programs of the Fund will contribute to more efficient cooperation of the academic community and of the private sector, as well as encouraging the private sector to a greater degree of innovation. The Innovation Fund is the umbrella state institution in the implementation of innovation measures and programs policies intended for micro, small and medium entrepreneurship, as well as technology transfer with scientific research institutions.

The Government of Montenegro, at the proposal of the Ministry of Public Administration, Digital Society and Media, adopted the Digital Transformation Strategy of Montenegro 2022-2026 with an Action Plan for 2022-2023. year, which represents a development framework that defines the prerequisites and initiatives necessary for rapid adaptation to an increasingly complex digital environment, and the agile and proactive development of digital Montenegro. Montenegro recognizes the importance of digital transformation for innovation and economic growth. The government has been investing in digital infrastructure, promoting digital skills development, and implementing e-government initiatives to facilitate innovation and technological adoption in various sectors.

Inovation infrastructure in Montenegro

Science and Technology Park of Montenegro is founded with the aim of giving the support and strengthening the potentials of economic growth and development of Montenegro, through establishment and growth of the companies/teams in high tech activities. As well, a special activity aspect of Science and Technology Park Montenegro is a support in developing and commercialization of innovative ideas and projects. Science and Technology Park Montenegro was established in partnership of Government of Montenegro, Ministry of Science and University of Montenegro with a common vision to become a key place where innovative and creative individuals and projects will merge, along with the intensive cooperation of key stakeholders of entrepreneurial process (science and economy). It aims to provide a favorable environment for high-tech industries, startups, and innovation-driven businesses. The park will offer facilities, business support services, and networking opportunities.

Innovation and Entrepreneurship Center (IEC) "Tehnopolis" in Nikšič is the most important center for the development of startup companies and entrepreneurship in Montenegro. This business incubator offers a range of services to support startups and entrepreneurs. It provides office spaces, coaching, training, access to funding, and networking opportunities to help startups grow and develop innovative business solutions. Innovation and Entrepreneurship Center of Montenegro "Tehnopolis" is an organization focused on promoting innovation and entrepreneurship in Montenegro. It supports startups and SMEs through various programs, including incubation, mentoring, training, and access to funding opportunities. Tehnopolis collaborates with research institutions, business associations, and international partners to foster a culture of innovation.

Most recently within "Tehnoplos"activities there has been development of the SME platform called UHURA SOLUTIONS DOO Computer programming "AI platform that reads and understands contracts just as humans do". The Uhura platform is a software solution based on artificial intelligence, which reads and understands contracts in a human-like manner, with the aim of speeding up the decision-making process in financial institutions. The solution offers automation and reduction of document processing time from hours to minutes. Our platform can improve quality and speed up work where there are manual data processing processes.

Investment and Development Fund of Montenegro (IRF): IRF is a state-owned financial institution that supports economic development and investment in Montenegro. It offers financial products and services, such as loans, guarantees, and grants, to stimulate business growth, innovation, and job creation. This fund operate and support to the sector of small and medium sized enterprises through credit and guarantee support.

Gemified state of the art in Montenegro

The introduction of gamification in the learning process in Montenegro is still an ad hoc activity mainly linked to the particular projects or programs. Even though the Gamification makes learning less intimidating and more fun, and is proven to reduce any sense of intimidation that comes with picking up a new, unfamiliar skill, the WB area, including Montenegro, is still quite reserved when it comes to introduction of these skills. Widely accepted research shows that gamified learning increases motivation to learn (aside from making learning more approachable, gamification can frame a course as an opportunity to have fun at work. It improves e-learning content's user experience and it can enhance by adding opportunities for learners to interact with the course rather than have them passively take the content in.

However, the importance of gamification in e-learning continues to grow. In an increasingly digital age, it is accepted that knowing how to leverage game-like elements can strengthen the ability to create quality e-learning content while allowing one to keep up with changing learner needs.

When it comes to Montenegro, the newest program in this field that has been introduced to Montenegrin society is The PlayUK workshop, the British Council's educational program on new digital media, organized in cooperation Faculty of Visual Arts, University of Mediteran from Podgorica. This edition of PlayUK included a number of exciting program segments showcasing new digital products from the UK. The workshop was designed for those involved in the creative industries, from filmmaking and mobile app development to programming and IT to have the opportunity to expand their knowledge by working alongside UK experts. PlayUK is an artistic platform of the Western Balkans that aims to support and develop the audio-visual sector in the region. The workshop brought together all those students whose profession includes creative fields, from film art, through the development of mobile applications to the design of visual communications. Twenty students have immersed themselves in the topic and, along with presenters will acquire new and up-to-date knowledge needed to compete in the creative industries, or skills that will bring them into the flow of new digital media.

The other significant gemified learing platform in Montenegro was developed throught "Micro:bit" project which has being used in schools throughout the Western Balkans region as part of the 21st Century Schools programme, run by The British Council with the support of Micro:bit Educational Foundation. The initiative focuses on the implementation of core skills, such as digital literacy, collaboration and communication, creativity and imagination and student leadership. Teachers in public schools in Montenegro will receive training in these core skills to broaden their teaching practice, while learning how to implement the micro:bit and inspire coding, problem solving and critical thinking skills in students aged 10 – 15.

CONTEXTUAL ANALYSIS: ALBANIA

Introduction
The work carried out by the University of the Arts on the analysis of needs in third countries not associated with the Erasmus program, such as Albania, was divided, as a matter of methodology, into two parts: an initial analysis of existing documentation and data, and another, more in-depth analysis based on the processing of data collected from questionnaires sent to various stakeholders, institutions and professional groups, and students.

The desk analysis is based on the European Commission's 2021 Reports, which accurately record the socio-economic situation of the various countries, the stage of preparation of the project proposal, and the National Strategy for Scientific Research, Technology and Innovation.
It was considered a very important action to better understand the process and actors involved in education, innovation and training methodologies in start-up-centered higher education.
The following phase, sending the approved questionaries and collect and process the data for more in-depth analysis is going to create the basis for the Report on the Need Analysis of the project E-Le. G.A.N.T.S.

According to the aforementioned Albania 2021 Report, the main challenges were described due to the impact of the November 2019 earthquake in central Albania, which damaged 24 percent of educational facilities, as well as emergency adjustments adopted for the delivery of online education during the COVID-19 pandemic.

Frequent school disruptions have increased pressure on the provision of online education at all levels, underscoring the need for additional resources and investment to enable digitization. Indeed, from the approved application form it is emphasized that there are several top universities in the communities, but they need support, on the one hand, to improve their internal organizational capacity and, on the other hand, to network and coordinate in order to gain international visibility and maximize the impact of their work. They need a stronger role to be active players and promote innovation processes because they have a key role to play in social stability, international cooperation, and peacebuilding efforts, as well as in advocating for these key issues to national and international stakeholders.

The main objective of the E.Le.G.A.N.T.S. is to strengthen the capacities of local higher education institutions to fully assume this important role. As for Europe, this will create a deep link with the most promising economies in the Western Balkans area.

EU Agenda for Western Balkans.

The EU Commissioner for Innovation, Research, Culture, Education and Youth, Mariya Gabriel stated that the cooperation with Western Balkans offers unparalleled opportunities. The Agenda for the Western Balkans will open these opportunities to students, researchers, innovators and cultural operators so that they access new markets, become more competitive and build sustainable prosperity. It's a positive and forward-looking vision for all.

The European Union is working with the Western Balkans on a forward-looking Agenda on Innovation, Research, Education, Culture, Youth and Sport. The agenda will outline a comprehensive, long-term strategy for cooperation with the region. The Agenda and its Action Plan will build on three main pillars: Political, Thematic, and Regional.

POLITICAL AGENDA Towards a sustainable future by stimulating an economy that supports the recovery and helps to create jobs • Reflecting the strategic importance of the region and supporting its integration process through an increased EU engagement; • Nurturing knowledge-based societies and evidence-informed policy making; • Supporting the association to all the Union programmes covering Research, Innovation, Education, Culture, Youth and Sport; • Supporting the implementation of systemic changes and reforms.

THEMATIC AGENDA Towards closer alignment with the EU strategic priorities • Transforming the national research and innovation eco-systems; • Counteracting climate change and supporting the digital transformation; • Promoting the implementation of the EU Green Deal in the Western Balkans.

<u>REGIONAL AGENDA</u> Towards a closer regional economic integration through planned investments in human capital development and digital transformation • Enhancing the quality of education and training; • Boosting human capital development; • Reducing the gender and digital divide; • Improving mobility and connectivity; • Fostering cultural and regional cooperation.

National Draft Agenda

1. Strategic document related to the Albanian National Strategy for Scientific Research, Technology and Innovation

The National Strategy for Scientific Research, Technology and Innovation 2023-2030 was drafted at the end of the 2017-2022 cycle. This strategy has been drafted as a mid-term policy document spanning 8 years, thus being in line with the National Strategy for Development and Integration 2022-2030.

Also, the strategy is designed in accordance with and contributes to the realization of the 2030 Agenda for Sustainable Development, approved in 2015 by the Albanian government. In this strategic document, the vision of the strategy, the policy goals, the specific objectives for each goal and the necessary measures to achieve each specific objective are provided in a comprehensive form.

At the same time, the strategic document also foresees the main performance indicators, in order to measure the results for the achievement of specific objectives and the fulfillment of policy goals.
To ensure the achievement of specific objectives, ANS for SRTI has been accompanied by the Strategy Action Plan covering the same period 2023-2030, as well as providing the necessary budget for the realization of the measures foreseen for each objective and political goal.

The action plan has been drawn up with the aim of breaking down in detail the detailed measures that each institution will undertake to fulfill each specific objective with the final goal of fulfilling the goals of the policy and achieving the vision of the Albanian government in the framework of scientific research, technology and innovation.

Considering that scientific research and innovation has a wide sphere of action and intersects with several fields, this document is conceived as an umbrella strategy, which will contain the most important objectives for the fulfillment of political goals in the field of scientific research, technology and innovation under the direction of the Ministry responsible for education and scientific research.

2. Albania's performance in national and international scientific research programs (especially in the framework program H2020)

The New Strategy for the Western Balkans presented by the European Commission in 2018 recognizes "education, culture, youth and sports together with scientific research and innovation" as the main indicators to promote the region's economic development, competitiveness and social cohesion.

Albania's participation in Horizon 2020 has improved and achieved satisfactory results. Regarding this program, during the period 2014-2022, a total number of 605 applications were submitted, of which 53 applications were declared winners for participation in Horizon 2020 actions, benefiting 5.82 million euros of direct EU contribution. Also, during the period 2017 - 2022, applications and projects won increased by more than 10% per year. The success rate of proposals with Albanian participation is 8.7%, (from 7.8% since last year) compared to the 12.1% success rate of countries in Horizon 2020. Albania's results in the Horizon 2020 Program are almost three times higher than the same period of the previous program (FP7). However, the participation of the private sector in the program continues to remain particularly low.

Through bilateral agreements for scientific and technological cooperation, National Agency for Scientific Research and Innovation has created spaces to facilitate the movement of foreign researchers. NASRI is currently monitoring the implementation of the Agreements with the Republics of Italy, Austria, Kosovo.

Albania is also revising the existing agreement with Turkey as well as drafting a new agreement with the Republic of Malta. There are currently international bilateral cooperation agreements, divided as follows:

- 32 (thirty-two) agreements with EU countries;
- 5 (five) agreements with the countries of the Western Balkans;
- 6 (six) agreements with countries in America, Asia, Africa.

Horizon 2020 Within the Horizon 2020 Program NSSRI has organized 250 informative and training days in public and non-public HEIs. Special focus was given to thematic calls in Horizon, NCP Networks, CORDIS and finding partners.

One of the tasks of the Multilateral Relations Sector during 2021 has been the promotion and involvement of the National Agency for Scientific Research and Innovation - NASRI as a partner organization in various projects within Horizon Europe, IPA, IPA Cross Border and INTEREG.

Important is the participation during 2021-2022 in 5 winning projects within Horizon Europe, IPA, IPA Cross-Border and INTEREG. Also from April 2018, Albania is one of the members of COST since, after fulfilling the condition of participation in at least 5% of COST actions.
In 2021, Albania has become a full member of the EUREKA program. At the same time, it is actively engaged in the European Cooperation in Science and Technology (COST) with the

participation of about 200 Albanian researchers. Participation in the European Innovation Scoreboard (European Innovation Scoreboard) is important.

Scientific research, innovation and development are also priorities of Albania within the EU Program for Economic Reform (ERP).

Moreover, Albania has participated with the support of the IPA in the international cooperation programs of the EU: Erasmus+, Creative Europe (Culture and Media), Employment and Social Innovation, Program for the Competitiveness of Enterprises and Small and Medium Enterprises Middle (COSME), Justice, Europe for Citizens and the EU Agency for Fundamental Rights.

In 2022, Albania signed the Horizon Europe Association Agreement, which underlines the importance that cooperation in the field of research and innovation will play in the future and the transformative power of scientific research and innovation policies in accelerating reforms in the field of digitization, green economy and technological developments.

Also, Albania has participated in the cycles of international evaluation of students carried out by the Organization for Economic Development and Cooperation (OECD) since 2000.

Likewise, Albania has been part of the Western Balkan states that completed in 2020 the revision of educational policies by the OECD in collaboration with UNICEF.

In terms of innovation, creating a favorable ecosystem for start-ups has become a priority for Albania. In 2022, the law on innovation dedicated to start-ups was approved, which provides for an allocation of the state budget in support of the innovation ecosystem. Numerous private sector-backed initiatives have been set up, providing acceleration programs for high-potential start-ups, technical assistance, mentoring and investor relations training.

As part of the Western Balkans Agenda on innovation, research, education, culture, youth and sports, the association and especially the integration of Albania in the new European Research and Innovation Area (ERA) and the European Education Area (EEA) will serve as incentive for national reforms and policy transition towards a more efficient Research and Innovation system by helping the country to increase its capacities and potential in infrastructure as well as its continuous alignment with the acquis of the European Union.

3) Institutional Framework

Currently, the institutions responsible for the design and implementation of policies related to scientific research, technology and innovation are:

- Ministry of Education and Sports
- Academy of Sciences
- Civil Society Support Agency

- Ministries responsible for policies in specific fields related to scientific research, technology and innovation
- Institute of Statistics (INSTAT)
- Chamber of Commerce and Industry
- Ministry of Agriculture and Rural Development
- Ministry of Finance and Economy
- Minister of State for Enterprise Protection
- Albanian Investment Development Agency
- General Directorate of Intellectual Property
- Interinstitutional Center "Albanian Academic Network"
- National Diaspora Agency
- Higher Education Institutions and research institutes that are part of them
- Agency for Quality Assurance in Higher Education (ASCAL) • National Agency for Scientific Research and Innovation (NASRI)
- National Agency of the Information Society (NAIS)
- Albanian School of Public Administration (ASPA)

3.1) The Ministry of Education and Sports is the main institution responsible for the design and implementation of higher education and scientific research policies and approves the strategic plan in this area.

It drafts and proposes the legal basis in the field of higher education and scientific research and proposes to the Council of Ministers the budget financing model for higher education and scientific research, according to the provisions of this law and other legal and by-laws in force.

The area of responsibility of MES covers scientific research and innovation that takes place in HEIs. So, in terms of innovation, MES has a limited responsibility. Despite the fact that the area of state responsibility has changed several times, again the competences in this area have not changed, but have also been increased in the area of innovation.

In addition to the policy-making directorates, the Council of Higher Education and Scientific Research has been established under the Ministry of Education and Sports, which consists of 12 members. This council is the main body that advises the ministry on the strategic and political framework of higher education and scientific research.

3.2) The National Agency for Scientific Research and Innovation (NASRI) was created based on decision no. 607, dated 31.08.2016 of the Council of Ministers "On the creation, composition, organization and operation of the National Agency for Scientific Research, Technology and Innovation".

NASRI is a public legal institution under the ministry responsible for education and scientific research that aims to build a modern science system, strengthen scientific and technological research, as well as their integration into the higher education system. From 2017, the National Agency for Scientific Research and Innovation assumed the main responsibilities regarding the financing of scientific research and the implementation of policies in the field of scientific research, innovation and technology. This agency must coordinate the work for

the implementation of policies with the institution responsible for the protection of entrepreneurship, which is currently the Minister of State for the protection of entrepreneurship, the Albanian Investment Development Agency (AIDA); the institution responsible for SME support, which is currently the Albanian SME Agency and the Innovation Fund.

3.3) The Academy of Sciences (AS) is the highest public institution that represents and carries the best values of science, scientific research, creativity and the debate and interaction of scientific thought in the country, through a selected community of scientists and creators. At the same time, ASH proposes new research areas study, in accordance with the needs of the country's development and provides state institutions with the necessary expertise to solve important issues for the country. The Academy of Sciences of Albania is a central national scientific institution. The Academy must (i) conduct fundamental and applied scientific research in various fields of social, humanitarian, natural and Albanian sciences; (ii) take to open new fields of scientific research, in accordance with the needs of the country; (iii) to present to the state bodies important issues regarding the state of scientific research and technological development in various fields for the development paths of science and culture; (iv) to work for the most fruitful inclusion of Albanian science in world science.

3.4) Higher Education Institutions. There are 15 public and 27 non-public institutions of higher education. These institutions have a very important role in the growth of scientific research, innovation and technology as they are the drafters, implementers and main beneficiaries of agreements or memberships in various organizations that are made by themselves or by NASRI or other institutions.

Also, some of these institutions have opened centers or implement projects that promote the use of innovation and technology not only by HEIs, but also by businesses or other institutions.

A New Financing Model of Public Institutions of Higher Education and Scientific Research, adopted in 2018, presented an updated but not yet complete, for HEIs and Research Development and Innovation. According to the system, institutional funding is allocated based on the national ranking of the institution and through competitive grants, which are distributed through NASRI in accordance with international best practices. Some HEIs known to support innovation have benefited from donor funding for innovative or collaborative projects, such as business incubators.

3.5) The Inter-Institutional Center 'Albanian Academic Network' is a body established after the higher education reform of 2015 and its activity directly affects the implementation of policies related to scientific research and cooperation between higher education institutions. AAN was created by decision no. 88, dated 14.2.2018 of the Council of Ministers "On the establishment of the Inter-institutional Center of the Albanian Academic Network (AAN)" and aims to:

- development and promotion of research-development and innovation projects in the field of information and communication technology (ICT) for education and science;
- the creation of the infrastructure for the establishment of a joint interdisciplinary center for research and development (ICT) by the participating HEIs or third parties;
- coordinating the participation of local researchers in the European research project GÉANT and other projects in the field of information and communication technology (ICT), an integral part of the European framework program for research, development and innovation;
- the development of software programs and the provision of relevant services for the ministry responsible for education, the dependent agencies for higher education and scientific research, institutions of higher education, scientific research and innovation and for the entire membership of AAN, as and for third parties

3.6) The Agency for Quality Assurance in Higher Education (AQSHE) was created in support of law no. 80/2015, with decision no. 109, dated 15.02.2017, of the Council of Ministers, "On the organization and operation of the Quality Assurance Agency in Higher Education and the Accreditation Board and on the determination of fees for quality assurance processes in higher education", as amended by thereorganization of Public Agency of Higher Education, which was created by decision of the Council of Ministers no. 303, dated 01.07.1999.

AQSHE is the only institution in the Republic of Albania that controls and evaluates quality in higher education. This, relying on the state quality standards and the relevant quality standards and guidelines in the European and international space of higher education.

AQSHE conducts preliminary quality assessment for HEIs, their units and study programs of all three cycles within their licensing as well as external assessment within institutional accreditation and study programs. The Agency also conducts analytical and comparative evaluations for HEIs, programs and fields of study. AQSHE 's mission is (i) Ensuring quality in higher education through external, objective and independent assessment; (ii) Maintaining quality standards; (iii) Promotion and improvement of the quality of higher education institutions and the study programs they offer. In the accreditation process, the quality of scientific research in the higher education institution is also evaluated. So, perhaps not directly, this institution affects the strengthening and increase of the quality of scientific research that is carried out in higher education institutions and research and development institutes.

4) Innovation and Entrepreneurship Ecosystem Development:

Albania has established several initiatives to nurture innovation and entrepreneurship, including the creation of startup incubators, innovation centers, and technology parks. These

entities provide support, mentorship, networking opportunities, and access to funding for aspiring entrepreneurs and startups.

4.1) Digital Agenda for Albania: The Digital Agenda is a strategic framework that aims to foster digital transformation and innovation in various sectors. It focuses on improving digital infrastructure, promoting e-government services, enhancing digital skills, and supporting the growth of the digital economy/

4.2) Startup Albania: Startup Albania is a government-backed initiative that supports the development of the startup ecosystem in the country. It provides mentorship, training, and access to funding for early-stage startups. The program also organizes events, competitions, and networking opportunities to connect entrepreneurs with investors and industry experts. Digital Infrastructure: Albania is continuously improving its digital infrastructure to provide a solid foundation for innovation. Efforts are being made to enhance internet connectivity, expand broadband coverage, and improve access to digital services and platforms. This digital infrastructure facilitates communication, collaboration, and the development of digital solutions.

4.3) Intellectual Property Rights Protection: Intellectual property rights protection is essential for fostering innovation. Albania has improved its legal framework and enforcement mechanisms to protect intellectual property rights. This encourages innovation by providing legal protection for inventions, patents, trademarks, and copyrights.

4.4) Collaboration Platforms and Networks: Albania has established collaboration platforms and networks that bring together stakeholders from academia, industry, government, and the startup community. These platforms facilitate knowledge exchange, collaboration, and partnerships, fostering a culture of innovation and entrepreneurship.

4.5) Education and Skills Development: To foster innovation, Albania is focusing on improving education and skills development. Efforts include promoting STEM (Science, Technology, Engineering, and Mathematics) education, enhancing digital literacy, and integrating entrepreneurship education into the curriculum

5) Gamified education in Albania

Gamified education in general refers to the integration of game elements and mechanics into the educational system to enhance the learning experience and engage students in a more interactive and enjoyable way. Gamification can be applied across various subjects and grade levels, encouraging active participation, motivation, and skill development.

The use of the e-learning and gamified education is at a status of work in progress.
As starting point of areas of the gamified education we may list:

5.1) Gamified STEM Education: Designing gamified approaches to teaching science, technology, engineering, and mathematics (STEM) subjects could increase student interest

and understanding. Creating interactive simulations, virtual experiments, and problem-solving games could help students grasp complex concepts in a more engaging and hands-on manner

5.2) Gamified History and Cultural Heritage Education: Creating gamified educational content focused on Albanian history, cultural heritage, and traditions could foster a sense of pride and knowledge among students. Gamified simulations, virtual tours, and interactive storytelling could immerse students in historical events and cultural experiences, making the learning process more engaging.

5.3) Gamified Environmental Education: Developing gamified initiatives that raise awareness about environmental issues, sustainability, and conservation could encourage students to become active environmental stewards. Gamified challenges, virtual eco-systems, and simulations could educate students about topics such as waste management, renewable energy, and biodiversity conservation.

CONTEXTUAL ANALYSIS: KOSOVO

Introduction

Kosovo is a nation situated within the Balkan region of Southeastern Europe. Pristina serves as the capital and primary urban center of Kosovo, encompassing the largest population within the region.

Kosovo is estimated to have a population of around 1.8 million individuals. Kosovo is categorized as a developing nation in relation to its economic standing. The economic development of Kosovo has exhibited positive trends and advancements subsequent to its proclamation of independence in 2008. The primary components of the economy encompass the service sector, industrial sector, and agricultural sector.

The services sector holds a prominent position as the primary contributor to Kosovo's Gross Domestic Product (GDP). It encompasses a diverse array of activities, including but not limited to retail, tourism, transportation, telecommunications, and financial services. The industry sector in Kosovo primarily encompasses mining, manufacturing, and construction activities. The primary sectors of the economy encompass energy, mining and mineral resources, textiles, food processing, and construction materials.The agriculture sector holds considerable importance in the economy of Kosovo, as it serves as a major source of employment for a significant portion of the population. Prominent agricultural commodities encompass a variety of essential items such as grains, fruits, vegetables, dairy products, and livestock.

Education plays a crucial role in the development of individuals and societies, providing opportunities for personal growth, social mobility, and economic prosperity. In the context of Kosovo, a young and emerging nation, public education policies, trends, and needs are of the most importance to ensure a quality and inclusive education system. The education system in Kosovo has undergone significant transformations since the country's declaration of

independence in 2008. Prior to that, during the period of the United Nations administration, efforts were made to rebuild and restructure the education system. However, challenges such as limited resources, infrastructure, and political instability have posed obstacles to the development of a robust public education system.

The Government of Kosovo has recognized the importance of education as a fundamental right and has made efforts to establish a comprehensive policy framework. The main policy documents guiding public education in Kosovo include the Education Strategic Plan 2017-2021 and the Law on Pre-University Education. These policies aim to ensure access to quality education, promote equity, and enhance the skills and competencies of students.

The curriculum in Kosovo aims to provide students with a well-rounded education, focusing on core subjects, as well as promoting critical thinking, problem-solving, and digital literacy. However, there is a need to update and align the curriculum with the demands of the labor market and to incorporate innovative teaching methodologies. Professional development programs for teachers should also be prioritized to enhance their pedagogical skills and ensure effective classroom practices.

The digital revolution has transformed various aspects of society, including education. In Kosovo, there is a growing recognition of the importance of technology integration in education. Initiatives such as the distribution of laptops to students and the development of e-learning platforms have been introduced to enhance the learning experience. However, further investment and infrastructure development are necessary to bridge the digital divide and ensure equal access to technology for all students.

VET programs have gained prominence in Kosovo, aiming to provide students with practical skills and enhance their employability. The government, in collaboration with private sector stakeholders, has developed vocational schools and apprenticeship programs. However, there is a need to strengthen the linkages between VET programs and the labor market to ensure that graduates are equipped with the skills required by employers.

Innovation Policy in Kosovo

The role of innovation policy in Kosovo's economic development is of paramount importance as it serves to stimulate economic growth, generate employment prospects, and facilitate technological progress.

The stimulation of economic growth in Kosovo is contingent upon the implementation of an innovation policy. By fostering an environment that promotes innovation, research, and development, the nation can effectively broaden the scope of its economy, transition towards industries that rely on knowledge-based activities, and diminish reliance on conventional sectors[2].

[2] References:
1. Government of Kosovo. (2017). Education Strategic Plan 2017-2021.

The innovation policy in Kosovo comprises a diverse array of strategies, initiatives, and programs that are designed to promote and facilitate innovation, research, and development endeavors within the nation. The primary aims of the innovation policy encompass the facilitation of economic expansion, the encouragement of entrepreneurial activities, the attraction of investments, and the augmentation of the nation's competitiveness within the international market. The following are essential components of Kosovo's innovation policy:

1. Government Initiatives: A range of initiatives has been implemented by the government of Kosovo in order to provide support for innovation. These initiatives encompass the creation of innovation centers, technology parks, and startup incubators. These organizations offer essential support in the form of infrastructure, resources, and guidance to aspiring entrepreneurs and emerging startups, facilitating the process of ideation, innovation, and ultimately, the establishment of prosperous businesses.

2. Kosovo's innovation policy incorporates funding mechanisms aimed at providing support for innovation projects. This encompasses various forms of financial assistance, such as grants, subsidies, and support, which are offered by governmental entities, development banks, and international organizations. The primary objective of these funding mechanisms is to stimulate research and development endeavors, foster technological progress, and facilitate the successful introduction of novel products and services into the market.

3. The establishment of collaborative relationships and partnerships between the public and private sectors is a fundamental component of Kosovo's innovation policy. The promotion of collaborations among academia, industry, and research institutions by the government serves to facilitate the exchange of knowledge, transfer of technology, and the undertaking of collaborative research endeavors. These collaborations foster entrepreneurship driven by innovation and facilitate the creation and execution of innovative solutions to address societal challenges.

4. Kosovo has implemented a regulatory framework aimed at fostering innovation and safeguarding intellectual property rights. The innovation policy encompasses a set of legislative and regulatory measures aimed at promoting and facilitating the transfer of technology, the registration of patents, and the protection of copyrights. These measures serve to enhance legal certainty and promote investment in innovation by ensuring the protection of intellectual property rights for both individuals and organizations.

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2. The Law on Pre-University Education.
3. Kosovo Accreditation Agency.
4. United Nations Development Programme. (2016). Education for All: National Review Report for Kosovo.
5. World Bank. (2019). Kosovo Education Sector Review: Enhancing Education Quality for Human Capital Development.

5. The significance of education and skill development in promoting innovation is acknowledged by the innovation policy. There is a concerted endeavor to advance entrepreneurship education and establish training initiatives that furnish individuals with the requisite knowledge and skills to partake in innovative endeavors. The establishment of partnerships among universities, research institutions, and industry facilitates the connection between the academic sphere and the labor market, thereby cultivating a proficient workforce that possesses the ability to propel innovation.

6. Evaluation and monitoring mechanisms play a crucial role in Kosovo's innovation policy. Systematic evaluations and ongoing surveillance are conducted to gauge the efficacy of policy implementation, assess the outcomes of initiatives, pinpoint potential areas for enhancement, and ascertain the policy's congruence with evolving needs and global patterns. The results of evaluations play a crucial role in informing decision-making processes and facilitating the adaptation of innovation policies accordingly.

The Government of Kosovo offers innovation grants through multiple ministries and agencies to provide financial support for projects focused on innovation and research. The primary objective of these grants is to provide financial support for various endeavors, including but not limited to product development, prototype fabrication, technology commercialization, and market penetration. The allocation of grants is typically conducted through competitive procedures, wherein applicants are frequently expected to substantiate the potential ramifications of their projects on both the economy and society.

Kosovo has implemented a range of public policies, strategies, and programs aimed at fostering innovation and facilitating the development of its innovation ecosystem.

The National Innovation Strategy and Action Plan is a comprehensive framework that outlines the approach and initiatives undertaken by a country to foster innovation and drive economic growth.

The Kosovo National Innovation Strategy for the period of 2014-2020 endeavors to cultivate an environment conducive to innovation, stimulate entrepreneurial activities, and bolster the economic competitiveness of the region. The document establishes strategic objectives and offers a framework for the advancement of innovation across multiple industries.

The Kosovo Innovation Action Plan delineates a set of distinct initiatives, projects, and measures aimed at effectively executing the objectives outlined in the National Innovation Strategy. The scope of this encompasses various activities pertaining to research and development, technology transfer, entrepreneurship, and access to financial resources.

The innovation grants in Kosovo are:

- The Innovation Fund Kosovo, which receives backing from the Ministry of Economic Development, provides financial assistance in the form of grants to pioneering

projects and emerging businesses within the region of Kosovo. The primary objective of the fund is to provide support for the advancement of novel products, services, and technologies. The program offers financial aid, mentorship, and various other types of assistance to chosen initiatives.

- The Kosovo Enterprise Program (KEP) is a project that is financially supported by the United States Agency for International Development (USAID). Its primary objective is to facilitate the expansion and advancement of the private sector in Kosovo, with a particular emphasis on fostering growth and innovation. The program provides financial grants and technical support to businesses and startups, encompassing funding opportunities for pioneering projects that hold promise in fostering economic growth.

- Kosovo is a recipient of diverse grant programs financed by the European Union (EU). These programs frequently encompass provisions for research, innovation, and entrepreneurship. Illustrative instances encompass the Horizon 2020 initiative, which proffers financial prospects for cooperative research and innovation undertakings, and the European Structural and Investment Funds (ESIF), which bolster economic and social advancement within European Union member states and regions, including Kosovo.

- The United Nations Development Programme (UNDP) has established the UNDP Innovation Fund, which offers grants and assistance to facilitate the implementation of innovative projects in Kosovo. The primary objective of the UNDP Innovation Fund is to foster ingenuity and novel approaches in order to effectively tackle development obstacles. The organization provides support for endeavors that utilize technology, entrepreneurship, and social innovation in order to generate beneficial transformations.

- Kosovo is the recipient of grants from a multitude of international donors and organizations, which encompass potential funding for projects pertaining to innovation. Several international donors, such as the World Bank, the European Bank for Reconstruction and Development (EBRD), and several bilateral development agencies, have offered grants in Kosovo.

Kosovo has implemented a number of incubators and accelerators that offer assistance to nascent businesses and enterprising individuals. These entities provide tangible office spaces, guidance from experienced mentors, assistance in developing business strategies, chances to establish professional connections, and opportunities to secure financial resources. Incubators and accelerators are integral in the process of cultivating and directing nascent startups, aiding in the refinement of their business models, facilitating access to valuable resources, and fostering connections with investors and prospective customers.

- The Innovation Centre Kosovo (ICK) is a prominent establishment that serves as an incubator and accelerator, providing support to pioneering startups and entrepreneurs in the region of Kosovo. The organization provides a diverse array of programs, mentorship initiatives, workspace provisions, funding accessibility, and networking prospects. ICK primarily focuses on startups that are driven by technology and offers a nurturing ecosystem to facilitate their development and expansion.

- The IPKO Foundation is an organization that administers an incubation program aimed at providing support to nascent businesses in Kosovo. The program offers mentoring, training, access to resources, and networking opportunities in order to facilitate the growth and expansion of entrepreneurs' businesses. Additionally, the foundation coordinates various events and initiatives aimed at fostering entrepreneurship and innovation within the nation.

- The Prishtina Innovation Centre (PIN) is an entrepreneurial initiative aimed at offering comprehensive incubation and acceleration services to startup ventures located in Kosovo. The program provides a diverse array of assistance, encompassing mentorship, workshops, networking events, and access to funding opportunities. The primary objective of the PIN initiative is to foster and advance innovation and entrepreneurship across multiple sectors.

- CACTTUS, an innovation and technology center located in Prishtina, Kosovo, is a prominent establishment in the region. The organization provides assistance to startups and entrepreneurs by means of its incubation and acceleration initiatives. CACTTUS offers a comprehensive suite of support services including mentorship, dedicated workspaces, facilitation of investor connections, and a wide range of resources aimed at fostering the growth and transformation of startup ventures from conceptualization to thriving enterprises.

- Innovation Nest is a globally active venture capital fund that operates in various countries, including Kosovo. Although its main emphasis is on investments, it also provides assistance and advice to startups by leveraging its network and expertise. Innovation Nest actively seeks out companies that demonstrate innovative qualities and possess significant potential for growth. Subsequently, this organization offers these companies the essential resources required to effectively expand and enhance their operational capacities.

Kosovo has successfully established technology parks that function as central nodes for fostering innovation and entrepreneurial activities. The ITP project was established by the Ministry of Innovation and Entrepreneurship of the Republic of Kosovo.

The primary objective of the Innovation and Technology Park is to cultivate innovation, research, and development through the establishment of a conducive ecosystem that caters to startups, businesses, and research institutions. The primary objective is to foster

collaboration among academia, industry, and the public sector in order to stimulate technological progress and promote economic development in Kosovo.

ITP was conceptualized to provide a range of services and amenities, including incubation and acceleration programs, research and development laboratories, shared workspaces, as well as opportunities for funding and mentorship.

The University of Business and Technology (UBT) maintains a strong affiliation with the Innovation and Training Park (ITP), an initiative that was established by UBT. The Innovation and Training Park functions as a platform for the facilitation of innovation, research, and development endeavors. The primary objective is to foster collaboration among academia, industry, and the government in Kosovo, with the aim of undertaking diverse projects, fostering entrepreneurship, and making significant contributions to economic growth and technological progress.

The University of Business and Technology (UBT) and the Innovation and Training Park collaborate synergistically to establish an ecosystem that fosters and sustains innovation and entrepreneurship. The establishment offers a favorable setting wherein students, researchers, and entrepreneurs can engage in collaborative efforts, cultivate inventive concepts, and subsequently convert them into commercially feasible enterprises or products. The university's initiatives encompass a range of programs, research endeavors, and collaborations with industry and government entities, all aimed at cultivating innovation and making substantial contributions to the advancement of Kosovo's business and technology domains.

In conjunction with financial institutions and international organizations, the government engages in partnerships to establish funding programs specifically designed to support innovative startups and small and medium-sized enterprises (SMEs). These programs facilitate the provision of loans, equity financing, and various other financial instruments to bolster the growth and expansion of innovative ventures.

- The Innovation Fund Kosovo is an organization that offers financial assistance and various resources to pioneering projects and emerging businesses in Kosovo. The primary objective is to cultivate technological progress, promote entrepreneurial endeavors, and stimulate economic development. The fund provides financial assistance, investment opportunities, and guidance to chosen projects and startups.

- The Kosova Women's Fund (KWF) is a funding program that has been specifically developed to provide support for initiatives and projects led by women in Kosovo. The program offers financial assistance and grants to female entrepreneurs, social enterprises, and entities dedicated to promoting women's empowerment and gender equality.

- The Kosovo Credit Guarantee Fund (KCGF) is a financial initiative designed to enhance the accessibility of financing for small and medium-sized enterprises (SMEs) in Kosovo.

Its primary objective is to facilitate the provision of credit to these businesses. The program offers credit guarantees to small and medium-sized enterprises (SMEs), facilitating their access to loans from financial institutions with greater ease.

- The Kosovo Investment and Enterprise Support Agency (KIESA) provides a range of grant programs aimed at facilitating investment, fostering business development, and promoting economic growth within the region of Kosovo. The grants in question are designed to specifically cater to various sectors and activities, including but not limited to tourism, agriculture, manufacturing, and innovation. Financial assistance is offered to businesses and initiatives that meet the eligibility criteria.

- Kosovo is a recipient of financial assistance from various international donor organizations and institutions, which contribute to its development and welfare. Illustrative instances encompass grants and financial aid provided by prominent institutions such as the European Union (EU), United Nations Development Programme (UNDP), World Bank, and diverse bilateral development agencies. These programs frequently provide assistance to various sectors and initiatives, encompassing entrepreneurship, innovation, infrastructure development, and social projects.

The Higher Education Institutions (HEIs) in Kosovo

The Higher Education Institutions (HEIs) in Kosovo have a significant impact on the provision of tertiary education and the advancement of the country's human capital.

The educational system in Kosovo is overseen and regulated by the Ministry of Education, Science, and Technology. It encompasses a range of educational levels, including tertiary education.

Kosovo boasts a number of public universities that are financially supported and overseen by the government. A diverse array of academic disciplines and degree programs are provided by the institution. Private universities exist in Kosovo, characterized by their ownership and operation by private entities. These institutions of higher education offer a wide range of educational opportunities to students. In addition to universities, Kosovo also boasts a number of colleges that provide vocational and professionally-focused programs, primarily at the undergraduate level.

The undergraduate level of education in Kosovo generally encompasses a three-year bachelor's degree program, although certain programs may span four years. Bachelor's degrees are conferred upon students who have satisfactorily fulfilled all the requirements of their respective academic programs.

Master's degree programs in Kosovo typically have a duration of one to two years. These educational institutions offer students with a comprehensive understanding and expertise in their chosen area of academic pursuit.

The Kosovo Accreditation Agency (KAA) is the governing body tasked with the responsibility of accrediting Higher Education Institutions (HEIs) and study programs within the territory of Kosovo. The primary objective of this process is to verify that the institutions and programs adhere to the predetermined quality criteria.

Quality assurance processes are implemented in higher education institutions (HEIs) in Kosovo, wherein they undergo periodic evaluations and assessments conducted by the Kosovo Accreditation Agency (KAA). The primary objective of these evaluations and assessments is to ensure the maintenance and enhancement of the quality of education offered by the HEIs.

International partnerships are a prominent feature of higher education institutions (HEIs) in Kosovo, as they actively participate in collaborations, partnerships, and exchange programs with universities and institutions across the globe.

Kosovo actively engages in diverse student mobility initiatives, including the esteemed Erasmus+ program, which facilitates educational exchanges and enables students to pursue studies overseas, thereby fostering exposure to distinct academic and cultural milieus.

Entities in Kosovo that are linked to the subject of innovation.

1. Institutions:

The Ministry of Innovation and Entrepreneurship assumes the responsibility for formulating and executing innovation policies and initiatives within the context of Kosovo.

The Ministry of Education, Science, and Technology in Kosovo assumes the responsibility of promoting educational innovation and facilitating research and development endeavors within the country.

2. Associations and organizations

Associations and organizations play a significant role in various domains, serving as important entities that bring together individuals with shared interests, goals, and objectives.

The Kosovo Chamber of Commerce provides assistance and resources to businesses and entrepreneurs operating in Kosovo, with a particular focus on those involved in the innovation sector. The organization offers networking opportunities, business support services, and advocacy for the business community.

The Kosovo Association of Information and Communication Technology (STIKK) is an organization that serves as a representative body for the information and communication technology (ICT) sector in Kosovo. The organization fosters innovation, facilitates the coordination of events and workshops, and actively champions the interests of the information and communication technology (ICT) industry.

The Innovation Centre Kosovo (ICK) is a prominent establishment that serves as an innovation hub and incubator, providing comprehensive support to startups and individuals engaged in innovative endeavors. The organization offers mentoring, training programs, networking events, and co-working spaces.

The Kosovo Association of Young Entrepreneurs (KAYE) is a non-profit organization dedicated to providing support and assistance to aspiring young entrepreneurs in Kosovo. The program provides mentorship, training, and networking opportunities with the aim of cultivating innovation and entrepreneurship.

3. Companies:

Gjirafa is a technology company headquartered in Kosovo, providing a diverse array of digital services encompassing a search engine, e-commerce platform, and online advertising solutions.

D4D is a technology company that employs data-driven approaches to foster innovation and generate insights across multiple sectors, such as governance and public services. The company's primary focus lies in harnessing the power of data and technology to drive advancements in these areas.

The IPKO Foundation is an organization that provides support for the advancement of youth innovation and entrepreneurship within the context of Kosovo. The organization offers financial support, guidance, and educational initiatives for aspiring entrepreneurs and emerging businesses.

KODE Labs is a software development company that possesses expertise in the construction of web and mobile applications. The individuals engage in collaborations with startups and enterprises to cultivate novel digital solutions.

MAPPING MOST RELEVANT ACTORS IN THE INNOVATION VALUE CHAIN

The first activity of the research aimed to gather all the relevant stakeholders. So in this value chain we tried to gather all relevant representatives in three Balkan countries present in education, business arts and cultural sector. By following the proposed categories, the data about the actors in the chain, as well as complementary businesses active in the field of new and digital technologies and innovations will be summarised. This stage in the research has included relevant public and private stakeholders in the education and business sectors that can share best practices in education, business innovation, enterprise and entrepreneurship. Having in mind core activities in this particular WP2 we have oriented our activities to make overview Analysis of the Montenegro scenario as a first step in Activity 1.

So by doing this value chain analysis we would made a specific map out of Balkan innovative landscape, emphasizing flagship projects, government and ministries policies, strategies, undergoing projects and programs, together with some initial and basic mapping of actors. As

to be noticed in our mapping value chain of actors we have decided to include and collect the data from all relevant stakeholders as well as already build and planned innovative infrastructures. Following the trends in this particular field we have tried to analyse and connect these practices with new learning methodologies which could be related to the new approaches and support to creative and innovation sector in Balkan research and innovative area. Especially because our first investigation findings directed as only to the scarce number of already conducted gamified learning protocols and programs in Balkan area. So, in this mapping design we were glad to include all of identified HEIs, main cultural institutions, creative industry sector as well as active NGOs and private businesses, labs, hubs and innovative incubators to support the data-based analysis so far.

Within this particular activity we would like, also to suggest to all project partner to do the same in terms of profiling their own country analysis. By doing this we will meet and find some basic facts and protocols of Balkan innovative environment, as well as referent point to describe the background and creative landscape in particular countries, creating the shortlist of most prominent actors within our own innovation environment.

Within this mapping draft we will also try to find and collected some of the already established practices and case studies in the various fields of education, business innovation, enterprise management and entrepreneurial endeavours which could serve as a baseline point to make more deeper analysis of actors present and active in relevant context and environment as well as in creative and innovative value chain of Balkan countries.

Figure 1: Value chain map

The identified institutions, associations, organizations and companies in Montenegro are:

Category	ID
Government, governmental institutions and funds	Ministry of Science and Technological Development Ministry of Education Ministry of Culture and Media Ministry of Economic Development and Tourism The Innovation Fund, https://fondzainovacije.me/o-fondu/ Investment and Development Fund of Montenegro https://www.irfcg.me/
HEI	University of Montenegro (public university) University of Mediterranean (private university) University Donja Gorica (private university)
Creative industries	Creative Montenegro https://www.kreativnacrnagora.co.me Map: https://kreativneindustrije.me https://www.undp.org/montenegro/projects/creative-

	montenegro
NGOs	Esports Association Montenegro https://www.sescg.me 4Future https://www.4future.me FiveG (competitive gaming platform) https://fiveg.gg/index.html Foundation for promoting Science in Montenegro https://prona.me/
Business (SMEs)	Uhura Solutions, https://uhurasolutions.com Amplitudo, https://amplitudo.me ChoDex (project Amaturn): http://www.tehnopolis.me/online/mne/portfolio-item/chodex-studio/ Digitalna akademija (Digital Academy), https://digitalnaakademija.me/o-nama Spark. me, https://spark.me/about/ Kodio https://kod.io/contact.html Game development event 2023 https://montegames.me/ (connecting 29 companies, local and international for the one-day gaming event in Budva https://montegames.me/attending_companies Esports Montenegro https://www.esportsearnings.com/countries/me (Team Montenegro - Dota2 Game, Team Reapers - Dota2 Game, Falcons - Mobile Legends Game) Computer programming "AI platform that reads and understands contracts just as humans do". http://www.tehnopolis.me/online/mne/portfolio-item/uhura-solutions/
Private-public partnerships	Tehnopolis https://www.tehnopolis.me Science and Technology park https://ntpark.me/o-nama/

The identified institutions, associations, organizations and companies in Albania are:

Category	ID
Government, governmental institutions and funds	Ministry of Education and Sports Ministry of Culture Ministry of environment and Tourism Ministry of Innovation The Innovation Fund Investment and Development Fund
HEI	Liste e HEI in Albania[3] **Public** University of Tirana

[3] Retrieved from: https://www.ascal.al/en/hei-list

	Polytechnic University of Tirana
	Agriculture University of Tirana
	University of Elbasan, Aleksander Xhuvani
	University of Shkodra "Luigj Gurakuqi"
	"Eqrem Çabej" University of Gjirokastra
	"Fan S. Noli" University
	University of Vlora, "Ismail Qemali"
	"Aleksandër Moisiu" University, Durrës
	University of Arts
	University of Sports of Tirana
	University of Medicine, Tirana
	Academy for Albanian Studies
	Academy for Albanian Studies
	Security Academy
	Private
	"University of New York, Tirana"
	Luarasi University
	Albanian University
	Catholic University "Our Lady of Good Counsel"
	"Barleti" University
	European University of Tirana
	"Aldent" University
	Polis University
	"EPOKA" University
	Mediterranean University of Albania
	"Metropolitan Tirana" University
	Academy of Film & Multimedia "Marubi"
	HEI "Nehemiah Gateway"
	"Ivodent" Academy
	University College "Qiriazi"
	University College WISDOM
	University College "Pavarësia Vlorë"
	LOGOS University College
	Tirana Business University College
	University College "Bedër"
	University College of Business
	University College "REALD"
	University College "Canadian Institute of Technology"
	Professional College of Tirana
	Tirana Esthetics & Style School
	German Higher Professional College of Technology
Creative industries	
NGOs	Woman to Woman
	Office for boys and men
	SOS Children's Villages
	Caritas

	NGOThe Door Malteser Madoninna Del Grappa Project "Shpresa" Pappa Giovani XXIII NGO - Para Tetra Plegic ARKA NGO World Vision Initiative "I am a Social Worker" Woman center "Easy steps" "As home"- Family house for third age Shkoder Gallery ODA
Business (SMEs)	
Private-public partnerships	Commissioner Against Discrimination, Shkoder Department of public health, Shkoder Home for the elderly Home for young people 16-18 years old State regional social service, Shkoder Shkoder Municipality - social service Shkoder Regional Hospital (Social Worker)

The identified institutions, associations, organizations and companies in Kosovo are:

Category	ID
Government, governmental institutions and funds	Ministry of Education, Science and Technology - MEST https://masht.rks-gov.net/ Ministry of Culture, Youth and Sports - MKRS https://www.mkrs-ks.org/ Directorate for Culture - Peja National Theater of Kosovo - Pristina https://pristina.theater/?jezik=al
HEI	University of Pristina - Public https://uni-pr.edu/ University of Tirana - Public http://uart.edu.al/ International University of Sarajevo - Public https://www.ius.edu.ba/en University of Tetova - Public https://www.unite.edu.mk/ UBT University - Private https://www.ubt-uni.net/sq/ballina/ Advisory Center – Kosovo https://www.startfinder.de/sq/advisory-centre/kosovo#
Business	IMBUS Peja - Fehmi Agani Nr. 16, 30000

	Peja KOSOVO , The Kosovo branch of German imbus AG, specializes in Quality Assurance. imbus AG, a leading service company for software testing in Germany, which is specialized in software quality assurance and software testing about 20 years, established the Peja branch in 2016. Gjirafa is a technology company headquartered in Kosovo, providing a diverse array of digital services encompassing a search engine, e-commerce platform, and online advertising solutions. D4D is a technology company that employs data-driven approaches to foster innovation and generate insights across multiple sectors, such as governance and public services. The IPKO Foundation is an organization that provides support for the advancement of youth innovation and entrepreneurship within the context of Kosovo. KODE Labs is a software development company that possesses expertise in the construction of web and mobile applications
NGO	NGO "ACCESS" Engages in the promotion of culture and cultural heritage, by young people, through digital platforms. ACCESS has created and launched the digital platform "e-culture"[3]. The "e-culture" project was realized within the "GrassRoots Action Support" project financed by the European Union and managed by the European Union office in Kosovo and implemented by the Kosovo Initiative for Stability (IKS), Lens and Friedrich Ebert Stifftung (FES). The vision of the "e-culture" platform is the digitization of the material and non-material (spiritual) cultural heritage of the Republic of Kosovo. Promotion, preservation and online access to cultural heritage values festivals ANIBAR https://anibar.org/

	Skena Up https://www.instagram.com/skenaup/ Dokufest https://dokufest.com/ Peja Jazz Festival https://www.instagram.com/peja_jazz/ DAM – FEST www.damfest.com Re Musica https://remusicafestival.com/

RESEARCH SURVEY & QUESTIONNAIRE

By adopting the survey design from all Balkan University partners within the project, further analysis of the identified practices follows in the context of reliable tools of state the art and trends in emerging technologies in the creative sector in the regions. We developed a questionnaire to collect the relevant data, including the addressed practices.

The development of this questionnaire aims to identify the educational needs of the key target groups of the 'E-Learning Gamified and Networked Training for Startupper' project in the context of the necessary knowledge, skills and abilities in accepting, understanding and using new technologies in the field of cultural and creative industries.

New technologies (emerging technologies), in the context of this Questionnaire, include technical innovations resulting from technological revolution and convergence and whose development and practical application enable long-term, sustainable and competitive skills of individuals, institutions and organisations. New technologies include various technical and technological tools and resources, the application of which is possible in education, information, nano- and biotechnology, robotics, artificial intelligence, etc.

Questionnaire about new technologies and their use in cultural and creative industries

The research is anonymous, and the results will be used exclusively for scientific purposes.

Sex:
 1. Female
 2. Male

Year of birth:
 1. 1964. and older;
 2. 1965-1979;
 3. 1980-1994;
 4. 1995. and younger.

Education:
 1. Elementary school degree;
 2. High school degree;
 3. Bachelor's degree (BA);

  4. Master's degree (MA);

  5. Doctoral degree.

Currently, you are:

  1. student;

  2. employed – education;

  3. employed – SME;

  4. unemployed;

  5. other (please, specify).

The field of your work is (choose up to three options):

  1. education;

  2. engineering (architecture, construction, mechanical engineering, traffic...);

  3. state and public administration;

  4. healthcare;

  5. media industry (radio, television, platforms/portals, social media...);

  6. film industry;

  7. cultural and creative industries;

  8. tourism and service activities;

  9. telecommunications;

  10. other (please, specify).

Which of the following technologies do you use: (every day, often, I can't answer, rarely, never):

  1. Internet;

  2. Social networks;

  3. Internet of Things;

  4. Wearable devices/sensors (smartphones, smart watches, rings...);

  5. Technology of augmented reality or virtual reality (HoloLens, AR applications, Oculus...);

  6. Artificial intelligence;

  7. Robotics;

  8. Voice-activated or gesture-controlled computers;

  9. Drones;

  10. 3D printers;

  11. Video games;

  12. other (please, specify).

Are you planning additional education in one of the previously mentioned fields:
(Yes, up to a year; Yes, longer than a year; No; Not sure).

Please indicate on a scale from 1 to 3 how much you agree with the content of the above statements: (1 - applies to me; 2 - not sure; 3 - does not apply to me)

  1. I could recognize and describe most of the new technologies in this questionnaire.

  2. I could illustrate with concrete examples most of the listed new technologies.

  3. I distinguish the software and hardware of most of the listed technologies.
  4. I could point out the advantages and disadvantages of new technologies.
  5. I know the differences between "Internet" and "Internet of Things".
  6. I understand the technical principles underlying new technologies.
  7. I am familiar with the term "gamification".
  8. I have enough information about the theoretical principles of the functioning of artificial intelligence.
  9. I would know how to use a drone.
  10. I could construct a model for 3D printing.
  11. I can criticize augmented reality technology with arguments.
  12. I can assess the risk of new technologies in the context of personal data protection.
  13. I could interpret and explain analytical data on using new technologies in small and medium-sized enterprises.
  14. I could design research on ways of using new technologies.
  15. I can develop an application for the Internet of Things or a smartphone.
  16. I could design a scenario for a video game.
  17. I can explain new technologies' social, ethical and legal dilemmas.
  18. I can create and moderate an account on most social networks.
  19. I am familiar with the term *ethical design*.
  20. I understand how cryptocurrencies work.
  21. I can explain the term *blockchain*.
 22. I can understand the needs and significance of digital ecology

INTERPRETING THE RESULTS OF THE SURVEY & QUESTIONNAIRE: MONTENEGRO

The questionnaire *New Technologies and their use in cultural and creative industries* was specifically designed for the requirements of the project *E-learning Gamifyed and Networked Training for Startupper*, and with the goal of identifying the educational needs of the key target groups of this project. New technologies (*emerging technologies*) are pre-defined to the respondents as technical innovations that are a consequence of the technological revolution and convergence and whose development and implementation are enabling long-term, sustainable and competitive advantages of individuals, institutions and organizations. New technologies include an assortment of technical-technological tools and resources whose application is possible within the field of education, informing, nanotechnology and biotechnology robotics, artificial intelligence, etc.

The results of this research are viewed in the context of the necessary knowledge, skills and abilities when accepting, understanding and using new technologies and using new technologies in the field of cultural and creative industries and the basic purpose of these data is, among other things, defining the curriculum and learning outcomes according to the methodology and standards defined by Bloom's taxonomy and the Dublin descriptors.

Therefore, the questionnaire is split into three parts: the first part includes basic demographic data (gender, year of birth, level of education), the second part studies the field of activity and readiness for additional training in the field of gamification and advanced technologies and the third part is a three-level scale that decides the attitude towards the practical aspects

of new technologies, using the self-assessment method. The only open type of question concerned the perception of the term gamification and was not obligatory for all respondents.

In the period from June 30th to July 10th, the questionnaire was given out to all students and employees of the University of Montenegro and Mediterranean University, identified target groups in the field of education, media employees, small and medium-sized enterprises and it also circulated through social media and official accounts of institutions (Facebook, Instagram,..). The total number of respondents is 203 (N=203).
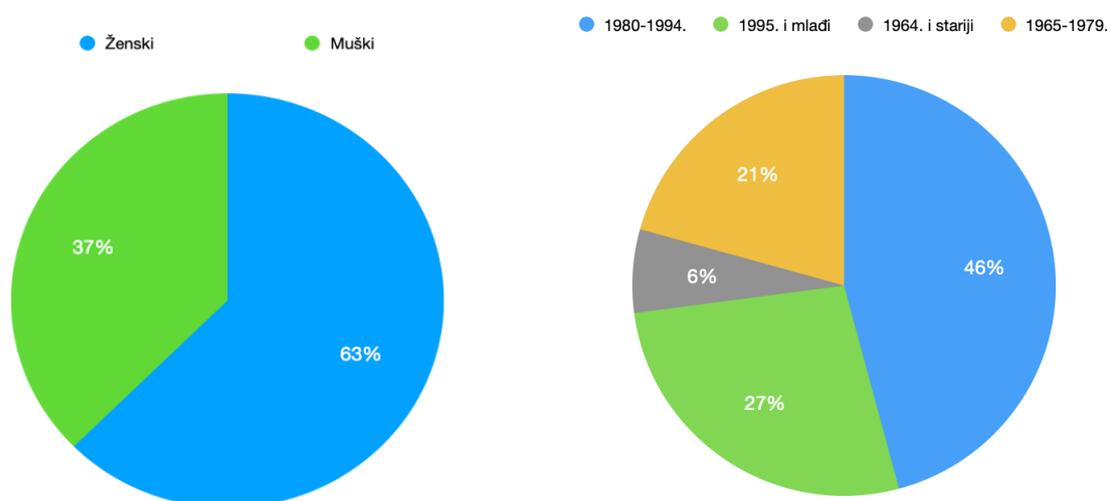
Graph 1: Female, Male
Graph 2: 1980/1994, 1995 and younger, 1964. and older, 1955-1979

The majority of respondents identified themselves as female (N=127), while 37% of the respondents were male. When it comes to age groups, almost half of the respondents are born between 1980 and 1994 (46%). The minority of respondents were the ones born in 1964 and older, and between 20% and 30% of those born in the period from 1965 to 1979, that is, those born in 1995 or later.

Finally, these data should be viewed with the already traditional perception of the media audience, namely, the generation on which, with help of different effects, (media) technology took effect.

Therefore, the largest number of respondents is to the so-called group of Millennials, which grew up alongside with the development of the Internet, mobile phones and social media. Even though Millennials belong to the group of so-called digital natives, Millennials mainly use new technology in the context of consumption.
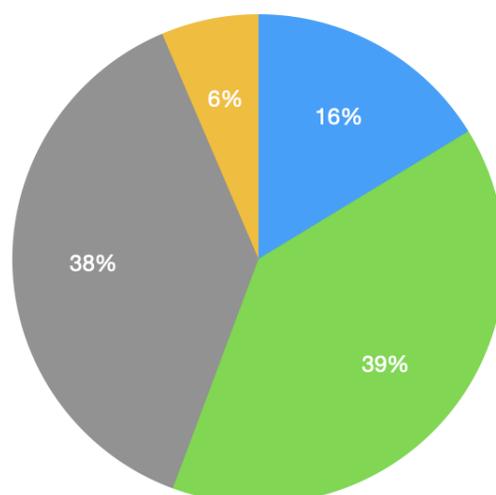
Graph 3: *PhD, Bachelor degree, Master degree, High school education*

The largest number of respondents, in the context of the level of education, are going through or have gone through the process of different levels of formal education, which can be clearly be connected to circulation of the questionnaire, more specifically to the target group that was the focus of this research.

In the same line are the two next paragraphs that concern the current engagement and the area of that engagement.
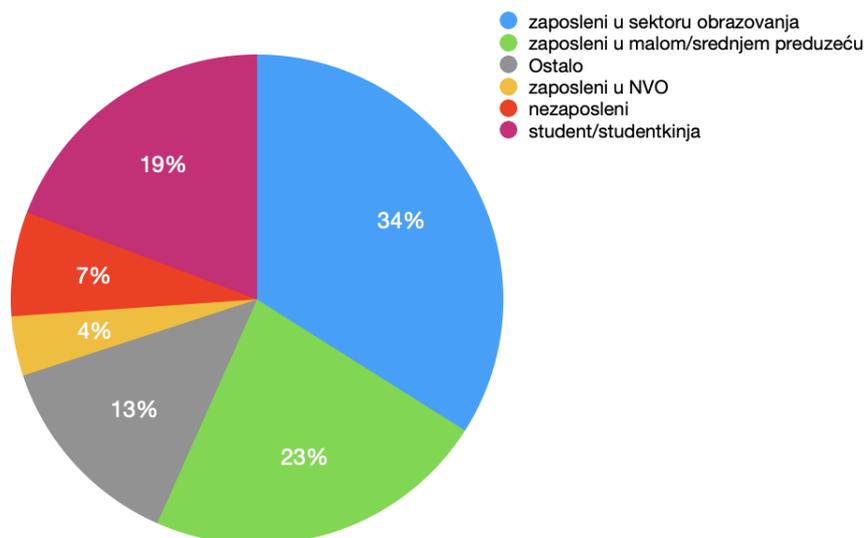
Graph 4: *employed in the educational sector, employed in small and medium-sized enterprises, other, employed in non-governmental sector, unemployed, student*

When it comes to the structure of the respondents' current engagement, majority of respondents are employed in the educational sector (34%), which is followed by employees in small and medium-sized enterprises (23%), as well as the students (19%). Aside from the

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unemployed (7%) and those employed in the non-governmental sector (4%), respondents mostly emphasized the area of their engagement (other, 13%). Looking at the complete sample, when talking about the field, the largest amount of the respondents has identified the field of education, cultural and creative industries, and the media industry as a whole (radio, television, platforms/portals, social media) as their field of work.

All of this is followed by state and public administration, cinematography and the film industry, engineering (architecture, construction, mechanical engineering, traffic,/..), tourism and service industry and the field of telecommunications.

The minority of respondents (from one to four) offered answers under "other" in the field of health, sports, arts in the broadest sense, accounting and finance, online services, human resources, human and women's rights etc.
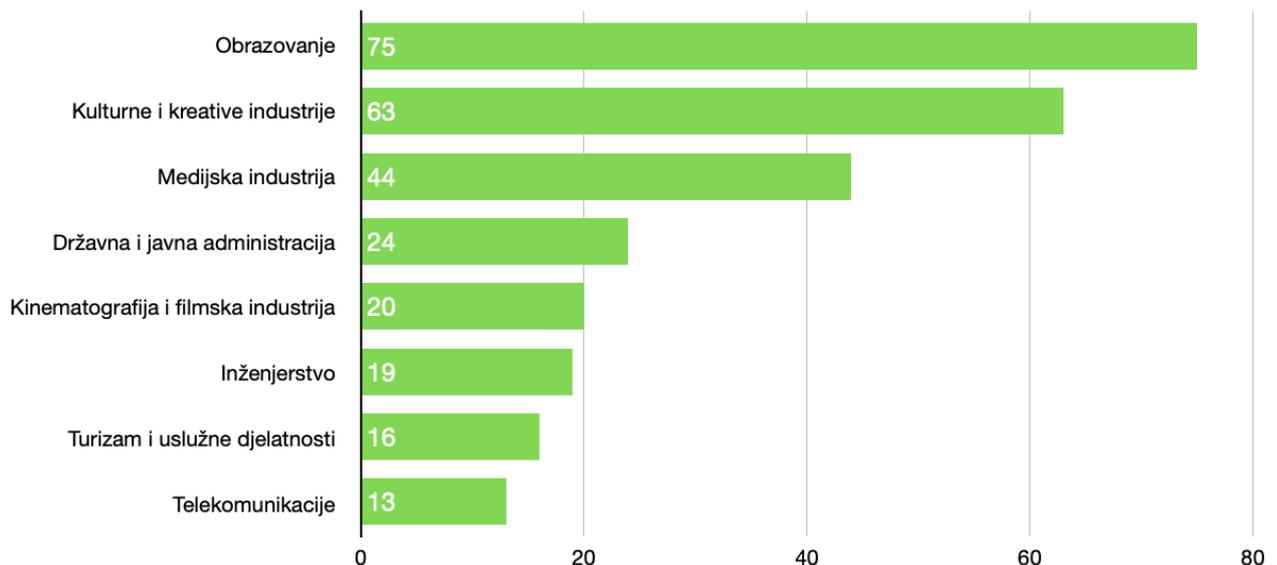
Graph 5: Education, cultural and creative industries, media industry, state and public administration, cinematography and the film industry, engineering, tourism and service industry, telecommunications

All abovementioned data indicates the essential coverage of the target group of this project, which is why with particular care the questions concerning the practical aspects of advanced technologies should be looked at. In the following chart, data on individual technologies, which are in line with the general perception are divided into: Internet; the social media, Internet of things; wearable devices/sensors (smartphones, smart watches, rings…); technology of augmented reality or virtual reality (HoloLens, AR Applications, Occulus…); artificial intelligence; robotics; voice-activated or gesture-controlled computers; drones; 3D printers; Video games.
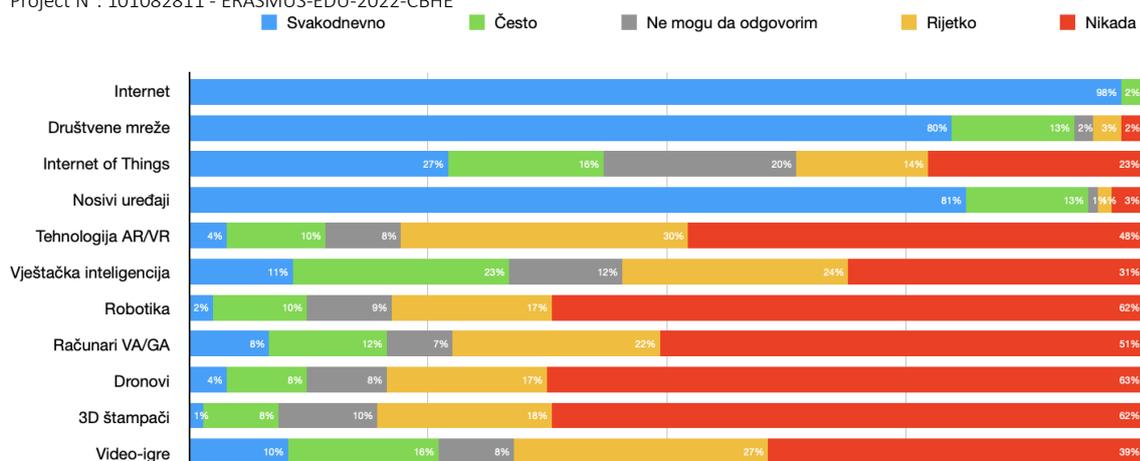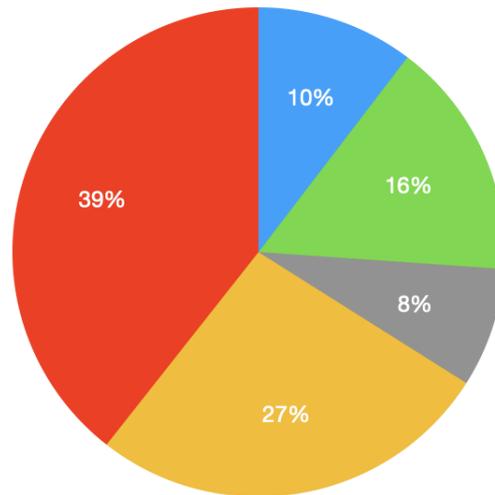
Graph 6: *Daily, Often, Do not want to respond, Rarely, Never*
Internet, Social media, Internet of Things, Wearable devices, AR/VR technology, Robotics, VA/GA Computers, Drones, 3D printers, Video-games

From the graph, the conclusion is that the Internet as a basic technology is used daily in an almost absolute percentage (98%), while the remaining 2% of the cases it is used often and none of the respondents use the Internet rarely or never, which can also be seen as a control question given that the questionnaire was filled out exclusively using the Internet. Social media and wearable devices are also significantly used today (around 80%). In a noticeably smaller percentage, artificial intelligence (11%), video games (10%), computers with audio/gesture control (8%), drones and AR/VR technology (4%), robotics (2%) and 3D printers (1%) are used daily. On the other hand, the largest number of respondents never uses drones (63%), 3D printers and robotics (62%) and computers that have audio/gesture control (51%). After that, AR/VR technology (48%), video games (39%), Internet of things (23%) and only 3% of respondents never use wearable devices or social networks (2%).

The video game data should be looked at in particular when it comes to the Elegants project. The majority of the respondents, as we have already established, never use video games as a new technology, which raises the question of the causes of this finding. The percentage when it comes to playing video games goes as follows: rarely (27%), often (16%) and daily (10%).

Graph 7: *Daily,* *Often,* *Do not want to respond,* *Rarely,* *Never*

Considering the fact that the Elegants project, and especially WP2, is also focused on educational needs in the field of emerging technologies, respondents were asked a question about their readiness for additional education within one of the previously referred to fields, i.e. advanced technology categories.
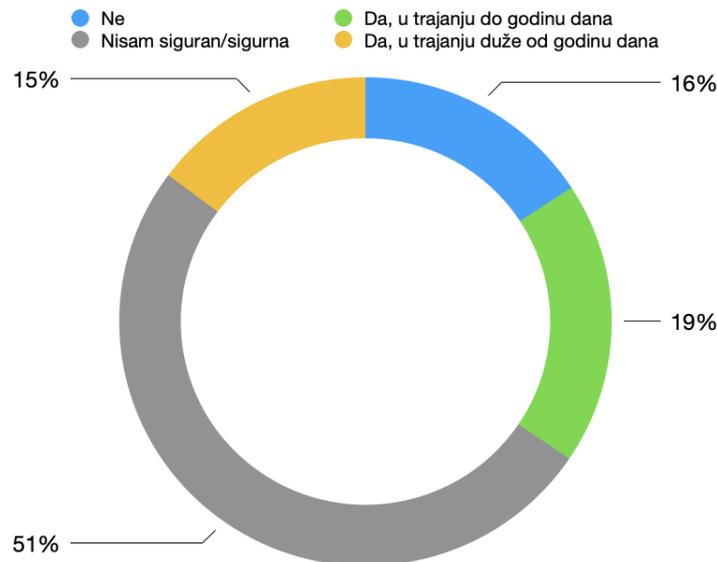

Graph 8: *No, Yes, lasting up to one year,* *Not certain, Yes, lasting longer than a year*

Some form of additional education is planned by 34% of the respondents, whether we are talking about education that is lasting up to one year (19%) or lasting longer than that (15%). Slightly more than the half of the respondents are not certain if they plan to pursue additional education, while 16% of the respondents do not plan any form of additional education. These

data can be clearly interpreted and use in relation to the educational system in Montenegro. Accordingly, LLL programs can be planned, which are provided by the Montenegrin Law on Higher Education, as well as programs at organizational units of the universities (e.g. A master's degree program lasting 180 ECTS). Additionally, based on this data, it is possible to run marketing campaigns that have the aim to motivate the target groups of interest to pursue education programs (further education, re-education, etc.)

In the last part of the questionnaire, respondents were offered a series of statements with which they could associate with, to answer that it did not apply to them or that they were not certain. Through self-assessment, the respondents answered questions that directly tested their knowledge, skills and abilities in relation to theory and practices of advanced technologies. The respondents were mostly confident in their competence when it comes to moderating social media accounts (77%), recognizing and describing most of the technologies listed in the questionnaire (66%), highlighting their advantages and disadvantages (60%), illustrating concrete examples relating to the listed technologies (59%), differentiating between software and hardware (58%), and assessing the risks of new technologies in the context of personal data protection (52%). On another hand, the data shows us that the statements that include developing an application for a mobile phone or IoT (69%) and constructing a model for 3D printing (57%) do not apply to a majority of the respondents. Based on the data, the conclusion is that the respondents generally feel ready to talk about the theoretical principles of advanced technologies but that that the readiness decreases as we move from theoretical field to practical areas and technical professions such as the Informational Technology sector and electrical engineering, robotics and engineering.
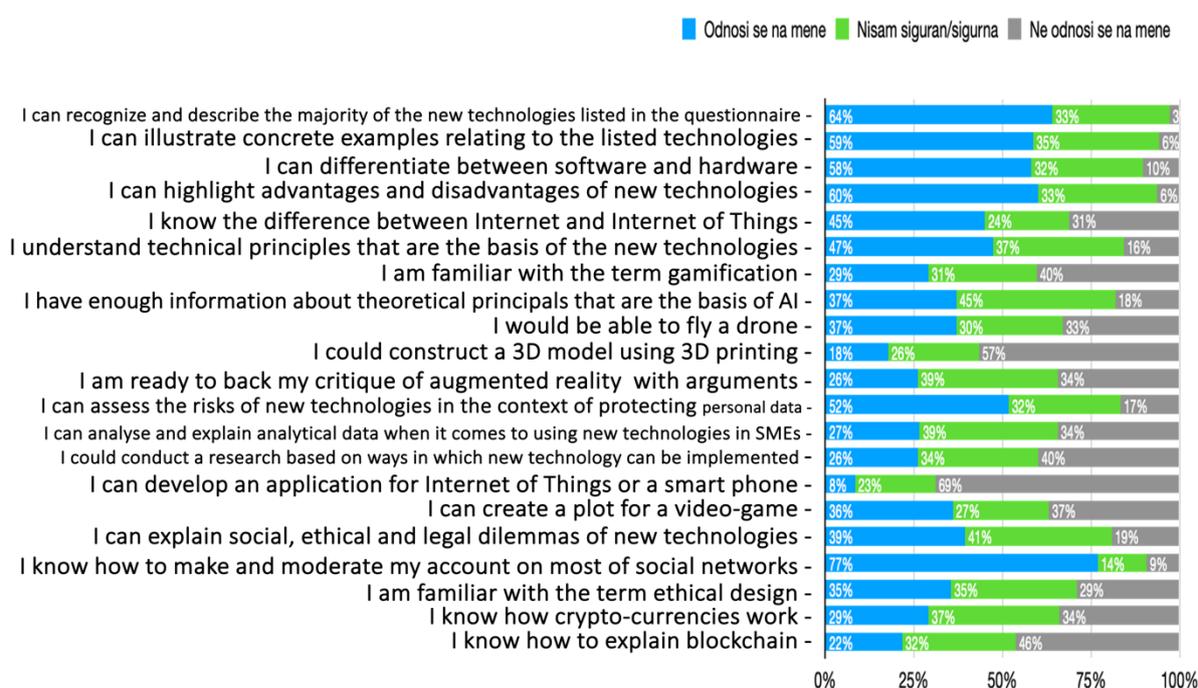
Graph 9: (1 - applies to me; 2 - not sure; 3 - does not apply to me)

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In the context of ELEGANTS projects, the most attention should be paid to data related gamification.

● Odnosi se na mene ● Nisam siguran/sigurna ● Ne odnosi se na mene

29%

40%

31%
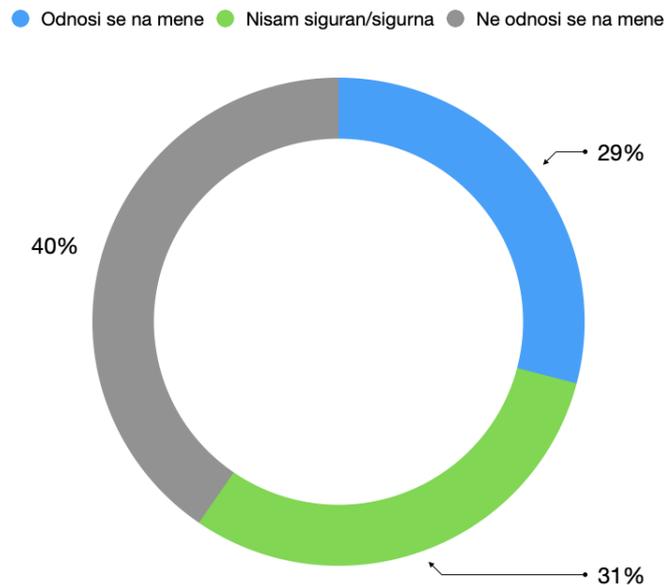
Graph 10: Refers to me; Not certain; Does not refer to me

The majority of respondents (N=144) are not even familiar with the term gamification (40%) or are not sure (31%), which points out the necessity of affirming this term in public discourse. If we were to treat this as a control question, taking into the consideration the complete sample, we could conclude that some of the respondents only know the theoretical principles from the previous graph or that they are ready to talk about them speculatively and not based on relevant scientific theories.

Part of the respondents who were familiar with the term gamification had the opportunity to briefly explain the term in the only open-ended question. Majority of the answers relating to the broader concept of the gamification process or to the examples with which the respondents tried to explain the concept itself.

For the most part, the most common answers were as follow:

- Gamification is the process of using game elements, such as competition, board games and even physical activity in order to encourage interaction and engagement;
- Application of the game model to overcome/solve problems;
- Using elements of cyber technology to encourage progress;
- Using gaming and games as models for learning, acquiring new skills and knowledge, through a an application, game with a special purpose;
- Gamification capitalizes on our desires to achieve a goal, "level up" and compete to outperform others in a given environment. Game-like elements (levels, points, etc.) are usually added;

- Introducing game elements in order to encourage motivation, teamwork, engagement, business efficiency;
- The principle of playing, gaming, used to create technological content – video games;
- Using game elements in non-game process (such as education) in order to make it more interactive and stimulating
- Team-building
- Gamificaion is the use of elements and principles from video games in non-gaming context to improve user involvement, motivation, engagement and results
- An example of gamification through learning: through interactive tasks, turn learning into something similar to playing games, and with that making the learning process more interesting and efficient;
- Applying the rules related to video games in other areas in order to increase the engagement of the target group
- Presenting a certain workflow/procedure/activities in the form of a video game
- In the context of education, the usage of various game in the form of quizzes during learning, for easier mastering of the learning material or when learning languages through phones and other applications;
- An alternative leaning model of learning that has the aim of animating students;
- Application of "gaming" in learning and work. For example, learning a language through tourist, detective or other stories. Learning through fun. And not only learning, but also onboarding new employees, encouraging people to ride a bike by playing classical music while pedaling or stair music so that people walk and not just use the escalator;
- The process of converting work/life/habits into a virtual environment that is by feedback of the perception of reality through getting used to logic and aesthetics of the environment;
- Thinking like a gamer in work and other situations, and thus solve problems and tasks more easily and in a more interesting way;
- Making for example educational content more interactive and interesting through various ways of animating it;
- Using game elements, collecting points in order to motivate players/users to continue the "game";
- Including methods, reasoning and other game features in the creation of other content or things;
- Embodying as a process that stimulates learning and acquisition of experiential knowledge based on dystopian theoretical areas;
- Introducing interaction and management in otherwise unstimulating circumstances;
- The term gamification refers to 'incentive based' learning that rewards each correct answer and makes people want to learn more;
- Converting classic processes while using the methods and ways in which games work (guided story system, puzzles, rewards…) which creates excitement and incentive...

SUMMARIZING THE COUNTRY PROFILES WITH POLICY RECOMMENDATIONS

INNOVATION POLICY RECOMMENDATIONS: MONTENEGRO

Montenegro, a small Southeast European country with a population of approximately 625,000, has a higher education system comprising both public and private universities. The University of Montenegro, founded in 1974, is the largest and oldest public university, offering a wide range of undergraduate, graduate, and doctoral programs across 19 faculties, three institutes, and one academy. Additionally, there are three private universities and standalone faculties providing diverse academic programs.

These higher education institutions operate under the Law of Higher Education, with the Agency for Control and Quality Assurance of Higher Education responsible for ensuring educational standards. Montenegrin universities also emphasize research and innovation, collaborating on projects domestically and internationally.

Montenegro's public education policies focus on the Smart Specialization Program (SSP), a strategic framework for promoting economic development and innovation. Developed in partnership with the United Nations Development Programme (UNDP) and the government, the SSP aims to align economic development with the European Union's Smart Specialization concept. It identifies key sectors for specialization based on the country's strengths and potential for innovation.

Montenegro's innovation policies include a National Innovation Strategy, the "National Program for the Development of Research Activities," and funding mechanisms for research and development. The country actively participates in the European Union's Horizon 2020 program and emphasizes the protection of intellectual property rights.

In terms of infrastructure, Montenegro has established the Science and Technology Park to support high-tech industries and startups, as well as the Innovation and Entrepreneurship Center "Tehnopolis." Notably, the Uhura Solutions AI platform, which streamlines contract processing, has been developed within Tehnopolis.

Montenegro also recognizes the importance of digital transformation and has adopted a Digital Transformation Strategy to promote innovation and economic growth. Initiatives such as gamified learning have also been introduced and recognised, so the policy recommendation could be seen as a multifactorial methodology as we will try to present in the continuation of this analysis.

Policy Recommendations:

Enhance Collaboration: Foster stronger collaboration between public and private universities to promote research and innovation. Encourage joint research projects and knowledge sharing between academia and industry.

Support Interdisciplinary Research: Create incentives and funding opportunities for interdisciplinary research projects that address complex societal challenges. Establish research centers focused on multidisciplinary approaches.

Quality Assurance: Continue to uphold the high quality of education through the Agency for Control and Quality Assurance of Higher Education. Regularly review and update accreditation processes to meet evolving standards.

Expand Funding for Innovation: Increase government funding for innovation initiatives, especially research and development projects. Provide grants and incentives to businesses, research institutions, and startups engaged in innovation.

Intellectual Property Education: Implement educational programs to raise awareness about intellectual property rights among researchers, inventors, and creators. Ensure a clear and efficient process for registering and protecting intellectual property.

Promote International Collaboration: Strengthen international cooperation in innovation by participating in more EU programs and collaborating with neighboring countries. Facilitate knowledge exchange and best practice sharing.

Digital Literacy in Education: Expand digital literacy programs across all educational levels to prepare students for the digital economy. Develop comprehensive digital skills training for educators and students.

Facilitate Technology Transfer: Create platforms and mechanisms to facilitate the transfer of technology and research findings from academia to the business sector. Encourage universities to commercialize intellectual property.

Startup Ecosystem: Continue supporting startups through incubators, accelerators, and mentorship programs. Promote access to financing options for startups and encourage the establishment of innovative companies.

Gamification in Education: Promote the integration of gamification in the education system at all levels. Provide resources and training for educators to effectively incorporate gamified elements into their teaching methodologies.

Monitoring and Evaluation: Establish a robust monitoring and evaluation system for innovation policies and programs. Regularly assess the impact and effectiveness of initiatives, making necessary adjustments.

Digital Transformation: Invest in digital infrastructure, cybersecurity, and digital skills development to advance the country's digital transformation. Continue implementing e-government initiatives to enhance innovation in public services.

By implementing these policy recommendations, Montenegro can further strengthen its higher education system, promote innovation and economic growth, and prepare its workforce for the digital era. These measures will help create a thriving innovation ecosystem and contribute to Montenegro's sustainable development.

TRAINING NEEDS ANALYSIS (TNA): MONTENEGRO

The provided analysis highlights several key aspects of Montenegro's higher education and innovation landscape, as well as the introduction of gamification in education. Based on this information, we can recognise and provide some summary and recommendations for training needs analysis which arises from several from different domains of the innovative environment in the country. Montenegro, as a small Southeast European country, hosts several higher education institutions (HEIs), both public and private. The University of Montenegro, founded in 1974, is the largest and oldest public university, offering a wide range of academic programs. Private universities, including the University "Mediterranean" Podgorica, also contribute significantly to the education sector as well as others private Universities.

The HEIs in Montenegro operate under a unified legal framework, the Law of Higher Education, with a focus on quality assurance. The Agency for Control and Quality Assurance of Higher Education ensures that educational standards are maintained and improved. Montenegro actively participates in the Bologna Process, aligning its higher education system with European standards.

Montenegrin HEIs prioritize research and innovation, collaborating on various projects with national and international partners. The Smart Specialization Program (SSP) aims to promote economic development and innovation. It identifies key sectors where Montenegro can gain a competitive advantage and allocates resources strategically. Emphasis is placed on fostering entrepreneurship, supporting startups, and attracting investment in innovative areas.

Montenegro's innovation policies include a National Innovation Strategy, funding programs for research and development, and mechanisms to protect intellectual property rights. Initiatives encourage technology transfer, knowledge exchange, and the growth of startups and entrepreneurship. The Montenegrin Innovation Fund (MIF) plays a significant role in supporting technology transfer and innovation.

The government recognizes the importance of digital transformation for innovation and economic growth, leading to the adoption of the Digital Transformation Strategy of Montenegro 2022-2026. Montenegro has also established innovation infrastructure, such as the Science and Technology Park and the Innovation and Entrepreneurship Center "Tehnopolis."

While gamification in education is still relatively new in Montenegro, there are efforts to introduce it through programs like the PlayUK workshop and the "Micro:bit" project. These

initiatives aim to make learning more engaging and interactive, particularly in the context of digital education.

Recommendations for Training Needs Analysis:

Assessment of Current Skills: Conduct a comprehensive assessment of the current skills and competencies of educators, administrators, and policymakers in Montenegro's higher education and innovation sectors. This should include an evaluation of their knowledge of quality assurance, innovation policies, and digital transformation.

Quality Assurance Training: Given the emphasis on quality assurance in Montenegrin HEIs, training programs should be developed to ensure that educators and administrators are well-versed in quality standards and procedures. This includes understanding the Bologna Process and its implications.

Innovation and Entrepreneurship Training: Develop training programs to nurture innovation and entrepreneurship within Montenegro's education system. This can include workshops, mentorship programs, and courses on technology transfer and commercialization.

Digital Skills Training: Considering the government's focus on digital transformation, training initiatives should target digital skills development among educators and students. This may involve courses on digital literacy, coding, and the use of digital tools in education.

Intellectual Property Rights (IPR) Training: Offer training on IPR laws and practices, especially for those involved in research and innovation. This training can help protect intellectual property and promote innovation.

Gamification in Education: Given the emerging interest in gamification, training programs should be developed to equip educators with the skills to integrate gamified elements into their teaching methods. This training can enhance engagement and learning outcomes.

Monitoring and Evaluation Skills: As Montenegro implements various programs and initiatives, training on monitoring and evaluation techniques is crucial. This will help assess the impact and effectiveness of policies and projects.

Collaboration and Partnership Building: Offer training on building and managing partnerships and collaborations between academia, industry, government, and civil society. This skill is vital for successful implementation of innovation projects.

Access to International Programs: Facilitate access to international programs like Horizon 2020, providing guidance on application processes and collaboration opportunities for Montenegrin researchers and organizations.

Promotion of Innovation Culture: Develop training programs to promote a culture of innovation within higher education institutions and businesses. Encourage risk-taking and creative thinking.

Digital Learning Platforms: Given the interest in digital education, provide training on the use of digital learning platforms, e-learning content creation, and the integration of gamified elements in online courses.

Evaluation of Gamification Initiatives: Continuously evaluate the impact of gamification initiatives in education to refine and improve their effectiveness.

These training recommendations aim to enhance the skills and competencies of individuals and institutions in Montenegro's higher education and innovation sectors, ultimately contributing to the country's economic development and competitiveness on the global stage. In summary, Montenegro recognizes the importance of higher education, research, and innovation in its economic development. It has put in place policies, strategies, and programs to foster innovation, protect intellectual property, and support startups and entrepreneurship. Additionally, efforts are underway to introduce gamification in education and promote digital transformation to further enhance its innovation ecosystem. The training needs analysis for Montenegro's education and innovation sector highlights several key points:

Faculty and Staff Development:
Need: Montenegrin Higher Education Institutions (HEIs) should prioritize faculty and staff development in areas such as pedagogy, technology integration, and gamification techniques to enhance the quality of education.
Recommendation: HEIs should offer regular training sessions, workshops, and online courses to equip educators with the skills needed to effectively integrate gamified learning into their teaching methods. Collaborations with international institutions experienced in gamified learning can also be beneficial.

Digital Skills Training:
Need: The government's focus on digital transformation underscores the importance of equipping educators, students, and professionals with digital skills.
Recommendation: Develop comprehensive digital skills training programs for teachers, students, and professionals. These programs should cover areas like coding, data analytics, digital marketing, and cybersecurity. Public-private partnerships can facilitate these initiatives.

Promoting Innovation and Entrepreneurship:
Need: Montenegro has a strong emphasis on innovation and entrepreneurship. However, to further enhance these areas, targeted training and support are necessary.
Recommendation: Establish innovation and entrepreneurship training programs, including startup incubators and accelerators. These programs should provide training in business

development, pitch presentation, and financial management. Encourage collaboration between HEIs and the private sector to foster innovation.

Monitoring and Evaluation Skills:

Need: Effective implementation of programs, such as the Smart Specialization Program (SSP), requires strong monitoring and evaluation skills.

Recommendation: Provide training in monitoring and evaluation methodologies to relevant government officials, project managers, and researchers. This training will ensure that programs are assessed effectively, allowing for necessary adjustments and improvements.

IPR Protection and Technology Transfer:

Need: Montenegro recognizes the importance of intellectual property rights (IPR) and technology transfer, but there is room for growth.

Recommendation: Offer specialized training programs on IPR, patent filing, and technology commercialization. Create awareness campaigns and workshops for researchers and entrepreneurs on protecting their innovations and leveraging IPR for economic growth.

Gamification Skills:

Need: While gamification in learning is gaining recognition, Montenegro should invest in building expertise in this field.

Recommendation: Establish workshops, courses, and online resources on gamification techniques for educators. Encourage faculty members to experiment with gamified learning in their classrooms, share best practices, and collaborate with international experts in this field.

International Collaboration Skills:

Need: Montenegro actively participates in international cooperation initiatives in innovation. Effective collaboration skills are essential.

Recommendation: Develop training programs on international project management, cross-cultural communication, and grant proposal writing for researchers and professionals. These skills will enhance Montenegro's engagement in international innovation initiatives.

Awareness of Innovation Infrastructure:

Need: To maximize the benefits of innovation infrastructure, individuals and organizations need to be aware of available resources.

Recommendation: Conduct outreach and awareness campaigns to inform entrepreneurs, researchers, and students about the Science and Technology Park, Innovation and Entrepreneurship Centers, and Investment and Development Fund. Offer orientation and training programs to help them access and utilize these resources effectively.

Digital Literacy for Teachers and Students:

Need: With the government's focus on digital transformation, digital literacy is essential for both educators and students.

Recommendation: Develop digital literacy programs tailored for teachers and students at all educational levels. These programs should cover basic digital skills, online safety, and effective use of digital tools for learning and teaching.

Continual Evaluation and Adaptation:

Need: Training needs may evolve as Montenegro's education and innovation landscape changes.

Recommendation: Establish a system for continuous evaluation of training needs. Regularly solicit feedback from educators, researchers, entrepreneurs, and policymakers to adapt training programs to emerging trends and challenges.

By addressing these training needs and implementing the recommended actions, Montenegro can strengthen its higher education system, enhance innovation capacity, and promote gamified learning, ultimately contributing to economic growth and development in the country.

INNOVATION POLICY RECOMMENDATIONS: ALBANIA

Albania is in the process of assessing its educational and innovation needs, with a particular focus on higher education and scientific research. This assessment is part of many undergoing national and international projects aimed at strengthening the capacities of local higher education institutions. The country faces challenges due to the 2019 earthquake and the COVID-19 pandemic, which have disrupted education. Albania is also looking to align itself with the EU's Agenda for the Western Balkans, emphasizing innovation, research, education, culture, youth, and sports as key drivers of economic development. The country has been participating in EU programs such as Horizon 2020 and is working on improving its innovation and entrepreneurship ecosystem. Efforts are being made to integrate gamified education into the system to enhance student engagement and learning outcomes.

The analysis of needs in Albania, particularly in the context of the E-Le.G.A.N.T.S. project, involves a multi-phase approach. Initially, a desk analysis was conducted based on the European Commission's 2021 Reports, which assessed the socio-economic situation, post-earthquake challenges, and the impact of COVID-19 on education. The report highlights the need for additional resources and investment to enable digital transformation in education and support top universities. Albania has the potential to strengthen its education, research, and innovation sectors by addressing the challenges it faces and aligning itself with the EU's agenda. By implementing these policy recommendations, Albania can create a more conducive environment for research, innovation, and quality education, ultimately contributing to its economic development and prosperity.

The European Union's Agenda for Western Balkans outlines a comprehensive strategy for cooperation in areas like innovation, research, education, culture, youth, and sport. The agenda focuses on sustainability, knowledge-based societies, systemic changes, and regional economic integration through human capital development and digital transformation.

Albania's National Strategy for Scientific Research, Technology, and Innovation 2023-2030 aligns with the 2030 Agenda for Sustainable Development and aims to drive scientific research and innovation in the country. It includes specific objectives, performance indicators, and an action plan with budget allocation. Albania's participation in Horizon 2020 and other international programs has shown positive results, although private sector involvement remains low.

The institutional framework for scientific research and innovation in Albania involves multiple entities, including the Ministry of Education and Sports, the National Agency for Scientific Research and Innovation (NASRI), the Academy of Sciences, and various higher education institutions. The Agency for Quality Assurance in Higher Education (AQSHE) plays a role in evaluating the quality of scientific research in HEIs.

Albania has taken steps to develop its innovation and entrepreneurship ecosystem, with initiatives such as Startup Albania and a focus on digital infrastructure, intellectual property rights protection, collaboration platforms, and education and skills development.

Gamified education is an emerging concept in Albania, with potential applications in STEM education, history and cultural heritage education, and environmental education. Gamification can make learning more engaging and interactive for students.

Policy Recommendations:

Enhance Digital Infrastructure: Continue investments in improving digital infrastructure, including expanding broadband coverage and ensuring access to digital services and platforms. A strong digital foundation is crucial for innovation and e-learning.

Promote Private Sector Engagement: Encourage the private sector to participate more actively in research and innovation initiatives. Incentives such as tax breaks or grants for innovation-focused businesses can stimulate private sector involvement.

Strengthen NASRI: Provide NASRI with the necessary resources and authority to coordinate and implement policies effectively. Ensure that NASRI collaborates closely with relevant institutions, including the private sector, to drive research and innovation.

Support Gamified Education: Invest in the development of gamified educational content, particularly in STEM subjects, history and cultural heritage education, and environmental education. This approach can enhance student engagement and improve learning outcomes.

Foster Collaboration: Continue to build and strengthen collaboration platforms and networks that bring together academia, industry, government, and the startup community. These platforms facilitate knowledge sharing, partnership development, and innovation.

STEM Education Emphasis: Place a strong emphasis on STEM education from an early age. Develop curricula and learning resources that encourage students to explore science, technology, engineering, and mathematics in interactive and engaging ways.

Environmental Education: Prioritize environmental education through gamified initiatives that raise awareness about sustainability, environmental conservation, and related topics. Encourage students to become environmentally conscious citizens.

IPR Enforcement: Continue efforts to enforce intellectual property rights protection to incentivize innovation. Strengthen legal frameworks and enforcement mechanisms to safeguard intellectual property.

Monitoring and Evaluation: Implement a robust monitoring and evaluation system to track the impact of policies and initiatives related to research, innovation, and education. Use data-driven insights to make informed policy adjustments.

International Collaboration: Actively engage in international research and innovation programs and agreements, such as Horizon Europe and COST. Collaborate with other countries to leverage knowledge, resources, and expertise.

Evaluate Startup Ecosystem: Regularly assess the effectiveness of initiatives like Startup Albania in nurturing startups and supporting entrepreneurship. Adjust programs based on the evolving needs of the startup community.

Long-Term Planning: Develop a long-term strategy for scientific research, technology, and innovation that aligns with both national development goals and European integration objectives. Ensure that the strategy has clear objectives, performance indicators, and budget allocation.

By implementing these policy recommendations, Albania can further develop its research, innovation, and education sectors, fostering economic growth, social development, and international collaboration.

TRAINING NEEDS ANALYSIS (TNA): ALBANIA

The Training Needs Analysis (TNA) is a crucial process that helps identify the gaps in knowledge, skills, and competencies of individuals or organizations and determines the necessary training and development interventions to bridge those gaps. In the context of Albania, the TNA is essential to address the challenges and opportunities in the fields of higher education, scientific research, innovation, and entrepreneurship.

The TNA process begins with desk analysis, where existing documentation and data related to higher education, research, and innovation in Albania are reviewed. This analysis relies on sources such as the European Commission's reports, national strategies for scientific research,

and data on international cooperation programs. This initial phase provides a comprehensive understanding of the socio-economic context and the state of education and innovation in the country.

To gain a deeper insight into the training needs, questionnaires are distributed to various stakeholders. These stakeholders include educational institutions, professional groups, governmental bodies, and students. Engaging these key players ensures that a wide range of perspectives is considered in the analysis. Their input is invaluable for identifying specific training requirements.

Albanian universities, despite their potential, require support to improve their internal organizational capacity. This includes strengthening administrative processes, governance structures, and strategic planning. Training programs should focus on leadership and management skills for academic leaders and administrators. To gain international visibility and maximize the impact of their work, Albanian universities need support in networking and coordination. Training programs can facilitate the development of international partnerships, collaboration, and participation in European research and innovation initiatives.

The disruptions caused by the earthquake in 2019 and the COVID-19 pandemic underscore the importance of digitization in education. Training is needed to equip educational institutions with the necessary resources and skills to enhance online education, adapt to emergencies, and improve overall digital literacy. The Albanian government's focus on creating an innovation ecosystem, including support for startups, calls for training in entrepreneurship, innovation management, and the creation of a favorable environment for startups. Training programs can help individuals and organizations tap into these opportunities.

Albania's participation in the EU's Agenda for Western Balkans presents an opportunity for aligning training needs with EU priorities. Training should also contribute to regional economic integration by enhancing the quality of education and training, boosting human capital development, reducing gender and digital divides, improving mobility, and fostering cultural and regional cooperation.

The National Strategy for Scientific Research, Technology, and Innovation (SRTI) provides a strategic framework for training initiatives. It spans eight years and aligns with the 2030 Agenda for Sustainable Development. The strategy outlines specific objectives and performance indicators, which serve as a guide for designing training programs.

Albania's active participation in EU programs like Horizon 2020 and Horizon Europe demonstrates its commitment to research and innovation. Training programs should capitalize on this participation and enhance the country's ability to secure funding, collaborate with European partners, and contribute to EU research priorities.

The institutional framework for scientific research and innovation in Albania includes various bodies such as the Ministry of Education and Sports, the Academy of Sciences, the National Agency for Scientific Research and Innovation (NASRI), and higher education institutions. Training needs should address the capacity building of these institutions, especially NASRI, which plays a crucial role in financing research.

Albania's efforts to promote innovation and entrepreneurship call for training in startup development, business incubation, access to funding, and intellectual property rights protection. These training programs can help individuals and startups navigate the innovation ecosystem effectively.

Gamified education initiatives can enhance the learning experience, especially in STEM, history, cultural heritage, and environmental education. Developing gamified content and training educators in gamification techniques can make education more engaging and effective.

The Training Needs Analysis for Albania highlights the importance of aligning training programs with national and EU priorities, strengthening institutional capacity, fostering innovation and entrepreneurship, and embracing innovative approaches like gamified education. Addressing these training needs will contribute to Albania's growth in higher education, research, and innovation, ultimately supporting its integration into the European research and innovation landscape. So based on the provided information about the educational landscape in Albania, here are some training needs analysis and recommendations:

Capacity Building for Higher Education Institutions:

Need: Albanian higher education institutions require support to improve their internal organizational capacity.
Recommendation: Conduct training programs and workshops aimed at enhancing the administrative and management skills of staff in higher education institutions. This training should focus on strategic planning, financial management, and quality assurance processes.

International Collaboration and Networking:

Need: Albanian universities need assistance in networking and coordination to gain international visibility.
Recommendation: Organize training sessions on international collaboration and partnership development. Emphasize the importance of participating in European programs, such as Erasmus and Horizon Europe, and provide guidance on proposal writing and project management.

Enhancing Digitalization in Education:

Need: The COVID-19 pandemic highlighted the importance of digital education, and Albania requires additional resources and investment in this area.

Recommendation: Offer training programs on digital teaching methodologies, e-learning platforms, and tools for educators. Encourage the development of online educational resources.

Research and Innovation Capacity Building:

Need: Albania aims to improve its research and innovation ecosystem.

Recommendation: Provide training and workshops on research proposal development, grant writing, and project management. Support institutions in strengthening their innovation and entrepreneurship ecosystems.

Intellectual Property Rights (IPR) Protection:

Need: Albania has taken steps to protect intellectual property rights, but further awareness and understanding are required.

Recommendation: Organize training sessions on IPR, copyrights, trademarks, and patents for researchers, innovators, and entrepreneurs. Promote compliance with IPR regulations.

Entrepreneurship Education:

Need: To foster innovation, entrepreneurship education should be integrated into the curriculum.

Recommendation: Develop entrepreneurship education programs and train teachers on how to incorporate entrepreneurship principles into their teaching methods. Encourage students to develop entrepreneurial skills.

Gamified Education Implementation:

Need: The adoption of gamified education methods is a work in progress in Albania.

Recommendation: Provide training and resources for educators on the design and implementation of gamified learning experiences. Share best practices and examples of successful gamified education approaches.

Environmental Education:

Need: Environmental education is crucial for sustainability.

Recommendation: Offer training and materials for educators on integrating environmental topics into the curriculum. Promote experiential learning through field trips, simulations, and eco-friendly projects.

Digital Infrastructure Development:

Need: Albania continues to improve its digital infrastructure.

Recommendation: Provide training on digital infrastructure management and cybersecurity to ensure the reliability and security of digital services in education.

Digital Literacy for Teachers and Students:

Need: Enhancing digital literacy among teachers and students is essential for effective e-learning.

Recommendation: Offer digital literacy training programs for both educators and students. These programs should cover basic digital skills, online safety, and responsible digital citizenship.

Cultural Heritage Education:
Need: Promoting cultural heritage education is important for preserving Albania's rich history.
Recommendation: Develop training materials and resources for educators to incorporate cultural heritage topics into their teaching. Encourage visits to historical sites and cultural institutions.

STEM Education Enhancement:
Need: Improving STEM education can contribute to a more skilled workforce.
Recommendation: Offer training for STEM teachers, focusing on innovative teaching methods and practical experiments. Provide access to STEM resources and equipment for schools.

Support for Private Sector Engagement:
Need: Encouraging private sector participation in research and innovation is essential.
Recommendation: Organize workshops and networking events to connect private sector organizations with academia and research institutions. Promote collaboration through joint projects and investments.

Promotion of European Programs:
Need: Albania has increased its participation in European programs.
Recommendation: Conduct awareness campaigns and training sessions to inform institutions and researchers about opportunities in programs like Erasmus, Horizon Europe, and COST actions.

These recommendations aim to address various aspects of Albania's educational and research landscape, promoting capacity building, innovation, and resilience in the face of challenges. Tailoring training programs to meet these specific needs can contribute to the country's educational and research development.

INNOVATION POLICY RECOMMENDATIONS: KOSOVO

Kosovo, as a developing nation, has made substantial progress in various sectors, particularly in its efforts to stimulate economic growth and promote innovation. The government has recognized the importance of education in fostering a skilled workforce and has implemented policies to ensure access to quality education, aligning curricula with market needs, and integrating technology into the learning process. However, challenges such as limited resources and the digital divide remain significant hurdles.

Kosovo, situated in Southeastern Europe, has a population of around 1.8 million and is considered a developing nation. Since gaining independence in 2008, its economy has shown

positive growth trends, with significant contributions from the service, industry, and agriculture sectors.

The service sector is a major contributor to Kosovo's GDP, encompassing activities like retail, tourism, transportation, telecommunications, and financial services. The industrial sector includes mining, manufacturing, and construction, with key areas being energy, mining, textiles, food processing, and construction materials. Agriculture also plays a vital role, providing employment through the production of grains, fruits, vegetables, dairy, and livestock.

Education is pivotal for Kosovo's development. The government has made efforts to create a robust public education system, with policies like the Education Strategic Plan 2017-2021 and the Law on Pre-University Education focusing on quality, equity, and student skills. The curriculum emphasizes core subjects, critical thinking, problem-solving, and digital literacy, but it needs updates to align with labor market demands. Teachers' professional development is also vital.

Kosovo recognizes the importance of technology in education, distributing laptops and developing e-learning platforms. However, more investment is needed to ensure equitable access to technology. Vocational education and training (VET) programs aim to enhance employability but must better align with the labor market.

Innovation policy is a key driver of economic development, aiming to stimulate growth, create jobs, and foster technological progress. Kosovo's innovation policy includes government initiatives, funding mechanisms, public-private partnerships, legal frameworks for intellectual property, education and skill development, and evaluation mechanisms.

Various organizations offer innovation grants in Kosovo, including the Innovation Fund Kosovo, Kosovo Enterprise Program (KEP), EU programs like Horizon 2020 and ESIF, and the UNDP Innovation Fund.

Incubators and accelerators, such as Innovation Centre Kosovo (ICK), the IPKO Foundation, Prishtina Innovation Centre (PIN), CACTTUS, and Innovation Nest, provide crucial support to startups, offering mentorship, workspaces, resources, and investor connections.

Kosovo has established technology parks like the Innovation and Technology Park (ITP), which foster innovation, research, and development. The University of Business and Technology (UBT) collaborates with ITP to create an ecosystem for innovation and entrepreneurship.

Partnerships with financial institutions and international organizations provide funding programs for startups and SMEs, including the Innovation Fund Kosovo, Kosova Women's Fund (KWF), Kosovo Credit Guarantee Fund (KCGF), Kosovo Investment and Enterprise Support Agency (KIESA), and international donor grants.

Higher Education Institutions (HEIs) in Kosovo are crucial for human capital development. Public and private universities offer a wide range of programs. The Kosovo Accreditation Agency (KAA) ensures quality.

International partnerships are common among HEIs in Kosovo, promoting educational exchanges, with participation in programs like Erasmus+.

Key entities in Kosovo related to innovation include government ministries, the Kosovo Chamber of Commerce, Kosovo Association of Information and Communication Technology (STIKK), Innovation Centre Kosovo (ICK), Kosovo Association of Young Entrepreneurs (KAYE), and tech companies like Gjirafa, D4D, IPKO Foundation, and KODE Labs.

Kosovo is actively working to strengthen its economy through innovation, education, and technology adoption, with a growing emphasis on supporting startups and fostering an innovation-friendly environment. In the realm of innovation, Kosovo has established a comprehensive policy framework that encompasses government initiatives, funding mechanisms, public-private partnerships, and education programs. The presence of incubators, accelerators, and technology parks provides essential support to startups and entrepreneurs, fostering a conducive environment for innovation. International partnerships and funding programs further enhance Kosovo's innovation ecosystem.

The higher education sector in Kosovo offers a range of opportunities, with quality assurance processes in place to maintain educational standards. International collaborations and student mobility programs contribute to a diverse and enriched learning experience.

Entities like the Ministry of Innovation and Entrepreneurship, associations, organizations, and tech companies all play vital roles in driving innovation and entrepreneurship within Kosovo. These efforts collectively contribute to economic growth, job creation, and technological advancement, positioning Kosovo as a nation with significant potential for further development in the years to come.

Kosovo, as a developing nation, has recognized the importance of fostering innovation to stimulate economic growth and reduce its reliance on traditional sectors. To further enhance its innovation ecosystem and drive economic development, the following policy recommendations are proposed:

Strengthen Education and Research:
Enhance STEM (Science, Technology, Engineering, and Mathematics) education in schools to nurture a culture of innovation from an early age. Promote academic and industry collaboration to facilitate knowledge transfer and applied research. Establish research grants and scholarships to encourage students and researchers to engage in innovative projects.

Improve Access to Funding:

Diversify funding sources for startups, including venture capital, angel investors, and crowdfunding platforms. Create a national innovation fund to provide grants and low-interest loans to innovative startups and SMEs. Simplify and expedite the grant application process, reducing bureaucracy and ensuring fair access to funding.

Develop Innovation Hubs and Incubators:

Expand existing innovation hubs and incubators like the Innovation Centre Kosovo (ICK) to support more startups and provide them with necessary resources and mentorship. Establish innovation hubs in different regions of Kosovo to promote regional development and decentralize innovation activities. Encourage private sector involvement in supporting and mentoring startups within these hubs.

Foster Public-Private Partnerships:

Encourage collaboration between public institutions, private companies, and research institutions to facilitate technology transfer and innovation. Develop joint research and development (R&D) projects between academia and industry. Establish technology parks and clusters to co-locate innovative companies and foster collaboration.

Intellectual Property Protection:

Strengthen intellectual property laws and enforcement to protect the rights of innovators and creators. Promote awareness of intellectual property rights among innovators and startups. Establish patent offices and provide support for patent registration.

Promote Entrepreneurship:

Develop entrepreneurship education programs and training initiatives to equip aspiring entrepreneurs with essential skills. Organize startup competitions, hackathons, and innovation challenges to identify and nurture entrepreneurial talent. Provide mentorship programs connecting experienced entrepreneurs with newcomers.

Digital Infrastructure and Connectivity:

Invest in broadband infrastructure to ensure reliable and high-speed internet access across the country. Bridge the digital divide by providing affordable internet access to underserved regions and communities. Support the development of e-commerce platforms and digital marketplaces to facilitate online business growth.

Regulatory Environment:

Simplify business registration and licensing processes for startups and SMEs. Establish regulatory sandboxes to allow innovative companies to test new products and services in a controlled environment. Develop clear guidelines for emerging technologies like blockchain and artificial intelligence to promote responsible innovation.

International Collaboration:

Strengthen ties with international organizations, such as the European Union and the United Nations, to access funding and expertise for innovation initiatives. Participate in international

research and innovation programs like Horizon 2020 to foster collaboration and access global markets.

Evaluation and Monitoring:

Implement regular assessments of innovation policies and programs to measure their impact and effectiveness. Utilize data-driven insights to refine and adapt innovation policies based on changing needs and global trends.

Gender-Inclusive Innovation:

Promote gender diversity in entrepreneurship and innovation by encouraging more women to participate in innovation initiatives. Establish specific programs and grants for women-led startups and innovators.

Public Awareness and Engagement:

Launch campaigns to raise public awareness about the importance of innovation and its impact on the economy. Engage with citizens through forums, public consultations, and surveys to gather input on innovation policies.

In conclusion, Kosovo has the potential to harness innovation as a driver of economic growth and development. By implementing these policy recommendations and fostering a supportive ecosystem for innovation, Kosovo can create a sustainable pathway to prosperity and reduce economic disparities within the nation. These initiatives should be part of a comprehensive, long-term strategy to position Kosovo as a regional innovation hub and a competitive player in the global economy.

TRAINING NEEDS ANALYSIS (TNA): KOSOVO

The country's economy is primarily driven by the service, industry, and agricultural sectors. In this context, it is crucial to assess the training needs and make recommendations to bolster innovation and entrepreneurship within Kosovo's innovation ecosystem. So this training needs analysis will focus on key areas of innovation policy, incubation and acceleration programs, funding mechanisms, higher education institutions, and relevant associations and organizations. Developing and implementing an effective innovation policy is crucial to stimulate economic growth, create employment opportunities, and promote technological progress. However, to ensure the success of Kosovo's innovation policy, a comprehensive Training Needs Analysis (TNA) is necessary to identify the skills, knowledge, and competencies required by various stakeholders. This TNA will focus on key aspects of Kosovo's innovation policy, including government initiatives, funding mechanisms, collaboration efforts, regulatory frameworks, education, support institutions, and companies involved in innovation.

Kosovo's government should collaborate with international organizations and experts to develop training programs for policymakers. This should include workshops, seminars, and online courses. Regular workshops should be conducted to keep policymakers updated on the latest global trends and best practices in innovation policy.

Capacity Building for Policymakers: There's a need to provide training and capacity-building programs for policymakers to better understand and formulate innovation policies. These programs should include international best practices and case studies.

Monitoring and Evaluation: Training programs for government officials should focus on establishing effective monitoring and evaluation mechanisms to assess the impact of innovation policies.
Incubation and Acceleration Programs:

Entrepreneurial Skills: Entrepreneurs and startup founders require training in essential entrepreneurial skills, including business planning, marketing, financial management, and pitching to investors.

Mentorship: Training mentors and advisors to provide effective guidance and mentorship to startups is crucial. Programs should teach them how to identify challenges, provide constructive feedback, and help startups grow.

Networking and Collaboration: Training programs should emphasize networking and collaboration skills, encouraging startups to connect with potential partners, investors, and other ecosystem stakeholders.
Funding Mechanisms:

Grant Application Skills: Training should be provided to startups and innovators on how to prepare competitive grant applications. This includes crafting convincing proposals, financial planning, and reporting requirements.

Curriculum Enhancement: HEIs should update and align their curricula with industry demands. This includes introducing courses on innovation, entrepreneurship, and technology transfer.

Digital Literacy: Given the importance of technology, HEIs should offer training to students in digital literacy, including coding, data analysis, and digital marketing.

Research and Development Skills: Training should be provided to students and faculty on conducting research, developing prototypes, and commercializing innovations.
Associations and Organizations:

Capacity Building for Associations: Organizations like the Kosovo Chamber of Commerce, STIKK, and others should receive training in fostering innovation within their respective industries.

Youth Entrepreneurship: Organizations like KAYE and the IPKO Foundation should continue providing mentorship and training programs for young entrepreneurs, emphasizing innovation.

Incubation and Acceleration Programs:

Incubators and accelerators should establish comprehensive training modules for startups. These should cover both soft skills and industry-specific knowledge.
Regional and international experts should be invited to conduct workshops and training sessions for entrepreneurs.

Higher Education Institutions (HEIs):

HEIs should collaborate with industry partners to offer practical training programs, internships, and apprenticeships. Universities should invest in faculty development programs to ensure educators are up-to-date with the latest industry trends.

Associations and Organizations:

Associations like STIKK should organize industry-specific innovation workshops and conferences. International organizations, such as the UNDP, should provide support for the training and capacity building of local associations.

Government Initiatives

To support innovation, Kosovo's government has established innovation centers, technology parks, and startup incubators. These entities play a pivotal role in fostering entrepreneurship and innovation within the country. However, for these initiatives to be successful, the government officials responsible for overseeing them need specific skills and knowledge. A training program for government officials should include:

- Understanding the principles of innovation management.
- Knowledge of best practices in running technology parks and incubators.
- Familiarity with funding mechanisms and grant administration.
- Skills in evaluating and selecting innovative projects.

Funding Mechanisms

Kosovo's innovation policy includes various funding mechanisms, such as grants and subsidies, to stimulate research and development efforts. Training for those involved in managing and distributing these funds is essential to ensure effective use and accountability. The training program should cover:

- Grant management procedures and best practices.
- Risk assessment and due diligence in selecting projects.
- Monitoring and evaluation of funded projects.
- Compliance with international funding guidelines.

Public-Private Collaboration

Promoting collaboration between the public and private sectors is fundamental to Kosovo's innovation policy. Training programs should target individuals who facilitate these collaborations. Key topics to cover include:

- Strategies for fostering collaboration between academia, industry, and research institutions.
- Intellectual property rights and technology transfer.
- Negotiation and partnership building skills.
- Identifying and addressing barriers to collaboration.

Regulatory Framework

A strong regulatory framework is essential for innovation policy. Training should focus on individuals responsible for crafting and implementing these regulations. Key areas to address include:

- Understanding intellectual property rights and patents.
- Crafting effective regulations to promote innovation.
- Ensuring compliance with international standards.
- Protecting the rights of innovators and creators.

Education and Skill Development

Education plays a pivotal role in promoting innovation. Teachers and educators need training to prepare students for the demands of the modern workforce. Training programs should include:

- Incorporating innovative teaching methodologies.
- Aligning the curriculum with the labor market's demands.
- Developing critical thinking and problem-solving skills in students.
- Enhancing digital literacy among educators and students.

Support Institutions

Entities such as innovation hubs, incubators, and accelerators play a vital role in supporting startups and entrepreneurs. Training for individuals working in these organizations should encompass:

- Providing mentorship and guidance to startups.
- Creating effective networking opportunities.
- Facilitating access to funding sources.
- Evaluating the impact of support programs.

Companies Involved in Innovation

In Kosovo, several companies are actively engaged in innovation and technology development. Training programs for these companies should focus on:

- Leveraging data-driven approaches for innovation.
- Collaborative innovation strategies.
- Intellectual property management.
- International best practices in innovation.

Higher Education Institutions (HEIs)

Higher education institutions are instrumental in fostering innovation through research and education. Training programs for HEIs should cover:

- Promoting research and development activities.
- Enhancing international collaboration.
- Incorporating entrepreneurship education.
- Aligning curricula with the needs of the innovation sector.

International Partnerships

Kosovo actively participates in international partnerships and exchange programs. Training for individuals involved in international collaboration should include:

- Understanding international funding mechanisms.
- Building effective partnerships with foreign institutions.
- Compliance with international regulations and standards.
- Cross-cultural communication and negotiation skills.

Monitoring and Evaluation

To ensure the effectiveness of Kosovo's innovation policy, ongoing monitoring and evaluation are essential. Training should be provided to individuals responsible for these tasks, covering:

- Developing key performance indicators (KPIs) for innovation programs.
- Conducting systematic evaluations of policy implementation.
- Identifying areas for improvement and adaptation.
- Utilizing evaluation results to inform policy decisions.

The successful development and implementation of Kosovo's innovation policy require a well-trained workforce across various sectors and organizations. This Training Needs Analysis outlines the key areas where training programs are essential to support the objectives of the innovation policy. By investing in the development of skills, knowledge, and competencies, Kosovo can create an environment that fosters innovation, drives economic growth, and enhances its competitiveness in the international market. Training initiatives should be tailored to the specific needs of each stakeholder group to maximize their impact on Kosovo's innovation ecosystem. Kosovo's innovation ecosystem has the potential for growth and development, but it requires targeted training and capacity-building initiatives. By focusing on innovation policy, incubation and acceleration programs, funding mechanisms, higher education institutions, and relevant associations and organizations, Kosovo can foster a thriving innovation ecosystem that contributes to economic growth and technological

progress. Collaboration with international partners and experts is essential to ensure the effectiveness of these training programs and their alignment with global best practices.