ATHENA: Contributing to Development of Higher Education Institutions for the Digital Age

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Abstract. Facilitated by public administrations and the European Union, higher education institutions should support their teachers so they develop the skills for online and other forms of teaching and learning opened up by the digital era and should exploit the opportunities presented by technology to improve the quality of teaching and learning. The article focuses on new European Union grant programs that empower the increasing of digital literacy in the higher education area, developing cooperation, and overcoming challenges during the coronavirus pandemic. This initiative can empower a new European University and support an international project aimed at certification of professional educators with the participation of a Russian partner.

Keywords: digital society, ICT competences, online teaching and learning, European university, ATHENA, professional educators register, international cooperation

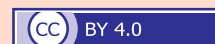# ATHENA: Содействие развитию высших учебных заведений в цифровую эпоху

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Аннотация. При содействии органов государственного управления и Европейской Комиссии высшие учебные заведения должны поддерживать усилия вузовских преподавателей по развитию ими навыков реализации онлайн и других форм обучения, доступных в эпоху цифровых технологий, и должны использовать возможности, предоставляемые технологиями, для повышения качества преподавания и обучения. В статье рассматриваются новые грантовые программы Европейского Союза, направленные на повышение цифровой грамотности в сфере высшего образования, развитие сотрудничества и преодоление вызовов во время пандемии коронавируса. Детально описан проект нового Европейского университета и представлена инициатива создания международного консорциума для сертификации преподавателей высшей школы с участием российского партнёра.

Ключевые слова: цифровое общество, ИКТ, онлайн-преподавание и обучение, Европейский университет, регистрация, профессиональные преподаватели, международное сотрудничество

1. Introduction

Aiming for an inclusive digital society that benefits from the Digital Single Market, building smarter cities and villages, improving access to digital services and digital skills will develop a truly digital European Society. The Digital Europe program [1] (Fig. 1) focuses until 2027 among other objectives also on the advanced digital skills, by supporting the Industry 4.0 based on the Education 4.0., and therefore shifting to a new paradigm.

The new paradigm [1] is, in the European Union, based on high number of devices available, therefore enabling new methods and forms of work and education, e.g. BYOD – Bring Your Own Device [2; 3]. Also, Interactive learning
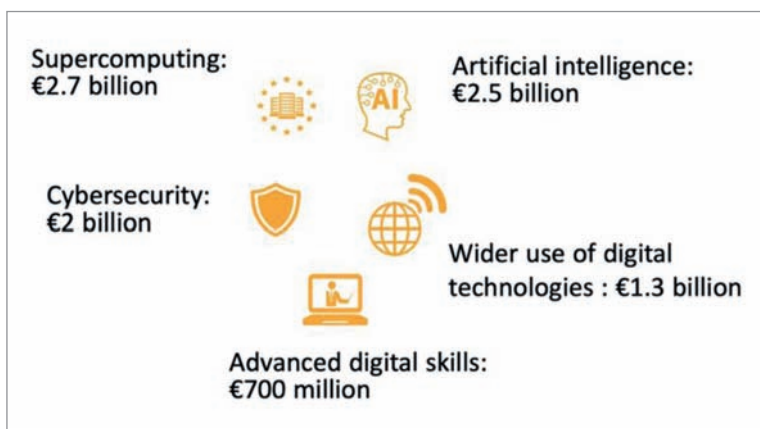

Fig. 1. Digital Europe Program 2021−2028 (budget in Euro)

and blended learning are therefore creating new educational roles, namely the: Pedagogical roles; Management roles; Social roles; and Technical roles [4].

2. Digital literacy

The purpose of the digital education [5; 6] strategy is to: open education to new methods and ways of learning through digital technologies; improve students' competencies in working with information and digital technologies; and to develop students' computer thinking.

The competence model of an educator working with ICT has many facets [7; 8; 9]: Strategy (knowledge of goals, practice in the classroom); Content of education and learning environment (teaching planning, learning environment, student role, assessment, communication and cooperation, special educational needs); Pedagogy (planning, problem-based teaching, pupil experience, ethics and risks of virtual space, cooperation projects, creativity); Digital technologies (software tools, authoring tools, Internet, communication and collaboration, administration, student learning); Organization and administration (integration of digital technologies, classroom management, reasonable and legal use); Further education (planning, teacher cooperation, non-formal learning).

3. European University for the Digitalization of Societies

The European heads of states and governments called, in the European Council conclusions of 14 December 2017, on the Member States, the Council and the European Commission to take work forward in 'encouraging the emergence of some European Universities. These European Universities, consisting in bottom-up networks of universities across the EU which will "enable students to obtain a degree by combining studies in several EU countries and contribute to the international competitiveness of European universities" [10]. The Education Council Conclusions of 22 May 2018 highlighted that "the European Universi-

ties could play a flagship role in the creation of a European Education Area as a whole" [11].

Answering this call and after a competitive process among all the European higher education institutions, Instituto Politécnico do Porto (P. PORTO) is currently leading one of the European Universities, named, Advanced Technology Higher Education Network Alliance (ATHENA): European University for the Digitalization of Societies (Fig. 2). ATHENA is a federation of seven mid-size higher education institutions from seven European countries.

The mission of ATHENA is to deliver inclusive, innovative, high-quality international education permanently aligned with global market needs, addressing societal and environmental challenges as well as European research priorities, thus granting the highest employability standards, effective career transitions to our students, and added value to our ecosystem.

The vision of ATHENA is to be a worldwide renowned federation of higher education institutions that deliver highly qualified professionals for the labour market assuring a swift and effective transition from Education to Labor and advance the transfer of knowledge and research results to society.

The COVID-19 pandemic has not only limited the way people can relate to each other and perform their most basic everyday tasks but has also had a significant impact on the regular delivery of education, training, and youth policies. At such a critical time for our societies, access to education is proving, more than ever, to be essential to ensuring a swift recovery while promoting equal opportunities among people of all backgrounds.

This pandemic has pushed education to new scenarios forcing a sudden adoption of latent teaching/learning paradigms that had never before stood out. From the pedagogical point of view, it raised awareness of the potential of online teaching and virtual mobility. It also shed light on the need to master ICT for lifelong learning and to overcome the primary digital division – students who cannot fulfil their academic assignments because they have no com-

Fig. 2. ATHENA Logo and Geographical distribution

puter or proper Internet connection – that was undercover or at least not so evident before.

The P. PORTO has been researching in the field of sustainable education and has embraced many of its facets and produced several outcomes of relevance, such as: developing specific sustainable master programs, developing blended mobility project courses, or creating remote labs [12; 13]. As a result of this continuous work, P. PORTO is now coordinating the ATHENA European University project focused on the digitalization of societies that stands on a set of pillars of sustainable education, including the European green education and inclusion.

The goals of the European university, ATHENA, are:

– Address the digital transformation of society and industry 4.0 requirements, contributing to creating A Europe Fit for the Digital Age;

– Create worldwide renowned federation of HEIs;

– Deliver highly qualified professionals for the labour market;

– Assure a swift and effective transition from Education to Labor;

– Advance the transfer of knowledge and research results to society;

– Increase the internationalization of the European Higher Education Area;

– Support the transformation of Europe into a global reference point as a centre of excellence, innovation, and collaboration in Higher Education and Research;

– Foster the development of an inclusive, sustainable, and safe digital economy.

Focusing initially on the domains of information technology and electronic engineering, before broadening the scope to all academic fields covered in the alliance, the ATHENA European University research and learning community will be well-positioned to tackle a range of global challenges for action, underlying the future Horizon Europe program, related to Digital and Industry; Climate, Energy, and Mobility; Inclusive and Secure Society.

With its thematic focus, P.PORTO is well aligned with the European Union's 2021–2027 Digital Europe program and will contribute in particular to two of its goals: the development of advanced digital skills and the wide use of

digital technologies across the economy and society. P.PORTO is thus in tune with the new European Commission's goal to create A Europe fit for the Digital Age and to equip its students with the necessary knowledge, skills, platforms, and tools to work towards the attainment of several Sustainable Development Goals identified by the United Nations.

4. Professional Educators Registration

In light of the current exceptional circumstances, the Erasmus+ Program took the challenge to confirm its role as the main EU instrument supporting innovation in education, training, youth, and sport as well as providing opportunities for the personal, socio-educational, and professional development of people in Europe and beyond, with the aim of leaving no-one behind. To respond to the circumstances created by the pandemic, in 2020 the Erasmus+ program [1] exceptionally supported: Partnerships for Digital Education Readiness (in the fields of school education, vocational education and training, and higher education). These projects aim at equipping education and training systems to face the challenges presented by the recent sudden shift to online and distance learning, including supporting teachers to develop digital competencies and safeguarding the inclusive nature of learning opportunities.

Being already coordinator of the European University ATHENA, P.PORTO has initiated a new project called Professional International Recognition of Tertiary Level Educators (PROFEDU) aimed to create a digital international individual registration procedure to assess and certify the level of professional competence of the tertiary level educators, including but not limited to the digital competencies. If the achieved level of the educators' professional competences corresponds to the criteria based on the best international practices, the procedure regulates the registration of the educator and will issue an international digital professional card, allowing broader recognition of professional educators' qualifications worldwide. The International Professional Educator Register provides transparency and empowers the higher education institutions (HEIs) to consider certified educators from different countries for their high-profile faculty vacancies. Simultaneously the proposed certification induces educators to improve their skills and competencies in general, and digital ones in particular.

The European University ATHENA aims for the Digitalization of Societies as its founding focus. The PROFEDU project develops a register that accounts, also, for the digital competencies of the educators. The project will contribute to the completion also of the European university goals, through activities that facilitate the recognition and validation of digital knowledge, skills, and competencies acquired through formal, non-formal and informal learning.

The PROFEDU is a Strategic Partnership. As a general rule, Strategic Partnerships target the cooperation between organizations established in Programme Countries (EU). However, organizations from Partner Countries (outside EU) can only be involved in a Strategic Partnership as partners, if their participation brings an essential added value to the project. In the case of the PROFEDU Project, the Association for Engineering Education of Russia (AEER) joined this project at the application stage. AEER involvement in the project is explained due to the unique competences and experience of the organization in which activities are not limited to just a national context. Although AEER is located in Russia, it has also a strong European focus by being a founding member of the European Network for Accreditation of Engineering Education (ENAEE), and by being one of the internationally recognized accreditation agencies that award the EUR-ACE. AEER has also a global perspective due to its membership in Washington Accord (WA) [14]. There are no such partners among ERASMUS+ program countries institutions that can perform the same activities. Adding to this, AEER is not only an accreditation agency but a certification body that successfully implements the system of professional registration of engineers to carry out a comprehensive assessment of their competen-

cies at the international level due to its membership in APEC Agreement. Within the Covid-19 lockdown, AEER has also developed regulations and successfully implemented the online format of the accreditation audit visit, transforming the international accreditation procedure to the digital format, providing virtual training of experts who were involved in the online assessment procedure. Such experience provides the consortium exceptional benefits in the development of the new system of professional registration of tertiary-level educators based on the best practices involving experienced and qualified experts in the process.

5. Conclusions

The outbreak of COVID-19 and necessary measures that were taken to tackle the spread of the virus, may cause significant disruption to the provision of education, training, and mobility opportunities for learners, teachers, and educators across the world. The European Commission, as well as the governments of many countries all around world, are cooperating to coordinate, complement, and initiate measures to deal with every aspect of the coronavirus pandemic impact.

Higher education institutions play a vital role in overcoming arising challenges, having a significant impact on supporting students, teachers, and the society at large and providing necessary skills, knowledge, and tools to ensure their wellbeing. There is a crucial need to unlock the potential of digital technologies for learning and teaching and to develop digital skills for all.

Education and training are the keys to personal fulfilment, social cohesion, economic growth, and innovation [15]. It is therefore of paramount importance to keep international cooperation of HEIs under several grant programs and initiatives, making even more efforts to implement those action plans that will finally allow us to benefit from digital transformation. European University initiatives are leading the future of higher education in Europe and ATHENA by focusing on the digital society, will have a profound impact in this domain.

The Professional International Recognition of Tertiary Level Educators will guarantee that the educators of the future will be the catalyst to achieve the incoming transformation and contribute to creating HEIs that are preparing the society for the Digital Age.

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