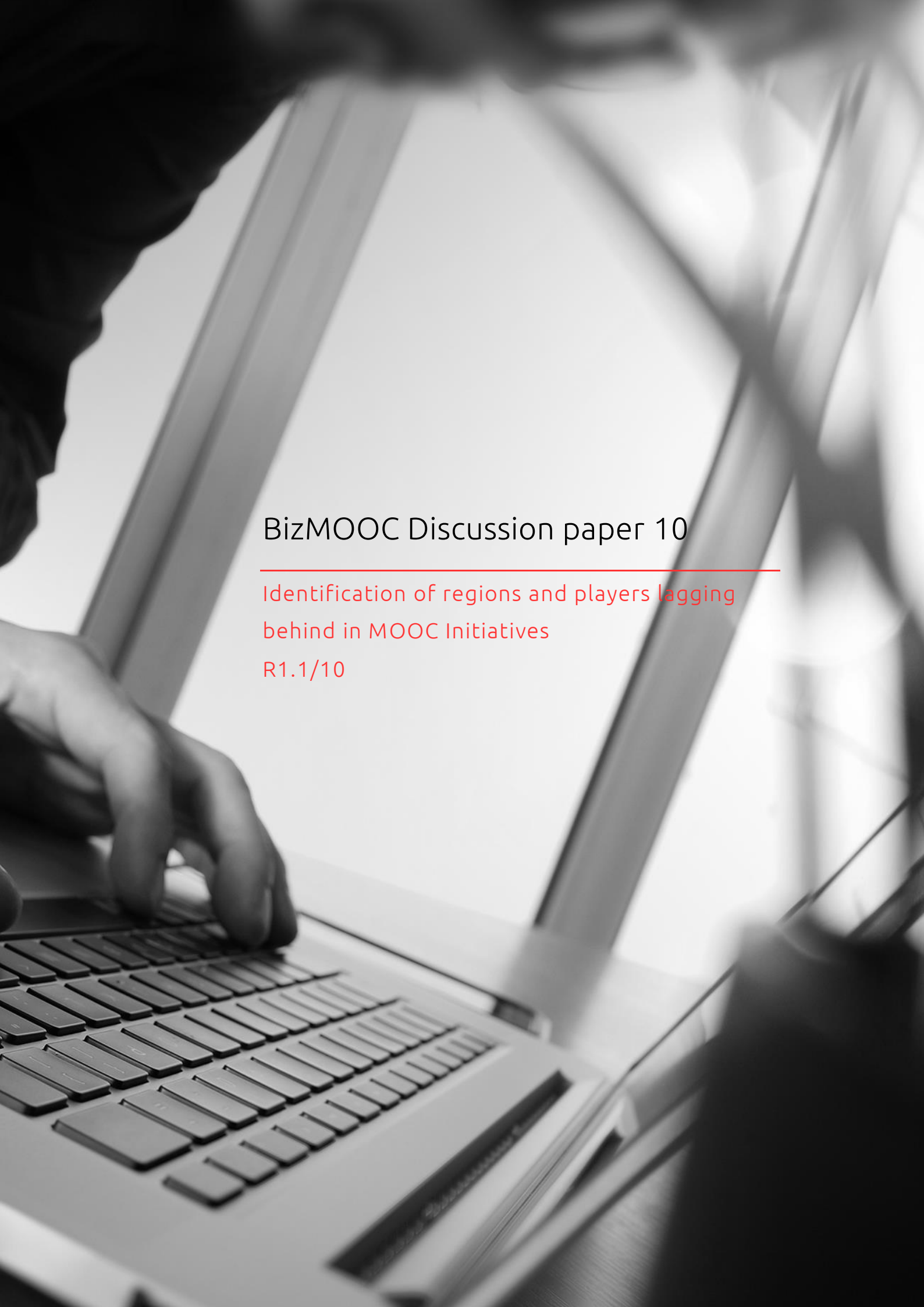

BizMOOC Discussion paper 10

Identification of regions and players lagging behind in MOOC Initiatives

R1.1/10

BizMOOC Discussion paper 10

Identification of regions and players lagging behind in MOOC Initiatives

R.1.1

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Identification of regions and players lagging behind in MOOC Initiatives

Author: Mariya Monova-Zheleva (BFU)

1. Abstract

The advances in technology and changing demand from students and business as well as the possibility for reducing costs and generating income has led to an MOOCs explosion. Over the last years, Massive Open Online Courses (MOOCs) have received a great deal of attention from the academic community, the business and the media.

The boost of MOOCs initiatives in Europe is connected with several crucial issues - issue of awarding credits, infrastructure and the business model, and last but not least issue of appropriate adaptation to the local cultural context, specific educational needs, gaps and necessities. This paper aims to identify the regions and players lagging behind the MOOCs initiatives.

2. Introduction

MOOC paradigm contributes the companies, HEIs, governments and entrepreneurs to change the face of teaching and learning, the structures set up to provide these services, and the vision for lifelong learning. The number of the Massive Open Online Courses (MOOCs) is increasing exponentially across the globe.

Harvard University and the Massachusetts Institute of Technology which jointly founded the leading MOOC provider edX conducted a study called HarvardX and MITx: Two Years of Open Online Courses Fall 2012-Summer 2014 (Ho et. Al 2014). The study covers 68 courses with 1.7 million participants and 10 million participant hours and for the moment is one of the largest studies done on MOOCs. The survey report is documented that the development of MOOCs had had significant impact on regular courses in Harvard and MIT. It is said that 83% of the regular students at MIT have used the MOOC platform for substantial part of their coursework in at least one course unit.

This fact shows that a proper integration of MOOCs in higher education could contribute for more effective use of teaching time and a flexible learning offer to traditional students and lifelong learners.

3. International context

The appearance of disruptive innovation like MOOCs has the potential to transform higher education and create new competition and centres of excellence among universities worldwide (European Commission, Directorate-General for Education and Culture 2014, page 12).

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Concerning the European MOOCs perspective even though the MOOCs initiatives exist in Europe, the biggest shifts are taking place in other regions of the world mainly the USA and some Asia countries. For example, the three main MOOC providers in the USA offer hundreds courses, with several million users worldwide, the European universities providing MOOCs are far from these levels of achievements.

According Müller-Eiselt the costs and access are driving the transformation in digital education internally. In the United States, skyrocketing tuition fees for on-campus education have created a new market for online learning. In many developing countries, such as India and several African nations, it is the "democratic" (broader) access to educational opportunities that makes technology-supported education a hot issue. In developed countries with a largely publicly financed education system, the drivers for advancing digital learning have other dimensions expressed mainly in the processes of the individualising learning in a context of increasing heterogeneity. Digital technology can help educators accommodate diverse learning needs, paces and styles. At the same time, it can significantly increase the size of an audience to be reached. (Ralph Müller-Eiselt 2015, p.5)

MOOCs emerged as a new form of distance learning in line with other developments such as e-learning or open educational resources. MOOCs are also seen as a medium for providing "relevant" job training to interested citizens through the Internet. The appearance of disruptive innovation like MOOCs has the potential to transform not only education but also corporate training and vocational education paradigms. In this respect the European Commission launched a renewed agenda for higher education "Supporting growth and jobs: An agenda for the modernization of Europe's higher education systems" where as one of the main priorities is stated "To seek for ways to further enhance the relevance of learning and teaching, e.g. through system-level intelligence and steering, promotion of more student centred learning approaches, better use of ICT, more and better links between HEIs and employers"[1]. In order to take further this priority the Directorate-General for Education and Culture -European Commission invests in different projects through different programs and frameworks such as Erasmus + Programme, H2020, and FP7. The pilots and research frameworks such as "Higher education Online: MOOCs the European way"[2], "BizMOOC is a knowledge alliance to enable a European-wide exploitation of the potential of MOOCs for the world of business", "Support Centres for Open education and MOOCS in different Regions of Europe 2020"[3], "European Multiple MOOC Aggregator"[4], "E-Learning Communication Open-Data"[5], "Translation for Massive Open Online Courses"[6], and many more.

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[1] https://ec.europa.eu/education/policy/strategic-framework/expert-groups/modernisation-higher-education_en
[2] HOME Project. Retrieved from HOME: http://home.eadtu.eu/
[3] SCORE2020 Project. Retrieved from SCORE2020: http://score2020.eadtu.eu/
[4] EMMA: https://platform.europeanmoocs.eu/
[5] ECO Project. Retrieved from ECO : http://project.ecolearning.eu/
[6] Translation for Massive Open Online CoursesTraMOOC. (n.d.). TraMOOC Project. Retrieved from TraMOOC: http://tramooc.eu/

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4. Current state of the MOOCs Initiatives

According to the information of Class Central – the most popular search engine for free online courses and massive open online courses - MOOCs cover huge variety of topics but the majority of the registered MOOCs are addressed to the "Technology" domain in comparison with the previous year where the courses related to the "Business and Management" had the biggest share. Apart from this exception the distribution of courses across subjects has remained quite similar to last year as is shown on the next Figure (Fig. 1).

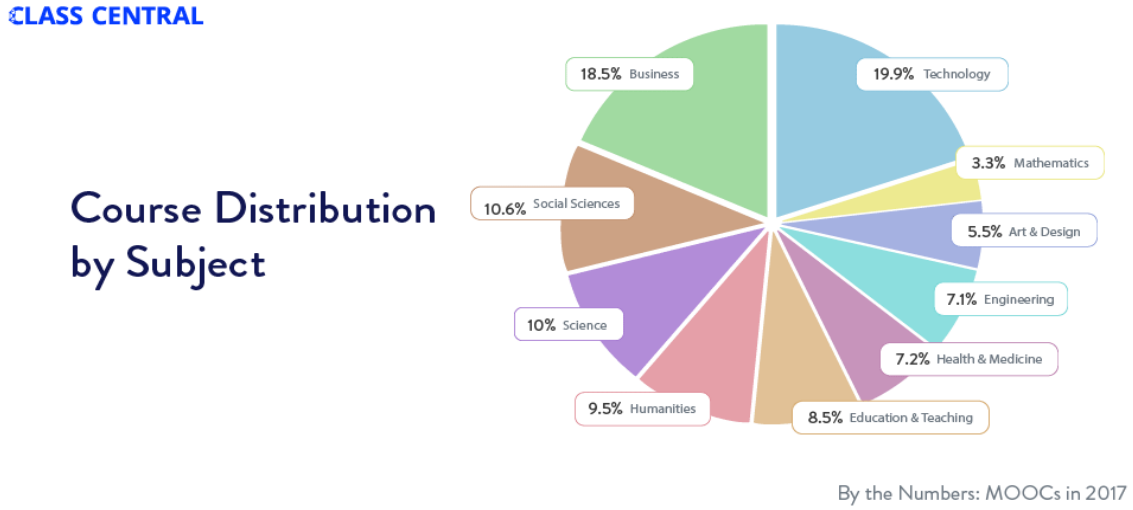

Figure 1 Distribution of MOOCs by subject areas. Source: ClassCentral https://www.class-central.com/report/mooc-stats-2017/

Since their emergence in 2012, the number of registered users continuously increases year by year. For example in 2015 the number of MOOCs users is over 35 million (Shah, 2015). According to the Class Central statistics, by the end of 2016, around 58 million students had signed up for at least one MOOC (ClassCentral, 2017). Around 23 million new learners signed up for their first MOOC in 2017, taking the total number of learners to 81 million. Although the growth in users is not fairly high last year, the number of new developed and launched courses increases very fast. To date, over 800 universities around the world have launched at least one MOOC. To launch their MOOCs usually the providers are partnering with companies (mostly in IT sector). According the Class Central analytics the total number of MOOCs that have been announced stands at 9,400, up from 6,850 in 2017 (Shah, 2018) as is shown on Fig 2.

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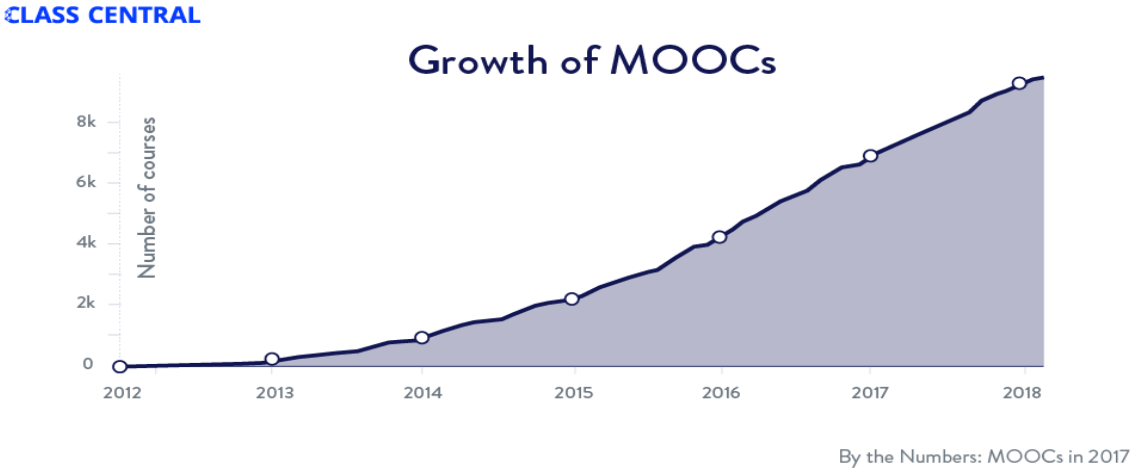

Figure 2 Growth of MOOCs. Source: ClassCentral https://www.class-central.com/moocs-year-in-review-2017

A MOOC platform where the MOOCs are published and used can be run by the institution itself or outsourced to external MOOC platforms like Coursera, EdX, and etc. The top five MOOC providers by registered users reported in the Class Central annual report of 2017 are presented on Fig. 3.

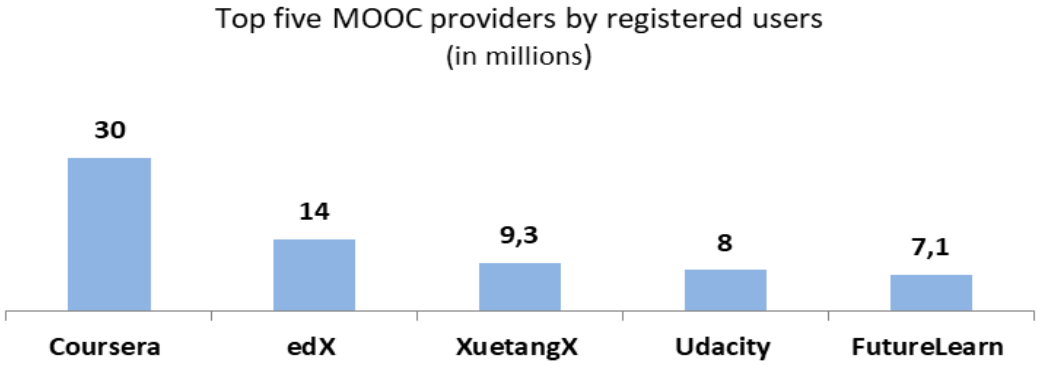

Figure 3 The top 5 MOOC providers by registered users: https://www.class-central.com/report/mooc-stats-2017/

The number of total MOOCs available for registration at any given time has also gone up due to the scheduling policy. Most courses are offered in a self-paced format or, in the case of Coursera courses, offered on a regular schedule, with new sessions starting automatically on a bi-weekly or monthly basis. In order the high level of flexibility for the users to be assured the FutureLearn apply quite different approach. They extend the enrolment period for their MOOCs. Moreover, for the paying students (who pay for certificates or for full access to the course materials) the access to the course is unlimited and they can finish it as a self-passed course. Hard deadlines for assignments and submissions are incompatible with the concept of flexible MOOC schedule. Usually the final deadlines are set to be the last date of the course. Some providers assure unlimited total number of attempts for the quizzes integrated in the course but with some limitation of the attempts' number per day.

However, these figures exclude many European MOOC offerings as Class Central mainly lists MOOC offering of the big (commercial) MOOC platforms. Many European universities have built an own platform

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or use a regional MOOC platform with a limited visibility. Also the efforts of OpenEducationEuropa to list European MOOC offering (MOOCs Scoreboard) were incomplete and stopped in 2016 which also contributes the European efforts in MOOCs to be less visible (Jansen, 2017).

5. MOOCs – institutional recognition practice

Despite the undisputable benefits of MOOCs quite obvious from their first appearance back in 2008 and the exponentially raised number of the unique registered learners (Dhawal 2014), on the other hand, they have also received extensive critique.

Among the members of the European University Association there is general consensus that the MOOCs should be closely monitored, but also that beyond the present excitement, it would be important to analyse innovative learning provision trends, and also consider implications for institutional recognition practice and definition of degrees (Gaebel et. al. 2014).

If we consider MOOC as a form of open education offered free through online platforms and taking into account the initial philosophy of MOOCs to open up quality higher education to a wider audience. It is very important to see how this paradigm is integrated in the HE systems in Europe and what is the current state regarding the recognition of the knowledge and skills gained through MOOCs.

The access of non-traditional students to the higher education is identified as one of the strategic priorities of the EC. Under the funding agreements for the period 2012-2015 is provided additional funding to Higher Educational Institutions that facilitate the access of students older than 25 years (European Commission/EACEA[7]/Eurydice, 2015, p. 121). The recognition of non-formal and informal learning outcomes is high on the political agenda and has been promoted by the Organisation for Economic Cooperation and Development (OECD), and the European Commission via the European Centre for the Development of Vocational Training (CEDEFOP), which revised European guidelines for validation non-formal and informal learning in 2015 (CEDEFOP, 2015).

The establishment of systems for the recognition of all forms of prior learning has become one of the central themes not only in the higher education sector, but also in all other sectors of education and training. Along with the recognition of prior formal learning, which commonly takes place in all countries, particular emphasis is being put on the need to enhance the recognition of the knowledge and skills gained through non-formal and informal learning because it is an important instrument for widening access. Moreover, if prior non-formal and informal activities are recognised by higher education institutions as parts of study programmes (in the form of credits, for example), these procedures can also help students completing their studies (European Commission/EACEA/Eurydice, 2018).

[7] The Education, Audiovisual and Culture Executive Agency /EACEA/ http://eacea.ec.europa.eu/about-eacea_en

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Prior non-formal and informal learning can be recognised towards the fulfilment of a HE study programme in the majority of EHEA countries. In most education systems this is made possible by a top-level framework: laws, regulations, guidelines or policies oblige or guide higher education institutions in establishing the relevant recognition procedures. In six higher education systems higher education institutions have recognition procedures in place without the presence of a top-level framework. Next figure depicts the current state of the recognition of prior non-formal and informal learning for progression in higher education in Europe.

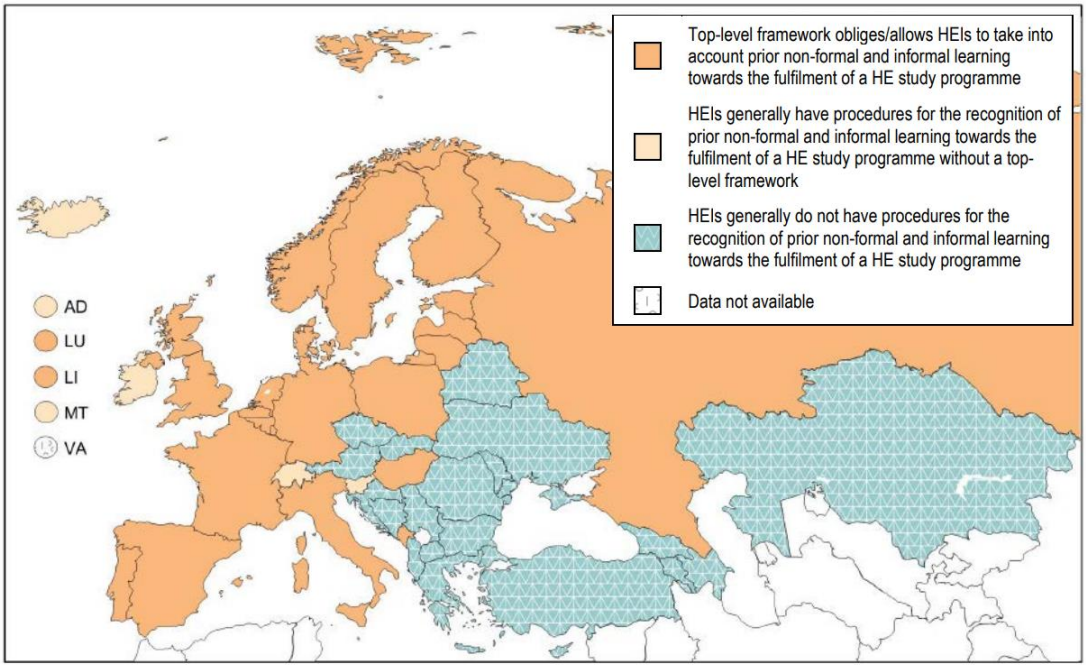

Figure 4Recognition of prior non-formal and informal learning for progression in higher education, https://eacea.ec.europa.eu/national-policies/eurydice/sites/eurydice/files/bologna_internet_chapter_5_1.pdf

The extents to which non-formal and informal learning can contribute to the fulfilment of a HE study programme differ from country to country. In education systems where top-level steering

documents define the extent of possible recognition, such procedures can most often only lead to a limited number of credits but not to a complete award of a higher education degree.

It is clear that existing policies for the recognition of prior learning should be able to accommodate the validation and recognition of non-formal learning embrace open education and MOOCs, removing discrimination between 'how' and 'where' the learning takes place. However, as one of the primary goals of open education is to provide education on a large scale, the knock-on effect for both assessment and recognition of non-formal MOOC-based learning is that these processes should also be done as such. But this generates practical challenges for institutions (Witthaus et. al. 2016, p. 21-74).

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6. Leveraging ICT for increased competitiveness

According the Annual report for 2015 issued by Visiongain (MOOC Market 2015-2020) the MOOC's market is exhibiting great potential to grow exponentially over the next few years. MOOCs appears as a very advantageous and commercially interesting solution for many companies looking to implement effective training programs for employees, MOOCs have the potential to revolutionize the corporate learning industry. The growing number of connected devices, high enrolment rates in MOOCs, the increasing acceptance of MOOCs based training in enterprises around the globe and the increasing demand for low cost, high quality and globalised education could be considered as main reasons for the substantial uptake of the technology. In this context, the assurance of an appropriate MOOCs infrastructure, efficient business model and validation process are among the aspects which mirror the capacity of the enterprises to leverage ICT for increase of their competitiveness.

The World Economic Forum measures the capacity of countries to leverage ICTs for increased competitiveness and well-being trough the complex indicator Networked Readiness Index /NRI/.

The annual reports of the World Economic Forum "Networked Readiness Index 2016: (NRI 2016) presents the results of ranking which covers 139 countries.

The framework translates into the NRI, a composite indicator made up of four main categories (subindexes), 10 subcategories (pillars), and 53 individual indicators distributed across the different pillars:

- Environment subindex: Political and regulatory environment (9 indicators); Business and innovation environment (9 indicators);
- Readiness subindex: Infrastructure (4 indicators); Affordability (3 indicators); Skills (4 indicators);
- Usage subindex: Individual usage (7 indicators); Business usage (6 indicators); Government usage (3 indicators);
- Impact subindex: Economic impacts (4 indicators); Social impacts (4 indicators).

According Michael Kende (Kende, 2015) access to the open Internet has created exciting new possibilities for entrepreneurs worldwide. This determines the education as a critical component of innovative startups. From one side, it provides a general background in fields of interest, and from the other side it facilitates the detection of the current market gaps and identification the specific knowledge required to help fill the gaps. In this context MOOCs are considered as a way to lower the cost and increase the reach of educational resources, thereby removing significant roadblocks to education. In order the potential of ICTs in education to be maximized are considered he following crucial challenges:

- Reforming telecommunications, which must include a drive to ensure that teachers / lecturers and students, accessing ICT support, have stable and high-speed network connectivity, however remote their locations may be;

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- Delivering quality digital educational content, which must provide in-depth focus on the quality and availability in multiple languages, especially targeted at educators;
- Embracing collaboration, which must take advantage of networked collaboration tools and social networking in order to develop mechanisms that bring educators of teachers together to pool expertise and share content.

Taking into account the challenges mentioned above, it is also important to be discussed the question put by the United Nation – "whether MOOCs, with their focus on offering tertiary-level courses for mass consumption, are a panacea for increasing access to tertiary education in the developing world, or whether they will instead widen the gap between those with access to higher education and those without" (Bhandari 2014).

The success of the MOOCs is based on the fundamental assumption that the lifeline of technology is readily available. Moreover, the activity of innovation becomes more inclusive because more people—across countries and income levels, education and gender—are able to create new enterprises. By this reason the results of innovation becoming more inclusive, because many new entrepreneurs focus their efforts on filling market gaps close to home. Consequently, the policymakers can focus on ensuring of the appropriate infrastructure in order to foster this new source of startups (Kende, 2015). Currently many developing countries face severe infrastructure issues connected with the supply of electricity and / or the requisite bandwidth. In the Eastern European countries (especially their rural regions) some of these infrastructure problems still exist though not with the same sharpness as in the developing countries. The performance of countries largely mirrors their position on the development ladder: a higher level of income is typically associated with a higher NRI score. The next figure represents the ranking results about the top 10 (out of 139 ranked) countries harnessing information technology.

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The top 10 countries harnessing information technology	
Networked Readiness Index 2016	Global rank*
Singapore	1
Finland	2
Sweden	3
Norway	4
United States	5
Netherlands	6
Switzerland	7
United Kingdom	8
Luxembourg	9
Japan	10

Source: World Economic Forum 2016
*2016 rank out of 139 economies.
The index measures how economies use the opportunities offered by information and communications technologies for increased competitiveness and well-being.

Figure 5 Top 10 countries harnessing information technology (overall ranking)

The next figure represents the top 10 countries harnessing information technology ranking only for Europe.

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Europe: Top 10 countries harnessing information technology

Networked Readiness Index 2016	Global Rank*
Finland	2
Sweden	3
Norway	4
Netherlands	6
Switzerland	7
United Kingdom	8
Luxembourg	9
Denmark	11
Germany	15
Iceland	16

Source: World Economic Forum 2016
*2016 rank out of 139 economies.
The index measures how economies use the opportunities offered by information and communications technologies for increased competitiveness and well-being

Figure 6 Top 10 countries harnessing information technology (European dimension) [8]

The World Economic Forum defines competitiveness "as the set of institutions, policies, and factors that determine the level of productivity of a country"[9]. The Global Competitiveness Report /GCR/ (GCR 2016-2017) is a report published by the World Economic Forum. In this Report more than 137 countries are ranked on the base of the Global Competitiveness Index /GCI/. The GCI integrates the macroeconomic and the micro/business aspects of competitiveness into a single index which is made up of over 110 variables structured in a framework and a corresponding set of indicators in three principal domains (pillars) and twelve sub-domains.

According the GCR authors the competitiveness, considered as a higher productivity, is a key driver of growth and resilience. "The level of productivity, in turn, sets the level of prosperity that can be reached by

[8] These and more Infographics and Shareables are available from http://reports.weforum.org/global-information-technology-report-2016/infographics-and-shareables/
[9] http://reports.weforum.org/global-competitiveness-report-2014-2015/methodology

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an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time." (GCR – Methodology 2015)

Many determinants drive productivity and competitiveness. Among the classical and neoclassical ones, more recently the focus is extended also to other mechanisms such as education and training, technological progress, macroeconomic stability, good governance, firm sophistication, and market efficiency, among others. Through a systematic assessment of the drivers of productivity, the Report identifies priority areas for structural reforms and plays a role of a guide and monitoring tool all stakeholders to steer their actions towards enhanced competitiveness.

It is not possible to maintain high level of competitiveness without well-functioning public and private institutions, appropriate infrastructure, stable macroeconomic framework and good health and education and the last ranking results show this in an ultimate way. The figure below shows the top ten most competitive economies in the world. More than 50 per cents of them are European countries – Nordic countries and countries form Western Europe.

The Top 10 Most Competitive Global Economies

Global Competitiveness Report 2017-2018	Global rank*
Switzerland	1
United States	2
Singapore	3
Netherlands	4
Germany	5
Hong Kong SAR	6
Sweden	7
United Kingdom	8
Japan	9
Finland	10

Source: The Global Competitiveness Report 2017-2018
*2017-2018 rank out of 137 economies

Figure 7 Most competitive global economies[10]

The next figure shows the ten most competitive Emerging and Developing European countries.

[10] These and more Infographics and Shareables are available from http://reports.weforum.org/global-competitiveness-index-2017-2018/infographics/

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The 10 most competitive Emerging & Developing European economies

Country	Global rank*
Poland	41
Turkey	51
Romania	53
Bulgaria	54
Macedonia, FYR	60
Hungary	63
Montenegro	70
Croatia	77
Albania	93
Serbia	94

Source: The Global Competitiveness Report 2015-2016
* Emerging & Developing European 2015- 2016 rank out of 140 economies

Figure 8 Most competitive European Emerging and Developing countries

The overview of the GCI shows that the most advanced European economies have recovered to their pre-crisis level of competitiveness. As in previous years, they fill all the top positions in the rankings. Yet some disparity remains, with some Eastern and Southern European countries occupying the lowest rankings in this group: most notable is Greece, which at 81st place is the least competitive economy of this group.

The long period of economic instability (almost a decade) and a double-dip recession have eroded trust in public institutions in most advanced economies, especially in Southern Europe. At the same time, the quality of infrastructure there is improved thanks to heavy investments and increased market competition. The firms from this part of the Eurozone show signs of convergence with their northern counterparts.

The results from GCR demonstrate a divide in Europe between reformist countries and the other countries. In France, Ireland, Italy, Portugal, and Spain, is observed significant improvement in the areas of market competition and labor market efficiency thanks to the reforms these countries have been implementing. By contrast, Cyprus and Greece have failed to improve in these pillars. (GCI 2015)

It is undisputable that the technology is increasingly essential for firms' competitiveness and prosperity. The technological adoption category assesses the agility with which an economy adopts existing technologies. Technology is understood as a concept covering not only products but also processes and organization methods, all linked by the common factor of enhancing efficiency in production. In addition, technology adoption contributes to an innovation ecosystem.

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There are two sources of technology adoption: local firms can invest to bring in technology from abroad or from other sectors or companies, and a country can exploit spillovers from the foreign direct investment of international companies.

Consequently, the wider is the gap between foreign technology and the technology available in the country - and the longer is the gap between invention and its adoption - the more difficult is the new technologies to be imported. In this context the educational technologies are not an exception.

In the publication of the European Investment Bank titled "Investing in Education" is stated that there is a clear case for investment in education in the European Union. The demand for young people with excellent post-secondary training and a skill-set that fits the needs of future jobs will increase. Yet, the EU lags behind other regions:

- Expenditure per pupil in the US is 40% higher for schools and double for tertiary education.
- One in seven young people in the EU leaves education and training too early.
- Less than one person in three aged 25-34 has a university degree compared to 40% in the US and over 50% in Japan (EIB 2018).

7. Performance of EU Innovation Systems

The European Innovation Scoreboards (EIS 2018) provide a comparative assessment of research and innovation performance in Europe. Assessment of the research and innovation performance of the EU Member States and the relative strengths and weaknesses of their research and innovation systems helps Member States assess areas in which they need to concentrate their efforts in order to boost their innovation performance.

The measurement framework distinguishes between 4 main types of indicators (Framework Conditions, Investments, Innovation Activities, and Impacts) Firm activities, Outcomes), capturing in total 27 different indicators.

The performance of EU national innovation systems is measured by the Summary Innovation Index, which is a composite indicator obtained by taking an unweighted average of the 27 indicators Member states are classified into four performance groups based on their average innovation performance.

- Innovation leaders – have innovation performance more than 20% above the EU average. The Innovation Leaders are Denmark, Finland, Luxembourg, the Netherlands, Sweden, and the United Kingdom;
- Strong Innovators – Member States with a performance between 90% and 120% of the EU average. Austria, Belgium, France, Germany, Ireland, and Slovenia are Strong Innovators;
- Moderate innovators – Member States where performance is between 50% and 90% of the EU average. Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Slovakia, and Spain belong to this group

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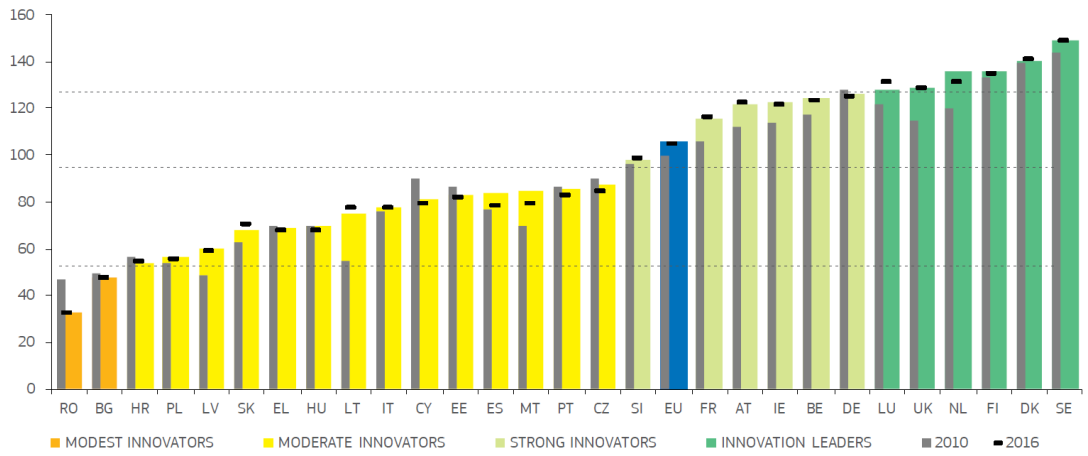
- Modest innovators - includes Member States that show a performance level below 50% of the EU average. This group includes Bulgaria and Romania.

The slow recovery from the crisis, the increasing competition from innovation in emerging economies, and the strength of US policies aimed at regaining a leading position are suggested as additional factors that undermine the European innovation performance. The next figure shows IPSs for 2017 compared to 2010 and 2016. As is visible from the graph the performance in 2017 has increased for 20 Member States in comparison to the 2016.

- For six Member States, performance improved by ten percentage points or more: Lithuania (20.1%), the Netherlands (15.9%), Malta (15.2%), United Kingdom (14.0%), Latvia (11.6%), and France (10.1%);
- For six Member States, performance improved between 5 and 10 percentage points: Austria (9.0%), Ireland (8.5%), Spain (7.5%), Belgium (6.8%), Luxembourg (6.6%), and Sweden (5.5%);
- For six Member States, performance improved by less than 5 percentage points: Slovakia (4.8%), Poland (3.2%), Finland (2.8%), Italy (2.0%), Slovenia (1.4%), and Denmark (0.7%);
- For eight Member States, performance declined by up to 5 percentage points: Hungary (-0.1%), Greece (-0.9%), Germany (-1.3%), Portugal (-1.5%), Bulgaria (-1.5%), Croatia (-2.0%), the Czech Republic (-2.9%), and Estonia (-3.2%);
- For two Member States, performance declined by more than 5 percentage points: Cyprus (-9.2%), and Romania (-14.0%).



Coloured columns show Member States' performance in 2017, using the most recent data for 27 indicators, relative to that of the EU in 2010. The horizontal hyphens show performance in 2016, using the next most recent data for 27 indicators, relative to that of the EU in 2010. Grey columns show Member States' performance in 2010 relative to that of the EU in 2010. For all years, the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups in 2017, comparing Member States' performance in 2017 relative to that of the EU in 2017.

Figure 9 Performance of EU Member States' innovation systems (Source: https://ec.europa.eu/docsroom/documents/30281 , p.13)

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Currently the group of modest innovators includes Bulgaria and Romania. The short profiles of these EU members are described taking into account the data provided by the Innobarometer 2015 (Innobarometer 2015).

Bulgaria is a modest innovator. Over time, the country performance has not changed relative to that of the EU in 2010. Employment impacts and intellectual assets are the strongest innovation dimensions. The weakest innovation dimensions are "Innovators" and "finances and support". The improved performance is registered for the following five indicators: SMEs innovating in-house; Innovative SMEs collaboration; Product/process innovators; Marketing/organisations innovators, and Sales share new product innovations. The performance is reduced only for one indicator – Non-R&D innovation expenditures. GDP per capita, the employment share of high and medium high-tech manufacturing and the turnover share of SMEs are well below the EU average. The value added share of foreign-controlled enterprises is well above the EU average[11].

Over time, the relative performance of Romania has declined from that of the EU in 2010. Innovation-friendly environment and Sales impacts are strongest innovation dimensions. Innovators and Firm investments are the weakest innovation dimensions. Romania shows reduced performance for all the six indicators: SMEs innovating in-house; Innovative SMEs collaboration; Product/process innovators; Marketing/organisations innovators, and Sales share new product innovations, and Non-R&D innovation expenditures. The added value share of foreign-controlled enterprises is well above the EU average. GDP per capita and the employment shares in services and in knowledge-intensive services are well below the EU average[12].

8. Conclusions

Open higher education and research is one of the hallmarks of the EU, and an important framework condition for quality, and for facilitating Europe-wide exchange and collaboration. It requires a strong lead at the European level, otherwise it will be fragmented by national regulations and protocols but also it is not possible without the national authorities support.

Until now, some countries in Europe have no national regulations adequately responding to MOOCs. 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.

European 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

[11] https://rio.jrc.ec.europa.eu/en/country-analysis/Bulgaria
[12] https://ec.europa.eu/docsroom/documents/30697

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establish MOOCs, in Europe, cannot be the same as in the other regions of the world, there should be a European dimension to this because the socio-economic context, the cost of education, the role of the state to define the university strategy, are completely different.

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 an additional funding are 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.

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