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REPORT

TOPIC: *Science and New Technologies at the Service of Modern Education*

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I INTRODUCTION

Science and technology represent an exceptionally important dimension of the quality of life, which, with further development of digital society, will be increasingly dominant, because it will further open up access to a wealth of resources and information.

In the 21st century, the information technologies are considered one of the key factors or major driving force of change in the modern world. They enable the uninhibited information flow access to data, knowledge, as well as transform the structure and dynamics of the labour market. The application of technology has brought society to such a stage that having digital skills, along with reading, writing and calculating, today is considered basic literacy.

Since the digital technologies are rapidly developing they are having significant effect on how people study, work and interact with each other in ever changing interconnecting world. Therefore, preparing pupils on how to make use of new technologies through education significantly makes learning and working easier. With efforts to meet the challenges arising from technology and digitalisation the issue of developing modern technologies and incorporating them in modern life should become a priority in the SEECP region.

The use of modern information and communication technologies (ICT) requires users to have certain different knowledge and skill set for optimal use of their powers, both in private and business environments. It is necessary to use modern ICT to improve the very teaching process, however, there is also such need to teach, within the education system, how best to use the advantages of these technologies in different areas of human activity.

By applying the ICT, the education process goes beyond the confines of traditional education and becomes independent from the location and time so it is often called e-education.

Science and technology are drivers of many social changes, while knowledge, innovation and skills represent one of the basic resources and conditions for development and survival on the labour market in the SEE region. Good quality implementation of these concepts and the application of technologies lead to increased effectiveness of higher education institutions, which directly results in raising their competitiveness. In order to increase effectiveness and competitiveness of the higher education institutions in the age of digital technologies, it is necessary to constantly introduce changes. One of the key changes is the application of new concepts and technologies in the education system of the SEE participants.

Education in the South-East European Cooperation Process (SEECP) area today is facing great challenges resulting from a rapid development of the technological achievements. The challenges of rapid development of new technologies, mixed with globalisation, demographic trends, frequent changes in labour market needs, and the growing demand for the highly skilled workforce impose the necessity of lifelong learning and establishment of an education system, which is open, flexible and forward-looking giving young people skills and competences they need to innovate and prosper. In the SEECP region, education is one of the areas which is given major attention, in line with the Europe 2020 Strategy, focused on three interconnected priorities, the first of which is: Smart growth: developing an economy based on knowledge and innovation.
**Scientific and technological research and development, innovation, education and digital society.**

Furthermore, the Digital Agenda for Europe represents one of seven leading initiatives whose goal is to define the key role of ICT in implementing the Europe 2020 Strategy. Its task is to present the manner for increasing social and economic potential of ICT, and primarily the Internet as an important media for all economic and social activities. A more effective use of digital technologies will enable Europe to tackle key challenges which would contribute to a better quality of life of all its citizens.

On the 17 of January 2018, the European Commission has launched the Digital Education Action Plan which includes 11 actions to support technology-use and digital competence development in education. The action plan has three priorities, setting out measures to help EU Member States meet the challenges and opportunities of education in the digital age. Certain actions also refer to the Western Balkan region.

Western Blakans six being not yet in EU have also developed similar mechanisms to boost knowledge driven growth. Smart Growth features also as a pillar of the Southeast Europe SEE2020 Strategy which was inspired by the EU2020 strategy and endorsed by six governments of Western Balkans, participants of the SEECP. Promoting innovation and fostering knowledge-driven growth is the central objective of the Smart Growth pillar as the regional economies seek to move away from low-cost labour to other more sustainable forms of competitiveness.

Similarly, last year, during Bulgarian EU Presidency, the Digital Assembly was organised in Sofia, whereby the European Commission launched the Digital Agenda for the Western Balkans. This aims to support the transition of the region into a digital economy and bring the benefits of the digital transformation, such as faster economic growth, more jobs, and better services for its citizens. Digital Agenda for the Western Balkans includes developing a roadmap to facilitate lowering cost of roaming and substantial technical assistance package for the identification of potential digital investments (including broadband) through Western Balkan Investment Framework/Instrument for Pre-accession Assistance.¹

In that regard, the SEECP region is gradually advancing to meet technological challenges of our time, while the education system remains a key starting point - a hotspot for increasing the level of information literacy of the employees and pupils, which should directly impact the improvement of the quality of education, and thus the improvement of the quality of life.

**II Introducing the ICT in the education system**

The digitalisation of the education system is recognised as the primary need of modern economies, which is confirmed by the European Commission data that in the near future 90% of jobs will require digital skills.

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2.1 Raising awareness on the significance of introducing the ICT in the education system and their impact on the quality of education

There is no doubt about the necessity of harmonising education with the expectations of today’s pupils living in the digital age and development of ICT.

The ICT development chart on a global level at the beginning of the 21st century (2001-2018) speaks volumes about the expansion of their use.\(^2\)

Introducing innovation based on digital technologies into the learning and teaching processes and gradual adjustment of the overall education system to such changes is not a simple nor is it an easily achieved process. It is not possible to reach the desired goal without serious economic investments and systemic approach, focusing on the teaching, learning, assessment and related learning support activities including particularly pedagogical, technological and organisational dimensions with an accurately defined and sustainable investment plan.

During the first decade of the 21st century, while creating the concept of the strategic approach to ICT in the education system, these were the starting points in this area, which all the SEECP participants striving towards constant development of society and high quality of education had:

- ICT is essential for the development of **social and economic potential** of a society and every individual in a society;
- ICT is a vital part of the new vision of education, in accordance with which the children and young people are being prepared to **live and work** in a society of high competencies;
- there is a strong correlation between ICT and education: ICT are an enormous potential for the **development of education**, on the other hand - education is an enormous potential for the **development of ICT**;

ICT should **significantly facilitate working in schools** for teachers in all aspects: administration (maintaining pedagogical documentation), communication and networking with teachers, pupils, and parents, and especially in holding lessons;

the ICT potential is also significant for the development of **learning to learn**; it is one of the outcomes of the high quality education and one of eight key competencies in the EU, on which lifelong education is based (communication in the mother tongue and in foreign languages, mathematical competence and basic competences in science and technology, **digital competence**, learning to learn, interpersonal, intercultural, social and civic competences, entrepreneurship, and cultural creativity)\(^3\);

The ICT in and of themselves do not bring a higher quality of learning and knowledge and a more fair education system; moreover, with a non-critical use they may make pupils passive in the teaching and learning process, diminish the capacity for critical thinking, individual learning etc.; only with a **thought-out, planned and strategic use** of these technologies may the quality of learning and teaching be increased: by applying the interactive methods of teaching and learning, by the change of the position of pupils in teaching and pupil-teacher interaction, by increasing the motivation for learning, by modernising the teaching materials, by acquiring the skills of (lifelong) learning etc.

Thought-out, planned and strategic use of ICT is only possible if **clear and sustainable policies** and activities at the central level and in the school itself - the classroom - are established. They entail the following:

- systemic approach - coordinated policies in different sectors (e.g. education, information society, science) and at different levels (e.g. central level, school level);
- adequate infrastructure (sustainable procurement, maintenance, introduction of new ICT);
- constant capacity development (continuous professional development of teachers and principals);
- development of digital learning and teaching materials;
- promoting the ICT role and potential in education - raising awareness (on all levels);
- continuous monitoring of ICT indicators in the quality system of the schools’ and pupils’ achievements and the use of data to create new activities and policies;
- development of a system for monitoring and evaluation of the level of implementation of strategic documents in the ICT area (education, information society) on all levels (from the central level to schools/classrooms).

**2.2 New technologies: informatisation of the education system and e-education**

With the development of science and ICT, which have a great potential for innovation and transformation of education, the education system in the SEECFP participants has experienced a significant degree of informatisation in the past ten years. Common aspiration of SEE participants is to make the education system more accessible through adjusted programmes and tools, in order to enable every pupil to have an adequate manner of learning.

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As a learning tool, when used correctly, technology may achieve significant educational and pedagogic results in schools and provide great benefits to pupils and teachers. In order for the technology to be successfully integrated in teaching, teachers should use certain types of knowledge: knowledge of content/topic; knowledge of the topic to be learned; technical knowledge: knowledge of ICT; pedagogic knowledge: knowledge of practice, processes, strategies, methods of teaching and learning.

While still in primary school, pupils should acquire basic knowledge and learn about the technological possibilities, as well as to acquire skills of learning and independent research. World-wide knowledge is currently, almost instantly, available through the electronic media, where its size and content is constantly in process of changes and new insights. Acquiring the knowledge of reproduction should be replaced by teaching the skills of data finding, with the use of available technologies, as well as turning them into information. It is what that the pupils will specifically understand and be able to apply. The said skills should be applied in teaching of all subjects in schools.

The pupils in schools have equal opportunities to learn and advance, but the capabilities of pupils to learn, write and solve tasks may vary. Considering the changes in technology, society and culture, schools should be capable of constant change and adjustment.

The 21st century pedagogy indicates that the teachings and curricula should be permeated with new technologies and that they should be oriented towards the development of key competencies for the 21st century.

Image 1 The 21st century teaching

The advantages of the new technology are that it allows for quick presentation of the class that takes place elsewhere, city or country. New programs facilitate the work of teachers and administration in the management of pedagogical records, opportunities are created for printing certificates, registries and databases set up, not only at the school level, but also the line ministry.

With the application of information and communication technologies, the educational process emerges outside the framework of traditional teaching and becomes independent of location and time and is often called E-Education. The term E-Education

http://www.valentinkuleto.com/2015/03/ucionice-21-veka/
is usually defined as performing activities related to the educational process by using the opportunities offered by information and communication technologies, that is, as an electronically supported learning.

The following goals are achieved with e-education:
- independent and permanent learning,
- higher level of efficiency of the teaching process and
- flexible organisation of teaching and greater coverage of those who are willing and able to learn.

Some of the advantages of e-learning are:

- the ability to participate in education at any time and from any place;
- better interaction between students and teachers;
- time saving;
- higher efficiency;
- flexible learning;
- individual approach to students and acceptance of different learning styles;
- adjustment of content and learning pace on individual basis;
- encouraging students to analytical thinking, synthesising acquired knowledge, and independent problem solving;
- learning progress can easily be checked and monitored;
- professional development and retraining;
- providing new opportunities for lifelong learning;
- simpler organisation of lectures by world experts via videoconferencing;
- including various profiles of participants (employees, students coming from inaccessible environments, people having mobility problems, etc.).

2.3 Use of new services based on the use of ICT

In order for the educational system in the SEECP area to be competitive among modern education systems, it is necessary to monitor all current trends, and digitisation in education has become a reality. Model of economic growth, based on innovation and knowledge, cannot exist without the application of digital technologies in education.

In this regard, we should point out some of the benefits that are obtained by the application of information and communication technologies in monitoring progress in learning, which can be easily checked and monitored by digitising the classical school diary used in schools. The basic function of an electronic diary is to mediate between teachers and pupils, and between teachers and parents. The electronic diary provides us with an accurate insight into how a pupil behaves and what results he achieves in other classes, providing opportunity for us to obtain more complete and objective image of pupils' work. With the use of the electronic diary, teachers in schools easily keep daily records of classes and extracurricular activities held, school obligations, grade and attendance record, written assignment topics – keeping them in a digitised form, thus providing themselves more time to devote to work with pupils.

The application of new technologies marked a revolution in education. One of the examples that has already been used in a number of schools is a virtual classroom.

The benefits of using a virtual classroom, or the application of virtual environments in e-learning, brings various possibilities. There is no such barrier in virtual environments for students who are apart in terms of territory. The possibility of various simulations and
trainings has been given in order to enable students to experience first-hand how something works. Interaction is at the highest level possible. Different forms of communication are offered, with chat, live audio and video. Socialisation is one of the primary goals and the ability to share content is of great importance. Different forms of work enable better acquaintance of ones colleagues, thus gaining insight into different solutions and different opinions on the given problem. The emphasis is on collaboration and cooperation. Another advantage of using virtual environments is learning through play. The use of computer games and games in general for educational purposes, offers different presentations of knowledge and creates opportunities for the application of knowledge in the virtual world, thus supporting and facilitating learning processes. The main goal is to achieve cooperation with as many remote users as possible, which will be achieved through convergence of virtual and real environments.

The virtual classroom is there with no intention to fully replace teachers, but as a learning environment created in a virtual digital space, to improve access to teaching through different educational technologies by allowing teachers and students to participate in the work between classrooms far apart, and to improve the quality and efficiency of education, enabling a collaborative educational process by using information and communication technologies.

Also, new technologies, such as Internet of Things - IoT and Cloud Computing, have a special place in education, creating Smart Learning Environments. IoT is a concept that extends the virtual world and the internet to physical things from the real world, allowing for the virtualisation of resources. Cloud Computing refers to a technology that allows for the interactions between users and various services available on the internet. Virtual Reality - VR is particularly reflected in the opportunities created for empirical learning through experiments that students can learn to solve complex problems in a different way compared to traditional educational methods. Using mobile technologies in the education process is another way to transform learning. Mobile technologies can be of great importance in the development of a ubiquitous learning environment.

With the introduction of new technologies in schools, in education, young people are increasingly encouraged to improve their knowledge in a quality manner.

In the upcoming period, it is necessary to encourage the application of the e-learning concept in higher education in SEECp participants. Higher education institutions have made significant progress in the implementation of this concept, but the degree of application of modern information and communication technologies in the implementation of the teaching process is still unsatisfactory. So it is needed to work in the future on providing the necessary information resources, primarily through participation in international projects, but also on training of the teaching staff when it comes to the application of modern IT technologies. In order to achieve this goal, organising of intensive training for academic and non-academic staff and students is necessary, especially regarding the use of the e-learning platform or the LMS - Learning Management System.

By using the latest technologies and e-learning, personalisation of learning is enabled, which cannot be provided by traditional teaching, because all students in the classroom listen to the same lecture and do the same tasks. With personalised e-learning, the student is learning what has been adapted to his previous knowledge and the style of learning best suited for him. Additionally, with the inclusion of multimedia materials
(video, audio, text) and interactive activities (exchange of messages between teachers and students, interaction among students, application of the discussion forum on subjects, interactive self-testing, etc.), a new dimension in the learning process has been enabled, which was not easily accomplished in traditional teaching.

What is equally important, in addition to the application of modern technologies, is the application of an appropriate teaching methodology and customised pedagogical methods. To the student, learning should be interesting, appealing, understandable and challenging. He should be pleased to learn and research of what he does not know and what interests him, but also what is necessary for the job for which he is preparing himself.

**Application of new technologies in the education process includes:**

- Work on projects and creativity in the classroom,
- Key skills and mental development,
- Development of digital content for learning needs and use of information and communication technologies in other subjects,
- Algorithmic thinking and coding,
- Inclusive education and assistive technologies,
- School management through the process of digitisation and vocational education and digital industries.

**The application of new technologies in the education process** will contribute to the development of teaching and non-teaching staff in pre-school institutions, schools, universities and other organisations from the field of education, in any form, in order to encourage creativity and innovation, modernise the learning process and make the best use of opportunities offered by new technologies.

**III IMPLEMENTED PROJECTS - Examples of good practice**

The SEECp participants have grasped the need for training of teaching and non-teaching staff in time, whose main disadvantage was focus, exclusively, on computer literacy, instead of allowing teachers to integrate digital technologies into their daily teaching activities and master their use in terms of an effective means for improving teaching and learning.

In this regard, Podgorica has implemented a number of projects with the aim to strengthen information and communication capacities in the system of national administration and educational institutions in Montenegro, harmonised with the standards of the European Union.

First of all, it should be noted that subjects studied in elementary and secondary schools are divided into compulsory and elective subjects. Compulsory subjects in the field of information and communication technologies, studied in elementary schools, are the following: Informatics with technique, studied in grades 5-8, one class per week; in Gymnasium: Informatics, studied in grades 1-2, two classes per week; while in various secondary vocational schools, pupils have a total of 18 compulsory subjects from the subject area at their disposal. As for the elective subjects in the field of information and communication technologies, which are studied in elementary schools, they are the following: Production of graphics and image and photography editing, studied in eighth grade, one class per week and Introduction to programming, studied in ninth grade, one
class per week; in Gymnasium: Algorithms and programming, studied in third or fourth grade, three classes per week; Computer and web presentation, studied in second or third grade, two classes per week; Business Informatics, studied in second or third grade of the Gymnasium, two classes per week; while in various secondary vocational schools, pupils have a total of as many as 14 elective subjects from the subject area at their disposal.

In the previous period, the following projects were implemented:

**ECDL (European Computer Driving Licence) – For Digital Montenegro**, is a project implemented under the IPA 2011 program. The project was aimed at strengthening the ICT capacities in the system of state administration and educational institutions in Montenegro. With this project, 3,500 employees in ministries, courts and schools in Montenegro finished ECDL training and testing, and most of them obtained an ECDL certificate for four basic modules (computer usage and file management, word processing, spreadsheets, information and communication), and the ECDL Start Certificate. This way, besides being undoubtedly contributive to more efficient work of the state administration, educational institutions and the judiciary, an exceptional investment in the information sector in Montenegro has been achieved at the same time, given the fact that it was a project of large scale and influence. With this project, 2,133 educational workers were trained.

**The Ministry of Education** has implemented the most important part of the use of information and communication technologies in education through the MEIS Project (Montenegrin Education Information System). The MEIS project consists of several activities that happen gradually: computer equipment for all educational institutions (over 5,000 computers, with side equipment), introduction of broadband Internet, training of school ICT coordinators, training of teaching and administrative staff for the work on the computer by the school ICT coordinators, selection of regional ICT coordinators and the final introduction of the MEIS application.

During the previous school year, "Schools for the 21st Century" programme was conducted in cooperation with the British Council. Its purpose is to provide trainings and support for teachers in the fields of critical thinking and problem solving, digital skills and use of micro: bit devices. The project included a training for teachers, delivering of micro: bit devices to schools, work with children, and, finally, competition of all schools participating in the project.

**Internet safety for children**, as of 2012 until today, "Surf Wisely" Initiative educated 14,200 primary school pupils in 20 municipalities, through 490 interactive workshops, where they had a continuous opportunity to learn about online behaviour, social networks, personal data protection and safe surfing. In order to be continuously present and make influence by informing children daily on the safe use of the Internet, the Ministry of Education has initiated the project of creating quizzes titled *Show us what you know*. In cooperation with Microsoft Company, the Ministry of Education implements the project of installing Internet filtering software for schools. This software ensures that the inappropriate content cannot be available at school computers. Currently, software has been installed in 70% of schools, and as for the rest of schools - it is planned for the installation to be finished by the end of school year.

"Schools for new age" pilot project involves innovations in teaching process, with significant use of ICT. Aside from classic teaching, children had the possibility to use
information technologies for better learning. A softer has been designed to fully comply with textbooks.

**Portal for parents** – In school year 2014/15 (September 2014) the service for parents stated operating ([www.ojocene.edu.me](http://www.ojocene.edu.me)) – a web portal where every parent with a user name and password has an access to grades, school attendance record, behaviour and discipline of their child, while they also have a possibility for additional electronic communication with a homeroom teacher.

"Creative teaching" competition – Bureau for Education Services, in cooperation with Microsoft, was organising "Creative Teaching" contest, for four years (2009-2013). The competition was opened to all teachers of primary and secondary schools. The aim was that the Bureau for Education Services and Microsoft contribute to modernisation of teaching in Montenegro, through the encouragement of exchange of good education practises and cooperation of teachers online.

**Oracle** – Ministry of Education has established cooperation with Oracle Academy, to deliver training for teachers from Montenegrin schools in accordance with Oracle Academy programme, as well as support for 3,000 pupils, as a preparation for their successful IT career. Three hundred teachers will receive the training, for: Java Foundations, Java Programming, Java Fundamentals, Database Foundations and Database Design and Programming with SQL. The acquired knowledge will be transferred to pupils directly, therefore their knowledge in the field of IT technologies will be significantly improved. Oracle Academy will provide a platform and tools to be used by trained teachers for education of pupils. So far, 60 employees have received trainings for Oracle Database and 120 employees for Oracle Java Fundamentals.

**IV DEVELOPMENT OF TECHNOLOGIES IN THE SEECP REGION**

According to the **International Telecommunication Union (ITU) Report for 2017 and ICT Development Index (IDI), Ankara** ranks 67 with developmental index 6.08, **Athens** ranks 45 with developmental index 7.23, **Belgrade** 55 with index 6.61, **Bucharest** 58 with developmental index 6.48, **Chisinau** 65 with developmental index 6.45, **Ljubljana** 33 with 7.38, **Podgorica** 61 with index 6.44, **Sarajevo** 82 with index 5.39, **Skopje** 69 with 6.01, **Sofia** 50 with index 6.86 and **Zagreb** 36 with index 7.24, whereby the lists covers 176 world countries.5

Digital environment has become a natural environment for children and young people, but schools, in line with the aims of education, have not yet become an environment that strongly supports the development of digital and other related competencies. Today's pupils belong to global digital generation which, in our circumstances, has already reached the level of 95% of computer use and almost 96% of the Internet use. However, they use it predominately for social networks. There is an evident imbalance between teachers and students as regards digital literacy ("digital gap"). However, we lack research on the level of literacy of teachers, as well as factors influencing on this phenomena (availability of equipment and training, motivation, positions on the use of ICT, experiences, obstacles).

SEECP participants are facing similar problems when it comes to the application of the ICT in the education system, namely:

1. System for monitoring the implementation of ICT in the education system (the lack of efficient system for continuous development and evaluation of the level of accomplishment of strategic documents in the ICT field, education, information society, at all levels);
2. Providing computer equipment for educational institutions (the lack of computer equipment);
3. Digital materials (level of development of digital materials for teaching and learning is still insufficient (didactic software, e-textbooks, e-learning etc.));
4. Education (low level of training of teaching staff); and
5. Exchange of knowledge and best practices in applying ICT within educational systems.

V INTERNATIONAL COOPERATION OF THE SEECP PARTICIPANTS IN THE FIELD OF RESEARCH AND NEW TECHNOLOGIES

Regional project of establishing the South East European International Institute for Sustainable Technologies (SEEIIST) - Hadron Cancer Therapy and Biomedical Research with Protons and Heavy Ions is one of the most important segments of international cooperation in the South-East Europe in the field of research and new technologies, and it is also defined as a long-term goal.

Mission of the Institute, whose backbone is a large, internationally competitive infrastructure, is to advance scientific and technological cooperation in the region of South-East Europe and face common challenges in the areas of economic growth and social cohesion.

International institute should be a regional excellence centre, with large research infrastructure based on the most contemporary technologies, which will gather best young scientists and researchers, as well as skilful scientists in the South-East Europe.

In March 2017, the Government of Montenegro launched an initiative for establishing the International institution, thus positioning itself as a leader during the implementation of the project. Important mission of the Institute is the “Science for Peace”, which mitigates tensions within the region, following the example of CERN and SESAME projects in Jordan. The project entails creation of a platform for educating young scientists and researchers, as well as the program of building capacities for using this modern technology. Direct benefit of these activities is brain drain reduction.

The initiative was formalised as a regional project, after signing the Declaration of Intent at the Ministerial meeting in CERN, Geneva, on 25 October 2017. The signatories to the declaration are: Tirana, Sarajevo, Sofia, Prishtina, Podgorica, Belgrade, Ljubljana and Skopje. Zagreb declared itself "ad referendum", while Athens has accepted the observer status. Following the signing of the Declaration, the Steering Committee of the SEEIIST project was formed, chaired by the Montenegrin Minister of Culture.

The selected option for the project will have multiple benefits for the region, because this is the most modern and most successful treatment method for a large number of cancers, therefore it is one of the best examples of "Science for society".
Treatment with heavy ions is still in its initial phase and more significant results in science are to be expected. Therefore, it is planned 50% of time to be devoted to research, which would have made the SEEIST project unique worldwide, because the research share in other health centres is smaller. In this way, this regional project would improve and strengthen regional cooperation in the field of science, technology and economy in the spirit of CERN model "Science for Peace", and it would also gather researches from the Western Europe. Also, the project would include multi-disciplinary research for the benefit of different target groups through the creation of two networks - Clinical and Scientific, to be placed in different parts of the region. Raising capacities of young people is crucial and integral component of the Institute.

During the construction of the Institute, numerous activities for technological transfer towards region will be opened, which will be beneficial for the local economy, since procurement of different components of machines (magnets, vacuum systems, control systems, power units, and others) can be entrusted to local economy.

In 2018, Podgorica continued to strengthen activities and positive trend of participation in international programmes for science, research and innovation, such as: EU framework programme for research and innovation "Horizon 2020", COST program, EUREKA, NATO Science for Peace and Security (SPS) Programme, and cooperation with the International Atomic Energy Agency (IAEA) and the United Nations Industrial Development Organization (UNIDO).

On the basis of agreements signed in the field of bilateral scientific and technological cooperation and competitions for co-financing, a total of 83 projects were carried out in 2018.

It is important to mention regional initiatives which have great importance in the future of education and science and digital advancements in the region belonging to the SEECP.

Since the launch of the Berlin Process for the Western Balkans in 2014, there has been considerable focus on enhancing connectivity and mobility in the Western Balkans region as a preparation for joining the EU. The Multi-Annual Action Plan (MAP) for a Regional Economic Area (REA) in the Western Balkans Six (WB6), endorsed on 12th July 2017 in the Trieste Western Balkan Summit, sets out a joint approach to promote further trade integration, introduce a dynamic regional investment space, facilitate regional mobility and create a digital integration agenda for WB6 economies. Actions introduced in MAP offer synergies to the reform agendas undertaken in all WB6 driven by the EU integration process. Within this effort, there has been growing interest recently on improving the digital infrastructure and thus improving connectivity with the region, as well as connecting the region with EU and the wider world.

The WB6 Digital Agenda aims to unlock access to the digital economy by integrating the region into the Pan-European digital market. This requires future-proof digitization strategies, an updated regulatory environment, improved broadband infrastructure and access and digital literacy. Under the digital Agenda, the WB6 will support a regional approach to foster intergovernmental cooperation in digital matters and facilitate the integration within the European Digital Single Market. To this end, the digital agenda aims at: digital infrastructure development and improved regional connectivity; harmonized spectrum policies; coordinated roaming policies towards a roaming free region; enhanced cyber security, trust services and data protection; cooperation in policies that
stimulate data economy; upgraded digital skills and accelerated digitization and uptake of smart technologies in our region.

Furthermore, through actions in mobility the region intends to remove obstacles to mobility of researchers- as evidence shows that researchers who have moved internationally tend to have greater research impact than those who have not, and that economies with more open research systems perform better in terms of innovation. In addition, actions aimed at increased investment into research infrastructure in the region and supporting the development of centres of excellence is essential for the long-term development of the research systems in the WB6. The combined strategic investments into researchers and research infrastructure are essential to create the basis for excellence in science and full integration into European Research Area on an equal footing with EU member states.

Research and development systems in the SEE region have been underfunded for a protracted period of time and the persistently low investments continue to exacerbate the gap between research production and the impact of research produced in the region and the EU. Support to Open Science policies and integration of WB into EU Open Science initiative aims to address the lack of access to research results and data which leads to duplication of research efforts, diluting the efficiency of research funding. EU is already on its way to making scientific research, data and dissemination accessible to all levels of an inquiring society. Access to knowledge, information, and data is essential in higher education and research and more generally, for sustained progress in society and boosting innovation.

VI CONCLUSION

SEECP participants have recognised the importance of technological development and their application in education and they are very active at the regional level. These activities are reflected in facing the challenges on the path towards knowledge society, relying on potentials provided by digitalisation, as well as aspiration for using the possibility for integration of their economies into global market. Confirming the importance for digitalisation of South-East Europe and accepting information society as a basis for faster development of the region by decreasing the developmental gap between the region and the EU, as well as between the region and the rest of the world, it is necessary that SEE region take certain measures, such as:

- investing in ICT infrastructure within education institutions through mandatory information literacy, and creating classrooms equipped by computers and internet connections; improving education system by making direct changes in schools’ curriculum by introducing standards for minimal and progressive ICT skills;
- overcoming gap between different generations, conducting activities on equalising ICT knowledge and providing life-long learning programs;
- strengthening researches in the region;
- supporting ICT researches and process of technologies transfer through development of academic and scientific and research network and better connectivity between researches and institutions.
Development and use of technologies in education will provide the following:

- prepare students to take part in the world which is changing together with new technologies,
- prepare students to use ICT tools to find, research, analysis, exchange and present information responsibly, creatively and with proper selection.
- provide provision of skills to all students on how to use ICT, get rapid access to ideas and experiences of a broad range of people, communities and cultures, and
- increase possibilities for using ICT and promoting this initiative for independent learning, with the possibility for youth and adults to completely reason how and when to use ICT in order to get best results.