



SCORE2020

Output 12 SCORE2020:
*Business models for regional
support centres*

February 2016

or regional support centres

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SCORE2020

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Disclaimer: This document is produced as part of the European Union-funded project SCORE2020 - Support Centres for Open education and MOOCS in different Regions of Europe 2020. This project supported by the European Commission, DG EAC, under the ERASMUS+ Programme (Ref. 2014-1-NL01-KA203-001309). However, sole responsibility for this report lies with the authors and the Commission is not responsible for any use that may be made of the information contained therein.

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Introduction

MOOCs are complete courses offered for free online, meaning that participants do not have to pay for a full course experience: all of the resources and most of the services in such a course (e.g., feedback, tests, quizzes, exam and some limited tutoring). However, this raises the question: Who is paying for the development of MOOCs and for all the operational costs?

To answer that question, we need to look at possible business models that describe the conceptual structure supporting the viability of a business — i.e., how an organisation fulfils its purpose, including all business processes and policies. Business models can apply to any type of organisation, including at a governmental level.

Currently, the main questions linked to MOOCs range from the sustainability of their business model to their ability to generate meaningful credentials for career-oriented or lifelong learners. However, creating and analysing a general or ‘universal’ business model for MOOCs is difficult, if yet impossible. This is mainly due to the fact that several stakeholders are involved in the creation and the distribution of a course, as well as research and further services beyond the MOOC itself. The content of a course might come from a university, a company, a non-profit organisation or other parties. When it comes to the distribution, there are platforms that use content from external partners and generate revenue from issuing certification or additional services. Other platforms are either part of a higher education institution that provides the content or funded by a third party. Thus, the conceptual differences of these various content providers, platforms and other stakeholders make it difficult to establish a universal MOOC-model.

The document first briefly explains what the Regional Support Centres (RSC) on Open Education are and the set of functions they should support. It further elaborates on the business aspects of the RSC in order to simplify their establishment or improve their operations if they exist in the specified regions within European Union. This output introduces the main principles behind the business models of MOOCs at different stakeholder levels. The annexes describes different interpretations of these business models and discusses in more detail different models for (regional) support centres and the involvement of government in this.

The topics discussed within this document address the European or common context to all specified EU regions. Note that some elements of this SCORE2020 work are published as part of a chapter in the UNESCO-COL (2016). [Making Sense of MOOCs: A Guide for Policy-Makers in Developing Countries](#). Business Canvas Models developed in the SCORE2020 project are re-used and applied by various regions.

Financial models around MOOCs

What are the general costs to produce a MOOC?

The production and development for MOOCs varies a lot between courses. The amount of money invested is typically depending on factors such as:

- Staff cost
- Length of the MOOC (e.g 4 weeks 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

The development costs for MOOCs are thus difficult to estimate

According to available research (Hollands & Tirthali, 2014), the costs for MOOC production and delivery range from nearly US\$40,000 to over 325,000. Without taking staff cost and initial investment (studio etc.) cost into consideration, these numbers might be lower at times. In addition, approximately US\$10,000–50,000 is needed to cover operational costs every time the course is offered. For example, it costs up to US\$35,000 per course to record and publish lectures as part of an xMOOC. Tasks include recording (video, audio, screen capture, etc.), mixing, editing, post-processing and publishing, amongst others. Another report estimates a high quality video production cost of \$4,300 per hour of finished video. In addition, there are the costs of the MOOC platform, including the support services offered (e.g., by the institution), or a membership fee for support by a regional MOOC provider or one of the global MOOC platforms.

These estimates are based on research of mainly U.S. institutions, offering their MOOCs via one of the main U.S.-based MOOC platforms. In general, though, it is agreed that more than 100 hours are needed for the development of a MOOC and that eight to 10 hours per week are required for course management. Additional funds are needed to pay for the MOOC platform, the fee (annual or per MOOC) for a partnership with a MOOC provider, marketing and so forth.

The cost to develop a MOOC heavily depends upon the type of MOOC (e.g., sMOOC, xMOOC, cMOOC), the persons involved in the development process (e.g., instructors developing their own courses, team effort with the institution, team with the support of regional or global MOOC providers) and whether or not existing resources are reused (e.g., from a pre-existing on-campus course).

Experiments with different kinds of MOOCs and on other continents show that these costs can be reduced by:

- involving the target audience in the development (young people learning to code) and/or operation of the MOOC (peer-to-peer assessment, peer-to-peer tutoring, etc.);
- providing the MOOC on the institution's own platform rather than outsourcing it to one of the MOOC platforms;
- using open source software for MOOC platforms or using freely available social media tools on the Internet in network MOOCs (e.g., cMOOCs and sMOOC);
- using cost-efficient video recording tools;
- using existing material and OER, or even reusing complete MOOCs from other institutions; and
- using low-cost partnerships for those services that are scalable and best organised cross-institutionally.

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

MOOCs financial models based on a freemium model

According to Kalman (2014), it is hardly surprising that new business models based on “free” are powerful and often disruptive. The freemium approach can be an effective business model, whereby a product or service is free to a large extent, but some users pay for additional services. The ability to freely play music from the Internet disrupted the business model of the highly profitable record labels of the 20th century. The business model of newspapers around the world was disrupted by the appearance of free daily newspapers, of free online news websites and of free or low-cost online alternatives to advertising in the classified ads section of a newspaper. In the last decade, we have witnessed an abundance of innovative, free online products. This abundance is a consequence of constant technological improvements.

The freemium business model is based on offering a satisfactory but limited basic product (e.g., limited in storage capacity, number of users, features) and charging customers for versions in which some or all of the limitations are removed. While often a large percentage of the users are satisfied with the free product, the income from the limited number of paying users is sufficient to cover the fixed costs as well as the minimal variable costs created by all of the users.

Freemium business models in education

Freemium business models in HE were generally introduced in the last decade. They are used in the following areas:

- Open source and free software describe software that is free for users (free software) and source code that is freely available (open software). In education, many open source software systems are available as learning management systems (e.g., Moodle). Presently, free/open software for MOOC platforms is becoming available (OpenMOOC, Open edX, mookIT).
- Open access journals make published research results freely accessible to all. There are different models for achieving this. For example, in the “Gold route,” the publisher charges the

author(s) a fee to make the article available for free. This is in contrast with the “Green route,” where the material is self-archived, or the “Platinum route,” where no one is charged. Examples in education are the Journal of Learning for Development (JL4D), Open Praxis and the International Review of Research in Open and Distributed Learning (IRRODL).

- Open textbooks. An open textbook publisher allows educators to modify the free online version and sells additional services — for instance, the physical product — for a set price. Examples are OpenStax (a project run by Rice University’s OpenStax College to improve student access to quality learning materials), the LATIn Project (a project addressing the high cost of textbooks for HE in Latin America) and Siyavula (a South African-based company committed to making high-quality OER available to every learner and teacher).
- OER started more than a decade ago with OCW initiatives that provided learning materials at no charge, as a public good. Business models around OER are still under development, looking for sustainable models beyond initial funding. Examples are Wikiwijs, MERLOT and OER Commons.

In all of these examples, the basic product is free for end-users, and an open licence allows modifications of the original source.

This “open family” has expanded in other areas, such as open data, open science, open innovation, open practices and open policies. Although criticised by some as not being (totally) open in relation to open licensing and other aspects of open education, MOOCs are seen as part of this open movement.

Many countries have adopted open policies at a national level. Open access publishing, for instance, is now the norm for many academics, not just those who might be deemed early adopters. This policy has extended to data from research projects as well as publications. Moreover, several governments are now developing strategies for open education, including policies on OER and MOOCs. This again highlights the social dimension of open education and the need for government involvement in MOOCs as well.

What are the possible revenues at a MOOC level?

One could argue that MOOCs themselves should generate additional revenue streams that compensate for the development and operational costs. All additional services that can be derived from the free MOOC offering can therefore be considered as possibilities.

Possible Additional Educational Services	Explanation
Formal certificates	As stated earlier, a MOOC should always include some kind of recognition, such as a badge or a certificate of completion, for free. In addition, MOOCs can offer the opportunity for participants to receive (for a small fee) a formal credit as a component of an accredited curriculum. When a MOOC and formal accreditation become two separate processes, they have been unbundled. It should be noted that formal accreditation requires additional costs in the form of authentication services and other resources.
Individual coaching/tutoring during the MOOC	MOOCs are designed for mass participation, so tutoring is limited or automated. Some MOOC participants might want to pay for personal coaching, which may increase the success rate of the MOOC.
Tailored courses for employees as part of company training (e.g., a SPOC based on a MOOC)	Companies might want to pay for additional academic activities for their employees, such as tutoring meetings, private classes, seminars and so forth. It is also possible to design courses based on a MOOC, tailored to specific target groups. Access to this kind of course would be restricted to a smaller number of participants.
Tailored follow-up resources based on participants' data in the MOOC	Most MOOCs use videos and documents to support the learning activities. These educational resources can be part of high-quality digital materials that go more deeply into the content of the MOOC. Consequently, a series of e-documents, software and e-books can be made available at a very small price for any participant who wants to delve further into the MOOC topic.
Remedial courses	"Remedial MOOCs" can be offered to students with or without special educational needs who want to achieve specific academic skills as compensatory or preparatory education. Money is generated by either connecting to formal certificate services (i.e., ensuring formal recognition) or offering institutions that specialise in compensatory and preparatory education the opportunity to pay for materials so that they can create MOOCs or SPOCs.
Training to qualify for access to universities	MOOCs can offer alternative courses to students who have been out of education for at least a year or have left school early. These courses are designed to give students the opportunity to develop academic skills, confidence and knowledge before applying to university. This again relates to money generated by certificates and/or tailored courses.

MOOC participants can pay for these additional services in such a way that the cost and benefits are balanced for each MOOC separately.

What are the possible revenues for a HE institution?

At this level, a HEI may invest in MOOCs in such a way that other benefits on the institutional level balance and/or justify the costs of MOOCs. In this context, the MOOC operation is connected to the business model on the institutional level. For this, we need to understand the reasons some universities become involved in MOOCs while others do not.

The most commonly cited reasons for HEIs not yet being involved in MOOCs are:

- the high entry and annual fees charged by big MOOC platform providers;
- the cost to develop and maintain their own MOOC platform;
- the high costs of developing MOOCs — i.e., the economic viability of MOOCs;
- the effort and competencies needed to produce good-quality courses; and
- global competitiveness.

Regarding the last point, some critics state that MOOCs generate a level of global educational competition that hurts small versus large universities, as the latter have more resources, a wider audience and more brand weight. The quality argument also reinforces the perception of high costs and competitiveness. Only quality courses, with an obvious effort behind them, can survive in the MOOC environment.

According to many U.S. and European studies, the predominant motive for HEIs to be involved in MOOCs is to enhance institutional visibility and reputation. In addition, these institutions indicate that using MOOCs as an area for innovation (e.g., to improve the quality of on-campus offerings, contribute to the transition to more flexible and online education, improve teaching) and responding to learners' and societies' demands are important objectives as well. The same studies agree that objectives related to finance (exploring cost reduction, generating income) and the scalability dimension of MOOCs are not seen as very important. Consequently, the possible revenue streams for institutions also relate to these objectives.

Possible Added Value for Institutions	Explanation
MOOCs can offer a good marketing model	MOOCs create a lot of publicity and as such constitute a more efficient marketing tool than traditional courses.
MOOCs can attract better and/or more on-campus students	The main change resulting from this innovation has been the entry of new audiences or participants that until now were not interested in education/training or could not access it for various reasons — economics, geography, availability and/or prior knowledge (outreach to disadvantaged groups).

Possible Added Value for Institutions	Explanation
MOOCs can attract new kinds of students	MOOCs as useful tools for larger market targets — that is, not only on-campus students but also: students considering future career options; professionals needing updated, specific skills; people hoping for a career change; vocational learners, etc.
MOOCs provide innovation in educational provision	MOOCs are a source of educational innovation, providing a massive scale of access with wider interaction possibilities. Hence, instead of the traditional educational method of teacher–student interactions, in MOOCs platforms student–student interactions play a critical role in configuring the educational experience. In this way, institutions are developing new educational offerings by experimenting with MOOCs.
MOOCs result in scalable educational services	Related to the above, MOOCs are excellent tools to develop new, improved services that are scalable in different kinds of educational provision (new and existing).
MOOCs can improve the quality of on-campus education	In this mode, students’ experiences with MOOCs are used to improve on-campus provision, by increasing the quality of regular courses (with new pedagogical approaches such as flipped classrooms using MOOC elements) and/or by increasing the success rates of on-campus students (students using MOOCs to prepare for exams).
MOOCs can reduce the costs of regular course provision	For some, due to their scalability, MOOCs might even reduce the costs of regular course provision. Using MOOCs for some tools and services might eventually lead to more cost-effective provision of on-campus education as well.
MOOCs can be a research area	The data generated within a MOOC have value for publications and consequently also for universities and researchers.
MOOCs can be mass environments for exploring research questions	One natural evolution of MOOCs is the transformation of educational tasks into research tasks, in a “learning by researching” process. MOOCs increasingly include research components that promote open online research instead of traditional coursework projects. Crowdsourced research through MOOCs is a potential development area to foster innovative collaboration forms between academics and citizens and promote new innovation models.

Case study: MOOCs business model at UNINETTUNO

Considering the UNINETTUNO experience on the production and the delivery of MOOCs, with thousands of students from approximately 140 countries, we can say that the best and more suitable business model should be based on the freemium offer.

The freemium offer at UNINETTUNO MOOCs consist in making accessible to everyone the whole MOOCs offer available on the web giving free access to all the contents protected under the CC License.

From the free access and self-paced mode, students can shift at every time into a pay-mode that will guarantee the full UNINETTUNO experience and the possibility to pass a final exam for each selected module. The switch from UNINETTUNO MOOC model to UNINETTUNO “University Course” model implies that:

1. the student will have to fulfil the requirements set in the “Exam Guide” of each course he/she selected in order to be admitted to the final exam. Typically, admission criteria consist of
 - a) tracking of videolectures’ usage (automatically reported by UNINETTUNO learning analytics system);
 - b) participation in online tutoring activities (forum discussion, live interactive class sessions), certified by the professor and or the tutor supervising each session;
 - c) delivering of the exercises marked as mandatory by the Professor
2. access to the final exam session, in a physical classroom both in UNINETTUNO headquarter or in one of the UNINETTUNO Technological Poles, a network of study centers distributed both in Italy and abroad in order to guarantee to enrolled students the availability of a support and exam center closest as possible to their home.

Final exams admission (through course attending) and passing will allow students to earn ECTS Credits.

The cost per module is calculated considering the amount of video-lessons and the total of credits. In any case, costs are affordable and exams can be attended everywhere in the world.

Business-to-business revenue models

The business-to-business level is related to MOOC-platform providers and other providers of several kinds of educational services. Presently, HEIs pay these providers (sometimes supplemented by funding from investors) for the services described in the following table.

Possible Added Value for Institutions	Explanation
MOOC platform	A MOOC platform essentially offers the digital environment for (most) education services required to publish and offer a MOOC.
Course aggregator	A course aggregator consists of a Web environment that performs tasks such as locating, classifying, labelling, indexing and evaluating MOOCs from multiple sources. Regional and global MOOC platform providers offer course catalogues to list all the MOOCs in their partnership. In addition, some global aggregators provide a total overview of MOOCs offered by many MOOC platform providers (e.g., Class Central) or try to offer a regional perspective (e.g., Open Education Europa).
Global marketing and increasing reputation	MOOC platform providers and other MOOC collaboration initiatives provide digital marketing services to increase the number of MOOC participants and/or increase the reputation of an institution worldwide. Branding and marketing services are a compatible combination to provide.
Learning analytics tools	Learning analytics tools make use of massive participation to collect and analyse data about learners and their contexts, with the objective of understanding and enhancing the learning process and outcomes, as well as the learning environment (platform, course design) in which these occur. Increasingly, these kinds of services are offered to platforms and/or institutions offering MOOCs.
Translation services	Translation services have been a cornerstone of the expansion of existing MOOC platforms. Some top MOOC organisations currently rely for their translations on collaborative platforms, where volunteers provide subtitles and other translation, as well as peer revision. Other parties offer applications of advanced technologies, such as machine learning and natural language processing.
Certification services	By definition, a MOOC offers some kind of certificate for free. However, additional, fee-based certification services are increasingly offered by either institutions or third parties. These services relate to more verified certificates (including authentication services and portfolio services for participants) and formal certificates (i.e., ones recognised as part of a regular bachelor's or master's programme).

Possible Added Value for Institutions	Explanation
Quality label for institutions/ MOOCs	Existing platforms already provide their course partners with quality services for institutions and MOOCs. These are a necessary requirement to ensure end-user satisfaction. Some partnerships even have developed a distinct quality label for benchmarking institutional QA (e.g., the OpenupEd label).
Training in how to design/develop MOOCs	This includes consultancy services for training teachers in designing and developing a quality MOOC, as well as specialised courses for this purpose (which can be SPOCs or even MOOCs).
Using (anonymised) data for recruitment	MOOC participants can allow their MOOC provider to share their personal data and learning progress with interested employers. This service can be developed in any labour field. Employers are thereby assisted in locating the best people. In addition, this service can be used to address unemployment.

Most elements in this business-to-business model are related to the MOOC platform provider offering paid services to mainly HEIs. However, MOOC service providers are also seeking sustainable business models. As the market matures, it is essential for platforms to seek alternatives in order to ensure their viability.

Another business model for MOOCs is related to corporate training. This model focuses on the training or human resource development needs of corporations. The MOOC providers charge corporations according to the number of employees participating in the courses. This model also targets participants who would like to improve their skills. Corporations prefer these MOOCs to reduce the costs of human resource development.

Models for government involvement

Alongside the different revenues models sketched above, some educational institutions receive funding from their governments or from various foundations. In general, these sources provide funding related to opening up education. Some governments have been funding MOOC initiatives or have even established national MOOC platforms (e.g., FUN, France; SWAYAM, India; OpenLearning, Malaysia;) and open education initiatives. Some institutions and governments view MOOCs as effective investments for improving HE access, quality and affordability, and for addressing the needs of society.

One could ask why governments are willing to invest in MOOCs. Why should government policy makers in developing countries be concerned with MOOCs? the answer is that without education, there is no development. In countries dominated by a market of expensive private colleges and universities, most people cannot afford to attend private HE, and public universities lack capacity. By embracing and supporting MOOCs, developing countries stand to win from the emerging massive pool of highly trained human capital, critical for their social and economic development. For this to happen, government, technology companies, the telecommunications industry and public universities should

join forces to make high-quality online education for free a reality for everyone, using any available device, whether a mobile phone, laptop or tablet (Roberts, 2014).

While in developed countries, MOOCs may therefore be part of a general endeavour to maintain a competitive position in an expanding global market, for governments in developing countries, MOOCs can create opportunities to strengthen their education system and enhance access to HE.

In addition, the following arguments are used for government involvement in MOOCs and open education in general:

- MOOCs reduce the costs of HE at a state level.
- MOOCs facilitate equity, inclusion and social mobility by
 - reducing the cost of access to HE,
 - increasing access to opportunities, and
 - in some cases, being specially targeted at increasing social mobility and social inclusion.
- MOOCs can increase the pace of innovation in society.
- MOOCs can provide additional skills and jobs.
 - Governments and companies can invest in an infrastructure (at scale) enabling the basic skills needed in a 21st-century knowledge economy.
 - Teachers can further their professional development.
 - The unemployed can be trained.

There are different scenarios to realise the potential for MOOCs to contribute to quality education for all. These scenarios share the importance of the social dimension of education, which requires the involvement of governments. Related to this open education–social dimension of MOOCs, the European Distance Teaching University (EADTU) has developed two different business model canvases for government involvement. One model is related to the open education–open resources dimension only. The second focuses on the use of MOOCs for all objectives of the educational system at a national level. Both models are summarised in the Appendix.

The establishment of a national support centre is essential in both business-to-government scenarios. National support centres for MOOCs and open/online education should be established with the following functions:

- to offer an open platform for MOOCs and open resources, enabling
 - maximum uptake by society,
 - universities to use new pedagogies for course delivery;
- to facilitate collaboration, sharing (the 5Rs), the improvement and aggregation of existing resources, quality review processes and so forth;
- to support the development of MOOCs by universities and other knowledge organisations;
- to provide support services to train people in the development and reuse (plus the other Rs) of open knowledge resources:
 - services for the unemployed
 - stimulation of entrepreneurship through the use of open resources
 - services that facilitate innovation in learning processes and continuing professional

- development (CPD)
 - new ways of recognition through skills acquisition and open learning
 - handling copyright–copyleft issues for those developing open resources
- to stimulate the uptake of MOOCs by citizens (open education), in close co-operation with civil society organisations;
- to strengthen collaboration between citizens (via open communities and networks), HEIs and other knowledge providers;
- to encourage the uptake of MOOCs by professionals and enterprises (to facilitate knowledge transfer and innovation);
- to develop institutional leadership in the sector;
- to support the professional development of staff;
- to contribute to sharing new pedagogies and good practices, technological support, research and evaluation;
- to secure benefits for stakeholders;
- to evaluate the use of facilities offered to society;
- to conduct research on societal impact and benefits; and
- to secure the efficiency of the national infrastructure and collaborate with other national support centres to ensure scalability.

The functions of a national support centre will differ significantly between countries and regions, based on local/regional needs, financial resources and possibilities for engaging with multiple partners.

Towards business models for Regional Support Centres

Regional Support Centres on Open Education (RSC) are organisations, which promote, stimulate and activate the development, delivery and uptake of Open Education, with the special attention on Massive Open Online Courses (MOOCs). RSC are focusing on one or more of following objectives:

- Update an inventory of MOOCs organised by universities in the country, describing MOOCs characteristics according to a set of qualitative criteria (icons), assess the quality of MOOCs at a general level, adopt national MOOCs in the OpenUpEdportal promoting the access to MOOCs in all European countries
- Inform potential students and stakeholders (employers and employee organisations, higher education institutions, education and training agencies, companies,...) about national and European MOOCs offerings, facilitating access to MOOCs and stimulating the participation/study of MOOCs (active marketing)
- These two might not be essentially a national tasks(?); for example EdX and OpenUpEd and other websites do this for MOOCs from different nationalities. Even in the sphere of the European Commission, there is <http://openeducationeuropa.eu/>,
- There is a danger of imitating others and so not reaching the aim of the centres, which is in the next bullets (in my opinion).
- Develop services to universities to activate the development and delivery of high quality MOOCs (CPD for university staff, executive management with regard to the development and delivery of MOOCs):
 - How to design MOOCs?
 - How to deliver MOOCs?
 - How to assess MOOCs?
 - How to promote and assess the quality of MOOCs?
 - How to develop an institutional policy for MOOCs?
 - How to integrate MOOCs in blended degree education, continuous professional development (CPD) and open education initiatives?
- Exchange patterns of good practices in the design and delivery of MOOCs
- Eventually provide a platform for the delivery MOOCs at the national level, complementary to international platforms like Coursera, Edx, Futurelearn, etc..
- Collaborate with other national centres at the European level for marketing, quality assessment and sharing MOOCs methodologies and policies at the European level.
- Doing research and evaluation on the development, delivery and impact of MOOCs at the national level or in a European context

General definition of a Business model for RSC

In order to derive necessary prerequisites for RSC to have required resources to operate sustainably, the Business model for their operation needs to be established. This Business model will not act as the recipe for each and every RSC, yet it will raise challenges, issues and questions that need to be addressed. There are many definitions of Business model related to the organizations or companies in digital economy. For the purpose of RSCs, we have selected a general one, defined by Al-Debei et al. (2008) . A business model is an "abstract representation of an organization, be it conceptual, textual, and/or graphical, of all core interrelated architectural, co-operational, and financial arrangements designed and developed by an organization presently and in the future, as well as all core products and/or services the organization offers, or will offer, based on these arrangements that are needed to achieve its strategic goals and objectives". This definition of a business model identifies four primary dimensions for business models: value proposition, value infrastructure, value finance and value

Key components of the business model

Besides this definition, there are many different approaches for the design or development of a business model. Yoram M. Kalman (2014)¹ approach comprises three components that appear in almost every business model approach (see also table 1)

Table 1. Components of the business model.

Business model component	Description	Examples taken from institutes of higher education
Customer value proposition	The characteristics and needs of the organisation's customers, and the way these needs are met	The needs of full-time students are met differently at traditional universities than the needs of part-time students at open universities
Infrastructure	The resources and processes of the organisation	Physical <i>resources</i> such as lecture halls and laboratories, human resources such as faculty and administrative staff <i>Processes</i> such as student enrolment, quality assurance and fund raising
Financial	The financial principles according to which the organisation operates	Fixed and variable costs, sources of income (tuition, external funding, contributions), profit margins and pricing

Customer value proposition: The first and most important component is the customer value proposition. This component describes precisely the customers and their needs. An example for a customer value proposition is the created value for the customer by an organization.

Infrastructure: The second component of the business model, the organisation's infrastructure, can be divided into two parts: resources and processes.

- Resources can be physical or non-physical. Physical resources are e.g. lecture halls or IT infrastructure. An example for a non-physical resource would be the reputation of an organization.

¹Yoram M. Kalman (2014) "A race to the bottom: MOOCs and higher education business models" In *Open Learning: The Journal of Open, Distance and e-Learning* (Vol. 29, Iss. 1)

- Processes describe the workflows at an organisation, such as e.g. budget control, quality assurance or hiring procedure.

Financial: The third component of the business model is the financial component which describes the financial principles that guide the organisation. This can include pricing, fixed and variable costs, ratios and margins, income sources, etc.

Case study: Business model for support services in France

‘Regional’ is understood here in the European sense; France is one region of Europe, and we are not talking about French regions (we have mentioned the case of UNRs, the digital regional universities, in Output 11).

The economic model will depend on the audience and the aims envisaged, and on the ways of creating them as well.

As a first example: that of CNAM (the National Conservatoire of Arts and Crafts - Conservatoire National des Arts et Métiers) which has a long tradition of distance learning (partly online) with measures for lecture capture. It has offered cheap (but good quality) MOOCs supported by its own internal resources and the voluntary work of its teachers. The cost was minimal and taking into consideration the media resonance has shown to be much less than a publicity campaign. Another example is that of ‘Writing a CV’ MOOCs and ‘Replying to a Job Advertisement’ which the French Job Centres² have created to help the unemployed find work; this is a public service whose cost the agency has taken on, as it is part of its mandate.

The economic models for MOOCs in France have been the object of numerous studies such as the official ones from the Caisse des dépôts³, France Stratégie⁴ or Yves Epelboin’s ‘MOOCs: In Search of a Business Model’ for the government gateway Sup-Numérique⁵. We could also cite a report coordinated by⁶ J-C Pomerol for the city of Paris. The content has been reproduced and developed in the book ‘MOOCs: Design, Usage and Economic Models’ by Y. Epelboin, J-C. Pomerol and C. Thoury⁷. And of course, we also find contributions on the subject in blogs by MOOC authors and communications to various colloquia (M. Cisel⁸, Y. Epelboin⁹).

² <http://www.pole-emploi.fr/>

³ http://www.strategie.gouv.fr/sites/strategie.gouv.fr/files/atoms/files/dt_mooc_03022016_final.pdf

See also Ollivier Lenot’s paper given at the one-day FIED conference (January 2015, Avignon) ‘Distance Learning: Opportunity and Challenge for Lifelong Learning’

<http://www.fied.fr/resources/jt-janvier-avignon-2015/cr-journees/Avignon/pages/Intro.html>

⁴ ‘MOOCs: The Age of Maturity? Economic Models and Pedagogical Evolutions’.

http://www.strategie.gouv.fr/sites/strategie...fr/.../dt_mooc_03022016_final.pdf

⁵ <http://www.sup-numerique.gouv.fr/cid100828/rapport-mooc-a-la-recherche-d-un-business-model.html>

⁶ Report coordinated by J-C. Pomerol : ‘Relationships Between MOOCs, Universities and Lifelong Learning’

<https://api-site.paris.fr/images/143588.pdf>

⁷ ‘MOOCs: Design, Usage and Economic Models’ by Jean-Charles Pomerol, Yves Epelboin, Claire Thoury ; Éditions DUNOD, 2014 ; ISBN 978-2-10-071283-0

⁸ <http://www.matthieucisel.fr/>

⁹ <http://blog.educpros.fr/yves-epelboin/>

For example, 14th December 2016: ‘MOOCs Again!’

Voir aussi <http://www.eunis.org/blog/author/epelboin/>

Although they share the O of Open, MOOC and OER economic models are different, even if they both stem, essentially, from public funds. MOOCs from private operators do exist but often the O of Open treated with caution and they resort to online learning, SPOCs rather than MOOCs.

An important point about the economic model for MOOCs is the **support structure for FUN-MOOCs**¹⁰ : a GIP (Public Interest Group -groupement d'intérêt public). This is to say a consortium of universities and higher education institutions. It is financed by membership. This only covers the cost of placing information online and then its dissemination, and not the production or convening costs. On the OER side, UNTs¹¹ are financed by government grants and the subscriptions of their members. They function essentially by calls for projects. There is a link between MOOCs and OER/UNTs – in the production of teaching resources for MOOCs, as their authors want them to be widely available and not only when one is taking the MOOC or when they are broadcast on Canal-U¹² or on the UNTs. This makes their use possible (and therefore their depreciation) within FOAD or in mixed classroom/online teaching.

Their setting up and financing are often devised outside the supply of learning in general, FOAD supply in particular with rare exceptions (see Conseil Numérique), which limits the ability to find a recurrent economic model for MOOCs which are still financed by responses to calls for projects (IDEFI, IDEFI-N, AMI, PIA, European projects). This partly explains why a certain number are not renewed after 2 years, the cost being firstly that of convening and supervision.

The production of teaching resources is very important within the framework of FOAD, but they are either scarcely used or not used at all in UNTs. One of the reasons is that French FOAD universities are attached to classroom-based teaching, on which they rely heavily, and which is an indicator of quality and recognition (distance students are awarded university degrees and not distance university degrees).

As distance students are enrolled in a university (as students or as learners in continuing education) financing is assured (by government grants or enrolment fees) including the wage bill. Instruction is given for five years, which allows for an average length of depreciation. Recurrent costs involve reception, administration and supervision.

This militates in favour of an alignment of the models, allowing the sharing of two spheres of resources production, which supposes their co-creation. This also shows that EAD, in its classical version, can be a lever to find a long-term economic model for MOOCs, which FUN-MOOC perfectly understood, with its development strategy for offering SPOCs and collection of MOOCs, a new strategy for FUN-MOOCs but which EAD has done very well for a long time.

After this long introduction, a few items follow, which are announced in the *Application Form*.

Target Audience

In France (like everywhere?) the target audiences and modifications are, *a priori*, varied. Even if it is observed that the learning public is fairly 'traditional' (not very young, and often having already a

¹⁰ <https://www.fun-mooc.fr/>

¹¹ <http://univ-numerique.fr/>

¹² <https://www.canal-u.tv/>

considerable level of learning). Learning is often complementary, and is an update rather than basic or initial learning.

The wide range of target audiences is reflected in the choice of platforms other than FUN-MOOC (a customised OpenEdX). The costly recourse to EdX or Coursera reflects a desire for standing out internationally, the search for a top-notch image, more than the choice of a utility for its performance. Having multi-national MOOCs is part of the desire to develop north-south cooperation, such as the Franco-Senegalese MOOC by C. Villani and D. Seck 'Differential Equations: From Newton to Today'.

Conversely, 'small platforms' correspond to niche MOOCs such as FLOT Sillages¹³ aiming at preparatory classes for the *Grandes Ecoles*.

Infrastructure

The creation of MOOCs relies, technically, on TICE (IT/Communications) structures of institutions, where there are both equipment and skills. Scientific content and pedagogy are the fruits of lecturers (researchers, in the main, which is important for the topicality and relevance of the content) assisted by learning designers.

There is a certain reliance on research in education and EIAH (IT environments for human learning - environnements informatiques pour l'apprentissage humain) but it is fairly limited, reflecting the development of these disciplines in France.

Physical resources (rooms, infrastructure, IT services) are essentially the same as for face-to-face teaching, which are all negotiating the digital shift. Processes (if they take place) such as enrolment of students, exams, quality assurance and financial audits are essentially the same as for face-to-face teaching.

Financial Aspects

The examples we have quoted are of an institutional type, financing themselves or by project. It is not necessary to speak of cash-flow issues; these are integrated into those of each institution. There are, of course, initial costs of setting up, (which can be part of the financing by project) and recurrent costs (the cost of supervision, monitoring and updating if the MOOC runs again).

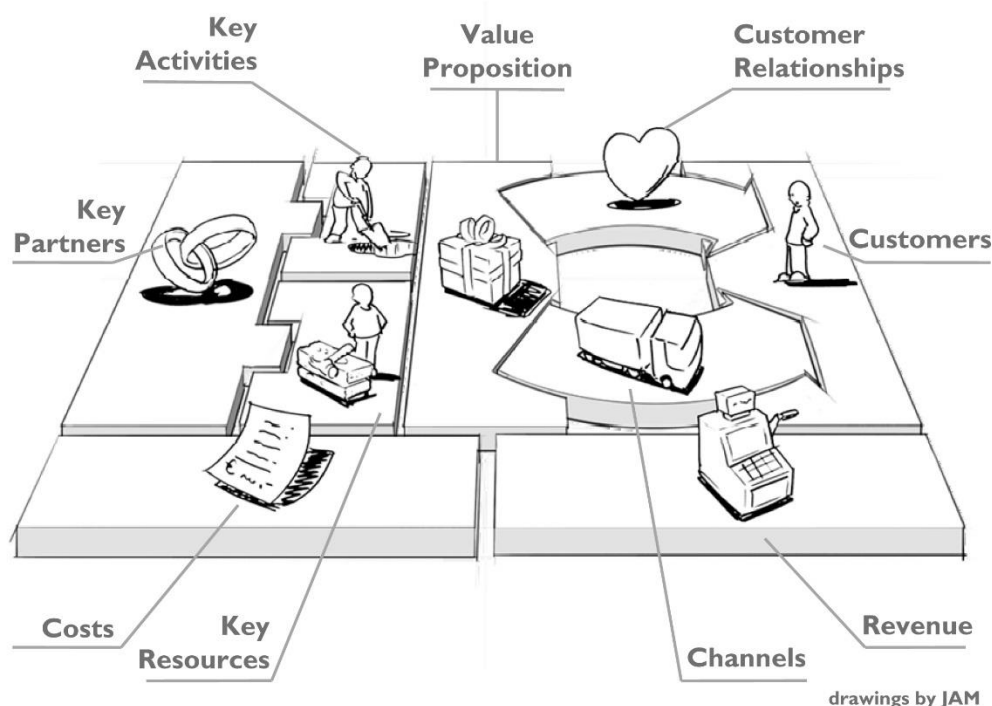
¹³ <http://flot.sillages.info/>

Business Model Canvas for Regional Support Centres

Business model for RSCs in the EU regions will comprise set of common characteristics, as well as specifics related to each region (from specific services provided to specific challenges in the way RSC operates). Therefore, SCORE 2020 project will not produce one Business model, but rather set of different Business models for each selected EU region and various aggregated Business models.

Many templates are used to develop new or to document existing business models. The most popular one nowadays is the Business Model Canvas (BMC), which was initially proposed by Alexander Osterwalder (Osterwalder & Pigneur, 2010) based on his earlier work on business model ontology (Osterwalder, 2004). Since then, new canvases for specific niches have appeared, such as the Lean Canvas and the Open Business Model Canvas (Stacey, 2015a). Creative Commons published a [Google doc of BMC](#) as part of on [open business models initiative](#). The latter includes the elements of “Social Good” and “CC Licences,” while the Lean Canvas is of particular interest for start-ups (“Business model canvas vs. lean canvas,” n.d.).

The following figure is a visual representation of these basic elements of BMC (Zebra Management Consulting, 2013):



Based on Sanderse (2014)¹⁴, we have used the following categories and definitions (see table 2) to analyse the different reactions of participants towards the possibilities or barriers towards a regional support centre.

¹⁴ Sanderse, J. (2014), The business model canvas of NGOs, thesis Open University, http://www.academia.edu/6935967/The_business_model_canvas_of_NGOs_The_business_model_canvas_of_NGOs_door_Judith_Sanderse, Accessed February 2015

Table 2: Key definitions of a Business model - Adjusted of Sanderse (2014)

Business model	A business model describes the rationale of how an organization creates, delivers, and captures value.
Vision	Outlines what the organization wants to be. It can be emotive and is a source of inspiration.
Key Partners	The network of cooperative agreements with other people or organizations (including governments) necessary to efficiently offer and distribute the organisation's mission and programmes.
Key Activities	The main actions which an organisation needs to perform to create its value proposition.
Key Resources	The physical, financial, intellectual or human assets required to make the business model work.
Value Proposition	The organisation's mission, its main programmes and brand.
Mission	Defines the fundamental purpose of an organization, succinctly describing why it exists and what it does to achieve its vision.
Relationships	The type of relationship the organisation has established or wants to establish with each key beneficiary or donor segment.
Stakeholders	The target group who the organisation principally aims to reach and serve to achieve its vision/mission.
Channels	The methods of communication, distribution and sales used by the organization to interface with its customer/stakeholders segments.
Revenue	The income streams, this could be donations, subsidies, investments or other income streams available for the organisation to work on its value proposition.
Customer/stakeholders Segments	The different segment which the organisation targets for its fundraising activities.
Costs	The total expenses which the organisation incurred (or will incur) to implement the agreed activities.
MOOCs	MOOCs are courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free

Case study Ireland

The Irish case study is published in a separate article “A Strategic Response to MOOCs: What Role Should Governments Play?” based on work of the HOME and SCORE2020 project.

Case study: Business Model Canvas for Norway

Key Partners <ul style="list-style-type: none"> - BIBSYS - UNINETT - NOKUT - HEIs 	Key Activities <ul style="list-style-type: none"> - Stimulating the development of MOOCs - collecting and publishing advice (macro/meso level) - Collaborating with other NSCs 	Value Proposition <ul style="list-style-type: none"> - Reduce cost for production of and use of knowledge resources - Increase pace of innovation - National brand in global market 	Customer Relationships <ul style="list-style-type: none"> - Collaboration in the production / maintenance of knowledge resources - Formalize and further develop ADLHE already existing relationships 	Customer Segments <ul style="list-style-type: none"> - MOOC developers - Central support units at HEIs - Leaders at different levels at HEIs - The Ministry of Higher Education and Research
	Key Resources <ul style="list-style-type: none"> - Maintaining a portal with a national inventory of MOOCs. - providing a one stop shop for MOOC advice and solutions through access to partners 		Channels <ul style="list-style-type: none"> - web sites - newsletters - conferences and seminars - social media channels - reference group 	
Cost Structure <ul style="list-style-type: none"> - collaboration with partners, sustain and develop knowledge - Providing a one stop shop for MOOC advice and solutions 			Revenue Streams <ul style="list-style-type: none"> - The Ministry of Education and research through continued funding to the NADLHE and relevant partners. 	

MOOCs from a Norwegian perspective

The Ministry of Education and Research owns the Norwegian Agency for Digital Learning in Higher Education (ADLHE), which will be the hub of the Norwegian national support centre (NSC). The support will be offered by a network of partners coordinated from the ADLHE, many of whom are already close collaborators.

Norway does not have the size to fund many central services. Furthermore, Norwegian HEIs have a strong autonomy. This business model shows which services a national support centre (NSC) for MOOCs realistically could provide.

Key Partners

The Norwegian Agency for Digital Learning in Higher Education has a network of collaborating agencies, which can contribute to the support centre as partners:

BIBSYS, a government agency that provides common systems and services for education and research. Their contributions would be to supply national solutions for MOOC platforms, a portal of Norwegian MOOCs, and possibly open institutional archives and/or a learning object repository for Open Educational Resources.

UNINETT, a government corporation that develops and operates the Norwegian national research and education network. Their role would be to contribute relevant educational technology cloud services.

NOKUT, Norwegian Agency for Quality Assurance in Education. They do not yet provide guidelines for quality of MOOCs, but might in the future. They could also be relevant in regards to accreditation issues and the possibility for MOOCs to give credits.

Higher Education Institutions: several of the larger Norwegian HEIs have local centres for educational technology that are already providing support in the development of MOOCs. These centres could be strategic partners for knowledge sharing, understanding the customers' needs, and as an information channel to MOOC developers and academic and administrative leaders at HEIs.

Key Activities

Key activities of the support centre:

- Stimulating the development of MOOCs by
 - distributing funding for projects
 - gathering and disseminating best practice
 - collecting and publishing advice (macro/meso level)
 - providing a one stop shop for MOOC advice and solutions through access to partners
- Collaborating with other centres at the European level
- Possibly facilitating a national network for MOOC

Key activities from partner network:

- Developing services to universities (mainly CPD for staff and executive management) through our partners
- Hosting MOOC platforms for the HE sector

- Maintaining a portal to Norwegian MOOCs on offer
- Collecting and synthesizing reports and research on MOOCs
- Publishing news about the MOOC movement and developments in MOOC technology and policy

Key Resources

- National Support Centre, organized as a matrix, accessible through web page describing the collected services of the centre and its collaborators concerning MOOCs.
- Maintaining a portal with a national inventory of MOOCs.
- Providing a national solution for platform for the delivery of MOOCs.
- Exchanging good practice on MOOCs.

Value Propositions

- Motivating and supporting HEIs in exploring new technologies and pedagogies for higher quality education
- Facilitating access to research based knowledge for new segments of the population through open online higher education
- Offering new modes of blended learning and increasing flexibility by including MOOCs in campus studies
- Potentially providing society with a robust channel for reaching large parts of the population with important and updated knowledge
- Supporting HEIs in finding new business models
- Providing an entire infrastructure for continuous professional development
- Constructing reports based on key indicators to assess status and progress within the field

Customer Relationships

We have already established contact with our relevant partners and customers through ADLHE. In relation to the NSC, we would have to formalize and further develop these relationships for strategic collaboration concerning MOOCs.

Customer Segments

At micro level our customers are developers of MOOCs, both administrative and academic staff. We do not include students/ participants since support and other interactions with these potential customers would be to resource demanding.

Our most important customers would be at meso level. Especially central support units at HEIs as they would act as our intermediaries to leaders and developers with their institutional knowledge supplied with knowledge provided by the NSCs. Leaders at different levels will also be our customers.

Finally, at the macro level, our main customer would be the Ministry of Education and Research.

Channels

The NSCs main channels will be:

- The web sites, newsletters, conferences, seminars, and social media channels of ADLHE and the partner agencies and institutions are used to interface with HEIs and other target groups.

- By arranging our own conference and having a board with relevant stakeholders we cultivate our bonds with our customers, which helps our other channels and integrates them. The most cost-efficient channel is probably the web sites, but it would work poorly by itself.

- We could possibly make a reference group including customers and a network with strategic MOOC partners at the HEIs.

Cost Structure

The NSC's main costs would be human resources, both at the ADLHE and relevant partners. The most expensive part of the NSC's would therefore be some of the more resource demanding activities:

- Collaboration with strategic partners
- Sustain and develop a knowledge base for HEIs
- Providing a one stop shop for MOOC advice and solutions through access to partners
- Gather and evaluate data based on key indicators and develop reports on macro level
- Possibly develop QA regimes

Revenue Streams

The Ministry of Education and research own and fund the ADLHE. At present there will be no fresh funds to extend the activities of the ADLHE. A smaller part of the existing funding could go to fund the core/hub of the NSC. One could also fund the NSC independently but the most realistic case would be through the ADLHE and the Ministry's continued funding to relevant partners.

As the Ministry share the ADLHE's agenda and involvement in SCORE2020 by accepting the ADLHE's action plan amongst other things, they are probably willing to continue their funding of this core NSC. They would probably be extra interested in the NSC's work with relevant reports of status and progress within the field.

Other "revenues" would be human resources and other resources and activities partners could provide by sharing the NSC's agenda. HEIs themselves would be interested in creating quality knowledge concerning MOOCs for their own MOOC development and use. The HEIs central support units would be especially interested in participating.

CANVAS model for National support centres for MOOCs

Key Partners <ul style="list-style-type: none"> - National support centres involving partners - Civil society organisations, reaching out to citizens - Regional development organizations, professional networks, reaching out to enterprises - HEI's for development and delivery of MOOCs 	Key Activities <ul style="list-style-type: none"> - Information and communication to civil society organisations and citizens (active marketing) - Supporting the use of MOOCs for innovation in enterprises (collaboration with regional development organisations, professional networks; continuing education and CPD) - Supporting development and delivery of MOOCs, blended teaching and learning in degree education 	Value Proposition <ul style="list-style-type: none"> - Academic knowledge sharing with citizens in society at large - Knowledge transfer and valorisation for innovative enterprises: continuing education and CPD involving MOOCs for innovation, regional development, business development - Innovation in degree education (HEI's): enriched content, new modes of teaching and learning, blended degrees in HEI's - International visibility, reputation of research, innovation, education 	Customer Relationships <ul style="list-style-type: none"> - information and communication, users support - information, advice to professional networks, enterprises for innovation, knowledge transfer/valorisation - information, guidance for development and delivery of MOOCs, integration of MOOCs in blended degree education 	Customer Segments <ul style="list-style-type: none"> - Citizens, civil society organisations - Public and private enterprises, knowledge networks, professional networks - Higher education institutions: management, teaching staff
Cost Structure <ul style="list-style-type: none"> - national support centres - support reach-out to citizens - support continuing education and CPD for innovation - support development and delivery of MOOCs by HEI's 	Key Resources <ul style="list-style-type: none"> - European platform - National support centres, involving key partners - HEI's: management, teaching staff - Relationships with MOOC platforms 		Channels <ul style="list-style-type: none"> - European platform - National support centres - Civil society organisations - Regional development organisations to enterprises 	
		Revenue Streams <ul style="list-style-type: none"> - funding national support centre for MOOCs and blended/online education - funding reach-out to citizens - project funding for MOOCs and continuing education and CPD - performance-based funding, earmarked funding, funding for excellence in HEI's 		

MOOCs from a governmental perspective

In this scenario, government involvement in MOOCs is related to maximising the spin-offs of MOOCs for research, innovation and education in universities — i.e., they contribute to education for all, to transferring and valorising innovative knowledge for enterprises (continuing education, CPD), and to formally or informally integrating MOOCs as an enriching learning experience in blended degree education (at the bachelor's, master's and doctorate levels).

Key objectives of governments concerning MOOCs are:

- *Academic knowledge sharing with citizens in society at large:* MOOCs as a means to deliver courses in the public domain; open education accessible for free; inclusion of all citizens able to follow a course;
- *Knowledge transfer and valorisation for innovative enterprises:* MOOCs to promote continuing education, continuous professional development; to provide education and training for innovation, to rise employability and professional expertise; to transfer and valorise knowledge to enterprises enabling them to innovate;
- *MOOCs to enrich the learning experience in degree programmes:* to promote innovation in degree education; MOOCs as an experimentation space for large scale ICT-based education.

Although MOOCs mainly have been conceived as a form of open education (the first objective), from an educational policy perspective the three objectives are important. MOOCs seem to have a functionality in the three areas of development (see Haywood, Connelly, Henderikx, a.o., 2015), which consistently emerge in Western higher education: online open education, online or blended continuing education (incl. CPD, short learning programmes) and blended degree programmes (more online in open and distance universities).

Business models for MOOCs differ according to these areas, as will be demonstrated below. They complement each other, as benefits can be shared across all three areas.

MOOCs are originally conceived as open courses for use in the US and worldwide, in one language only: massive means worldwide for people who read English. In a European context, where English is not used as a teaching and learning language, this is an issue. Furthermore, only a selection of universities are allowed to these platforms as they are dominated by Ivy League institutions.

Some European countries have established their own MOOC platforms, with their own development and delivery system like France and Spain. But this doesn't solve the problem of the uptake of MOOCs in most other countries, each with their language frontiers. This is hindering a thorough reach-out of MOOCs to many European regions.

To solve this problem, **national support centres for MOOCs and blended/online education** should be

established with multiple functions:

- supporting the development of MOOCs by the universities;
- offering a delivery platform for MOOCs, enabling universities to use new pedagogies in delivery, where the existing platforms don't suffice (e.g. learning communities, large scale tuition, new forms of assessment)
- stimulate the take up of MOOCs by citizens (open education)
- stimulate the take up of MOOCs by professionals and enterprises (knowledge transfer, innovation)
- enabling universities and teaching staff to develop and deliver MOOCs as well as blended and online teaching and learning in general: developing institutional leadership in the sector, professional development of staff , sharing new pedagogies and good practices, technology support, research and evaluation

Hence, these national support centres promote and support MOOCs and blended/online education as a whole, accelerating ICT-base educational innovation in European universities and the usage of MOOCs/open education in society. Some countries are planning such a structure.

Key Partners

Hence, the partner of SCORE2020 should be **a national support centre** in each country (as described above).

This support centre has following key partners:

- **higher education institutions**, developing and delivering MOOCs and/or organising and blended/online education
- **civil society organisations** as a bridge to citizens for the uptake of MOOCs (supporting the reach-out of MOOCs)
- **regional development organisations, cities and other public authorities, professional training institutes, social partners** activating the uptake of MOOCs for innovation in enterprises

Key Activities

Key activities, to be organised and funded by governments through the national support centre are:

Information and communication to civil society organisations and citizens through:

- direct marketing of MOOCs and open education to citizens (advertisements by media)
- information and communication to civil society organisations about MOOCs and open education initiatives and their relevance

- joint actions to reach-out to citizens

Supporting the use of MOOCs for innovation in enterprises in collaboration with regional development organisations, professional networks, social partners:

- information and communication to enterprises concerning the usage of MOOCs and blended/online education for knowledge transfer and professional development for innovation in enterprises, incl. higher education institutions themselves.
- promoting and co-organising continuing education and CPD with MOOCs and blended/online training initiatives

Supporting development and delivery of MOOCs, blended teaching and learning in universities by organizing enablers like (See Laurillard, 2014; Haywood, Connelly, Henderikx, a.o.,2015) :

- *Leadership support for innovation*: support leaders who create an institution-wide innovation strategy and a continuously innovative environment for the development of MOOCs and blended/online education
- *Teacher professional development*: promote continuous professional development for online teaching and learning in MOOCs and blended/online education
- *Learning technology tools, systems and services*: support learning environments which are user-friendly and open for new pedagogies, with learning design, learning community and assessment tools for MOOCs and blended/online education
- *Communities of practice*: promote the exchange of patterns of good practice by teachers in MOOCs and blended/online education;
- *Shareable resources*: stimulate the development and use of open educational resources /open licensing and learning design tools, which possibly will reduce the cost of education and will enable teachers to build on each other's work;
- *Evaluation and research evidence*: fund research and innovation to provide evidence on new modes of teaching and learning and produce tools for developing innovative practice in MOOCs and blended/online education.

Key Resources

Key resources are:

- the **MOOCs portals and MOOCs platforms**, connected with activities in the national support

centres. These platforms deliver MOOCs. Also the national support centre can deliver MOOCs for national universities, especially for those without access to the international platforms.

- The **national support centres**, organized by the governments to fund MOOCs and to support key activities for the development and delivery of MOOCs and their uptake by citizens and enterprises
- The national support centres involve **key partners** like higher education institutions, civil society organisations, cities, regional development centres, etc. using also own key resources for reaching their respective organisational objectives
- **Management and teaching staff of higher education institutions** engage professionally in MOOCs development and delivery as an innovative activity to enhance their visibility and reputation. As such, MOOCs are a **spin-off** of current research, innovation and education.

Value Propositions

The value propositions for governments with regard to MOOCs are:

- ***Academic knowledge sharing with citizens in society at large***: MOOCs as a means to deliver courses in the public domain; open education accessible for free; inclusion of all citizens able to follow a course;
- ***Knowledge transfer and valorisation for innovative enterprises***: MOOCs to promote continuing education, continuous professional development; to provide education and training for innovation, to rise employability and professional expertise; to transfer and valorise knowledge to enterprises enabling them to innovate; to promote regional development and business development
- ***MOOCs to enrich the learning experience in degree programmes***: to promote innovation in degree education; MOOCs as an experimentation space for large scale ICT-based education; MOOCs as an enrichment for learners by offering innovative content, linked with international research and innovation

MOOC also increase the ***international visibility and reputation*** of the university and of the country.

Customer Relationships

With regard to MOOCs and blended education, stakeholders have different expectations:

- **Citizens** may expect that knowledge is opened up to society by flexibly accessible education. Citizens should be informed about all possibilities of sharing knowledge and following courses for their further development. Civil society organisations expect to be involved in awareness raising and communication actions, in co-creating additional value by making the participation of courses more relevant and by stimulating and activating their members to participate.
- **Regions, cities and enterprises** expect from governments that they develop active policies for innovation and employment. Professional networks, training institutes and social partners play

- a pivotal role in these policies, co-creating additional value by bringing in their expertise with regard to the organisation of continuous education and CPD for innovation in enterprises.
- **Higher education institutions** expect governments to have a clear vision about innovation in higher education and to enable institutions to innovate with regard to MOOCs and blended/online education (see enablers above). Higher education institutions co-create value by developing institutional policies with this regard.
 - **National support centres** are established by governments and higher education institutions as agencies, involving stakeholders mentioned above. National support centres coordinate governmental funding (eventually partly), actions and relationships, vis à vis citizens, regions, cities and enterprises, and higher education institutions.

Customer Segments

From the perspective of a coherent governmental MOOCs policy, the government is creating value for:

- **Citizens**, the end-users of MOOCs in the framework of an open education policy. To make the bridge to the citizens, civil society organisations are co-creating this value, each from their perspective and involving new dimensions to open education. Governments reach citizens also directly by advertisements, website and other direct communication tools.
- **Regions, cities and enterprises**, by involving MOOCs, continuous education, CPD, knowledge transfer and valorisation in innovation frameworks for regional development. In these frameworks, professional knowledge networks, training institutes and social partners professional networks co-create value.
- **Higher education institutions**: by enabling the management and teaching staff to develop and deliver MOOCs and blended/online education.
- **National support centres**, all stakeholders mentioned collaborate and advise on governmental funding and the support of activities related to the development, delivery and usage of MOOCs and blended/online education in the region.

Channels

Following channels are relevant for the respective customer segments:

- **Citizens** awareness raising and information campaigns have to go by common communication media like the printed press and audio-visual media, hence by a press action by the government and the national support centre. Furthermore, because of the language and state frontiers (and

hence the principle of subsidiarity for education), a unique national portal should give access to international MOOCs platforms and national provisions for MOOCs and open education. Civil society organisations use their common channels to reach out to the citizens.

- **Regions, citizens and enterprises** will be reached by the government by usual channels. Governments should develop national frameworks for regional development and innovation. In these frameworks, MOOCs and flexible blended/online education and training, CPD, knowledge transfer and valorisation are core components. Professional networks, social partners and training institutes integrate this in their channels.
- **Higher education institutions** will also be reached by governments by usual channels. Governments should develop a national framework for MOOCs and blended/online education in higher education institutions. Institutional higher education policies will align with this. Channels will facilitate the implementation of these policies and policy enablers, e.g. varying from face to face meetings for leadership and staff training support to website portals for sharing good practices.
- **National support centres** as governmental agencies use channels to the different customers segments as explained above. The centre operates as an agency with a Board, involving all stakeholders.
- **The MOOC portals and MOOCs platforms** connect with the national support centre for being supported with regard to the different customer segments. Of course, they relate also directly to all individual participants through the platform.

Cost Structure

The cost structure of MOOCs and blended/online education is consisting of:

- **cost related to reaching-out to citizens:** awareness raising and information through printed press and audio-visual media; setting up a unique national portal.
- **cost related to integrating MOOCs and blended/online learning in regional innovation policy, cities and enterprises:** contribution to knowledge transfer, continuing education, CPD cost, in a steady state to be shared with companies (?)
- **cost related to enablers for the development and delivery of MOOCs and blended/online education:** leadership support, CPD for teaching staff, educational technology, exchange of good practice, sharing of resources (OER, open licensing), research and evaluation
- **cost related to the development and delivery of MOOCs by higher education institutions:** teaching staff cost, technology cost, e-learning and media expert costs. In the steady state, this cost might be shared with the institution.
- **cost related to the national support centre:** the centre, led by a Board, is coordinating the funding of all cost components mentioned and also all activities which are organised for citizens, regions, cities and enterprises, and higher education institutions. It involves all stakeholder organisations mentioned. This requires a management cost, but the streamlining of a national policy for MOOCs

and blended/online teaching and learning is guaranteed.

Revenue Streams

Governmental revenue streams are organized as follows:

Institutional funding for the development and delivery of MOOCs and blended/online education through (a combination of) instruments as:

- block funding, eventually with yearly agreements about the targets;
- project funding
- performance-based funding with regard to the achievement of targets;
- earmarked funding for new modes of teaching and and learning
- funding for excellence

Funding of the national support centre for MOOCs and blended/online education, consisting of:

- the funding for reaching out to citizens;
- the funding of the integration of MOOCs in the innovation and regional development policy;
- the funding of enablers of MOOCs and blended/online education (as explained above);
- the funding of the management cost of the national centre;
- the funding of projects (if not covered by institutional funding)

CANVAS model National infrastructure open resources

In this scenario, the government involvement focuses on the development of a national infrastructure on open knowledge resources. Activities, platforms and services are funded by the governments and organisations that are part of the knowledge and education infrastructure. They serve a social mission, and the proposed structure is seen as an effective and efficient way to serve society. After initial transition costs, the revenues are related to cost reduction in the knowledge/education infrastructure and to society having more educated people, increased innovation and more new businesses.

Key Partners <ul style="list-style-type: none"> - National Government - National support center - ICT service provider - HEIs / knowledge providers - NGOs - associations - European service center (ECO, OpenupEd, OEC) - European Commission 	Key Activities <ul style="list-style-type: none"> - Inventory national open resources - Support services - Open platform - Marketing - Exchange OEP - Strengthen collaboration - Evaluation & research Key Resources <ul style="list-style-type: none"> - Open licensing policy - Open source - Incentives for collaboration - Services to society 	Value Proposition <ul style="list-style-type: none"> - Improved access (free, 5R's) to educational resources (OER, open textbooks, MOOCs), scientific output (open access journals), research and governmental data (open data) - Reduce cost for production of and use of knowledge resources - Increase pace of innovation - National brand in global market 	Customer Relationships <ul style="list-style-type: none"> - Collaboration in the production / maintenance of knowledge resources - Stimulated citizens in the (re-)use and improvement available resources - Personalised and automated services for those in need. Channels <ul style="list-style-type: none"> - Internet platform of service center (national, Europe) - Local communities - Knowledge providers - Training / unemployment centers 	Customer Segments <ul style="list-style-type: none"> - stimulate innovation of research centers, HEIs, knowledge providers, etc. - Enabling all people in country to use (5R's) knowledge resources, MOOCs, etc. for their own needs, business - Those in need for jobs to increase social mobility, equality, equity, inclusion,
Cost Structure <ul style="list-style-type: none"> - Platform, clearing house, free services for those in needs - Temporary: stimulate innovation and collaboration 		Revenue Streams <ul style="list-style-type: none"> - cost reduction of knowledge / educational infrastructure (in the end) - More educated people, increase innovation, more new business 		

Key Partners

The key player at a national level is a national support center that is responsible for the coordination of such a National Infrastructure on Open Knowledge Resources.

For some part existing examples are

- Netherlands: Surf to stimulate open education project for innovation of HEIs with financial support of government. Wikiwijs for developing and sharing of OER. National policy to have all scientific articles published as open access by 2022.
- UK: JISC, SCORE
- Slovenia: governmental initiative OpeningupSlovenia

Key partners for such national support centers are

- The government
- A ict provider for national open source platform in local language, best fitting the regional culture and context
- Providers of knowledge resources like HEIs, research centra, etc.
- Regional service providers (training centers, communities, incubators)
- NGOs and associations to stimulate collaboration
- European service center for collaboration between different national centers in Europe
- European Commission
- And European association to stimulate collaboration at European level (e.g., EADTU)

Key Activities

- An up-to-date repository of local open knowledge resources in the country (regional languages). Examples of open knowledge resources are OER, open text books, re-usable MOOCs, open software, open access articles, open data repositories, etc.
- Support services to train in the development and re-use (plus other R's) of open knowledge resources. Including services for the unemployed, stimulating entrepreneurship by the use of open resources, services that facilitates innovation of learning processes and of CPD, new ways of recognition by skills and open learning, etc. In addition the support center may act as a clearing house, for example securing copyright-copyleft issues for those developing open resources, etc.
- Providing an Open platform that facilitates collaboration, sharing (5R's), improvement and aggregation of existing resources, quality review processes, etc.
- Marketing, dissemination, joint action to reach citizens.
- Exchange of good practices, OEP (open educational practices) related to open resources

- Strengthen collaboration between citizens (open communities and networks) and between knowledge providers / HEIs.
- Evaluation of both use of all facilities offered to customers. Securing the benefits for stakeholders. Research to the (societal) effect and benefits. Participant in OER Research hub cross national

Key Resources

- Open licensing policy securing that all results and knowledge resources of public funding projects, educational organisations (schools to HE), research institutes and governmental bodies are (increasingly) published in central database with an open license.
- Open source platform as database-inventory and as collaboration-sharing area, aggregator tool.
- Incentives for collaboration to share, develop and re-use (5R's) of knowledge resources
- Services to society that are offered for free (or below cost-price)

Value Propositions

- Improved access (free of cost, license to 5R's) to
 - o educational resources (OER, open textbooks, MOOCs),
 - o scientific output (open access journals),
 - o other knowledge resources,
 - o research output and
 - o governmental data (open data)
- Reduce cost for production of and use/maintenance of knowledge resources
- Increase pace of innovation in the region (new enterprises,
- National brand in global market (many resources in local language, open knowledge resources related to local culture, related to main industries of region, one strong national offer in global education market for resources in English/Spanish)

Customer Relationships

Co-creation of knowledge resources at national platform. Knowledge resources will be mainly produced by educational institutions (teachers, professors, innovation projects at schools en HEIs), research institutes, etc. Collaboration between them is essential in the production and maintenance of knowledge resources according to all 5R's. SCORE2020 and other partners are stimulating them to create own MOOCs based on available content, tools and open MOOC platforms.

Next those knowledge resources are going to be (re-)used by citizens for their personal goals. Those goals may differ from educational purposes (both informal to formal) and for use in their work to even create new business / startups. Moreover, they need not only be stimulated in the (re-)use but also to improve available resources. They are even stimulated to develop their own OER and MOOCs for relevant business purposes.

Special facilitation is related to those citizens most in need like refugees, immigrants, unemployed, etc. These customers need additional services in their efforts for jobs and increased position in society. These services are partly local, partly new flexible learning path and partly automated based on learning analytics tools (to stimulate informal learning).

Customer Segments

In principle three segments

- stimulate innovation of research centers, HEIs, knowledge providers, etc.
- Enabling all citizens in country to use (5R's) knowledge resources, MOOCs, etc. for their own needs, business
- Those in need for jobs to increase social mobility, equality, equity, inclusion,

Channels

- Internet platform of national service center.
- Connected to Europe platform for international branding / marketing
- Local communities and local services providers
- Knowledge providers , schools, HEIs, research centers
- Training centers / unemployment centers / incubators

Cost Structure

- Costs related to Platform, maintenance knowledge resources, stimulate collaboration, marketing channels to reach citizens, clearing house, free services for those in needs
- Temporary costs to stimulate innovation, production first 10% of resources (critical mass), initial platform development and ensure minimal level collaboration

Revenue Streams

Activities – platform – services are funded by governments and organisations part of knowledge infrastructure. They serve a social mission and proposed structure – platform is seen as an effective and efficient way to serve society. After initial – transition costs the revenues are related to

- cost reduction of knowledge / educational infrastructure (in the end)
- More educated people, increase innovation, more new business

The latter is related to the fact that High ratio of participation in tertiary education is beneficial for governments and society. Well educated people are less unemployed, live longer in more prosperous health (less health costs for society), are more satisfied with life in general, etc. (see papers “Education Pays 2013” and “The Benefits of Higher Education Participation for Individuals and Society”).

Moreover, for a person higher level of education yields to higher earnings. In Europe employees with tertiary level of education earned per hour almost twice as much as those with a low level of education (Eurostat, 2013). As such the investors might decide to ask money from those with a completed master degree to generate some revenues. However, this must not be at the cost of low participation rate from those people.



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