ЕВРОПЕЙСКИТЕ ИНИЦИАТИВИ ЗА МАСОВИ ОТВОРЕНИ ОНЛАЙН КУРСОВЕ – ПРЕДИЗВИКАТЕЛСТВА И ПЕРСПЕКТИВИ ЗА БЪЛГАРСКИТЕ УНИВЕРСИТЕТИ

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***Абстракт:** Статията представя европейските инициативи за масови отворени онлайн курсове /МООК/ в областта на висшето образование. Специален акцент е поставен върху перспективите и предизвикателствата, стоящи пред българските университети от гледна точка на активното им участие при осъществяването на тези инициативи. Общият преглед на съществуващите MOOCs инициативи в сферата на висшето образование, както и информацията и данните, представени в тази статия са резултат от мащабно проучване и изследвания, проведени в рамките на международен проект BizMOOC[1].*

***Ключови думи:** МООК, Отворени образователни ресурси, Отворено обучение, онлайн обучение, Сертифициране, Валидиране и Признаване на знания умения и компетенции, придобити чрез МООК*

EUROPEAN INITIATIVES FOR MASSIVE OPEN ONLINE COURSES - CHALLENGES AND PROSPECTS FOR BULGARIAN UNIVERSITIES

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***Abstract:** The paper aims at presenting the current state of the European initiatives for Massive Open Online Courses /MOOCs/ in Higher Education /HE/ domain. The accent is put on the prospects and challenges for the inclusion of the Bulgarian Universities in the current MOOCs movement. The overview of the existing MOOCs initiatives in HE as well as the information and data presented in this paper are results of an extensive survey and research conducted in the framework of the international project BizMOOC[1].*

***Key words:** MOOC, Open Educational Resources, Open Education, Online Course, MOOCs' Certification, Validation and recognition of MOOCs*

I. Open Online Education and MOOCs

The European Commission launched the Opening up Education initiative in September 2013. Opening up Education proposes actions towards innovative teaching and learning for all through new Technologies and Open Educational Resources /OERs/ to deliver education of higher quality and efficacy and thus contributing to the Europe 2020 goals of boosting EU competitiveness and growth through better skilled workforce and more employment [14]. In the official communication of the EC [12] it is underlined that "…the USA and some Asian countries are investing in ICT-based strategies to reshape education and training. They are transforming, modernizing and internationalising education systems with tangible effects in schools and universities on access to and cost of education, on teaching practices and their worldwide reputation or branding. The EU risks lagging behind other regions of the world. A case in point is that much of the supply of digital content comes from players outside Europe, including from educational institutions offering their courses globally through Massive Open Online Courses (MOOCs)."

The changing of the pedagogical landscape of the European HE through new methods of teaching and learning based on contemporary ICT and OERs [17] is considered as a task of highest priority [12].

The term "open education" is associated with the process of removing barriers to education and offering flexible ways for learning and sharing knowledge [2]. MOOCs are considered as a promising tool for open education but at the same time they create other barriers like network connectivity (good internet connection is

[1]BizMOOC - Knowledge Alliance to enable a European-wide exploitation of the potential of MOOCs for the world of business, Programme: Erasmus+ | KA 2 | Knowledge Alliances, Reference Number: 562286-EPP-1-2015-1-AT-EPPKA2-KA, www.bizmooc.eu

needed), digital literacy and for now also cultural language barriers (still most MOOC are from Western countries and are provided in English) [10].

It is important to highlight that online education is not the same as open education. Regarding the online education it is also difficult for a broadly accepted definition to be provided. The online course could be defined as a course where most or all of the content is delivered[2]. The term "online education" is a term used to describe any education or training that occurs online. The label "online" applies to both delivery of course material and to the interactions among the participants in the educational process[3]. In accordance with the definition provided by the Online Learning Consortium online course is a course where "all course activity is done online; there are no required face-to-face sessions within the course and no requirements for on-campus activity".

MOOCs can be seen as a form of open education offered free through online platforms. At the same time it should be underlined that MOOCs differ from 'regular' online courses. The regular online courses are designed for limited number of participants whereas the MOOCs have massive dimension and scalability, i.e. they are designed for unlimited number of participants. Despite the existence of different definitions for MOOC, there is consensus regarding the consideration of open and online education as underlying principles behind MOOC paradigm. Consequently, MOOCs (courses for free; no-entry requirements and open to everyone) are partly related to the embracing of both the open and online component of education which makes them unique educational phenomenon.[4]

David Wiley[5] ran a campus based course in 2007, and made it open to anyone online to participate, as did Alec Couros[6], operating an 'open boundary' course. The title of founding MOOC is often given to Connectivism and Connective Knowledge (CCK08)[7] run by George Siemens and Stephen Downes in 2008. The year 2012 was deemed 'Year of the MOOC' by the New York Times [13] as most of the US major universities signed up to one main provider or another, or launched their own massive open online courses. If we take Coursera as an example, as it is the most prominent of the MOOC providers then it has over 500 courses, from 107 universities and over 5 million learners enrolled [14]. Pedagogically these new xMOOCs were very different from the early connectivist type MOOCs pioneered by the open education movement. Taking into account the MOOCs' pedagogical approaches the distinction was made between cMOOCs (connectivist type MOOCs – the early type) and xMOOCs for the new, didactic models [16].

MOOCs are still a field of research and experimentations. During the last years, MOOCs generated a lot of discussion amongst educators, Higher Education Institutions /HEIs/, government policy makers and private companies regarding the defining of the MOOC concept. Up to now, an unambiguous, straightforward and broadly accepted definition of a MOOC does not exist.

According to Selwyn, Bulfin, and Pangrazio [15] "MOOCs are courses available to masses of online learners for little or no cost". The Commonwealth of Learning [5] proposes a definition that already includes some specification: "A MOOC is an online course that requires no prior qualifications for entry, can be accessed by anyone who has an Internet connection, and includes large or very large numbers of learners". As a result of research developed in collaboration among different EU-funded MOOC projects, a more comprehensive definition was adopted "an online course designed for large number of participants that can be accessed by anyone anywhere, as long as they have an internet connection, is open to everyone without entry qualifications and offers a full/complete course experience online for free" [3]. In 2015, this definition has been validated amongst European institutions [9].

Taking into account all the definitions provided the following common aspects could be identified [2]:

- Massive: designed for (theoretically said) unlimited number of participants, i.e.the course is designed in a way which allows the efforts of all services to not increase significantly when the number of their participants increases.
- Open: access to the course is free without any requirements such as entry qualifications.
- Online: the full course is available through the internet.
- Course: the offering is a course, meaning that it offers a complete learning experience, i.e. structured around a set of learning goals in a defined area of study and includes the course materials, quizzes, feedback, examination and certificate of completion.

The potential benefits of the digital revolution in education are multiple: individuals can easily seek and acquire knowledge from different sources (other than their institutions), often for free; new groups of learners can be reached because learning is no longer confined to specific classroom timetables or methods and can be

[2] http://www.onlinelearningsurvey.com/reports/gradelevel.pdf
[3] http://empower.eadtu.eu/glossary#O
[4] Mulder F. (2015) Open(ing up) education for all...boosted by MOOCS? http://docplayer.net/6037165-Open-ing-up-education-for-all-boosted-by-moocs.html
[5] https://scholar.google.com/citations?user=M47HR7IAAAAJ&hl=en
[6] http://educationaltechnology.ca/couros/publications
[7] http://www.elearnspace.org/blog/2009/02/23/cck08-wrapup-recording/

personalised; new education providers emerge; teachers may easily share and create content with colleagues and learners from different countries; and a much wider range of educational resources can be accessed. Open technologies allow *All* individuals to learn, *Anywhere*, *Anytime*, through *Any device*, with the support of *Anyone* [11, 12]. MOOCs, as one of the tools of digital learning, can improve the effectiveness of education and innovation in learning that would provide broader access to knowledge. They can make lifelong learning a reality helping learners to upskill and re-skill regardless of their socio-economic situation [1]. The appearance of disruptive innovation like MOOCs has the potential to transform HE and create new competition and centres of excellence among universities worldwide. In order for the MOOCs' potential to be exploited by European Universities all HEIs (Bulgarian Universities are not an exception) need to improve their capacity to adapt and promote this innovation. In line with this necessity critical mass of good quality educational content and applications in specific subjects and multiple EU languages should be created, also connected devices for all students and teachers should be provided. An urgent emphasis on digital pedagogic competences is also needed during continuing professional development to keep teachers and lecturers updated. Addressing this challenge Member States, regional authorities and education and training institutions need to revisit performance evaluation schemes to create the right stimulus for teachers and academic staff to introduce and embed innovative educational methodologies. The key for success depends on the efforts of the educational institutions to change the framework conditions in which they operate. Open learning environments require the leaders of educational institutions to play an active role in the process of the organizational change by providing institutional development plans and a strategic vision for transforming the institutions in connected learning communities.

The Europe 2020 strategy, the Open Method of Coordination in Education and Training 2020 as well as the EU programmes such as Erasmus+, Horizon 2020 and the Structural and Investment Funds, provide incentives and create framework conditions for this transformation (online, open and flexible education) to happen. Exploiting the new opportunities' potential can best be achieved through strategic partnerships. One positive example is the launch of the European MOOC Initiative by the European Association of Distance Teaching Universities[8]. This initiative provides the necessary scale to generate new education solutions which would otherwise be out of reach if designed by each institution on its own.

II. MOOCs Initiatives

An overview of the MOOCs' current state is provided by the wide range of portals that have been designed as search engines to help learners and companies in finding the right course for their specific needs.

The European Commission launched Open Education Europa[9] in September 2013 as a part of the Opening up Education initiative to provide a single gateway to European OER. The initiative is funded through the Commission's Erasmus+ programme. The main goal of the Open Education Europa portal is to offer access to all existing European Open Educational Resources in different languages in order to be able to present them to learners, teachers and researchers. In the beginning of 2016 the scoreboard listed 1712 MOOCs offered in EU28 countries by 305 institutions. Most popular area of study is science and technology (414), followed by the social sciences (317), applied sciences (254) and business (232). That database does not list 8 European countries (Bulgaria, Czech Rep., Greece, Hungary, Latvia, Poland, and Slovakia) at the moment of the web search in the beginning of 2016. (Please see Figure 1)

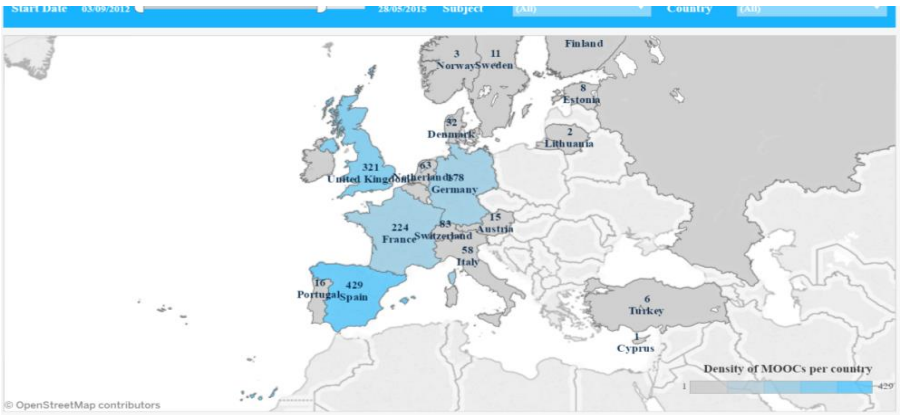

Figure 1 Distribution of MOOCs http://www.openeducationeuropa.eu/en/european_scoreboard_moocs

[8] http://www.openuped.eu/

[9] http://www.openeducationeuropa.eu/

Spain was the most active European country in MOOCs, with the UK, Germany, Italy, Denmark and the Netherlands all developing MOOCs from different universities, and France becoming increasingly active in 2014. A problematical aspect is that the scoreboard lists online courses and courses on demand along with the MOOC courses and there is no specific definition of the MOOC courses included. Another problem of the environment is that it is planned to stop updating the information.

Class Central[10] curates international MOOC listings and reviews from students who have taken MOOCs.

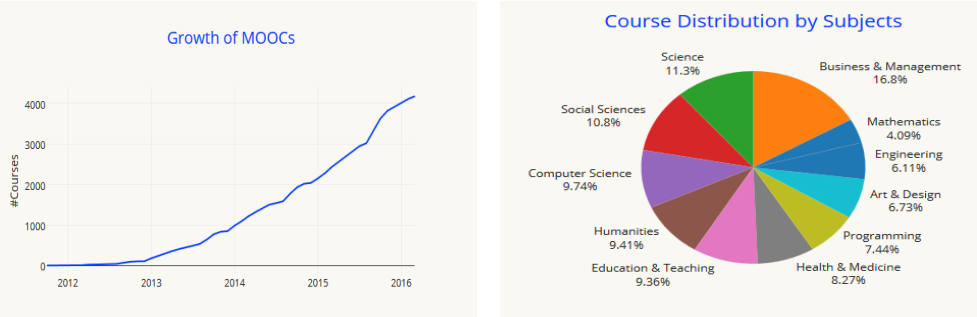

Figure 2 Class Central MOOCs statistics https://www.class-central.com/report/moocs-2015-stats/

Class Central searches providers and educational institutions from all over the world that are offering MOOCs or gearing up to offer MOOCs and aggregates MOOCs from all these different sources. Class Central offers multiple ways to find new MOOCs, browsing by subject or using a search. It also provides a yearly analysis report of MOOCs listed at their portal. According to the analysis report for 2015 around 1,800 new courses were announced in 2015, taking the total number of courses announced since the inception of MOOCs to 4,200. (Please see Figure 2)

MOOCtracks[11] and MOOC List[12] are also good examples of MOOC portals.

According to the Class Central annual report of 2015 Coursera, edX, and Udacity are normally known as the big three MOOC providers. A list of most famous MOOCs providers is given below.

edX (https://www.edx.org) is a platform for online learning that provides MOOCs. It was founded as a non-profit with open-source software in 2012 by MIT and Harvard University. In addition to hosting a number of free online university courses, edX also analyzes data on its use to contribute to broad research efforts in mechanisms of learning and MOOC optimization.

Coursera (https://www.coursera.org/) is a for-profit platform for online courses developed by Stanford University’s Andrew Ng and Daphne Koller. The courses on Coursera are often adapted from existing university courses by professors and Coursera staff. Coursera MOOCs span a range of disciplines and are available through mobile applications.

Udacity (https://www.udacity.com/) is a for-profit organization developed by Sebastian Thrun, David Stavens, and Mike Sokolsy that offers MOOCs. Udacity was originally focused on technology and science courses that were presented in a traditional university-type structure. However, that focus has shifted to courses intended for professionals.

Iversity (https://iversity.org/) launched since 2011. It is an European digital learning platform for higher education and professional development.

FutureLearn (https://www.futurelearn.com) is a platform developed by the UK’s Open University in 2012 that delivers MOOCs. It partners with British universities and aims to engage a British audience with a British-oriented version of a MOOC platform. Like Coursera, FutureLearn provides courses from a wide range of disciplines.

The dominance of commercial MOOC providers such as Coursera, EdX and Udacity in North America, has shaped the pedagogy they have adopted. This platform dominance is not as prevalent in Europe, with many universities developing their own platforms. FutureLearn is one of the main European MOOC providers.

Canvas (https://www.canvas.net/) is a network developed by an education technology company called Instructure. Canvas provides open online courses that are provided by institutions all over the world. It provides a platform for teachers and students to connect and build and use educational resources.

Many of the portals analysed above target businesses. They assert that MOOCs are of interest to them due to the variety of the course offerings and the cost effectiveness of the MOOC as learning opportunities for

[10] https://www.class-central.com/
[11] http://www.mooctracks.com/
[12] https://www.mooc-list.com/

their employees. MOOCs can offer professionals a plethora of opportunities to acquire more knowledge or develop skills and competences related to their current jobs and/or to acquire the knowledge and skills they need to take a new professional direction” [4].

As digitalization has taken over practically all the branches of our everyday lives, ways of gaining educational experience, upskilling or re-skilling has faced the challenge of fitting in the open education landscape. Therefore, MOOCs has started playing increasingly important role and the usage of those types of courses both in HE and business has been growing at least over the past five years.

III. General cost to produce a MOOC and possible revenues

Production and development for MOOCs vary a lot between courses. The amount of money invested is typically dependent on factors such as: staff cost; length of the MOOC (e.g. 4 or 12 weeks); hours of video material produced; the production of further cost-intensive resources, such as graphs, animations, overlays etc.; post production services; existing knowledge and experience of the team; existing equipment; content availability prior to course production, etc.

The development cost for MOOCs (taking all cost into consideration) are thus difficult to indicate, numbers vary between $40 000 – $325 000 for each course. Without taking staff and initial investment (studio etc.) cost into consideration, these numbers might be lower at times. In addition, about $10.000 - $50.000 are needed as operational cost for teachers, assistants and mentors, every time the course is running on a MOOC platform. Video production is often one of the major cost drivers. A report estimates high quality video production cost of $4,300 per hour of finished video. Additional costs are needed for the MOOC platform, a fee (annual or per MOOC) for a partnership with a MOOC provider, marketing, etc. [7, 8]

However, these estimates are based on research of mainly U.S. institutions offering their MOOCs to one of the main U.S. MOOC platforms. Experiments with different kinds of MOOCs and in other continents show that these costs can be reduced by: involving target audience in either development (young people learning to code) and/or operation of the MOOC (peer-to-peer assessment, peer-to-peer tutoring, etc.); providing MOOC on own institutional platform and not outsource it to one of the MOOC platforms; using open source software for MOOC platforms or use freely available (social media) tools of the internet in network MOOCs; cost efficient video recording tools; use of exiting material and OER or even re-use complete MOOCs from other institutions; low cost partnership for those services that are scalable and best organised cross-institutional.

But essentially MOOCs offer a complete course experience to learners for free. Since direct revenues from MOOC courses are often lower than the cost to produce and host the courses, the costs are not (directly) paid by MOOC participants but by other parties.

One could argue that the MOOCs themselves should generate additional revenue streams that compensate for the development and operational costs. As such, all additional services that can be derived from the free MOOC offerings can be: formal certificates; Statement of Participation; individual coaching / tutoring during the MOOC; tailored courses for employees as part of professional development training (e.g., Small Private Online Course (SPOC) based on a MOOC); tailored (paid for) follow-up resources based on participants’ data in MOOC; remedial courses; MOOCs to receive ECTS or other HEI-credit points; training people who need specific qualifications to access higher education and so on. These services can be either executed by the content provider, the distribution party (platform) or both together.

What are the possible revenues and benefits for an educational institution? The HE institutions may invest in MOOCs because other benefits on institutional level justify the cost of MOOCs. As such the MOOC operation is connected to the business model on an institutional level. Possible reasons and drivers behind it might be: MOOC as a marketing model; MOOC to attract better and/or more (on-campus) students; to attract new kinds of students; innovation on educational provision; develop educational services that are scalable; to improve the quality of on-campus education; to reduce the cost of the regular course provision; considering MOOCs as research area.

According to many US and European studies, the most dominant objective for educational institutions to be involved in MOOCs is to increase institutional visibility and using MOOCs for reputation reasons. In addition, institutions in these continents indicate that using MOOCs as innovation area (e.g. improve quality of on-campus offering, contribute to the transition to more flexible and online education, improve teaching) and responding to the demands of learners and societies are important objectives as well. Consequently, the possible revenue streams are related to these objectives as well.

The big MOOC platforms are usually either publicly funded (e.g. FUN) or financed by the establishing of the business with equity capital and/or venture capital (e.g. Coursera and iversity). Private (e.g. companies) or public investors (e.g. foundations) supported the various providers through substantial investments (partially in the double-digit million euro range) in that stage. These investments are mainly used for the establishment of technical infrastructure, business cooperation and market position. The MOOC providers achieve turnover via additional business-to-consumer (B2C) services such as: issuing certifications; issuing paid Statement of Participations; donations; “Specializations” Course Curricula, and purchase courses for assignments with free

audit. Apart from generating revenue on a B2C level, MOOC platforms and other providers achieve turnover via business-to-business (B2B) services such as: course production services; MOOC platform fee for hosting content; global marketing and branding; learning analytics tools; translation services; recruiting services (using anonymised data) for companies and other organisations; further services for the professional development process of an organisation (customer relationship management, webinars, course moderation) etc.; training and consulting on how to design/develop MOOCs and so on.

Universities typically bundle a range of services that include teaching, assessment, accreditation and student facilities as a package to all learners, whether they require them or not. MOOCs are opening up a discussion around the unbundling of such services. Unbundling means that parts of the process of education are not provided by one, but several providers, or that some parts are outsourced to specialised institutions and providers. Despite the fact that Massive Open Online Courses (MOOCs) are offering a complete course free of charge by definition, there are monetary costs and benefits associated with it. Several stakeholders are associated with the creation and the distribution of MOOCs as well as research and further services beyond the course itself. The diversity of MOOCs and players behind it makes it thus difficult to analyse a universal business model for MOOCs. Overall it can be said, that the establishment of successful and financially sustainable business models with MOOCs has to be developed yet and in this context it is another big challenge for Bulgarian Universities to be actively involved in MOOCs initiatives.

IV. MOOCs' Recognition, Certification, and Accreditation

Generally, MOOCs are not aiming at awarding credits at all. The possible confirmation of taking up a MOOC is a certificate of attendance of completion. Even though the courses themselves are free of charge - obtaining any kind of evidence that one has been enrolled or completed such course is often issued upon a fee. Those certificates are designed by the MOOC provider and are usually not formally recognised by any other institution [6]. In the same time there is no doubt that MOOCs (as a specific kind of open online education) should play a role of a bridge between formal and non-formal education and therefore their recognition through, for instance recognition of prior learning should be possible, regardless whether the proof of completion (in the form of credits or certificate) was acquired or not.

Assessing and certifying learners' achievements are challenges facing those who provide online education: it implies integrating online learning practices into formal curricula and finding ways to validate technology-supported learning in non-formal and informal settings [12]. According to the ECTS Users Guide[13] *"Recognition of non-formal and informal learning - the process through which an institution certifies that the learning outcomes achieved and assessed in another context (non-formal or informal learning) satisfy (some or all) requirements of a particular programme, its component or qualification".*

The processes of recognition, accreditation and certification refer to establishing a set of arrangements to make visible and value all learning outcomes (incl. knowledge, skills and competence) against clearly defined and quality-assured standards [18]. The issue of recognition of digital education has been tackled by international organisations such as UNESCO[14] or OECD[15] that have been emphasising the added value of e-learning methods particularly in its wide social outreach. UNESCO's Education 2030: Framework for Action underlines the importance of access to quality basic, vocational and HE with a clear commitment to lifelong learning strengthened by the usage of ICT tools.

In the case of European region the Bologna Process context plays significant role. The European Credit Transfer and Accumulation System (ECTS) is a tool of the European Higher Education Area (EHEA), hence it is used only within HE systems aiming at making studies and courses comparable and transparent.

Validation and recognition instruments used in formal education must adapt to the emergence of a much more diversified educational offer, including new education providers and the new forms of technology-based and technology-enhanced learning.

The biggest challenge in this context is the development of new tools and procedures for validating and recognising MOOCs which could be best achieved only if a partnership between MOOCs providers (regardless if they are HE Institutions or another providers and industry) would be created for this purpose. These new tools should respect the principles set out in the Council Recommendation for the Validation of Non-formal and Informal Learning in synergy with established validation and recognition tools and contribute to the creation of a European Area for Skills and Qualifications, the latter aiming to address the diversity of practices across Member States and promote an effective recognition across borders

[13] http://ec.europa.eu/education/ects/ects_en.htm
[14] United Nations Educational, Scientific and Cultural Organization http://en.unesco.org/
[15] Organisation for Economic Co-operation and Development http://www.oecd.org/

V. Summary and Conclusions

Open technologies provide the opportunity for Europe to attract new talent, equip citizens with relevant skills, promote science and research and fuel innovation, productivity, employment and growth. Europe should act now providing the right policy framework and a stimulus to introduce innovative learning and teaching practices in schools, universities, vocational education and training (VET) and adult learning institutions. MOOCs are definitely a significant change agent in higher education. They mark a break-through of the powerful merger of two major long-term developments, towards open education and online education, respectively[4].

In conclusion it has to be underlined that the question about ensuring the national authorities' support for digital innovation remains an open question despite the recent European Communication on Opening up Education. Until now, Bulgaria has no national regulation adequately responding to MOOCs.

The fact that MOOCs require big investment but in the same time do not guarantee immediate returns is certainly another reason for caution, particularly in times of economic and financial crisis. It is not possible to expect a big progress in MOOCs if additional funding is not available and appropriate adjustments of the regulatory frameworks that support the activities of universities (staff and students) and their institutional partners are not ensured. As in all areas where strategic institutional and national developments are required, policy makers and university associations and networks should facilitate dialogue and exchange among them.

Bulgarian universities have to strengthen their efforts in the MOOCs development and provision as soon as possible otherwise all the space will be filled by initiatives coming from other places. The motivation to establish MOOCs in Europe and in Bulgaria respectively cannot be the same as in the United States or in the other regions of the world, there should be an European dimension to this because the socio-economic context, the cost of education and the role of the state are completely different when it comes to defining the university strategy.

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