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OpenCases: Case Studies on Openness in Education

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Title
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Abstract
OpenCases is a study which is part of the OpenEdu Project. It is a qualitative study consisting of a review of literature on open education and nine in-depth case studies of higher education institutions, a consortium of universities, a private organisation and a national initiative. It analysed the rationale and enabling conditions for involvement in open education, open education activities, strategies, impact, challenges and prospects. The main outcome of this study is evidence that a large number of OER have reached a large group of learners. However, completion rates of MOOCs are low. Accreditation is not formalised and in general its impact on employability is not measured.

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Foreword

This report is the final outcome of the study [OpenCases: case studies on openness in education](). The study was carried out by the IPTS in collaboration with the University of Bath as part of the [OpenEdu]() project. Its goal was to bring to the fore how education institutions approach opening up education. This type of research requires in-depth investigation of context, opportunities, challenges and successes. For this purpose, the case studies approach is well suited and it indeed provided an enlightening view of open education in each of the institutions studied.

OpenCases counted on a number of interviewees with inside knowledge of their organisations. Open educational practices in teaching, research and operations are the focus of all interviews. We hope that OpenCases illustrates the current motivations, benefits and challenges to openness in educational institutions in Europe.

As well as this final report, the following publications are part of the OpenEdu project:

- JRC IPTS report (2016) [Opening up Education: A Support Framework for Higher Education Institutions (forthcoming)]()

- JRC IPTS Report (2016) [Validation of Non-formal MOOC-based Learning: An Analysis of Assessment and Recognition Practices in Europe]() (OpenCred)

- JRC IPTS Report (2016) [How are higher education institutions dealing with openness? A survey of practices, beliefs and strategies in five European countries]() (OpenSurvey)

- JRC IPTS Report (2015) [OpenCases: A catalogue of mini cases on open education in Europe.]()

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Acknowledgements

Executive summary

Introduction

In October 2014, the Joint Research Centre IPTS launched the study Open Cases: case studies of openness in education", which was carried out in collaboration with the University of Bath and ICF International. OpenCases is part of the OpenEdu project, carried out by IPTS on behalf of DG EAC. OpenEdu was set up to support the European Commission's 2013 Communication 'Opening up Education: Innovative Teaching and Learning for all through New Technologies and Open Educational Resources[1].

OpenCases is a qualitative study consisting of a review of literature on open education and nine in-depth case studies of higher education institutions, a consortium of universities, a private organisation and a national initiative. It analysed the rationale and enabling conditions for involvement in open education, open education activities, strategies, impact, challenges and prospects. This executive summary presents the main results of the study.

Rationale and enabling conditions for involvement in open education

There are four main rationales to become involved in OE: (1) the public mission of higher education institutions (HEIs) -to spread knowledge, widen participation; (2) costs containment; (3) institutional enhancement and reputation; (4) increasing quality of learning for regular students. Currently, there is a risk that institutional enhancement and cost containment concerns become the overriding theme in discussions about OE initiatives, at the expense of enhancing the links between OE and the public mission of higher education.

In terms of enabling conditions, academic staff motivation is key, given that involvement in OE tends to be voluntary and rewarded only to a limited extent in career promotion procedures. The pool of available knowledge (on technological and pedagogical aspects) at institutions is also a key enabling factor. Leadership vision, or alternatively "buy in", helps catalyse OE initiatives, as can do national policies that support openness.

Open education activities

Open teaching

The activities related to open teaching documented were varied but MOOCs tend to be the current focus of activity because of the wide audience that they can attract. Participation in OE initiatives is largely voluntary, and incentives for academic staff participation in terms of career progression were reported as generally low. Academics have more incentives to take part in open research, as these can enhance their research visibility and citations. However, take-up is still limited due to lack of knowledge and reputational incentives to publish in high impact factor journals.

Open research

Open research initiatives were largely based on the use of open access repositories: open access research and less commonly open data repositories and the production of open software. These were sometimes based on open source IT solutions. The preservation and updating of OER is an area that will require further work in the future.

Open operations

'Operations' is the less known part of OE. Some institutions saw open management as being less linked to their core mission than open teaching and open research. Nevertheless, the HEIs and networks studied tend to make a wide range of information about their operations available on their websites. 'Open implementation' -whereby

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[1]   http://europa.eu/rapid/press-release_IP-13-859_en.htm

tasks to be implemented by the institution are shared on the institutions' website, so that other parties can express an interest in contributing to their implementation- and the use of open technologies for participatory decision-making were much less frequent.

Strategies

The institutions studied varied in the level of attention they provide to the development of business models around OE. Networks and HEIs draw income for OE from a variety of sources but HEIs commonly rely on institutional/public funding as central sources of income for OE. This has implications for the scale of their involvement in OE activities and its sustainability. The case studies also highlighted the importance of thinking about the relevant unit of accounting for the analysis of financial aspects. For instance, the generation of OER may have a cost to the university, but this may be lower than learners' savings in the purchase of learning materials.

Outcomes and impact

Success in OE is often judged/ measured in terms of volume of participation, rather than other indicators such as meeting local or national needs, learning acquired or employability results. This is a limited conception of success.

What is clear is that HEIs and OE networks have made available a large volume of OER, and have reached a large volume of learners. Data on the profile of the users of OE is, however, scarcer. The use of OE materials by large numbers of individuals leads to enhanced institutional visibility, which is expected to lead to enhanced reputation, recruitment of students into regular programmes and labour market value of the qualifications awarded by the institution. Open research has similar advantages for academics: increased visibility of their work amongst academic and non-academic audiences.

OE was also reported to have had an impact on the use of new pedagogies and ICT tools that facilitate greater use of collaborative learning and independent learning. Users were generally highly satisfied with OE initiatives, but completion rates for MOOCs continue to be low. The issuing of certificates of completion is common practice. The award of academic credit on the bases of learning resulting from OE experiences is much less common. The case studies yielded little data on the effects of OE on progression in education and the labour market.

Challenges and prospects

One central challenge for the OE movement is to maintain the 'social justice' elements related to widening participation in higher education. Changing attitudes towards OE was reported as a second central challenge. Many academics are sceptical about the teaching methods associated with OE and see few incentives in involvement with OE terms of career progression. Not all researchers and lecturers are entirely comfortable with the uploading of their research outputs on open research repositories. A related challenge is lack of academics' and administrators' (and policy-makers') time and knowledge to get involved in OE initiatives. Greater incentives could be put in place to stimulate HEIs' involvement in OE, through additional funding or regulation. The inclusion of OE as an indicator in university rankings was mentioned as a strong incentive to be involved in OE.

1. Introduction and summary of the case studies

1.1 Introduction

In October 2014, the JRC IPTS launched the study 'Open Cases: case studies on openness in higher education', to be carried out in collaboration with the University of Bath and ICF International. The main elements of the study consisted of a review of literature on open education and nine in-depth case studies of higher education institutions (identified through a review of the literature, website searches and referrals from experts, to provide illustrative examples of actions in open education by institutions in different European contexts) and networks active in the area of open education. This final report presents the main results of the study. The rest of this introduction presents some key concepts used in this research and a brief summary of each case study.

1.2 Key concepts

IPTS (2016[2]) has defined open education as being "a way of carrying out education, often using digital technologies. Its aim is to widen access and participation to everyone by removing barriers and making learning accessible, abundant, and customisable for all. It offers multiple ways of teaching and learning, building and sharing knowledge. It also provides a variety of access routes to formal and non-formal education, and connects the two." (Inamorato dos Santos, Punie and Castaño-Muñoz, 2016)

A review of the literature shows that most literature follows a definition of open education that is broadly consistent with that used throughout the OpenEdu project (i.e. a focus on ICT-enabled learning with free access and licenses that permit and re-distribution), with the "four Rs" (reuse, redistribute, revise and remix) and the work of Geser (2007) commonly cited in definition open education (Hilton et al, 2014). Thus, there seems to be fairly widespread and consistent definitions of the topic, which provides a fairly strong foundation for this study. While most writers are clear upon the definition of open education, it is worth noting that literature is somewhat bifurcated in its focus on either MOOCs or OER and their different manifestations. Many of the studies reviewed related to one or the other topic, but few addressed open education in a sense that would apply to both.

The literature establishes that universities have traditionally fulfilled multiple purposes, with three complementary missions comprising teaching, research and public service (Vincent-Lancrin, 2004). The view taken in this report is that openness is not particular to any of these three missions, but rather that open approaches enhance the abilities of universities to perform across all three of these missions. We take Vincent-Lancrin's (2004:246) recommendation that contemporary changes in higher education "invite us to examine afresh the missions and role of the university in our changing world," eventually asking how might "the traditional missions of universities evolve" (Vincent-Lancrin, 2004:24). Such new perspectives on the roles of the university have been developed by Barnett (2013), who argues that the university is a continual process of re-imagining itself, and by doing so adopting new roles and visions for the future of society. He ultimately advocates the development of an ecological university, one that is rooted in interconnectedness and the development of a sustainable future.

There is a vivid discussion regarding institutions' rationales for adopting open education and the ethical implications of open education for universities' operation and mission. These analyses discuss the perceived egalitarian nature of education that is open to all and whether these benefits can only obtained under certain conditions, which are not always present in practice. Bossu, Bull and Brown (2013) assert that OER has the

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[2] Inamorato dos Santos, A., Punie, Y., Castaño-Muñoz, J. (2016) Opening Up Education: A Support Framework for Higher Education Institutions. JRC IPTS. Luxembourg: Publications Offices of the European Union, EUR 27938

potential to expand access to marginalised groups, but acknowledge that this potential is currently unrealised due to slow take-up, mainly due to a lack of understanding of OER and misconceptions about openness. Similarly Granow, Dörich and Steinert (2014) note that MOOCs may extend access to part-time students, particularly those who are learning professional skills or studying on the job. Thus, while the issue of expanded access is debatable, although there is some evidence for cautious adoption of open education in a widening access agenda. More critical literature suggests that the nature of "openness" also features into the discussion of access and open education. Rhoads, Berdan and Toven-Lindsey (2013) for example show how the emphasis on content delivery in most open courseware is fundamentally disempowering and at odds with what many would consider the purpose of higher education (i.e. debate, discussion, independent learning). Baggaley (2013) joins Rhoads, Berdan, and Toven-Lindsey (2013) in noting that many providers associated with the open courseware movement (e.g. Udacity, Coursera) actually license their content under very restrictive, non-open licenses. While large MOOC platforms (e.g. Coursera, EdX, FutureLearn, etc) capture much of the media attention, a review of current practice shows that there is considerable variety in approaches to teaching and learning through open education. In addition to these large, multi-institution platforms, there are a number of other methods of open education delivery. Thus, literature has identified that a clear decision for institutions is whether or not to take part in open education - and if so, how it should be done (Epelboin, 2014). Other literature (O'Connor 2014) identifies a need to see open education as a vehicle "to progress forms of change that align to broader strategic objectives".

Once the strategic dynamics of open education for higher education institutions have been considered, the next question that arises is that of the strategies and business models associated with open education. Literature suggests that the perceived risks to established business models represent a key challenge to collaboration in open education and the establishment of networks across the sector, as institutions may worry that by embracing open education practices and approaches they will be eroding or destroying their current business model including the perception that it may disturb current student recruitment practices and strategies (Carson et el, 2012). A BIS (2013) literature review provocatively declared that "the search for business models – and all the associated sub-issues of scale, sustainability monetisation, accreditation for MOOC learning and openness" are the "burning issue" for MOOCs and open education, mainly because they are so at odds with existing higher education business models. This is not only a key issue in relation to MOOCs, but also other elements of OE.

In discussing business models for open education, literature identified several possible options:

- *Paid Certification ("Freemium"):* To offset the cost of open education development and support, some additional (premium) services are charged for, most commonly certification of learning (Burd, Smith, and Reisman, 2014; Kalman 2014).
- *Improved Student Experience:* Open resources are developed primarily for students learning on classroom-based courses in order to improve their experience and learning (Burd, Smith, and Reisman, 2014).
- *Efficiency Savings:* Open education is primarily a cost-savings approach. By developing and using open content, time spent in developing learning materials is decreased. These savings cover the costs actually spent developing the content, and open education pays for itself (de Langen, 2014). The efficiency savings are achieved by and contingent upon teaching practice that encourages adoption and reuse of open educational resources (Armellini and Nie, 2013), and an institution-wide approach that includes high quality OER repositories (Atenas and Havemann, 2014).
- *Brand Development:* The cost of open education development and support are

met as part of the institution's marketing and branding strategy, with returns in increased student enrolment, prestige, etc (Alraimi and Ciganek, 2015; Burd, Smith and Reisman, 2014).

- *Employer Beneficiaries:* Open learning acts as a bridge between students and employers, and it identifies the most able students on employers' behalf. Employers pay for access to students who performed best on an open education course, or trade unions may pay to upgrade their members' skills (Schuwer and Mulder, 2009; Burd, Smith, Reisman, 2014).
- *Niche Markets:* Open learning is provided for the public good, but is funded through a charitable trust, government programme, etc in line with their larger aims and goals (Schuwer and Mulder, 2009).

However, this list is not exhaustive and other models are also possible. For example, Downes (2007) looks to cooperation and voluntarism as a strategy for OER. Similarly, combinations of models and combined rationales in adopting an open approach to education would also be possible, although these feature less prominently in the literature.

Finally, a key question in considering how open education is adopted by higher education institutions is the role of accreditation and the outcomes and impact of OE. For most higher education institutions the issue of accreditation is sensitive and strategic: since delivery of accredited learning is a core activity and key source of revenue, the prospect of providing credit for open education presents serious financial issues. In fact, to date, most accreditation of learning through open education (as the term is used in this study) has been informal and non-accredited, with certificates, endorsements and badges serving as the most common methods of accreditation (Yuan and Powell, 2013). However, much literature argues that expanded and improved recognition is essential for the wider adoption of open approaches. For example, Muñoz et al establish recognition and accreditation as one of the two key challenges to "opening up education" in Europe by 2030, noting formal recognition on par with other higher education qualifications is necessary for lifelong learning. They argue that formal recognition should occur in coexistence with peer-based current forms or peer-based and non-accredited recognition (e.g certificates, badges, endorsements, etc.), but also acknowledge a need for "improving the social and institutional perception of the value of open adult learning" (Muñoz et al, 2013, p. 182).

The above literature raises questions regarding the rationale for involvement in open education, its nature, how it can be aligned with institutional strategies and its main outcomes and future prospects. The case studies presented thus are broadly based around a discussion of the conditions that enable institutions to be involved in open education, the open education activities in which they are involved (in terms of teaching, research and operations) and their strategy for open education (including sustainability and financial issues). The case studies also provide an overview of the main outcomes and impact of the cases analysed and the main challenges and prospects that they face. By addressing these issues the study aims to provide a valuable contribution to the literature on open education.

1.3 Summary of the case studies

1.3.1 ETH Zurich

In late 2012, and following global debates on MOOCs (Massive Open Online Courses), ETH Zurich started a two-year open education initiative called TORQUE ("Tiny, Open-with-Restrictions courses focused on Quality and Effectiveness"). ETH's TORQUEs are open to all members of Swiss universities who have a university account (AAI). However their primary audience is ETH students. In the pilot phase ETH supported the creation of 9 TORQUEs and 3 MOOCs, selected from applications submitted by its staff.

The main objective of TORQUEs was to enhance learning in regular ETH face to courses through the use of MOOC-like learning tools e.g. extensive use of videos, social media interaction and flipped classroom approaches. In the case of TORQUES, and due to their strong link with ETH's on-campus courses, the number of participants is relatively small. These courses usually have between 300 to 500 students but sometimes the number of students can be as low as 50-100.

In addition to TORQUES, ETH offers several MOOCs on the EdX platform in order to reach a more global audience and increase ETH's institutional visibility. ETH MOOCs' were reported to attract between 9,000 and 15,000 participants each. However, as it is typical for this type of courses, only a small percentage of those who enrol are active students (estimated to be around 10-15%) and a smaller percentage of participants (around 5% in the case of ETH) follow the course in full and receive the certificates of completion issued by EdX.

Feedback from ETH teachers and staff concerning the new learning and teaching experience derived from MOOCs and TORQUEs was mixed. The main message from ETH student evaluations is that students do not want traditional lecture recordings. Instead, they want videos which complement traditional teaching, and that are very short, catchy and engaging. Based on students' feedback it can also be concluded that flipped classroom approaches require high levels of guidance to teaching staff, as staff often lack confidence in the use of new pedagogical approaches. The implementation of new pedagogies should, in the words of interviewees, benefit from "more guidance, more practice examples, more consideration of staff workloads, and more faculty using such approaches". ETH Zurich is currently conducting a full evaluation of its TORQUE and MOOCs initiatives. The results of this evaluation will inform the future format of TORQUEs and MOOCs at ETH.

The involvement of ETH Zurich in the area of open research predates its TORQUE and MOOCs initiative. It started in 2006 with the signing of the Berlin Declaration on Open Access to Knowledge in Sciences and Humanities. This was followed by the adoption of the Open-Access Policy of the university in July 2008 by ETH's Executive Board. The Open-Access Policy asks all ETH research staff and post-graduate students to make their research outputs (papers (post-prints), theses etc.) freely available as soon as possible via the open access institutional repository ETH-Collection, provided that there are no legal restrictions. Currently, the ETH Library estimates that there is around 10%-20% of the overall research output of ETH deposited within ETH E-Collection repository.

The TORQUE/MOOC initiatives and Open Access Policy for research outputs are resourced through institutional funding available at ETH Zurich (ETH learning and teaching development fund has an allocation of 2 million CHF (around 1.9 million Euro) per year). This business model is not likely to be changed. ETH funds its institutional learning and teaching innovation fund from the public resources it received from the Swiss Confederation. It was through that fund that the development of TORQUEs and MOOCs was supported.

The most important challenge for ETH Zurich with regards to open education practices seems to be the slow pace of changes in the pedagogical approaches (and the shift in the self-understanding of the role of university lecturers) and in moving from classical lectures to the creation of stimulating learning environments. Teaching with the use of new educational technologies and open educational resources is not "content focused" but "learning focused", with the teacher using materials developed by others and arranging them into a learning environment. Some interviewees noted that this represents a challenge for many academic staff at the ETH. Regarding research, it still remains a challenge to get researchers from leading research institutions like ETH to want to publish major research results in open access journals, and not in the classical high-impact factor academic journals.

1.3.2 France Université Numérique

FUN is a policy initiative supporting the French 2013 Digital Agenda at higher education level. FUN MOOC, the French MOOC platform, supports the Digital Agenda's objective that 20% of French higher education institutions produce OER by 2018.

FUN is a relatively young initiative developed following the path of the so-called thematic digital universities (UNTs), groupings of higher education institutions that have supported universities in the promotion, production and dissemination of validated digital teaching resources and pooled these resources together. UNTs contributed to universities' readiness and willingness to participate in OER initiatives and are still active.

FUN is supported and maintained by the Ministry in charge of higher education with the help of operational and strategic committees, (management and coordination), higher education institutions (content) and French public bodies (technical aspects). The Ministry also provides support services to universities for content development, such as training sessions on how to use the platform. National public programmes that fund content development projects also support the production of MOOCs.

FUN currently provides access to more than 140 MOOCs, produced by more than 50 higher education institutions. Around a quarter of those courses have been run several times (twice or three times). Almost 375,000 users are registered on the platform and, in July 2015, the number of course registrations was around 1,800,000. Most FUN MOOC users are men, between 25-50 years old, with higher education qualifications.

For the time being, almost all institutions providing MOOCs on the FUN platform award certificates of completion. Student testing has been piloted, potentially opening the door to course accreditation in the future. Partnerships with local higher education providers to facilitate testing and make accreditation possible are also being considered.

FUN uses the web and social media for the promotion and dissemination of information about its MOOC offer. Although a quarter of FUN users are not from France (and it is important to note that 15% of users are from Africa, mainly from French speaking countries), and in absolute terms the French-speaking world represents a very large number of people, the use of French for the courses on offer puts some limits on the international impact of FUN's activities.

1.3.3 OERu

The OER Universitas (OERu) was set up in 2011 with the aim to increase mainstreaming adoption of open education for all educational institutions, worldwide. It was set up as an independent organisation so that it could have the necessary freedom to develop and link with different kinds of higher education institutions. Today, OERu offers a wide range of self-standing courses, is working towards offering a full undergraduate programme (Bachelor of General Studies), and postgraduate programmes that could be taken in full at OERu. It also offers preparatory (foundation) courses for entry into higher education.

OERu is not a higher education institution, but a consortium of higher education institutions which, in order to become part of OERu, commit to prepare a minimum of two open courses. OERu requires that the institutions that join its network are recognised by qualifications authorities in their jurisdictional regions.

OERu aims to cater for different types of students: (1) 'free learners', who participate in its courses out of self-interest and without a desire for academic credit, (2) students who desire some kind of recognition (certificate of achievement or attendance) and (3) students who desire formal academic credit –through recognition by OERu's partner universities. OERu is particularly used in relation to free-learning and non-formal recognition. On the other hand formal recognition has, so far, been very limited.

OERu defends new pedagogies, around independent self-directed learning through the discovery, use and evaluation of open educational resources. Its model aims to challenge

teacher-directed pedagogies and to promote collaborative learning as part of a community where students can support each other. Research has not been, so far, a priority activity for OERu, but any research done around the OERu or with which the OERu collaborates has to be open and all the data that the OERu collects for its research projects is open. OERu is very open in relation to its operations. It subscribes to the principles of Open Philanthropy, and welcomes all genuine contributions to its decision-making and collaborations. All key OERu management information is available from the web.

OERu sees openness in higher education as the only viable alternative for the sector's sustainability: OERu's reported that the costs of higher education have been increasing beyond inflation for some time –in particular in Anglo-Saxon countries- in a way that OERu sees as not sustainable. By contrast, OERu sees open education as sustainable because it operates through radical cost reduction and efficient use of resources. As an example of this, the OERu operates a "sustainable disaggregated service model provision". While university fees tend to cover all the services universities provide (student services, tutorial services, teaching, examinations, accreditation) the OERu disaggregates these elements in a way that it sees as being more sustainable: (1) contents are provided at no cost; (2) support and technology services are funded through OERu member contributions; (3) assessment services are provided to learners on a cost recovery basis by partner institutions. In the academic year 2014/15 the OERu, which currently has 33 contributing partners, became financially self-sustainable[3]. The organisation aims to have 70 contributing partners by 2017. Institutions benefit, according to OERu, from the use 'on campus' of open education resources that they produce, by attracting new students, from sharing resources, infrastructure and technologies for open education, from high visibility and from the opportunity to network with other higher education institutions.

The OERu aims to provide a low cost (institutional fees to be part of the network are modest), low risk, but high impact way to innovate and share experiences in open higher education, and has grown its network rapidly. However, some aspects are particularly pressing in the short and medium term for the network. While formal accreditation is possible and important for OERu, this has not yet been widely used. It will be necessary to monitor progress in this respect. There is also a need for greater evidence regarding the educational progression or labour market outcomes derived from participation in its activities. Greater language diversification in terms of content and partners would also enhance the network, which has so far been largely Anglophone-based.

1.3.4 TU Delft

Established in 1842, Delft University of Technology (Delft) is the largest and oldest Dutch public technical university and a high-ranking university worldwide in the areas of engineering and technology. Delft started its institutional engagement with open education in 2006, and today it is heavily engaged in open education within the institution and outside, through representation in the leadership structures of various open education networks. Delft is particularly active in the area of open teaching. Here, Delft has a long-term engagement in providing Open Courseware (OCW), and more recently MOOCs. Delft's reported that its engagement with open education is based on its conception of publicly financed higher education as a 'public good'. Teaching resources and research that are paid for through public funds should be made available openly. Open education is also seen as an important tool to widen participation in higher education, which Delft staff reported to consider a central social justice concern to which the university needs to respond to. Delft open teaching initiatives are widely used: its OCW website has had over 1 million unique visitors (1,300 per day currently), and Delft

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[3] For a list of OERu partners, sponsors and donors by world region see http://oeru.org/oeru-partners/

has registered around 865,000 enrolments in its MOOCs. The university has made over 10,000 lectures available via OCW and i-Tunes.

Delft leadership is clear that academics need support to take part in open education. This has materialised in investment in e-learning officers, teaching assistants' time -in order to help prepare courses to go online-, or even graphic designers to improve MOOC slides given the marketing effect of open education. Delft also provides a range of guidance documents to its academics, so that they "know-how" to participate in open education.

Delft has a well-structured approach to quality assurance for open education materials, which in addition to standard University procedures entails evaluation by e-learning officers, checking of beta versions by students and staff, pre and post participation questionnaires and the production of summary reports containing lessons learnt.

Delft reported to currently invest around 4 million Euro per year in the delivery of its open, online and blended courses and a small research team on open education. Delft believes that there is no scope from simply selling content, so it makes content available for free. Income can be generated from other services around the content that is shared for free: certification, top-up courses or on-campus provision for example. As such, the university has put in place a range of strategies to create income streams from or in association with its open education initiatives:

- from MOOCs and -to a much lesser extent- OCW certification,
- third-party use of its open education materials for commercial purposes,
- activities in the area of professional education and continuing education,
- attraction of additional students to its regular courses, and
- externally funded research projects.

The objective of the creation of these income streams is to generate resources that can be reinvested in open education. Open education was reported to drive up Delft's capacity for innovation, recruitment (with a conversion rate from MOOC participation into application for a Delft regular course at around 0.1% in two courses for which data is available), teaching quality (there is evidence of its potential to improve Delft students' pass rates, average marks and satisfaction), and visibility and reputation in an increasing competitive global higher education landscape.

In terms of open research, Delft has collaborated mainly with Dutch universities in the preparation of position papers and in lobbying in favour of open research, and the creation of an open data centre in the Netherlands. It also has an institutional research repository and encourages open access publication through the payment of fees to make articles open access, negotiations with publishers and the provision of information on open access journals to its academics. Delft has developed open software solutions for a variety of purposes.

The information gathered for this case study underlined that a challenge for open education is to ensure that its widening participation agenda is not completely subsumed by the other benefits generated by open education (reputation, visibility, income generation). Other challenges for open education, identified by Delft, are its need to become better known and used by politicians and the design of a series of incentives – which could take the form of inclusion of open education in university rankings, as well as a variety of other measures- and support structures to stimulate universities and enable academics to be engaged with open education. This is seen as a particularly important point for Europe, where institutions are lagging behind in open education compared to institutions in other areas of the world.

Future areas of work for Delft on open education could include the inclusion of MOOCs as independent parts of its own curriculum (instead of being a tool to support classroom-based provision through blended learning and flipped classroom strategies) and further

development of its open management, an area that the university has not explored in detail.

1.3.5 Universidad Carlos III Madrid

Established in 1989, Universidad Carlos III de Madrid (UC3M) is one of the youngest universities in Spain. It initiated its open education initiatives in 2007 and was one of pioneers in this area in Spain. Its involvement in open education derives from two main aspects: its mission, as a public university, to increase access to higher education and, second, its desire to increase its visibility worldwide.

Its actions in open education were enabled by the profile of its (young and technology aware) academic staff, long-standing use of virtual learning environments at the university, the way in which the university responded to the Bologna process, the position of university's leadership in this area and the introduction of policies to incentivise staff involvement in open education.

UC3M currently offers OCW for 221 courses in all disciplinary fields. In recent years the university has become very active in the provision of MOOCs on edX (it so far produced 6 MOOCs for that platform) and MiríadaX (so far 2 MOOCs). These have attracted more than 100.000 registered learners.

One of the advantages of UC3M is that it provides MOOCs in two widely spoken languages: English and Spanish. This widens the pool of students that can access its courses. The visibility of the courses is enhanced through membership to well-known MOOC platforms. Its MOOCs have been designed as introductory courses for a general audience interested in the topic –which maximises access possibilities at the same time that does not overlap with more specialised courses offered on campus.

UC3M's quality assurance actions for its open education initiatives are based on internal processes of peer review. The reported level of satisfaction of MOOC participants has been high. However, there has been so far little emphasis at the university on measuring the impact of open education initiatives on learners –for instance in terms of employability. Anecdotal evidence reported by interviewees, on the other hand, suggests that there has been a positive impact of open education initiatives on "the use of technology in educational and pedagogical practice" and in the global visibility of the university. Faculty increasingly use OER –from UC3M and other sources- to prepare their lectures.

UC3M follows the policies of the two MOOC platforms with which they work (edX and miríadaX) for the certification associated with MOOC participation and completion. It does not give any ECTS credits on the bases of certificates issued by MOOC platforms or other university providers, except in the case of doctoral studies. Recognition is thus an area for further development.

The university has, since 2007, an open archive for its research, although there is still some way to go in order to ensure full coverage of the research outputs of the university. The UC3M also makes publicly available a good range of information about its operations through its website.

UC3M has placed significant emphasis on the management of open education since 2012, when it established two working groups to coordinate the creation, use, dissemination and conservation of OER and support instructors in this area. Open education, therefore, has had institutional organisational consequences.

UC3M open education initiatives are fully funded through internal resources. This has limited the volume of activity of the university in this area. The university does not currently have a business plan to diversify income streams, which may be a challenge for the future. There are also challenges regarding the interest of academic staff with regards to participation in MOOCs initiatives under the current system of incentives. The university should consider ways to develop measures to assess the impact of

participation in its open education initiatives on learners, and to expand recognition derived from participation in open education.

1.3.6 AGH

The Open AGH E-Textbooks initiative provides a good example of one approach to open education. Specifically, a public university is able to provide enhanced support to students and reduce students' costs by creating an OER repository, which is made available to the public for free through the internet. The programme appears to have gained widespread acceptance throughout the University and interviewees mentioned that it has generated international interest. There are a few other points about the case that are particularly noteworthy:

- The philosophical commitment to the concept openness in education was reported to be widespread. This commitment is espoused by the University leaders, noted in its websites, and reflected in its use of open licensing and adoption of open source software.
- The unique example of partnership with local schools shows that the benefits of OER in Higher Education do not need to be confined to Universities. In the case of AGH, collaboration with schools facilitates progression from secondary school to University, because students become more familiar with the University and what it offers. Other institutions might seek ways to work with external partners – including but not limited to secondary education.
- The University has adapted the open education approach to fit its needs. Specifically, it has created resources that can be used in the context of blended learning as required by its degree programme, but the resources are shared so they may be used in other purposes.

The University is very active in national and international networks on open education and is presenting its views and research in these forums. These networks include the Open Education Consortium[4] and the Coalition for Open Education.[5] It will host the Open Education Global Conference (associated with the Open Education Consortium) in 2016.

1.3.7 Virtual University of Bavaria (BVU)

Set up in 2000, the Virtual University of Bavaria (BVU) is a network of universities and polytechnics that includes all the higher education institutions in Bavaria -the nine universities and the 17 universities of applied sciences of the Free State of Bavaria, one of the 16 German Länder. Staff at these institutions is invited to offer free online courses to any student registered at any of the institutions within the network. The BVU provides online courses with an equivalent of two to six (ECTS) credit points that the member universities can integrate into their courses of study. By doing this, BVU helps its members enlarge and enrich their programmes and helps students to organize their studies more flexibly. The online platform offers course materials, tutoring services by experts in the subject area and assessment.

The main target group of the BVU are Bavarian students enrolled at higher education institutions in Bavaria (more than 95% of all users). Students from outside Bavaria or users who are not students can participate, paying a relatively small fee. However their numbers are very small. The main reason for this is that BVU courses are created to meet as closely as possible existing study programmes at Bavarian universities and polytechnics. They are not created to meet specific demands of people interested in further education or lifelong learning, or to provide work-related training. This is unlikely to change in the future.

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[4]   http://www.oeconsortium.org/
[5]   http://koed.org.pl/

The case of BVU provides an example of education-focused cooperation between state funded universities in the German state of Bavaria. While BVU does not fit all elements of open education some of its features resonate with the philosophy of open education - most notably in terms of increasing flexibility for learning. The support and pedagogical approaches employed also have relevance to open education providers, It represents a case of state coordinated and funded action in the area of online education with elements of "openness".

Between 2000 and 2011 a total of €35.3 million were invested on the BVU and its courses and until 2013 the total public investment into BVU reached €50 million. The current annual budget of BVU is around €6 million. The bulk of this sum comes from the Bavarian state budget and other state programmes while the member universities contribute one Euro per student and semester, i.e. a total of around €0.6 million per year. This funding allows Bavarian students to take BVU courses without paying tuition fees. Income from fees from other students is marginal. This funding and business model might be put under challenge if the trends in growth of student demand increases at the same rate it has been doing in the recent past.

BVU was reported to foster cooperation between higher education institutions in Bavaria, which –in turn- was reported to produce pedagogical and cost efficiency benefits. This is especially true for smaller institutions, which are able to increase their study offer significantly using BVU courses. The BVU model based on cooperation among higher education institutions -despite of its high costs- was reported to foster the overall efficiency of the Bavarian higher education system and to reduce duplication of efforts in the area of distance and online teaching.

1.3.8 *OpenupEd*

The OpenupEd initiative is a non-profit partnership for MOOCs set up by the European Association of Distance Teaching Universities (EADTU) and supported by the European Commission. The initiative is trying to boost cooperation and coordination of EU HE institutions in the field of MOOC offer.

OpenupEd is focused on promoting a specific European view of openness in education based on eight features that go beyond the usual free (gratis) education (Openness to learners, Digital openness, Learner-centred approach, Independent learning, Media-supported interaction, Recognition options, Quality focus, and spectrum of diversity). Although becoming a member implies a process of assessment of the plan for opening up education via MOOCs, it is not necessary to open the courses in all these dimensions. Indeed, variety of openness is welcome. The minimum requirements of the OpenupEd MOOCs are to be free (gratis) and to provide at least a free recognition option. In addition, OpenupEd is promoting a quality brand for open education and, so far, one of the major outcomes has been the creation of OpenupEd quality label based on the above mentioned features.

OpenupEd members benefit from being part of the initiative in terms of increased visibility and their universities are positioned as part of a quality brand. In addition, they gain access to shared knowledge on MOOCs, and to a few extra services, which still are in the development phase.

One of the main challenges of the initiative is its expansion. In order to be able to offer more services it would need more fees, but the members are growing slowly. The initiative started in April 2013 with 11 members, all them leaders in the field of open and distance education, and currently it counts with 14 members. (although two more incorporations are expected during the next months).

In the future, the initiative needs to grow and move beyond the early adopters if aims to have a real impact on the vision and quality of MOOC offer in EU. For its sustainability, OpenupEd should take advantage of the momentum generated by the growing EU MOOC

offer and attract more universities within its umbrella. For this to be done the value added of the services under development is going to be a key element

1.3.9 *ALISON*

ALISON is a growing Irish for-profit social enterprise that offers online courses free of charge. The company mainly targets Anglophone and developing countries. During its 7 years of existence, the company has reached 6 million learners (defined as all those individuals who have ever registered on the ALISON website).

ALISON claims that it exploits a market niche by adapting courses designed by various online publishers and universities into targeted work-related skills training. Their stated goal is to fill the gap where there is a perceived lack of workplace skills in their target audience. ALISON courses are short (from 2.5 hours to 10 hours) and cover ten categories: Diploma courses; Business and Enterprise Skills; Digital Literacy and IT Skills; Personal Development and Soft Skills; Languages; Health and Safety and Compliance; Health Literacy; Financial and Economic Literacy; Schools Curriculum; and Health and Safety (Irish legislation only). ALISON also offers some courses that target school students and basic literacy, which cover parts of the Irish school curriculum. All the courses offer the option of obtaining a (free or paid) ALISON certificate. Although the company provides courses free of charge, it has developed a profitable business model based on low cost content integration and revenue generation. The latter comes from advertisements, certificates and paid-for premium services for learners, educators and employers although the model appears to be evolving.

The content of ALISON's courses comes from three different sources: (1) Content owned or acquired by ALISON available exclusively on the ALISON platform, (2) Open Education Resources (OER) produced by third parties and made available under various open licences and (3) content produced on ALISON initiative through partner agreements. The use of OER produced and made available online by higher education (and other) institutions indirectly supports ALISON's activities. Often, these OER are licensed for "non-commercial use". Charging for indirectly related services such as certificates therefore is part of the business model of ALISON. ALISON argues that it adds value to these resources by reorganising them into smaller, modular learning chunks, making them easier for the learner to use and creating a new learning experience and furthermore, that it charges not for the content but the structure enabling its free study.

In terms of quality control, ALISON relies mainly on the publisher for the subject matter expertise but reviews the content to meet pedagogical requirements. It is a model that allows a large number of courses to be offered with relatively low investment in quality assurance mechanisms.

Although ALISON is not a higher education institution, it was included as a case study in OpenCases because it shows the complementarity between public and private sectors when there is a high demand for an open education offer in a specific area, i.e. the distribution and provision of free access to content that is fact-based – and can be efficiently delivered via an online platform.

2. Methodology

2.1 Overview

In October 2014 the JRC commissioned the University of Bath and ICF International to collaborate with them on the study "Open Cases: case studies of openness in higher education". The study explored three aspects of openness in higher education: open teaching, open research and open operations. The first two are linked to central missions of higher education, whereas the third refers to the ways and organisational culture through which organizational information is made openly available –normally through institutional websites- and new technologies are used for decision-making processes to become open to a wider audience and engage stakeholders. This, thus, refers to internal processes related to the transformation of HEIs into open learning institutions. While the case study institutions had less to say about open operations than about open teaching or research, this is a new area in the agenda of open education, and deserves exploration. On the whole, the institutions approached for this research emphasised the importance of all aspects of openness in education, but seems to put greater strategic emphasis on open practices in teaching and learning –which therefore receive greater coverage in the report.

An overview of the methodology employed in this study is presented in Figure 1 below:

Figure 1: Summary of the study methodology
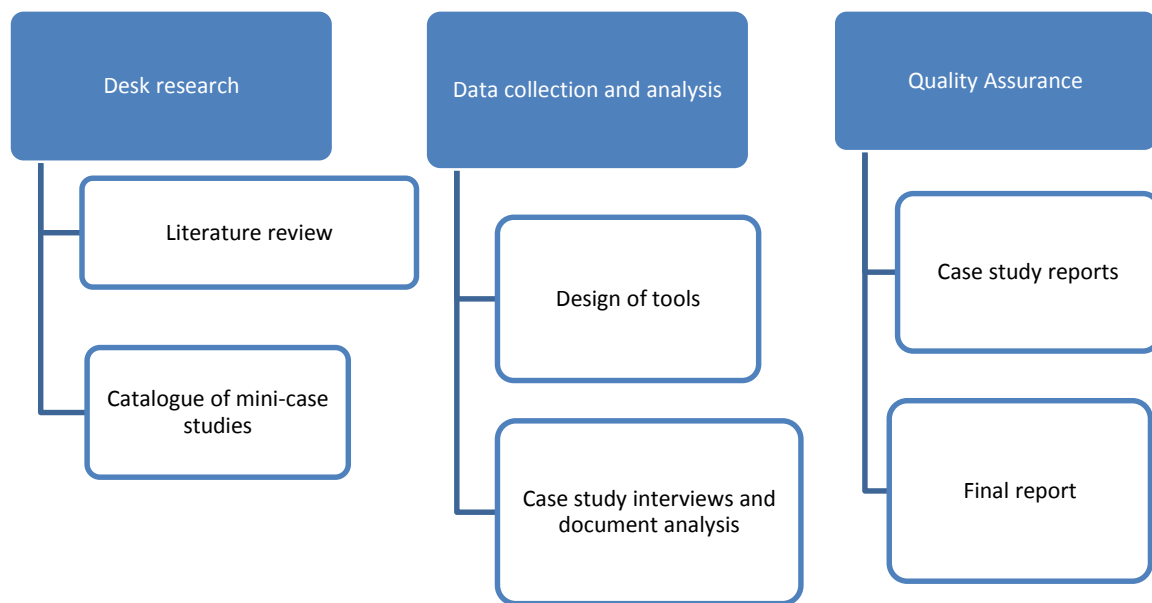
Source: OpenCases study

A brief description of each of the "desk research", "data collection" and "analysis, reporting" components of the study is provided below.

2.2 Desk research

This component of the research entailed a review of the literature, and the production of a catalogue of practices.

2.1.1 Review of the literature

A review of literature was undertaken for this study. It made use of expert referrals and bibliographic databases to identify relevant literature on open teaching, open research and open management. The literature review included academic literature and to a lesser extent grey literature. Resources were examined by title, abstract and if deemed

relevant a full review of the document was undertaken. The literature review was employed to develop an up to date understanding of the field, identify themes for analysis and have an overview of the different conceptualisations available regarding key terms such as 'open education'.

2.1.2 Catalogue of mini case studies

The production of the catalogue of practices was based on a review of the literature, institutional websites and referrals from experts in the area of open education. The catalogue aimed to support the final choice of full cases presented in this report. Based on the catalogue, a selection of potential full case studies was discussed with the JRC IPTS, to complement IPTS' own recommendations, which envisaged being representative of different types of practices and regions. The catalogue covered a sample of different types of open education initiatives: OER, institutional repositories, MOOC platforms, free of charge online courses, open courseware, open access publishing, to cite a few . This is presented in a separate report associated with this study[6].

2.3 Data collection and analysis

The study aimed to incorporate examples of openness in the areas of teaching, research and strategy. In particular, it aimed to explore how and why higher education institutions, networks and government-led initiatives are dealing with openness in higher education. These kinds of questions can be well addressed through in-depth case studies. Moreover, the study aimed to provide a comprehensive view of how individual institutions, networks and initiatives approach openness, rather than –for example- provide a mapping of the situation regarding different components of openness across the higher education sector. Again, this aim is well aligned with case-study research.

The selection of case-studies took as its starting point the catalogue of 50 cases produced in the earlier stages of the study. The institutions, national initiatives and networks selected were chosen because they illustrated a variety of approaches, degrees of development and logics regarding openness in higher education –including also (although not exclusively) a number of institutions, networks and initiatives that are seeing at the forefront of openness in higher education. Cases were also selected to reflect a range of different national contexts –some of them favourable to openness in higher education, others in which openness in higher education is a relatively marginal development. Nine case studies were produced for the study, including higher education institutions, national initiatives and networks. This number of case studies enabled the study team to review the situation in institutions and networks with contrasting characteristics, while being able to achieve sufficient depth of knowledge in relation to each case study: in order to carry out an in-depth analysis of each case, the number of cases needed to be restricted. This number of case studies was also in keeping with the parameters of the study in terms of time-frame for data collection and analysis. Case studies were identified through a review of the literature, website searches and referrals from experts. Case studies were selected in agreement with the client to provide illustrative examples of actions in open education by institutions in different European contexts.

Case studies were based on a review of institutional information, websites, and up to six interviews with the concerned institutions. The interviews were semi-structured. The semi-structured interview approach enabled the collection of rich data on the topics covered by the study. A topic guide was produced –see Annex 2-, based on the study aims and the topics that emerged in the literature review (e.g. the importance of recognition, business models, etc.), and adapted by interviewee. Topic guides were also

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[6] JRC IPTS (2016) OpenCases: a catalogue of mini cases on open education in Europe (https://hochschulforumdigitalisierung.de/sites/default/files/dateien/OpenCases_Open_Education.pdf)

continuously reviewed –and updated as necessary- as case studies were undertaken. The main interview sections were used to structure the material presented in the report. Interviewees had the opportunity to request the topic guide prior to the interview. Interviews were conducted remotely (via Skype or telephone) and recorded. Most interviews were undertaken in English, French or German.

Interviewees were normally senior members of staff or staff with a direct role in open education at the case study institutions. Interviews also included network members in the case of some of the networks included in the research. Interviewees were provided with a study information form detailing the nature of the study and informed consent form. The name of the interviewees who accepted to be named is provide in this report. A number of other interviewees preferred not to be named in the report –which explains why some case studies do not include a list of interviewees.

Case study write-ups follow a similar structure. OpenupEd and ALISON deviate slightly more from the standard structure given the specificities of these cases.

3.   Case study 1: ETH Zurich

Abstract: In late 2012, and following the global debates on MOOCs (Massive Open Online Courses), ETH Zurich started a two-year open education initiative called TORQUE, which implies a new web-based course format. The term "TORQUE" refers to a "Tiny, Open-with-Restrictions courses focused on QUality and Effectiveness". ETH also offers several MOOCs on the EdX platform, in order to reach a more global audience and increase its institutional visibility.

The involvement of ETH in open higher education initiatives (development of TORQUEs, MOOCs and adoption of the Open Access Policy for research dissemination) provides an illustrative example of the ways in which one of the world leading research-intensive universities responded to the trends set by its national and global competitors in this area. The answer was embedded in ETH's already established tradition of institutional investment in innovation in teaching and learning, as well as its work on the development of modern educational technologies.

The development of TORQUES and MOOCs was a resource intensive project for ETH and it is not yet fully clear if the main aim of achieving technology enhanced learning that would benefit its own students as well as external audiences has been fully achieved. It is also early to identify long-term impacts on the traditional ways in which teaching and research take place at the ETH. However, it is clear that examples of good practice have been created within the institution, and the positive experience reported by students should motivate other faculty members to follow the lead and continue the development of open education initiatives.

List of interviewees:

>   Anders Hagström, Director of Global Educational Affairs, ETH Zurich

>   Andreas Reinhardt, Education Development Centre, ETH Zurich

>   Barbara Hirschmann, ETH Library

Further information and references

>   ETH Zurich (2012). TORQUEs: A turning point for teaching – concept paper. http://www.let.ethz.ch/projekte/Concept_TORQUE_ETHZ.pdf

>   ETH Library. ETH Open Access Policy. https://www.library.ethz.ch/en/ms/Open-Access-at-ETH-Zurich

3.1   Introduction

Founded in 1855 and with a student population of over 18,500 students from over 110 countries ETH Zurich (German: Eidgenössische Technische Hochschule Zürich) is a leading Swiss higher education institution, particularly acclaimed for its excellence in the areas of engineering, science and technology. This case study reviews its open education initiatives, in particular its "TORQUE" ("Tiny, Open-with-Restrictions courses focused on QUality and Effectiveness") set up in 2012 – these are courses in German or English that are primarily targeted to regular ETH Zurich students - and MOOCs.

3.2   Enabling conditions

The main drivers for ETH Zurich's involvement in the area of open education and research were (1) its long and well established engagement in the area of education technologies and (2) good organisational set up and funding for the development of innovative teaching practices, and (3) national and international trends towards greater use of open education by leading higher education institutions.

ETH Zurich supported the use of educational technologies already in early 1990. The university set up an internal funding programme to support innovation in teaching and learning 15 years ago, which currently funds its TORQUE and MOOC initiatives. The University has, thus, a long tradition in providing financial support to faculty who wish to work on innovative teaching methods. ETH Zurich was also one of the founders of the Opencast Matterhorn7, which is a consortium that has been developing open course technology for institutions that wish to produce openly available learning materials.

National and international trends towards greater use of open education by leading higher education institutions were also important. ETH's Swiss French speaking sister institution, EPFL in Lausanne, was one of the pioneers of the MOOC movement - developing French speaking MOOCs - and the leadership of the ETH wanted to follow that trend.

In practical terms, two specific events facilitated the involvement of ETH in the development of open education initiatives. Firstly, ETH was invited by the EdX platform to join it to offer MOOCs. Secondly, at that time there were internal discussions about the need to innovate in the use of educational technologies available at ETH (like MOODLE and similar). This duality of rationales: following global trends in the use of MOOCs, and wishing to improve teaching and learning on campus through innovative educational technologies led to ETH's interest in the use of open web-based course formats.

Similarly, the decision to develop ETH's Open Access Policy in the area of research was based on international trends and general global developments in higher education. ETH Zurich joined the Berlin Declaration in 2006, which provided an institutional push for involvement in this area. The Library of ETH Zurich and the Board of the University saw the potential of "open" in scholarly communication, and therefore decided to explore ways to enhance ETH's practices.

3.3 Teaching

At the end of 2012 ETH decided to initiate a pilot initiative for the period 2013-2014 called TORQUE primarily to improve its teaching and learning practices using new education technologies and pedagogies (flipped classroom approach, use of videos and social networks etc.). 'TORQUE' represents ETH's adaptation of 'MOOCs'. ETH does not see these two terms as opposite as they have many common features. They are identical in format and both are supported by short videos augmented by questions or tasks that can be completed with or without deadlines. Both types of courses make use of communication tools such as online fora and can offer tutoring to participants. The key difference between MOOCs and TORQUEs at ETH is that there are on-campus courses based around TORQUEs and there are also face-to-face meetings between course participants.

ETH's TORQUEs are theoretically open to all members of Swiss universities who have a Swiss university account. However their primary audience is ETH students. In the pilot phase ETH funded the creation of 9 TORQUEs and 3 MOOCs, selected from teaching staff applications. One interviewee clarified:

> "The rationale for TORQUE was to use the technology to improve teaching on campus, so flipped classrooms and all that. We have no TORQUES that are not built around existing on-campus courses. The strategy is to make TORQUEs available to Swiss university members but we are not actively promoting or seeking other students from other institutions to sign up for TORQUEs. It might be that some individual faculty members are cooperating with their colleagues at

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7   **Matterhorn** is a free, open-source platform to support the management of educational audio and video content.

other institutions in using TORQUES together but that is not the institutional strategic objective".

This illustrates that the main objective of TORQUEs was the enhancement of learning in regular face-to-face ETH courses through the use of MOOC-like tools.

The basic platform for TORQUEs was Moodle because students already had access to it and teachers were familiar with the way it operates. However, TORQUEs are presented in a way that resembles a MOOC setting. Similarly to MOOCs, TORQUEs contain an introductory page that provides basic information about the course, lecturers and learning goals. There are also introductory videos in both types of courses. TORQUE pilot courses, which were initially developed for a limited group of students, could be opened in the future to a global audience. However, none of the TORQUE course leaders has so far opted for that option yet. Those course leaders inclined to make their courses available to global audiences are more likely to aim to develop MOOCs directly, instead of TORQUEs.

The ETH has a structured strategy concerning quality assurance for its TORQUE and MOOC initiatives. Given that TORQUES are part of the regular ETH courses and academic programmes, they have the same QA mechanisms as ETH regular courses –for example in terms of student evaluations. In addition to this course development is guided. Firstly the faculty who want to develop TORQUEs or MOOCs are required to develop a proposal that may be accepted, returned for improvement or rejected by ETH's specialised teaching and learning development unit. The review by the teaching and learning development unit does not include the academic content of MOOCs, as this is understood to be the responsibility of individual faculty members.

Once a TORQUE/ MOOC is approved the development of the course materials themselves is supported by ETH's learning technology and media specialists. They make sure that recordings are of good quality and check the materials from a non-academic point of view. Involvement from the corporate communications team ensures the use of correct logos and colour schemes in the materials produced.

Parallel to TORQUEs ETH has also developed a small number of MOOCs in English (currently 3), which are available through the EdX platform –ETH's main tool to increase its global visibility. As one interviewee stated:

> *"We see MOOCs more as a business card application for ETH campus activities. We do not want to have 20 MOOCs per year to advertise ETH. We want to have a selected range of MOOCs which show the quality of the work done at ETH, and stand out because they cover topics that are highly relevant to ETH, and in which ETH is a leader"*

Another interviewee noted:

> *"MOOCs are partly about institutional visibility, about reaching out to students who can get a taste of what ETH can offer in its master programmes, doctoral programmes or whatever. MOOCs have been, particularly, about reaching a significant number of students."*

The audience for ETH MOOCs is different to the audience for its TORQUEs. They are led by faculty members who wanted to 'go global' with their courses. Interviewees stated that in their MOOCs course leaders aim to have the widest possible target audience and that they do not target any specific group.

ETH has carefully chosen the platform for its MOOCs, avoiding commercially driven platforms, which in the opinion of its staff are not in line with ETH traditions and culture as a public education institution. As one interviewee indicated a reason for joining EdX rather than other MOOC platforms was that EdX is a non-profit organisation while some other platforms have a more commercial profile.

3.4   Research

The institutional 'open access' policy of ETH encourages all researchers and postgraduates to deposit their research outputs in the open access repository called ETH E-Collection. ETH Library estimates that only 10-20% of the overall research output of ETH members is currently deposited in ETH E-Collection repository. ETH is aware that some universities achieve much higher rates (30% to 40 % of total articles) and they are working towards increasing ETH rates –by linking the repository with the institutional bibliography database and implementing software solutions that simplify processes for academic staff. While ETH's policy encourages researchers to deposit their publications on the open institutional repository there are no enforcement mechanisms in place except for PhD theses –whereby the deposit of the thesis is linked to the graduation process.

The university policy also states that researchers are encouraged to publish in open access journals. ETH Zurich is a member of the open-access publishers BioMed Central, SpringerOpen, Copernicus, Frontiers, MDPI and Public Library of Science (PLOS). For publications in the journals of these publishers, the ETH Library covers any article fees, relieving the authors of any publication costs. The only requirement is for the first or corresponding author of the article to be a member of ETH Zurich.

3.5   Strategies

The TORQUE/ MOOC initiatives and Open Access Policy for research results are funded by ETH's institutional funding (the ETH learning and teaching development fund can disburse 2 million CHF (around 1.9 million Euro) per year). ETH funds its institutional learning and teaching innovation fund from the funding allocations it receives from the Swiss Confederation.

Lecturers can apply for TORQUE/MOOC development projects and, if selected, ETH finances their production –in terms of staff and tutors costs, video recordings etc. Interviewees reported that these are costly projects, as the cost per MOOC or TORQUE development is in the range of 90.000-140.000 Euros, excluding faculty time/ faculty staff costs. Cost estimations for each repetition of courses are not available. As one interviewee explained:

> *"It is a big investment…The lesson we learned is that it has been an expensive business".*

The exact pay off of this investment is yet to be evaluated by ETH. Interviewees did not expect to see any changes in the near future with regards to this financing model. In particular interviewees generally do not think that TORQUEs and MOOCs at ETH will be developed as commercial offerings because ETH does not generally charge fees. While it would be legally possible to charge a fee by declaring these courses to be continuing education programmes, interviewees stressed that commercial profit was not the institutional motivation for ETH's engagement in open education. Interviewees however agreed that initiatives such as MOOCs –and despite their costs- do represent a cost-efficient marketing tool for the ETH globally because they reach large numbers of people and more potential international students than any other media.

While no change is expected in relation to the sources of funding, changes will take place regarding the distribution of funds. In the future institutional funding will be provided only for the development of MOOCs, not TORQUES. This is justified by the need for special guidance and additional feedback for the production of MOOCs involving corporate communications, media training etc. However ETH does not plan to increase the number of MOOCs offered per year: it plans to keep the offer to a maximum of 3 or 4 per year. TORQUEs, on the other hand, are closely connected with on-campus teaching at ETH and they should be, according to some interviewees, developed incrementally by teaching staff, without an upfront additional allocation of funds –making less use of tutor time, recordings, etc. Moreover, if staff has a plan to do something radically innovative

in their teaching (including their TORQUEs) ETH offers them the possibility to apply for an institutional 'Innovedum project'. These internally funded projects have a long tradition at ETH and their goal is to support teaching and learning innovations by ETH faculty. One interviewee stated:

> *"We believe that you can change your teaching with TORQUE elements with less money than 50.000 CHF –around 48.000 Euro. If you just want to try out the new format, flip some of the elements of your course, use videos, then you do not have to spend so much money. We think that staff can do it by themselves and if they really see the benefit of it and want to try new approaches they can apply for an INNOVEDUM project."*

Similarly to the TORQUE and MOOC initiatives, the Open Access Policy implementation within the ETH Library was funded through internal resources. The ETH Library received no dedicated publication fund for open access journal processing charges. They finance these through the existing library budget. Processing charges for up to 150 articles per year does not represent at the moment a major funding challenge for the ETH Library. However there are some concerns that this funding model might be a challenge in the future, given ETH's aim to increase its open access publishing.

3.6 Outcomes and impact

3.6.1 Outcomes

ETH MOOCs have attracted between 9.000 to 15.000 participants per course. However, as is typical for this type of courses, only a relatively small percentage of participants (around 5% in the case of ETH) follows the course to completion and receives the certificates of completion issued by EdX platform. The percentage of active students is a bit higher -estimated at 10-15 percent. In the case of TORQUES the number of participants - people who register for the relevant on-campus course in the MOODLE platform- is small. These courses usually have between 300 to 500 students but sometimes the number of students can be as low as 50-100.

Feedback from teachers and staff on the new learning and teaching experiences derived from MOOCs and TORQUEs was mixed. An interviewee pointed out that the main message from students' evaluations is that students do not want traditional lecture recordings in MOOCs/ TORQUEs. Instead they want videos that are very short, catchy and engaging. Students' feedback also suggests that the flipped classroom approach has to be implemented in conjunction with high levels of guidance to teachers, who often lack confidence in the use of new pedagogies. The implementation of new pedagogies should, in the words of interviewees, benefit from "more guidance, more practice examples, more consideration of staff workloads, and more faculty using such approaches".

With regards to the outcomes of the Open Access Policy for research ETH can only provide an estimation of the volume of its research output deposited in the open E-Collection repository (10%-20%). The data on ETH researchers' publications in open access journals is more precise as it is based on the Web-of-Science database. Currently this rate is around 10%, up from 2-3% in 2007.

3.6.2 Impact

Interviewees agreed that it is very difficult to measure the benefits of TORQUEs and MOOCs. An evaluation of ETH initiatives in these areas was being undertaken at the time of writing. There are however some indications that the goals were achieved, according to ETH staff:

> *"For TORQUEs the objective was and is to improve the quality of learning (…). I think that we have evidence that this has happened. We have a quarter of faculty saying that they have been able to squeeze more materials with better learning*

results. But we cannot put a price on the value of that improvement. With the MOOCs it is also about institutional visibility, reaching out to students who can get a taste of what ETH can offer for a master programme, for a PhD or whatever."

When it comes to publishing in open access journals progress has been very slow. This was explained by ETH staff with reference to the high prestige of ETH research and the incentives –in terms of career progression, visibility and recognition- that researchers have to publish in high impact journals. The career-related incentives for publishing in open access journals are much less clear, and ETH researchers have to weigh these factors against each other. This explains the impression of some interviewees that this change is not as fast as some open access advocates wish it would have been.

3.6.3 Recognition policy

ETH continues to have a restrictive policy concerning the recognition of certificates of attendance issued to MOOC participants. In that respect its open education has had little impact. Interviewees reported that ETH does not envisage the introduction of measures to formally recognise in its regular courses –for instance through exemptions of part of the programme- participation in MOOCs in the near future. This is, mainly, because of concerns regarding the authenticity of the learners' identity in MOOCs. ETH is nevertheless discussing the models to accept people to be examined for admission at ETH if they have completed some MOOCs that have been previously selected by ETH.

This policy should be seen in the light of the general policy of recognition of prior learning of ETH, which mainly operates through the acceptance of full degrees at the point of admission. ETH has a very restrictive policy regarding the waiving of any course requirement within bachelor or master programme and does not in principle allow the substitution of its courses using certificates or credits achieved in other courses.

3.7   Challenges and prospects

Interviewees stressed that the most important challenge when it comes to the implementation of open education initiatives at ETH is the development of a common institutional understanding. One interviewee noted that:

> *"We made it possible for faculty to be engaged and use the platforms that are available but there has not yet been an institutional commitment and strategy and development of a common shared vision".*

The second challenge is the slow pace of change in the use of pedagogical approaches to move from classical lectures to the creation of stimulating learning environments. Teaching that makes use of new educational technologies and open educational resources is learning rather than content focused. The teacher uses materials developed by others and arranges them in a learning environment. According to our interviewees this represents a challenge for many teachers at the ETH.

Finally, engagement in open education and the development of open education resources is a labour-intensive process. This is a challenge given the competing tasks that faculty need to balance (research, administration, governance of the institution, working with industry etc.).

Another potential challenge might be the potential contradictions that may emerge between the globally-oriented initiatives like MOOCs and the national institutional mission of ETH -which receives most its funding from the Swiss Government, and whose main mission is to provide high quality education primarily to young Swiss people.

3.8   Conclusions

The involvement of ETH in open higher education initiatives (development of TORQUEs, MOOCs and its adoption of an Open Access Policy for research dissemination) provides an illustrative example of how one of the world's leading research-intensive universities has responded to trends set by its national and global competitors. The response was embedded in ETH's established tradition of institutional investment on innovation in teaching and learning, as well as in its work with modern educational technologies. In the context of ETH, open education has been understood as tool for the modernisation of teaching approaches.

However, ETH Zurich's self-understanding as a research based educational institution with a significant lab based hands-on teaching and practical assignments given to students is in conflict –again in the views of some our interviewees- with the mainstream understanding and implementation of massive online courses. In addition, following the Humboldtian ideal of unity between teaching and research, the traditional concept of teaching that follows the research process is still very present at the ETH Zurich. Lecturers are in principle expected to conduct their research in the labs and bring new research findings to students in their lectures without significant course unit planning. Interviewees reported that with MOOCs or TORQUEs this kind of flexibility cannot be satisfactorily achieved because of the high labour input invested into their development in advance.

Regarding open research, it still remains a challenge to get researchers from leading research institutions to publish major research results in open access journals and not in the classical high-impact factor academic journals. Research and higher education policies in Europe that evaluate research outcomes based on scientometrics stay in clear opposition to policies that emphasize the openness of research.

The aforementioned Humboldtian tradition helps to explain why open education initiatives like MOOCs or Open Access Policies have had only limited importance so far within institutional strategies and practices in well-established traditional universities in Europe.

Nevertheless, the open education practices and strategic investment of institutions like ETH show that change is possible and that this change can have beneficial effects on learners. The future will tell if that change can influence the teaching and research traditions at the ETH or if it will be isolated to a small number of enthusiasts.

4. Case study 2: France Université Numérique

Abstract: This case study focuses on FUN, a policy initiative supporting the French 2013 Digital Agenda at higher education level, and FUN MOOC, the French MOOC platform, which became operational in 2013. The platform relies on public support (management and coordination of the platform, technical aspect and financial support to production), and MOOC production from higher education institutions. The case study shows that, although relatively young, FUN is a fast-developing initiative which has mainly reached young to middle-aged male adults, and which complements rather than replaces other forms of higher education. The platform has an international outreach but essentially focusing on French-speaking users.

List of interviewees:

Mrs Catherine Mongenet, in charge of FUN and coordinator of the FUN MOOC platform at the Ministry in charge of higher education and research

4.1 Introduction

In February 2013, the French government adopted a roadmap on the use of ICT for education (school and university level) and youth. The objective was two-fold: (1) provide access to a wide offer of online courses and programmes and (2) foster innovative pedagogies through the use of ICT.

As part of this roadmap a new University Act[8] was adopted in July 2013. This Act gives ICT an important place in the higher education system and requires that the public authorities in charge of higher education in France ensure that digital educational resources are available for its higher education students, with a priority given to open educational resources (hereafter OER)[9]. The provision of OER in higher education was an issue in France: in the early days of 2013, data suggested that the production of OER by French higher education institutions was lagging behind in comparison with other countries and the U.S in particular (80% of higher education institutions in the U.S offer online courses, while only 3% of French higher education institutions do)[10].

At policy level, addressing the OER gap became part of the priority actions of the 2013 'Digital Agenda'[11] for higher education, the five-year digital strategy of the Ministry in charge of Higher Education and Research. The Ministry announced that a key objective of this strategy would be that 20% of French higher education institutions produce OER within the next five years. This objective was to be supported through an initiative called 'France Université Numérique' (hereafter FUN) and the first French Massive Open Online Course (MOOC) platform FUN MOOC, both launched in October 2013. The rationales for this are multiple, and include cultural and philanthropic aspects, as well as to the widening of access to higher education, the facilitation of upskilling and economic competitiveness.

FUN MOOC is often presented as a part of the FUN initiative but it is actually an action supporting the same objectives as FUN.

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[8] LOI n° 2013-660 du 22 juillet 2013 relative à l'enseignement supérieur et à la recherche
[9] Art. L. 123-4-1
[10] As reported on 13 January 2013 by French national specialised Press Le Figaro Etudiant http://etudiant.lefigaro.fr/les-news/actu/detail/article/les-facs-francaises-se-lancent-dans-la-bataille-du-numerique-908/
[11] http://www.sup-numerique.gouv.fr/cid92925/le-numerique-au-service-d-une-universite-en-mouvement.html

4.2 Enabling conditions

FUN developed in a favourable context. Alongside the policy support and willingness to bridge the OER gap – as introduced in section 1-, at policy level OER in France developed based on the hypothesis that the use of ICT in education would improve students' learning outcomes, increase access to lifelong learning and promote the visibility and attractiveness of the French education and training offer[12]. Although the evidence behind this hypothesis is not developed in the policy documents reviewed, this rationale played an important role in the development of the OER policy in the country.

Moreover, the French higher education community was relatively ready to get involved. In the years preceding the launch of FUN, expectations of the 'digital native' student population in France were getting higher in terms of digital education provision and support. Higher education institutions reacted in integrating the use of ICT as part of their pedagogical strategy. According to several interviewees, this readiness is however relative given the 'passive resistance' from part of the teaching community to get involved in OER initiatives. This resistance is mainly due to the absence of recognition of teachers' involvement in producing OER (e.g. not taken into account for career progression) and intellectual property issues ('traditional' professors are not keen on the idea of sharing their teaching material as open resources, mainly because they fear it would make them lose 'ownership' of their material). One interviewee reported:

> "Nowadays in France University professors are mainly evaluated and rewarded according to their achievements in research rather than their teaching/pedagogical activities, or at least these activities are not rewarded enough. There is consensus that investing in digital pedagogy is time-consuming, therefore there should be a way to reward the involvement of teaching staff in digital pedagogy".

Moreover the pre-existence of the thematic digital universities (Universités Numériques Thématiques, hereafter UNT)[13] prepared the grounds for FUN. Created in 2003 by the Ministry in charge of Higher Education and Research[14], UNT are grouping of higher education institutions under a separate legal entity. Their initial purpose was to put at the disposal of higher education institutions and students' online educational resources validated by academics in various fields of study. More generally, the initiative aimed to support the promotion, the production and dissemination of validated digital teaching resources, produced by higher educational institutions, as part of a national resource pooling process. Such an approach has been thought to foster intra- and inter-institutional cooperation and to offer a support mechanism for the dissemination of higher education institutions' educational resources. The UNTs offer a pre-selected amount of educational resources for students, adults and professionals online and free of charge, with support from the State. Resources provided by UNTs may be free of charge (open or for members only) or for pay. As a rule, the resources produced by UNTs are not fully open; requests for re-use should be sent to the producing institution, unless specified otherwise.[15]

At the time FUN was launched in 2013, there were 7 UNTs that covered the following fields:

- Health and sport (UNF3S : Université Numérique Francophone des Sciences de la

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[12] http://www.france-universite-numerique.fr/france-universite-numerique-enjeux-et-definition.html

[13] New website: http://www.sup-numerique.gouv.fr

[14] Sous-Direction des Technologies de l'Information et de la Communication pour l'Education, SDTICE.

[15] http://univ-numerique.fr/questions-juridiques/comment-organiser-lexploitation-des-droits-de-propriete-intellectuelle-et-la-remuneration-des-auteurs/

Santé et du Sport)[16];

- Engineering and technology (UNIT : Université Numérique Ingénierie et Technologie)[17];
- Business and management (AUNEGE : Association des Universités pour l'Enseignement Numérique en Economie-Gestion)[18];
- Environment and sustainable development (UVED : Université Virtuelle Environnement et Développement Durable)[19];
- Human and social sciences (UOH : Université Ouverte des Humanités)[20];
- Law and political sciences (UNJF : Université Juridique Francophone)[21]; and
- Sciences (UNISCIEL : Université des Sciences En Ligne)[22].

Overall, over 20,000 resources (lessons, videos, exercises, etc.) are brought together on a common portal[23] and some of them are open courseware.

The fact that the edX software[24] (, a joint initiative between MIT and Harvard[25]) became open source on 1 June 2013 also played an important role in the development of the FUN MOOC platform. An interviewee reported that the status quo just before the release of Open edX software was that French higher education institutions were interested in participating in a MOOC platform but were not satisfied with the software solutions available at the time. Resistances disappeared right after the release of Open edX, as higher education institutions considered this software was in line with their needs and expectations (e.g. higher education institutions were not satisfied with the way participant' data was protected with the Coursera platform).

The Ministry in charge of higher education and research worked together with three public organisations (RENATER[26], CINES[27] and INRIA[28]) to conceptualise and develop the FUN MOOC platform using the Open edX software[29]. FUN MOOC was launched less than five months later at the end of October 2013.

4.3 Teaching

The French Digital Agenda is made up of 18 targeted actions articulated around three priority axes:

- *Better learning outcomes and employability:* this priority axe aims to enable students' success at all stages of their learning path. FUN aims to contribute to this through the provision of courses and pedagogical services (e.g. career guidance) potentially to everyone, at anytime from anywhere. Other activities

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[16] http://www.unf3s.org/
[17] http://www.unit.eu/fr
[18] http://www.aunege.org/
[19] http://www.uved.fr/
[20] http://www.uoh.fr/front
[21] http://www.unjf.fr/
[22] http://www.unisciel.fr/
[23] http://univ-numerique.fr/
[24] https://open.edx.org/
[25] https://www.edx.org
[26] The national research and education network RENATER (Réseau national de télécommunications pour la technologie, l'enseignement et la recherche) is in charge of managing the internet network aspects of FUN MOOC
[27] The National Computer Center of Higher Education (CINES - Centre Informatique National de l'Enseignement Supérieur) is hosting the FUN MOOC platform
[28] The French Institute for Research in Computer Science and Automation (INRIA - Institut national de recherche en informatique et en automatique) is taking care of the software aspects of FUN MOOC.
[29] https://tipes.wordpress.com/2013/10/02/le-portail-et-la-plateforme-mooc-de-france-universite-numerique/

under this strand are university-business cooperation, validation of non-formal and informal learning, etc. (for further details see actions 1-5[30]);

- *Facilitate pedagogical innovation:* this aims to make ICT part of the teaching practice and facilitate student-centred learning in higher education (see actions 6-11[31]);

- *Openness and international attractiveness of French higher education:* make university more open to international (essentially French speaking) students and attractive, also to workers and the unemployed, (see actions 17 and 18[32]).

Additionally, FUN aims to contribute to modernisation of the French higher education strategy 'Campus d'@venir[33]', which foresees to deploy up to 20 billion Euro over five years (i.e. until 2018) for higher education institutions, in the form of savings fund loans. This strategic plan is meant to support four main priority actions: to renovate higher education campuses; to foster the 'digital university'; to strengthen the offer for student accommodation and to support innovation (see actions 12-16[34]).

For further details on the 18 Digital Agenda targeted actions, see Annex 1.

The FUN MOOC platform provides courses from French higher education institutions. Most courses are in French, but it is not a mandatory language. Universities are free to develop their MOOc in French or English. The courses are available to users of the platform upon registration.

Regarding the profile of participants, analysis of the data collected in the platform at the time of registration suggests that:

- More men than women registered to the platform (56% vs 44%)

- Most participants (64%) are in the age group 25-50 years old

- The vast majority of participants hold higher education qualifications: 47% of participants holding Master's degrees (including engineering degrees)

In terms of its geographical spread, and whilst most intakes are from participants based in Europe, FUN MOOC attracts participants from all around the globe (with the second highest rate - 17% - of participants being based in Africa) – The rate of participants from Africa is in line with the clear priority given to the 'francophone' remit of FUN MOOC.

In addition to the data gathered at the time of registration, in 2014 FUN MOOC surveyed its registered users. About 8,000 responses were collected but results are not publicly available.

Regarding quality assurance the FUN MOOC Operational committee on content and use is in charge of the overall contents available on the FUN platform. Course providers have to comply with a quality assurance charter, which highlights three main principles:

- Setting up of a collaborative team, overseen by the main (teacher) in charge of the MOOC, which offers appropriate pedagogical and technical competences (e.g. guided by a clear roadmap; documents outlining the composition and their respective competences and roles, etc.)

- Producing pedagogical tools (videos, texts, images, etc.) in compliance with key pedagogical objectives and the terms of the MOOC project (e.g. building upon specifications of a pedagogical, technical and deontological nature; ad-hoc

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[30] Source: http://www.france-universite-numerique.fr/18-actions.html , last checked on 19 March 2015
[31] Ibid
[32] Ibid
[33] http://www.enseignementsup-recherche.gouv.fr/cid71439/convention-de-partenariat-pour-les-campus-d-@venir-avec-la-caisse-des-depots.html
[34] Ibid

validation procedures for the pedagogical tools and their content, etc.);

- Offering services and activities adapted to a large number of participants (e.g. including (self-) evaluation functionalities, interactive tools, etc.).

Regarding accreditation and recognition, as a general rule a certificate of completion is offered in relation to all courses on FUN MOOC, unless the course provider specified otherwise -e.g. higher education institutions may not want their name/logo appear on a document attesting completion of a MOOC course.

In spring 2014, courses on FUN MOOC were piloted for student evaluation. This entailed participation in an examination, under the supervision of a service provider specialised in distance examination. The control included checking the identity of the person taking the exam and checking that the person was alone in the room, distance control over the computer of the student taking the exam to ensure they had no access to external resources, etc. The test proved successful, opening the door to potential accreditation of course offered to FUN MOOC. Based on this pilot, FUN MOOC launched a call for tender for new courses in the autumn of 2015. The exam/certification process of these courses is available in the platform. The first exams started in May 2016 and the first verified certificates are planned to be delivered end of May 2016.

In cases where the operations of the distance examination service providers would not be possible, FUN will work in partnership with local-based institutions, e.g. some examinations in Africa will take place at the premises of the Francophone University Association (AUF – Agence Universitaire de la Francophonie).

4.4   Research

FUN is not a platform for cooperation in the area of research.

4.5   Strategies

The business model of FUN MOOC relies mainly on public funding (human and financial resources) and contribution from participating higher education institutions (both public and private).

There is no readily available information on the budget of FUN or FUN MOOC. FUN is mainly supported by the 'Investissements d'Avenir' Programme[35]. The Ministry in charge of higher education made available an additional 8 million EUR to support production of quality MOOCs through calls for projects as part of the 2013-2018 digital agenda: in 2014 the call for projects CreaMOOCs made 3 million EUR available to help higher education institutions get the right equipment (hardware and software) to support the production of MOOCs; 5 million EUR are also available to support MOOCs initiative in vocational training.

Data gathered during desk research and interviews suggests that 1.2 million EUR were invested in the second half of 2013 to design, develop and launch the FUN MOOC. Since then the annual budget of FUN MOOC (in 2014 and 2015)[36] has been around 1.4 million EUR. This includes mainly hardware and software investment as well as human resource – related costs[37].

There are no costs associated with the use of Open EdX software, since this is open source. Additionally the FUN MOOC platform is managed by a team of three staff members at the Ministry in charge of higher education and research. Production costs

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[35] 12 million EUR are foreseen as part of the Investissement d'Avenir Programme, but the exact amount dedicated to FUN is unknown.

[36] The budget for 2016-2018 is unknown.

[37] This includes the employment cost of the FUN team (about 12 people). CINES, RENATER and INRIA also invested human resources in the beginning of the initiative in 2013 but do not do it anymore since 2014.

are borne by the higher education institutions, but higher education institutions are supported by the Ministry in several respects:

- Organization of training sessions: More than 500 people (academic and technical staff) have been trained since Sept. 2013, including on how to use the platform

- Support for MOOC conception and production, including regular meetings with the production teams, guidelines and quality requirements, production methodology and processes, support on intellectual property, helpdesk for academic teams and learners, and organization of working groups on various topics (certification, accessibility, etc.).

- Monitoring: surveys to collect data about registered users and course participants and data analytics

- Organisation of participatory events bringing together users, producers and Ministry officials to discuss future development of FUN MOOC, such as the 'MOOCamp' Days in June 2014[38] and the hackathon openEdX in May 2015[39].

FUN and FUN MOOC are steered by the following structures[40]:

- FUN MOOC Operational committees (taking place during the 'launch' period): FUN MOOC is steered by two operational committees (comités opérationnels) composed of academics and technicians from participating institutions as well as members of the FUN team. One committee steers the operational aspects of the platform and the other one focusing on content and use. In August 2015 an independent public organization (Groupement d'intérêt public – GIP FUN MOOC) was created to look after operations,

- FUN Strategic Committee: The FUN strategic steering committee oversees the FUN initiative.

FUN MOOC also relies on involvement of all stakeholders of the higher education 'ecosystem': students, pedagogical teams, professors, researchers, public authorities and enterprises.

4.6   Outcomes and impact

When FUN MOOC was launched in October 2013, 25 MOOC from 10 contributing higher education institutions were available. The first courses started in January 2014. After one year[41], 29 higher education institutions contributed their MOOCs to the FUN MOOC platform, 400,000 people had registered to the platform, and 53 courses were available online. Since then the number of courses has doubled: there are more than 190 different courses offered in the platform, some of which have run several times.[42] The total number of course registrations reached 1,800,000 in July 2015.

By July 2015, the number of participating institutions had reached 50 institutions (among which a majority were higher education institutions –including international partners- and research organisations such as INRIA).

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[38]   https://storify.com/universite_num/moocamp-day-14-juin
[39]   http://hack.openedx.fr/
[40]   https://tipes.wordpress.com/2013/10/02/le-portail-et-la-plateforme-mooc-de-france-universite-numerique/
[41]   These figures were communicated to celebrate the first anniversary of FUN MOOC in October 2014
[42]   Out of the 140 courses on FUN as of 1 July 2015, 34 have been run twice and four have run three times.

Table 1: Key figures on participation in FUN MOOC

Milestone	October 2013 (launch)	October 2014 (Y+1)	Dec. 2014	July 2015
Total number of registered users (number of FUN accounts)	0	Not available	317,407	374,173
Total number of course registrations	0	400,000	716,032	888,173
Total number of courses (including re-runs)	25	53	134	140
Total number of institutions	10	29	43	50

Source: FUN website, Ministry in charge of higher education and research

The team managing the FUN MOOC platform at the Ministry in charge of higher education and research receives on average 10 projects of MOOCs per week. The Ministry comments on the projects and once ready three to five new MOOCs are put online every week. The rate[43] of completion of the courses offered on FUN MOOC is about 10%.

4.7   Challenges and prospects

Interviewees unanimously agreed that the main challenge to the further development of FUN MOOC is still the 'passive resistance' of the higher education community (academics). In a system in which professors are more recognised and rewarded for their research than their teaching activities ('enseignants-chercheurs'), the fact that contribution to MOOCs is neither formally recognised nor rewarded by the hierarchy (e.g. career progression) has remained a barrier to participation in MOOCs. While contribution to MOOCs may be motivated by increased (international) visibility of the teaching activities, this does not seem to be the case in France, where contribution is motivated by personal interest of the contributors in being part of the MOOC movement.

Interviewees also reported that the attachment of France to the spirit of 'free' higher education and MOOCs made it very unlikely that FUN MOOC moves from an entirely free platform and offers 'freemium' (additional pay-for services to sustain free participation in MOOCs).

4.8   Conclusions

Overall FUN MOOC provides a good example of a prompt national policy response to the development of MOOCs at national level and to the needs of French higher education institutions. The design, development and launch of the platform was made possible by the interest of the higher education community, the possibility to use the Open edX software and policy support, including the existence of the UNTs, which prepared the grounds for FUN.

FUN is still a young initiative, but the first monitoring data collected suggests that participation is line with the trends observed in other MOOC platforms: relatively low completion rate and participants mainly already holding a higher education qualification. The specificity of FUN MOOC is the priority it gives to content in French to reach French-speaking participants internationally, including in developing countries. FUN MOOC is still very much dependent on public funding. It is not clear which amount of funding will be available to sustain the initiative until 2018, and whether it will continue afterwards.

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[43]   Number of certificate of completion awarded as a share of the total number of enrolments in a course.

Further information and references

FUN: http://www.france-universite-numerique.fr/

FUN MOOC: https://www.france-universite-numerique-mooc.fr/

FUN on Twitter: https://twitter.com/universite_num

FUN on Facebook: https://www.facebook.com/france.universite.numerique

Presentation of FUN by Catherine Mongenet at 'Rencontres du développement', University of Liege (Belgium) on 27 January 2015 https://www.ulg.ac.be/upload/docs/application/pdf/2015-02/mongenet-etat_des_lieux_et_enjeux_internationaux.pdf

Anne Boyer, 'Les Universités Numériques Thématiques : Bilan' in Sciences et Technologies de l´Information et de la Communication pour l´Éducation et la Formation, Volume 18, 2011 http://sticef.univ-lemans.fr/num/vol2011/11r-boyer/sticef_2011_boyer_11r.htm

Jean-Marie Gilliot, Télécom Bretagne on his blog TIPES (Techniques innovantes pour l'enseignement supérieur) in 2013 https://tipes.wordpress.com/2013/10/02/le-portail-et-la-plateforme-mooc-de-france-universite-numerique/

LOI n° 2013-660 du 22 juillet 2013 relative à l'enseignement supérieur et à la recherche http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000027735009&categorieLien=id

5. Case study 3: OERu

Abstract: The OER Universitas (OERu) is a consortium of higher education institutions set up in 2011 to mainstream the adoption of open education by educational institutions worldwide. It offers self-standing courses and is working on the offer of an undergraduate programme (Bachelor of General Studies). It requires that its member institutions are recognised by qualifications authorities in their jurisdictional regions, and caters for 'free learners', who participate out of self-interest and without a desire for academic credit, students who desire some kind of recognition (certificate of achievement or attendance) and those who desire formal academic credit –through recognition by its partner universities. While research has not been, so far, a priority activity for OERu, the institution adheres to the principles of open research, and it is unusually open in relation to its operations: all key OERu management information is available from the web.

One of OERu novelties is that it operates what it calls a "sustainable disaggregated service model provision" whereby contents are provided at no cost; support and technology services are funded through OERu member contributions; assessment services are provided to learners on a cost recovery basis by partner institutions. OERu reported that member institutions benefit from participation in the consortium by increasing their visibility, attracting new students, sharing resources and technologies, and increasing their networking opportunities. Some aspects are pressing in the short and medium term for the OERu. While the formal accreditation is important for OERu, this has only been marginally used, and it will be necessary to monitor progress in this respect. There is also a need for greater evidence regarding the educational progression or labour market outcomes produced by its activities. Greater language diversification in terms of the content offered and partners of the consortium would also enhance OERu, which has so far been largely Anglophone-based.

List of interviewees*:*

> Prof. Clive Mulholland, University of Highlands and Islands, Scotland.

> Prof. Jim Taylor, Member of the Board of Directors, OER foundation.

> Dr. Irwin DeVries, Thompson Rivers University.

> Dr. Wayne McKinstosh, Director, OER foundation.

5.1 Introduction

Set up in 2011, the OER Universitas (OERu) – a charitable organisation- is an initiative of the OER Foundation, whose aim is to mainstream the adoption of open education by educational institutions around the world. The implementation of the OERu is also a formal project of the UNESCO-COL OER Chair Network (OERu 2014b), and has – additionally- received funding from the William and Flora Hewlett Foundation, whilst Otago Polytechnic covered its initial budget deficits. Interviewees reported that the OERu emerged from a desire to make higher education more financially sustainable and affordable, in order to widen participation. The OERu associates itself with access, equity, affordability and sustainability in education. Amongst other target groups it aims to support those learners worldwide who would like to take part in higher education but do not have access to it, due to the costs of standard higher education provision or other reasons. The OERu is based on the idea that networks add value in the area of OE:

> *"Partnerships like OERu that share expertise and infrastructures are essential, because single institutions cannot make it on their own. They have many other priorities and limited discretionary resources"*

OERu partners include not only universities, but also other higher education institutions (HEIs) and foundations. Figure 6 below provides an overview of the OERu concept[44].

Figure 2: The OERu concept

Source: http://wikieducator.org/OERu/About#cite_note-1

5.2   Enabling conditions

The OERu was born out of institutions that were early adopters of open education practices: Otago Polytechnic, where the founder of OER Foundation worked, was the first tertiary education institution in the world to adopt a Creative Commons intellectual property policy. This is indicative of the support for open education in the institutions where the OERu started. Interviewees approached for this case study often referred to "visionary leadership" at institutions such as Otago Polytechnic and the University of Southern Queensland, as the key factor in getting the OER foundation and the OERu running. Leadership has the capacity to allocate resources and drive the process; it can capitalise on "pockets of engagement" that may exist at different levels within the HEI.

The OERu was set up as an independent organisation in order to give it freedom to develop and incorporate different types of higher education institutions. Most institutions interviewed for the case study saw joining the OERu as the "natural thing to do" and a continuation of their interest in distance learning. Often such interest in distance learning derived from the composition of their student population (with significant numbers of mature students), or even from the nature of the institutions –e.g. having a number of campuses in remote areas. This is suggestive of the importance of open distance learning for openness in higher education.

5.3   Teaching

All OERu teaching is based on OER. OERu's definition of OER for teaching encompasses the following characteristics:

- Materials should be available for learners at no cost.
- Freedom to adapt, reuse and modify resources without restriction, including the possibility to use them for commercial purposes.
- Technologies used for the development of materials should be as far as possible in open and editable file formats.

The OERu makes learning materials available online (without a password being required). Continuous connectivity is not a requirement, as materials can be converted into pdf format and used offline.

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[44]   Volunteers can be students, retired academics, academics, small businesses, professional bodies that will facilitate peer-to-peer learning, provide generic student support, help build capacity and help learners develop as more independent and experienced OER learners. For more information see http://wikieducator.org/OERu/2011.11_OERu_Proposal_for_action_for_Academic_Volunteers_International

The OERu offers individual courses. In addition, a full undergraduate (Bachelor of General Studies) programme is the agreed focus for the first credential to be offered by the OERu. Interviewees reported that the current priority for OERu is to expedite the development of a "First Year General Education Component" as the foundation for this multi-disciplinary degree, with potential exit points including a Certificate in General Studies and a Diploma in General Studies. OERu are also preparing postgraduate programmes that could be taken fully at the OERu. These will be examples of "open curriculum", based exclusively on OER. It should be noted that the kind of recognition that the final shape of this degree would have is not fully clear; for example may Middle Eastern countries do not recognise degrees from distance learning activities/ institutions. OERu interviewees noted that an important task for the institution and for OE more generally is to make students ready for higher education, through preparatory courses (foundation courses), to widen participation. OE can help in upskilling these students without incurring a significant financial debt, for instance by means of the use of open textbooks.

The OERu endorses new pedagogies, such as Taylor's (2007) pedagogy of discovery, based on independent self-directed learning and related to the discovery, use and evaluation of OER. These pedagogies question traditional teacher-directed pedagogies through the use of technologies. The OERu is also based on the premise that learning as part of a community is more effective and enjoyable than learning alone, and is working on setting up structures that enable interactions amongst students. For instance, in a short prototype trial of an open course in sport psychology, seven Master's degree students contributed to the online learning interactions and acted as tutors/ mentors. There is potential for students to gain formal credit through such community service-learning experiences.

Both the OERu (through the development of guidelines, which the OERu hopes members will progressively approve for implementation –see OERu 2014a) and individual members work on the quality assurance of the OERu offer. OERu's view is that all institutions involved with the OERu should have an interest in keeping the standing of their credits/ qualifications and the reputation of their teaching. In addition, the OERu requires that institutions in the network be recognised by qualifications authorities in their jurisdictional regions.

5.4   Research

The OERu also has an open research side. Its research is function-orientated to support and inform the implementation of the OERu. Any research done around the OERu or with which the OERu collaborates has to be open –see, as an example, Conrad et al. (2013) in relation to assessment and accreditation of informal learning using Open Education Resources, with particular attention to the OERu consortium. All the data the OERu collects for its research (normally research that is function-oriented and helps to support the organisation) is open data. In the future, OERu hopes that institutions and tutors will make greater use of open access journals to publish their research.

5.5   Operations

The OERu is very open in terms of its operations. OERu reported to subscribe to the principles of Open Philanthropy, and to welcome all genuine contributions to its decision-making and collaborations. The OERu considers the different aspects of openness (teaching, research and operations) to be similarly important, as they all form part of an open ecosystem, and have different levels of importance at different times. As one interviewee noted:

> "[…] you need to address multiple agendas to embed open education in institutions"

The openness of OERu is based on the provision of information about what it does on the web (in particular its WikiEducator), the use of information technologies for participatory decision-making, clear explanations for users on how to get involved with OERu activities and the existence of multiple channels for user feedback.

All key OERu management information is available from the web. Its WikiEducator[45] contains a wealth of information about OERu news, meetings and activities. The WikiEducator is a tool that aids to OERu's planning of educational projects linked to its activities and networking of funding proposals, amongst other aspects.

OERu's strategic plan is reviewed annually at the OERu partners meeting drawing on the outputs of OERu's working groups for the corresponding period of review. Each year the strategic goals of OERu are reviewed, operational priorities for the forthcoming year are identified and key performance indicators are recalibrated. The strategic plan is a public document accessible online[46]. OERu is using the Context, Input, Process and Product Evaluation (CIPP) model (Stufflebeam 2007[47]) with the aim of facilitating decision-making that underpins the project. The input evaluation phase of the project has just been completed. Consistent with OERu's open management philosophy - through which organizational information is made openly available (normally through institutional websites) and new technologies are used in decision-making processes to become open to wider audiences and engage stakeholders-, an aggregated version of the results is available online.[48]

OERu is guided in its decision-making by the principles of 'rough consensus' of participants, and OERu tries to use new technologies to enable participation in/ attendance to its decision-making meetings by a wide range of stakeholders; OERu engages in open planning consultations in a proactive way. As an example, the initial discussion on the OERu proposal was streamed live for 202 participants.

Users of the WikiEducator can get involved with OERu's work in a variety of ways. For example, the Wiki includes a page with a 'things to do list', which outlines tasks that OERu is planning to complete –in July 2015 these included a number of technical aspects, but also governance issues such as 'provision of feedback on our draft Governance policy by posting on the discussion tab' of the page where this is made available, 'visit our Wishlist page for a growing list of community needs' or 'establish an editorial board for WikiEducator (or will this be part of the WikiEducator Council's duties)'. Users can help out to complete those tasks. Users can also get involved in OERu's activities by becoming a WikiEmbassador –who promote the WikiEducator and also identify and implement innovation in it.

The OERu Wikieducator has links to mechanisms for the provision of feedback, as well as discussion venues (such as the OERu mailing list and its webchat), and the 'discussion tabs' in its pages.

New OERu Oninegroups[49] and new OERu Community[50] sites aim to engender open communication between institutional partners and the broader open education community.

The open management model of OERu is working well according to the results of the 2015 OERu Input Evaluation Survey, launched to inform future design decisions[51].

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[45] https://wikieducator.org/Main_Page
[46] http://wikieducator.org/images/6/68/OERu_strategic_plan_2015-2017-Fin-Approved.pdf
[47] https://www.wmich.edu/sites/default/files/attachments/u350/2014/cippchecklist_mar07.pdf
[48] https://usqadfi.au1.qualtrics.com/CP/Report.php?RP=RP_2gZSaQVfomq2C1L
[49] http://groups.oeru.org/
[50] http://community.oeru.org/
[51] http://oeru.org/news/oeru-launches-input-evaluation-survey-to-inform-design-decisions-for-future-success/ The survey could be answered by OERu members (85% of

Table 2: OERu's input evaluation survey results to question: How would you rate the value of the following "distinctively open" planning practices of the OERu? –please rate from 1 to 5, with 5 referring to highly valuable**.**

	1	2	3	4	5	Average
Open publishing of all the agendas and meeting reports of working groups, committees and partner meetings in the Wiki	1	3	7	14	27	4.21
Transparent development and on-going refinement of the OERu Strategic Plan 2015-2017 in WikiEducator as an "evergreen" plan that is adapted and modified as new information comes to hand	0	2	11	14	25	4.19
Information on OERu activities and initiatives being open and transparent to every member of the network and the open community	0	1	5	16	30	4.44
Everyone being allowed and encouraged to contribute including volunteers from outside the OERu partner network	0	4	8	17	23	4.13
All decisions being made in open and cooperative ways	0	1	5	24	22	4.29
Principle of meritocracy where leadership roles in the community are earned through experience and contributions to the OERu	1	0	9	22	20	4.15
Building trust through transparent processes and open decision-making	0	2	1	19	30	4.48

Source: OERu 2015 Input evaluation survey (52 responses)
https://usqadfi.au1.qualtrics.com/CP/Report.php?RP=RP_2gZSaQVfomq2C1L

5.6   Strategies

The OERu disputes the logic that open education may not be financially sustainable. Instead, their premise is that traditional higher education will not be sustainable in many countries. The costs of higher education have been rising beyond the rate of inflation in many countries, OERu argues, for more than a decade, and this trend is not sustainable. Instead, open education OERu sees open education as sustainable because –OERu claims- it operates through radical cost reduction and more efficient use of resources through 'fee for service' models in which students/ public institutions only pay for the services that they use. As such, the OERu aims to reduce the costs of obtaining a degree by 75%. Its logic model is outlined in Figure 7.

the 52 respondents to the survey) and prospective partners and individuals interested in shaping the future of OERu (15% of the 52 respondents to the survey).

Figure 3: The OERu logic model
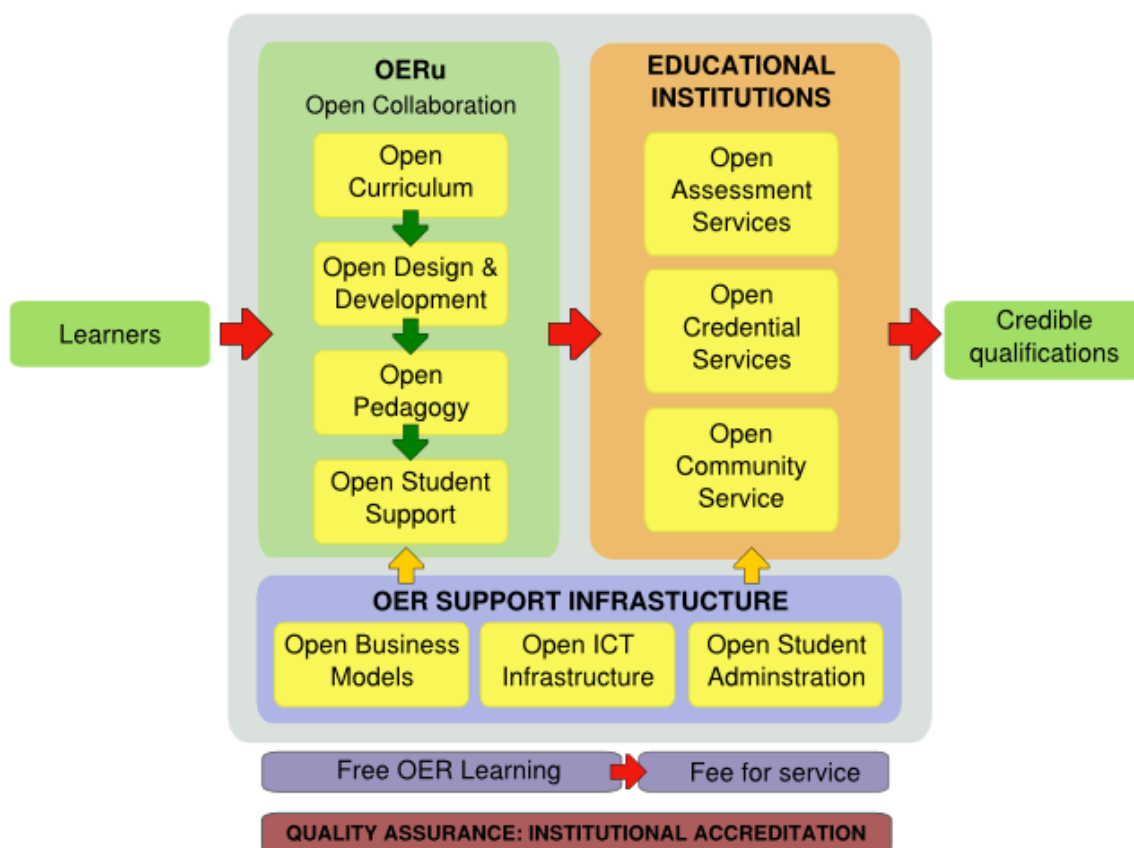
The central infrastructure costs of the OERu are roughly US$200,000 per annum. The OERu has developed what they call a "sustainable disaggregated service model provision", which it is currently employing. Whereas a traditional HEI charges one fee to cover all the services it provides (student services, tutorial services, teaching, examinations, etc.) the OERu disaggregates these elements:

- Content services are provided at no cost to the user, which can be done because they use OER

- Support and technology services hosted through a central infrastructure and the web –which is funded through the contributions of the members of the OERu network ($4,000 per year for 'gold members', which is the most popular type of membership);

- Assessment services are offered to learners on a "cost recovery bases[52]" (for administrative costs for credentialing services, assessment time, etc.) by partner institutions –which thus do not need to find additional resources for assessment. They may also be funded by grants from Ministries of Education. OERu partners retain decision-making autonomy and the fees charged per assessment thus vary by institution. As an example, the fee at the University of Southern Queensland is Aus$200. OERu reported that the range of fees charged by institutions is due to be discussed. Assessment requires specific resources for it to be credible and this is why payment for assessment is considered essential. New models for assessment payment that OERu partners are using include payment per

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[52] http://oeru.org/organisation-faqs/

assessment "as you go", rather than payment for a whole course upfront. Formal assessment fees are much lower than normal tuition costs for full time study. All OERu courses provide the option of assessment toward academic credit at one of the OERu partner institutions. Tutoring may also be available on a cost-recovery basis.

The OERu reported that in 2015 it will become a financially self-sustainable organisation, based on the contributions of its current 33 contributing partners, without reliance on donor funding. This is seen as a significant achievement for the organisation. OERu aims to have 70 contributing partners by 2017.

In addition to the payment of a yearly membership fee, institutions also commit to contribute one person (0.2 full time equivalent -one day per week) to work on the development and maintenance of the courses that they contribute to the network. The OERu requires that member organisations engage in the use of OER designing and assembling a minimum of two open courses –prioritising assembly from the organisations' existing OER. In certain occasions, funds for the development of OER may come from existing social justice or widening participation budgets, without HEIs needing a new budget line for open education initiatives. In some cases, HEIs may have obtained funds from government in order to pursue OE initiatives –this has been the case, for instance, in Wales or Scotland.

According to OERu, HEIs can offset the costs of production of open education materials in a variety of ways. These may include: using OE resources to teach courses that they could not otherwise teach on campus due to their low enrolment, or to attract new students –OERu envisages that some students who take OE courses may want to complete the last year or two years of a programme with them to obtain a full qualification via recognition of prior learning. OERu reported that HEIs also see the benefits of mutual sharing of open resources (as this reduces the costs of content production for face-to-face courses through collaboration), infrastructures, technologies as this has the potential to enable HEIs to operate more efficiently than through teacher-led pedagogies and through the development of materials at each institution to teach largely similar courses.

The OERu business model also includes the coordination of volunteer services supporting organisational planning and development. As a non-profit organisation, any surplus made by the OERu –for example if the membership fees generated exceed the costs of the OERu's central activities- is invested back into activities that benefit the network, such as the commissioning of the development of new OERu courses in new key areas.

OERu participated in various projects related to business models, such as the Creative Commons' Open Business Models[53] project, and has generated a range of ideas for OERu Open Business Models, which are available for review online[54].

5.7 Outcomes and impact

5.7.1 Students

The main types of outcomes for students produced by OERu are participation in higher education/ learning, the achievement of formal recognition (for instance a certificate of achievement or a certificate of attendance) and achievement of academic credit – although performance in relation to these various aspects has been uneven, as outlined

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[53] See: https://docs.google.com/document/d/16XMIIvy_cz191l6KosgUMFtUK7lTdlzKme3WskwiuSA/edit?pli=1

[54] See: http://wikieducator.org/OERu/Open_business_model_canvases/Aggregated_OERu_partner_canvas

below. OER aims to make the achievement of credible academic credit possible, and requires parity of esteem in all aspects of credits awarded –for instance, certificates should not specify the modality of learning.

If a student takes an OERu course, the credit achieved could be transferred to and recognised by other HEIs in the network. Many OERu partners have recognition of prior learning protocols, although this tends to be done on a 'case-by-case' basis, and recognition of credit transfer systems. On the other hand, to date, the number of students who have achieved credit through the OERu is only one (who got credit for a University of Southern Queensland course recognised at Thompson Rivers University in March 2014). While this is a small number, the OERu argues that this experience shows that the model can work.

OERu plans to set a target date during 2016 to launch the equivalent of 5 full courses (each a 3 credit equivalent in North American terms) including (in some cases) component micro-courses. The aim will be to promote the selected courses/micro-courses in a public curricular framework, constituting a free first year of study incorporating clear pathways to gain transcript credit from a number of partner institutions. With a public launch of a "Free First Year of Study", supported by marketing and publicity by partner institutions, OERu aims to recruit a sufficient cohort of students to implement a meaningful "Process Evaluation" and "Product Evaluation" during 2016 and find out how these experiences could be scaled up.

Another outcome of the work of the OERu is the use made of the materials that it makes available. Its Wikieducator –used by OERu for developing and hosting of OER courses, as well as a number of other activities- serves around 3 million unique users per year –and Wikieducator users may make the open education materials that they use available to others. In 2015 the Open University (UK) reported that OERu was accessed by over 200,000 people from around the world each month[55]. The Wikieducator is one of the top 100k most popular websites in the world, so there is good evidence of use. There is, on the other hand, so far little reliable evidence in terms of the impact of OERu participation on progression and employability.

5.7.2 Higher education institutions

OERu reported, based on results from a survey of its membership, that the main motivation for institutions to join the OERu is that it provides them with access to an international network and brand visibility –as some HEIs may use the OERu as a platform to make their open courses known. A second factor is that they become better able to widen access to higher education and attract new students –which is part of OERu philanthropic mission too. Third, they can explore new business models and get to know business models used by other members that may inspire them: the network enables its members to re-think their business models with regards to open education.

Another key benefit reported by OERu members is the possibility of institutional collaboration. This can be seen, for instance, in the use of common resources and OERu technology –which tackles issues of compatibility, etc. This may entail sharing open courseware and/ or open source software expertise, cooperative development of innovative open pedagogies, expertise on associated assessment services; joint course development and possible joint delivery of courses.

The OERu aims to provide a low-cost/ low risk but high impact way to innovate and share experiences with other organisations. Using open educational approaches, the OERu argues, institutions can lower the costs and save time needed to produce high quality courses to target underserved markets and diversify their curriculum offering.

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[55] http://oeru.org/news/ou-joining-oeru/

OERu interviewees also noted that there is a great need regarding up-skilling of academic staff in the production, search and use of OER, which participation in OERu helps to meet:

> *"Comparing the development from course 1 to course 2 within an OERu partner institution, the results are worlds apart. There is a clear need for the development of capabilities in open design in higher education"*

The OERu reported that it facilitates access to high quality learning materials for the development of open courses. The OERu aims to build HEIs academic staff's capacities, not only on technical, but also educational, matters. As one interviewee noted:

> *"Take the case of open assessment, for instance*: if students are posting their assignment answers on the open web, how do *you manage the risks of plagiarism? What are the implications for reliable assessment design?"*

Interviewees reported that just by developing a small number of courses, HEIs develop their capacity to innovate significantly –as those experiences can then be shared within the institution and attract new members of staff to open education practices.

Finally, one of the main benefits for institutions as reported by OERu, is to have a chance to return to the core values of academia, which are about knowledge sharing.

5.8   Challenges and prospects

A central challenge for the OERu is to maintain and expand its membership, and a high degree of engagement amongst its members. Comprehensive data related to barriers to participation in OERu is available from OERu input evaluation survey[56]. The survey revealed that competing demands on time and resources at the institutional level are the most important obstacle for engagement with OERu. Various aspects related to lack of expertise and know how (absence of exemplars, lack of expertise/ experience in designing materials for mobile devices, open education practices, cooperative design models and technology) also ranked high. Various aspects of the OERu's model also need to become clearer, according to survey respondents. OERu is currently looking at ways to address these challenges.

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[56]   https://usqadfi.au1.qualtrics.com/CP/Report.php?RP=RP_2gZSaQVfomq2C1L

Table 3: To what extent are the following barriers or obstacles restricting your organisation's participation in the OERu?

(Please rate from 1 to 5 with 5 referring to the most significant)

	1	2	3	4	5	Average
Competing demands on time and resources to maintain OERu project momentum	1	2	8	20	21	4.12
Lack of exemplars of OERu courses which demonstrate the end-to-end process from course nomination, through to design, delivery and awarding of credit	10	7	12	11	12	3.15
Varying levels of staff expertise/ experience in designing materials for mobile devices	4	11	16	16	5	3.13
Varying levels of staff expertise/ experience in OER and open education practices (e.g. copyright, finding OER, etc.)	5	9	17	17	4	3.12
Varying levels of staff expertise/experience in open and cooperative design models	3	13	15	18	3	3.10
Technology challenges associated with staff experience and expertise in using OERu hosted technologies (e.g. Mediawiki and associated delivery platforms for centrally hosted courses)	8	10	16	9	9	3.02
Lack of understanding and clarity of the OERu model	9	10	13	13	7	2.98
Challenges with understanding and navigating the open planning pages in WikiEducator	7	12	19	6	8	2.92
Lack of accountability for non-delivery of agreed contributions	10	10	16	7	9	2.90
Internal resistance to award formal academic credit for OERu courses	14	8	19	6	5	2.62
Lack of guidance and support for new partners who join the network	14	12	13	7	6	2.60
Lack of support from senior leadership at my organisation for participation in OERu activities	12	15	14	7	4	2.54
Lack of continuity in senior management roles at the institutional level	18	9	13	4	8	2.52
Lack of clarity in the process for participating in the OERu	14	13	14	7	4	2.50
Fear that the OERu may compete for students at our institution	20	14	12	3	3	2.13

Budgetary and sustainability challenges are related to membership issues; additionally, and as already mentioned, OERu is currently exploring a range of funding models for open education.

A further challenge is that, according to interviewees, policy is typically reactive, following, rather than stimulating, innovation and changes emerging from open practices. However, it can also facilitate it. They reported that, for example, a policy that required that if a product (teaching-related; research-related) is fully or mostly funded by public money it should be released openly should be adopted across countries. This principle –which would not require any additional public funding- would have a major impact according to OERu, as it would make OE the default, not the exception in a number of countries. As one interviewee argued:

> *"Why should taxpayers have to pay twice for educational resources?" "Research funded by government should be public under an open licence. Teaching is more complex, but for instance encouraging the use of open access journals, open textbooks for foundation courses, etc. should be prioritised"*

OERu's vision is that all HEIs worldwide will adopt OER, because of the leverage it provides, compared to closed educational resources:

> *"It is not millions of teachers that need to buy into this idea. How many people are required to develop an OER for first year econometrics? Four-five people would get it right in a very short period of time […] judging by the speed at which innovation is taking place, it will be no more than a decade or two before we see OER mainstreaming".*

A significant challenge will continue to be related to technology and ICT tools, as open education requires unique technologies in terms of scalability. An example of a contribution in this area is that the OERu foundation was selected as a mentoring organisation for the 2014 *Google summer of code* and called students to develop suitable tools for peer evaluation, which are currently lacking (OERu 2014c). Designing for reuse and technological change in order to make systems compatible is another recurring challenge.

Besides technical challenges there are also cultural challenges related to individual and organisational changes of philosophy and practice. Again, policy can be of help in this respect. OERu referred to how in the area of research some initiatives like the Research and Excellence Framework (REF) in the UK have enhanced openness, as institutions and individual academics have been incentivised to make use of open repositories in an attempt to increase the "impact" of their research, which is a key area of assessment in the REF. Future REF exercises are likely to put more pressure towards open research.

5.9   Conclusions

There are normative ("it is the right thing to do, an ethical position") as well as business reasons (related to cost-reductions, marketing, widening participation and attracting new students) for institutions to get involved with the OERu. OERu interviewees agreed on the importance of commitment at the highest level for open education. The OERu has been successful in increasing its membership in a short period of time and in ensuring "buy in" from leaders of HEIs. This is a requirement for the organisation to be able to operate and continue to work on its mission to mainstream open education. It should nevertheless be noted that membership of the OERu has not been equally attractive to different types of HEIs: most institutions associated with the OERu are distance learning HEIs or institutions that have a substantial proportion of adult learners. Top-ranking universities are much less prominent in the network. Moreover, European universities have so far not been particularly active in joining the network, or in taking a lead on its activities. The exceptions to this norm come from the UK.

The OERu has not undertaken any research on the relative lack of engagement of institutions in mainland Europe, but anecdotal evidence suggests that language may play a role. The OERu network is predominantly Anglophone, and this is a challenge for those institutions not teaching in English. Another factor is that in mainland Europe the OpenupEd network has a very strong attraction. It started as a purely European initiative. It should be noted that many networks have exclusivity agreements –so if a higher education institution joins them, this institution cannot join another network. This is not the case for OERu. Our interviewees believed this was not the case for OpenupEd either, but they also believed that there is a misconception in many higher education institutions that they can/ should be part of only one network. OERu reported that competition and exclusivity are not issues of concern for the organisation, given that there is much scope for complementary activities aimed at improving the efficiency and quality of higher education through open education.

The OERu is a unique organisation in several respects. One of them is its radical approach to open management. This is based not only on the availability of materials on the web, but also in the ways in which stakeholders are invited to feed into discussions. According to the OERu so far this model has worked well for the organisation, and shows that open models of management and leadership are possible and highly appreciated by those involved, as the OERu input evaluation results suggest.

The OERu has produced a business model that has so far made the OERu network financially viable through contributions from partners and other institutional sources, and cost containment for its operations. The OERu caters for (1) 'free learners' (who participate out of self-interest without a desire for academic credit); (2) those who desire some kind of recognition (for instance a certificate of achievement or attendance) and (3) those who want formal academic credit recognition at the end of each course. There are no minimum participation requirements for 'free learners', who can simply join a course and follow it in light of their interests and availability. Regarding those who desire some kind of recognition (student type 2), most OERu courses offer certification for participation, provided the minimum requirements for participation (for example, interactions posted and activities completed) set out for the courses have been met. Individual courses provide details on the certification options for the selected courses.

Finally, for students who want formal academic credit recognition, OERu offers the possibility to submit work for formal assessment from OERu designated partners, on a fee for service basis. Successful students will carry academic credit towards the specified course credits, as noted on the OERu website[57]. The courses could be accredited, for instance, towards the OERu's Bachelor of General Studies (or equivalent), which will be the first qualification that the OERu network will offer. Individual courses may also be recognised by the university offering the course or through credit transfer by other institutions, for different qualifications offered by OERu partners. Accreditation of this third kind has been very low with just one student having received credit, but OERu interviewees have signalled that it is early days within the OERu network for this kind of initiative. Thus, and in terms of outcomes, while the use of the OER provided by the OREu has been high, there has been little activity in terms of the formal accreditation of learning by HEIs. It will be necessary to monitor progress in this respect to see if the OERu becomes mainstreamed. There is also little systematic evidence so far regarding the progression or labour market outcomes of its activities.

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[57]   http://oeru.org/how-it-works/

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6.   Case study 4: TU Delft

Abstract: Established in 1842, Delft University of Technology (Delft) is the largest and oldest Dutch public technical university and a high-ranking university worldwide in the areas of engineering and technology. Delft is a leading institution in the area of open education. Its OCW has had over 1.3 million unique visitors (1,300 per day currently), and it has had around 865,000 enrolments in MOOCs. It makes available over 10,000 lectures via OCW and i-Tunes. Delft is also active and influential in open research. The university has been creative in putting in place a range of strategies to create income streams related to its open education initiatives, around: certification, third-party use of its open education materials for commercial purposes, professional education and continuing education, attraction of additional students to its regular courses, and externally funded research projects. Delft sees open education activities as enhancing its capacity for innovation, recruitment, teaching quality and visibility and reputation. The data gathered for the production of this case study underlined that a challenge for open education is to ensure that its widening participation agenda is not completely subsumed by the other benefits generated by open education (reputation, visibility, income generation). Another key challenge revolves around the design of incentives and support structures to stimulate universities and enable academics to be engaged with open education. This is seen as a particularly important point for Europe, where institutions are lagging behind in open education compared to institutions in other areas of the world.

List of interviewees:

> Drs. Anka Mulder (Vice-President Education and Operations, Delft University of Technology)
>
> Ir. Willem van Valkenburg (Manager Production and Delivery Open, Online and Blended Courses at Delft University of Technology/ Extension School)

6.1   Introduction

Established in 1842, Delft Technical University –hereafter Delft- is the largest and oldest Dutch public technical university. The university has eight faculties (in various areas of engineering, applied science, architecture, mathematics and computer science) and hosts a population of around 21,000 undergraduate and post-graduate students. It is one of the leading European universities in the areas of engineering and technology.

Delft's staff reported to understand open education in terms of the '5r' model (retain, reuse, revise, remix, redistribute) of D. Wiley (Wiley 2010; Van Valkenburg 2014). When recently asked to describe open education at Delft in five words, the University's Vice-President for Education and Operations, Anka Mulder replied: "Access to higher education, Innovation and Quality"[58].

6.2   Enabling conditions

Delft has a strong commitment to the idea of the public university. The University also firmly believes that the content generated by publicly funded educational institutions (paid for by the Dutch citizens/ government), should be open to as many people as possible and should thus be generally available to the public. Given this commitment there is no need for a commercial rationale to be present in its work on OER.

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[58]   http://www.oeconsortium.org/projects/impact-of-openness-on-institutions/delft-university-of-technology/

This takes place in a context of Dutch government's support for OE[59]. In 2014 the Ministry of Education started a four-year programme on open education that includes an annual call for proposals –for which the allocation is 1 million EUR[60]. The first call is funding a Delft OE project[61], along with other ten projects from other institutions. The second call (in 2016) funded another Delft OE project[62]. The Dutch government associates OE with innovation and enhancement of the quality of education at Dutch institutions.

Delft reported that its main aim through open education is to reach as many people as possible (increasing and widening access to higher education), and help people who do not live or study in Delft in their learning. Moreover, Delft interviewees raised doubts regarding the possibility of sustainable income generation from simply selling content. However, open education as this can provide other (non-financial) benefits, such as increased visibility. This is one reason why Delft believes in sharing content for free.

The work of the university in this area started in 2006. Before that time there were some departments that made the content of their teaching available. They nevertheless lacked the concept of open education and their approach was piecemeal. In 2006 Delft's leadership became familiar with open education initiatives at the Massachusetts Institute of Technology (MIT) and decided to create a team to work on OCW. This team was given a budget allocation, which helped in stimulating participation in OCW at Delft. Many of the people in that team –which now has responsibilities in other areas of open education besides OCW- continue to work in it, which has facilitated continuity, knowledge of academics and mutual trust. While commitment from the leadership of the University and its Executive Board has been crucial and increasing from 2006, a second key enabling condition is the presence of 'ambassadors' in Faculties: those academics who 'do' open education, and convince others to 'do' open education by explaining its benefits (such as increased exposure and transparency; increase the fit of recruitment into one's units –given that potential students can familiarise themselves with their content, nature and level of difficulty-; contribution to Delft's mission to disseminate knowledge; quality improvement in educational materials through user feedback).

For academics, an important enabling condition was the way the University facilitated involvement with open education. Participation in open education initiatives is voluntary for academics. So, for instance, both for OWC and MOOCs it is Delft academic staff who take the initiative: for MOOCs academics need to write a proposal that is assessed by a committee. For OCW Delft reviews the existing University Blackboard courses to see if the content is suitable for OCW.

A key principle of the institution was that open education should not require a significant volume of additional time from academic staff, as they already have very high demands on their time. This was addressed, for example, through the use of teaching assistants who helped in the preparation of materials for OCW publication. The University provides the academic with a grant for the publication of courses, and this grant can be used to hire those assistants –whose work typically entails editing the course so that it can be published in as OCW, given that normally some adjustments are required in terms of adapting it for self-study, copy-rights, removing any student data from the materials and apply the general format used for OCW, for example. Delft has also produced a manual for academics on how to work with the OCW website when creating OCW, and a hand-

[59] See http://www.unesco.org/new/en/communication-and-information/portals-and-platforms/goap/access-by-region/europe-and-north-america/netherlands/ ; http://oerpolicy.eu/beyond-wikiwijs-oer-and-the-netherlands/

[60] https://www.rijksoverheid.nl/actueel/nieuws/2014/11/17/stimuleringsregeling-open-en-online-onderwijs-van-start (in Dutch)

[61] See http://www.e-learn.nl/2015/05/05/stimuleringsregeling-open-en-online-onderwijs

[62] See http://www.tbm.tudelft.nl/nl/actueel/laatste-nieuws/artikel/detail/tpm-develops-online-courses-on-business-model-innovation/

out covering issues to take into consideration when preparing to publish OCW[63]. It has produced a leaflet with practical and didactical advice for academic staff who want to record their lectures. For MOOCs, Delft provides support for the production of most materials, based on existing content. For example, all MOOC slides are improved by graphic designers. This is mainly because a full online course has some differences from on-campus courses, for instance in terms of length, and also because MOOCs have a marketing effect.

6.3   Teaching

The most visible Delft's activities in open education, however, are in the area of teaching. When recently asked about the most important open initiatives at the University of Delft, its Vice-President for Education and Operations replied making reference to MOOCs, OCW and online modules[64]. The University's strategy and activity in open teaching is based around online (web-based) education. Staff mentioned that they have some other initiatives that could be related to open education, such as free teaching in schools or public lectures, but as one interviewee noted:

> *"online open education gives Universities the opportunity to show how serious you are about open education and do something with their open education ideology".*

Initially the audience for Delft's open education initiatives was its own academic staff –so as to capture their attention and get them to be active in this area. Today, Delft campus students are an increasingly important part of the audience of these initiatives, as MOOCs are also used for Delft teaching on campus. As such, open education has affected *pedagogy* at the University. Students receive MOOC course materials. Such use was reported to help both professors and students.

The University also offers introductory courses for prospective students, so open education feeds into its *induction* strategies. For example, mathematics is often a difficult subject for engineering students. Delft has now developed a MOOC that concentrates the teaching of the mathematics that is relevant for their engineering degrees in an 8-week MOOC course, to refresh new students' knowledge and better prepare them for their start at the University.

Delft has received many awards for the quality of its open education courses[65]. The university identifies quality assurance as a key component of its open education initiatives, as it wants to maintain a reputation for excellence in education. Academic staff have incentives to review course materials and structure in great detail prior to making them freely available online, due to the public exposure that this generates. All of Delft's open education courses are based on existing campus courses and their syllabi are similar, although MOOCs are shorter than campus courses. Campus courses are fully accredited.

In addition to the standard QA requirements for Delft courses[66], detailed in the University's Quality Assurance Plan[67], open education courses are evaluated by Delft's e-

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[63]   http://ocw.tudelft.nl/ocw/about-opencourseware/publish-your-opencourseware/manuals/
[64]   http://www.oeconsortium.org/projects/impact-of-openness-on-institutions/delft-university-of-technology/
[65]   http://www.neth-er.eu/en/news/TU-Delft-wins-three-Open-Education-Awards   ; http://www.tudelft.nl/en/current/latest-news/article/detail/open-onderwijs-tu-delft-valt-in-de-prijzen/   ;   http://www.openeducationeuropa.eu/en/news/winners-open-education-awards-excellence-2015-announced ; https://ocw.tudelft.nl/more/hall-of-fame/
[66]   See https://intranet.tudelft.nl/en/targeted-info/education/educational-improvements/education-quality-assurance
[67]   See: https://intranet.tudelft.nl/fileadmin/UD/MenC/Support/Internet/TU_Website/TU_Delft_Medewe

learning developers during the production process. The University also checks beta versions of Delft MOOC courses with members of academic staff and of the student body, before the materials are made available openly. The checking of the beta versions by students is organised by the course coordinator in cooperation with the e-learning developer. The students selected to provide inputs to the QA process are usually required to have passed the course in the past (either online or on campus). The course coordinator is required to solve the problems raised in the feedback received or give an explanation as to why the problem/ issue raised in the QA process will/ should not be addressed.

There are also measures to measure satisfaction with the open courses after they have been launched. Students are asked to evaluate the course via a pre and post-questionnaire. These results are analysed and a course report is generated[68].

Like some other institutions analysed in this report, Delft is exploring ways to recognise MOOCs in its curricula -to offer MOOCs as self-standing courses that count towards a qualification. The challenge is that assessments in MOOCs often do not entail sufficiently trustworthy systems for learner personal identification and assurance that no external help is being received, and thus do not comply with the requirements for assessment in Delft campus courses.

The situation regarding recognition is different for MOOCs and OWC. Those taking Delft MOOC courses that are not regular Delft students can obtain recognition of their achievements through a free honor code certificates ("which certifies that you have successfully completed a course, but does not verify your identity"[69]) or a verified certificate which "shows that you have successfully completed your edX course and verifies your identity through your photo or ID"[70]. A fee is charged for the issuing of a verified certificate. This varies by course but is often in the region of 50 USD (around 45 Euro). Thus MOOC students can get an ID verified certificate upon completion of their course in EdX -CEU[71] certificates. Delft does not use badges, as EdX does not use them. In November 2015 Delft has taken the initiative to give Credits for MOOCs with six other universities[72].

In contrast to the case of MOOCs, Delft sees its OCW as being a non-degree granting and non-certificate granting activity. Rather, the goal for Delft is to provide support to education: OCW are learning materials, not a full online learning experience. Delft has nevertheless now connected to Open Study[73] –a social learning network where students can interact by asking questions and obtaining support from other students and moderators[74]. Students can earn certificates of participation from the OpenCourseWare consortium, which documents participation in the course, progress through the course and three "important skills that employers want to see documented": teamwork, engagement and problem-solving skills75. There is a registration fee for the certificate ($30 –around 27 Euro). In order to obtain the certificate learners also need to answer

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rkers/Specifieke_ingangen/Onderwijs/Onderwijsverbetering/Onderwijskwaliteit/doc/TU_Delft_
Quality_Assurance_Plan.pdf

68 See http://onlinelearningresearch.weblog.tudelft.nl/2015/05/29/working-paper-1-solar-
energy-2013/?TUD-USE-COOKIES=yes for a course report on Delft's MOOC on Solar Energy.

69 https://www.edx.org/verified-certificate

70 https://www.edx.org/verified-certificate

71 CEU refers to Continuing Education Units. More information can be found on the website of
IACET: http://www.iacet.org/ceus/about-the-ceu and http://www.iacet.org/who-accepts-the-
iacet-ceu-g-see-a-list

72 https://ankamulder.weblog.tudelft.nl/2015/11/11/credits-for-moocs/ ;
https://www.timeshighereducation.com/news/moocs-international-credit-transfer-system-
edges-closer

73 http://openstudy.com/

74 http://openstudy.com/courses

75 http://openstudy.com/course/508039309a8ab7216215bcf2

questions on each topic covered in the course study group (and receive a "SmartScore" –an individualized, data-driven evaluation of the above mentioned teamwork, problem-solving and engagement skills[76]- based on their interactions with other students and their mastery of the content), and to engage for at least 4 weeks on the OpenStudy group for the course, improving his/ her SmartScore through their active participation in the study groups.

In terms of visibility and accessibility, Delft has employed several complementary strategies to ensure access to their OER. For instance, course materials from Delft University MOOCs are published in their OCW website[77] so that people who do not have an EdX account have access to those. The University takes part and has had leadership positions in open education networks because this enhances the visibility of its open education initiatives externally.

The Open Education activities, especially the MOOCs, have let to new collaboration with industry: co-creating courses, sponsorship, offering MOOCs to their own employees[78].

6.4 Research

Delft has a number of initiatives in open research, and has contributed to public debates in this area: together with four other Dutch institutions, it issued a position paper on the importance of open data in the context of the Horizon2020 EU programme[79], and it has also participated actively in discussions on open access to research in the Netherlands, criticizing what it considers to be too limited approach by Dutch government to open research[80].

Delft's initiatives in open research have been in the areas of open access to research, open data, open science and open source software -for example, the University is developing applications to improve Open Access publishing. One example is TU Delft's institutional research repository[81]. This repository includes BSc/ MSc theses, PhD dissertations, publications, teaching notes and datasets –in text, photograph, video and audio file. Researchers can post their own materials in the repository or make use of Delft's METIS research information management system[82] to automatize part of this process.

The university has approved a new Open Access Policy that will go into effect from May 1st 2016. The new policy mandates the so-called Green Road to Open Access publishing for all authors at Delft[83].

According to Delft, the benefits of using the repository for academics include that their research becomes available to everyone worldwide, provides a back-up for the material produced by scientists (as the academic publications included in the repository are also stored in the e-depot of the National Library of the Netherlands), search engines like Google Scholar find academic publications included in the repository with a high 'relevance ranking', and academics can include a link in their personal homepage to their current list of publications in the repository. Publicizing these benefits stimulates academics to become more active in open research initiatives.

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[76] http://www.e-learn.nl/2012/10/24/tu-delft-offers-certificate-of-participation
[77] http://ocw.tudelft.nl/
[78] https://ankamulder.weblog.tudelft.nl/2015/07/23/making-lifelong-learning-a-success-with-moocs/ ; http://www.e-learn.nl/2016/04/14/oeglobal-the-impact-of-30-moocs
[79] http://weblog.library.tudelft.nl/wp-content/uploads/2013/11/Position-Paper-on-Open-Access-to-Scientific-Data-in-Horizon-2020.pdf
[80] http://weblog.library.tudelft.nl/en/2013/11/27/tu-delft-library-sets-the-default-to-open-science/
[81] http://repository.tudelft.nl/
[82] http://www.library.tudelft.nl/en/visitor-info/organisation/
[83] http://www.tudelft.nl/fileadmin/Files/tudelft/Images/Over_TU_Delft/Strategie/OA_beleid.pdf

Delft has an Open Access Fund to support academics financially to publish their articles as open access –fees for Open Access publication can often be in excess of 1000 Euro. Its library has also negotiated special arrangements or memberships with some publishers to get discounts on open access publications. In addition, Delft provides staff with information on open access journals -including links to a repository with over 10.000 of these as of January 2015[84].

Delft disseminates open data collected from a variety of sources: 3TU Datacentrum is a centre that focuses on open data, created by three Dutch Technical Universities: Delft, Eindhoven and Twente. It provides access to data, and support and advice on data management.

Open Source Software is also produced at Delft. For example, the Department of Intelligent Systems has worked on various kinds of software for the visualization of data and modeling of 3D projects.

The University is in an ongoing dialogue regarding open access and has recently organized exchanges between its Library Staff, Academics and Management (including the Rector of the University) to discuss its future practices in this area.

6.5   Strategies

The notion of 'open management' or operations is not one that has been used in the past at the university, and the University does not have an operational definition or designed lines of action in this area. In the views of staff the relevance of 'open operations' to the University's core mission is less clear than in the case of open teaching or open research, as the main tasks of the university are teaching and research, and openness in relation to those aspects is their priority.

What is evident is that Delft University makes much information regarding its operations freely and openly available online, rather than through other means, such as closed intranets. Examples of this are the guidance it provides to its academic staff on OCW submission and preparation[85], the University Strategy and Roadmap[86] -which includes video materials in addition to text- and many University Regulations and policies[87]. The license type of these documents, on the other hand, is often not explicit and thus do not fall under creative commons/ open licenses.

Delft is also experimenting with Api.tudelft[88], "a documentation site that provides information on the opendata resources provided by Delft". Delft's Rest Api, for instance, enables the programming of apps or widgets based on TU Delft data "such as courses, education programmes, timetables, computer rooms and buildings. Combined with the new OEuth layer based on the SURFconext platform you will also be able to use the data of your own exam results or provide a service to your customers to view their exam results in a safe and secure way" (Api.tudelft website).

6.6   Outcomes and impact

6.6.1 Students

The outcomes produced by Delft's open education are significant. Delft OCW has been successful in attracting the interest of a large number of users: its OCW website has had over 1.3 million unique users (1,300 visits per day, a number that has continuously increased since 2006). Delft has had around 865,000 enrolments in its MOOCs. Lectures

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[84]   https://doaj.org/
[85]   http://ocw.tudelft.nl/ocw/about-opencourseware/publish-your-opencourseware/manuals/
[86]   http://www.tudelft.nl/en/about-tu-delft/strategy/
[87]   https://intranet.tudelft.nl/fileadmin/Files/tudelft/onderzoek/phd_at_tudelft/Regulations-Defence/Doctoral_Regulations_TUD.pdf
[88]   http://apidoc.tudelft.nl/

have also been available on i-TunesU since 2010. TU Delft students and others can watch recordings of more than 10,000 Delft lectures via OCW and i-Tunes[89].

As noted, Delft is of the view that the development of OER and open education has produced positive results for Delft students for two reasons:

- Those materials are re-used to improve Delft education on campus, to improve its quality; and
- OER helps to improve the reputation of the university, which enhances the value of the qualifications that it offers to its students.

These are, according to Delft staff, "*two very good reasons to invest in open education*".

The impulse to drive up quality in teaching as a result of open education is clear according to a Delft interviewee:

> "*As Thomas Friedman (2013) said "when outstanding becomes so easily available average is over", so open education has driven up quality: if you do not offer something good this is a big problem, because now students can easily obtain their knowledge elsewhere.*"

As noted in other case studies in this report, improvement in the quality of courses derives, partly, from the possibility of external review. As one interviewee noted:

> "*Many teachers, when they know that their courses will be offered openly and anyone will be able to access them, invest some additional time in the improvement of their materials –which also benefits Delft students.*"

Another way in which open education helps to improve quality of provision is through user feedback. An example of this is OCW prepared by Delft on Water Management, which was used by Bandung University in Indonesia. In order to teach their students, Bandung added examples adapted to the local situation to the course material, and then shared those cases with Delft. This helped Delft to improve their course with the cases created by Bandung.

There is some evidence of benefits derived from the use of OER for on-campus teaching. The use of MOOC materials to support learning for Delft students has been linked to improve pass rates, increase average marks and students' satisfaction. This is because - according to one of our interviewees- with their use "*Education becomes more learner-centred*".

Table 4: The impact of Delft's 'Solar Energy' MOOC on Delft students' performance

In a course on 'Solar energy' a change to a flipped classroom in 2014 was associated with a strong increase in these indicators (Smets 2014): on-campus students were able to master a wider set of materials (around 30% increase in content covered in the course). Passing rates increased from an average of 71% in the period 2010-2013 following a classical classroom approach to course delivery, to 89% in 2014. Students also achieved better grades: from a 6.51 average in the period 2010-2013 to 7.09 in 2014 –using the same exam structure and marker as in previous years. Most students (69%) reported to prefer the flipped classroom approach, whereas only 13% preferred the classical approach. Students spent more time on the course in the flipped classroom compared to the classical approach.

Source: Smets (2014)

The university currently has 30 MOOCs, and almost all of them are used in teaching for on-campus students.

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[89]   http://www.open.tudelft.nl/en/education/

The advantages derived from the use of MOOCs for teaching in "flipped classrooms" from the point of view of professors can be summarised as follows:

> *"In the classical approach, you are always in hurry to guarantee that you have covered all material scheduled for that specific lecture. This time pressure is completely absent during the flipped classroom approach. In the lectures, I work with the students on exercises. I have selected exercises that focus on the most important content in the course or focus on content considered to be rather difficult by the students. My impression was that at the end of the course, the level of understanding of a large group of students, was much better (…). Students feedback in the classroom was positive."* (Smet 2014:5).

6.6.2 Higher education institutions

At an institutional level, outcomes are perceived in terms of the enhancement of teaching quality and reputation of the University, and associated outcomes –yielding some improvements in recruitment, etc. as already discussed. Open education is also seen to help innovation in teaching and online learning. One interviewee argued that Universities have spent much on innovation in education in the past, often without success. However, open education is showing that innovation can work. It should be noted that Delft is a research-intensive university, and in this kind of university research often takes priority, compared to teaching. Open education improves the visibility of teaching and teaching quality and the recognition of the University's excellence (or otherwise) in this area.

6.7   Challenges and prospects

Delft sees the potential of open education to improve access to knowledge, quality and reputation. A challenge is that the 'social justice' element related to widening participation in and access to higher education may dilute over time. An interviewee noted how discussions at conferences and events have shifted for many universities in the last year or so from open education to online education –and, within online education, the focus is increasingly narrowing to MOOCs, which is a challenge. According to this interviewee, many institutions are now not prioritising open education, a point that the interviewee illustrated with reference to the case of MOOCs:

> *"While at the start the motivation was to improve learning opportunities worldwide, about a year ago that focus changed to mainly exploring how MOOCs can be used to improve education for on campus students. While this is an important part of what MOOCs can do, the widening access agenda should not be neglected."*

There are also challenges associated with the fact that much about open and online is unknown for policy-makers. Governments do not know what open education is or what aspects of it they should support, and that is a missed opportunity. An interviewee illustrated this with reference to the case of lifelong learning:

> *"Lifelong learning has been a difficult issue for policy-makers at national and EU level for decades. However, governments do not seem to be able to design a plan to use open education in a way that helps with their lifelong learning objectives. This is a missed opportunity".*

Another challenge for Europe is that developments in open education often come from outside. Europe needs to try harder in order to play a major role worldwide in relation to innovation in education. Few European institutions are in the global innovation race. Delft is one of those institutions, as illustrated in the work it has done as part of EdX to promote openness. One interviewee noted that some Spanish universities had had a leading role in open education and OCW, but this early positioning in relation to innovation in education is not widespread.

Regarding prospects and ways forward, although governments could always work by forcing universities to be open through legislation, one interviewee highlighted that it is more interesting to think in terms of the kinds of incentives that could be provided for Universities and academics to become more open. There is a need to explore the incentives that work better in order to get academic staff interested in contributing to open education. Delft as an institution has not required any of its staff members to publish a MOOC or OCW. Staff has been active in those fields because such activities give them visibility. Delft tried to organize its open education in such a way that does not demand much time from them. So what Delft has done is to facilitate that staff are able to engage in those activities through the provision of support like technical support and assistants' time. This provides an incentive for staff to become involved in open education. Moreover, interviewees reported that many staff at Delft share the idea that they should try to reach as many students as they can, because spreading knowledge and understanding is intrinsically good. Thus, according to one interviewee:

> *"The EU could encourage legislation in this area, but it would also be very important for it to set up incentives that match the drives of universities and individual teaching staff."*

An interviewee mentioned that statements saying that publicly funded universities have to make their content available through open education, or the inclusion of open education in the indicators for university rankings would help to raise the profile of open education. As the interviewee reported:

> *"If it is part of rankings universities become interested".*

6.8   Conclusions

Delft University of Technology is a high-ranking European university strongly engaged in open education. It was an early adopter of open education. It is particularly active in the area of open teaching. Here, Delft has a long-term engagement with OCW, and more recently MOOCs, both of which register high levels of use. This engagement was present in the work of individual academics but gathered momentum and security when the management of the university gave it a high profile within the university and set up organisational structures that facilitated involvement in open education.

Delft's engagement with open education was reported to be based on its conception of publicly financed higher education as a public good, but at the same time the university has put in place a range of strategies to create income streams from its open education initiatives: around certification, third-party use of its open education materials for commercial purposes, activities in the area of professional education and continuing education, attraction of additional students to its regular courses, and externally funded research projects. The objective of the creation of such income streams is not necessarily to make a profit, but to generate an income that can be reinvested in open education to drive up Delft's capacity for innovation, recruitment, teaching quality (and students' achievement), visibility and reputation in an increasing competitive global higher education landscape.

The data gathered for the production of this case study underlined that a challenge for open education is to ensure that the widening participation agenda is not completely subsumed by the other benefits generated by open education (reputation, visibility, income generation). Other challenges for open education identified during the case study are its need to become better known and used by politicians and the design of a series of effective incentives and support structures to enable academics to be engaged with open education. This is seen as a particularly important point for Europe, where institutions are lagging behind in open education compared to institutions in other areas of the world.

Future areas of work for Delft in relation to open education could encompass the inclusion of MOOCs as independent parts of its own curriculum (instead of being a tool to

support classroom-based provision through blended learning and flipped classroom strategies), and the development of open management strategies, a notion that the university has not explored in detail so far.

Further information and references

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7.   Case study 5: Universidad Carlos III Madrid

Abstract: Established in 1989, Universidad Carlos III de Madrid (UC3M) is among the youngest universities in Spain. It is an example of a young university that was an early adopter of open education and is active in open teaching in two languages: Spanish and English. The university initiated its Open Courseware (OCW) initiative in 2007. UC3M's initiatives in open education are based on the belief that open education, and more broadly widening access to education, is one of the core missions of public universities, and also on a desire to increase its visibility worldwide. UC3M currently offers OCW for 221 courses in all disciplinary fields. In recent years the university has become very active in the provision of MOOCs on edX (it has so far produced 6 MOOCs for that platform) and miríadaX (so far 2 MOOCs), and these have attracted over 100,000 registered learners. The university also has, since 2007, an institutional Open Access repository that collects, stores and preserves the scholarly production resulting from the academic and research activities of the university in digital format. The main challenges faced by the university in relation to its open education initiatives refer to their financial sustainability, further engagement of a wider range of staff in open education and the enhancement of the recognition of the learning acquired through open education. The university also intends to explore the impact of participation in its open education initiatives on learners more closely.

List of interviewees:

Dr. Eva Méndez Rodríguez, UC3M Rectorate

Mr. Raul Aguilera Ortega, UC3M Library staff

Dr. Carlos Alario Hoyos, UC3M Lecturer

7.1   Introduction

Universidad Carlos III de Madrid (UC3M) is one of the youngest universities in Spain. From the very beginning UC3M identified itself as a relatively small, innovative public university providing teaching and research of the highest quality. It is one of five Spanish universities selected as a Campus of International Excellence and included in the QS top 50 under 50 (QS University Ranking). UC3M has three main sections: the Faculty of Law and Social Sciences; the Faculty of Humanities, Communication and Library Science; and the School of Engineering. The university is fairly internationalized and has a high proportion of international students at postgraduate level (UC3M 2012, UC3M, 2013).

UC3M initiated its OpenCourseware initiative in 2006-2007. It has become very active in the provision of MOOCs on edX. These MOOCs have attracted more than 100,000 registered learners.

The key rationale for the involvement of the UC3M in the area of open education was reported to be that the university sees this as part of its mission as a public institution that should serve the needs of society:

> "*We believe that public universities should have a commitment to society. Technologies make the expression of this commitment possible and straightforward. We can publish our learning materials and give them to Spanish citizens and to everybody in the world to facilitate their self-paced learning.*"

Technology is seen as a factor that facilitates the fulfilment of this mission and makes it possible to teach people beyond the university's usual target group (registered on-campus students).

An equally important rationale for the university is the global visibility that is achieved through the offering of open educational resources and MOOCs. As one interviewee noted:

> "*People are looking for good materials, good professors and they find them in good universities. We want to be a good university, and we want to make it possible for people to find our materials and professors. We want to be a good university that is visible to society. We also like openness and we think that it is worth to experiment with all these new trends, technologies and practices that made open education possible*."

Currently, all the university's open education initiatives (OpenCourseWare, miríadaX, Zero Courses –remedial revision SPOCS aimed at new entrants to the university, explained in more detail below in this case study-, YouTube Edu, iTunes U) are brought together in the "UC3M Digital" web site (digital.uc3m.es). This was expected to help external audiences to locate the university's open education initiatives. MOOC related technologies are also expected to contribute to the enhancement of on-campus teaching quality.

7.2   Enabling conditions

Staff at UC3M revealed that several factors fostered UC3M's early work in the development of OER. These factors also enabled the evolution of UC3M to new formats of open education and encouraged the diversification from OCW to other forms of open education -including MOOCs, which currently represent UC3M's priority in open education.

The first factor is that over 80% of its teaching and research staff is technologically aware academic staff in the use of the university's virtual learning environment and learning management system (Aula Global) for more than a decade. Aula Global is a customized version of Moodle, and is an open source solution. The use of virtual learning environment platforms encouraged faculty to digitize their teaching materials and make them available online to their students (Fernández and Webster, 2014). This experience and materials served as a springboard for the preparation of open educational resources.

Secondly, the Bologna Process led to changes in the teaching and learning methodologies used at the university. UC3M was one of the first universities in Spain to reform its programmes following the principles of the Bologna Process and in 2008 it introduced a practical approach to teaching, based on continuous formative assessment. In this context the university encouraged academic staff to create or update their own digital teaching materials, which formed the basis for UC3M's Open Courseware courses (Fernández and Webster, 2014).

Thirdly, the leadership and expertise of the long serving vice-rector for digital education strategy was reported to play a significant role in the early involvement of UC3M in open education. As one interviewee put it:

> "*Strong leadership and commitment of our vice rector were very important…This is critical because other persons would probably have waited a bit more.*"

Lastly, the university introduced several internal policies that aimed to support the involvement of faculty members in open education. Faculty participation in these kinds of initiatives is recognised as a 'teaching merit', which has academic and financial implications e.g. the production of Open Courseware is considered as a factor in the calculation of the salary supplements to which individual academic staff are entitled. Members of academic staff who contribute to MOOCs can be released from part of their regular face-to-face teaching duties. In addition, the university offers training and support to all lecturers involved in MOOCs. A specialist organizational unit called UTEID (Unit for Educational Technology and Innovative Teaching) delivers this training and provides support in the production of MOOCs. For example, UC3M organized a course by an experienced Spanish actor on how to perform in front of a camera, as lack of this skill was reported to be an obstacle for many staff -who only had experience in face-to-face teaching. According to our interviewees this support is crucial because not all faculty members have the skills to be involved in open education from the start.

It should be noted that in spite of this support the interest of academic staff seems to be decreasing. In the first round of selection of MOOCs to be delivered over the edX platform four out of fourteen proposals were selected. In the most recent call for proposals for MOOCs preparation (for the academic year 2015/16) only four proposals were submitted -all of which were approved. This reduction in the response to the call may be partly explained by the limited incentives academic staff have –as academic promotion pathways in Spain prioritise research over teaching- compared to the amount of work that the development of open education initiatives can actually require. As one interviewee explained:

> "*I think that staff are realizing how much work it is and how exhausting it is. They can compare the reward and the effort and they are thinking carefully before they prepare a proposal. People responding to these calls for proposals are people who like teaching, innovation and want to be known around the world.*"

Staff commitment and preferences were therefore seen as crucial. A key factor in this context was whether faculty members believed in the open education movement and decided to spend part of their limited time on open education initiatives.

7.3   Teaching

UC3M initiatives in open teaching include OCW, MOOCs and various types of SPOCs.

7.3.1 Open courseware

OpenCourseWare (OCW) was the first open educational resources initiative to be set up at UC3M. The University joined the OCW movement in 2006-07, under the auspices of the Universia network[90]. This project helped to foster an open publishing culture among faculty and was a catalyst for other OER initiatives at the UC3M and in Spain more generally (Fernández and Webster, 2014). UC3M currently offers 221 courses in the fields of Engineering, Humanities and Law and Social Sciences. These are mostly in Spanish although some courses are available in English. All materials are reviewed centrally, to be cleared of copyright issues and be published under Creative Commons licences.

The university established a peer review system to evaluate OCW materials before their publication (Méndez and Webster 2015). It also created a quality commission that acts as a kind of 'editorial board' for Courseware. The work of the quality commission is to improve the quality of OCW materials:

> "*My opinion is: if academics are quite accustomed to be evaluated when they submit a research paper why can they not be evaluated in the same way when they submit teaching materials to be made available to the public? We now have practical experiences that show that we improved the quality of the courses that we make available in OCW after having implemented this quality system.*" –UC3M interviewee.

7.3.2 MOOCs

Following the experience with OCW, UC3M launched its first MOOCs on the MiríadaX platform (https://www.miriadax.net) -promoted by Telefónica Learning Services and the Universia Foundation. The first UC3M's MOOCs were available in Spanish and targeted a

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[90]   Universia university network started in 2000 as an online initiative for the Higher Education sector in Spain, Portugal and also Latin American counties. It is promoted by a group of Spanish universities with the support of the Spanish University Rectors' Board (CRUE), the Spanish National Research Council (CSIC) and is sponsored by the Santander Group and Telefonica. It is coordinated by the Foundation Universia and its Open Courseware courses are licensed under CC licenses.

Spanish speaking audience in Spain and Latin America. In the academic year 2015/16 UC3M plans to launch further MOOCs in the MiríadaX platform.

However, the strategic focus of the University has now shifted to the production of MOOCs in English. In 2014 UC3M joined the edX platform. MOOCs delivered in English attract far more registrations than courses in Spanish, which makes their production attractive. UC3M reported to see itself as a "Global University" that targets both national (Spanish) and international students. UC3M MOOCs target both Spanish-speaking students (from Spain and Latin American countries) through the courses that the university offers in MiríadaX and some of the courses offered in edX –which are in Spanish-, and an international audience of English-speaking students through the courses that it offers via edX in English. Table 6 provides key metrics for UC3M MOOCs in terms of language of delivery and number of registrations –as well as students' profile.

Table 5: Key metrics for the UC3M MOOCs

MOOC	Lang-uage	Registrations	Origin of students		Student's age (%)			Gender		Students' level of studies*		
			Number of countries	*Main*	*<26*	*26-40*	*>40*	*M*	*F*	*1*	*2*	*3*
'Caer o no caer. El secreto de las estructuras'	Spanish	3710	89	Spain 33%	37	38	20	73	27	25	38	34
Explaining European paintings 1400-1800	English	15868	154	USA 30%	39	36	22	38	62	17	37	43
Descubriendo la pintura Europea 1400-1800	Spanish	5212	100	Spain 38%	23	36	37	42	58	17	35	45
Documentary! New trends, new formats	Spanish and English	7275	158	USA 15%	26	47	22	51	49	16	43	38
Educación para una sociedad del conocimiento	Spanish	3858	92	Spain 23%	21	41	34	53	47	17	36	45
Introduction to programming with Java	English	68157	188	USA 24%	43	38	15	79	21	31	42	25

Source: UC3M (2015). * 1= secondary or lower; 2= college degree; 3= advanced degree.

In May 2015 UC3M launched its largest – in terms of the number of registered learners - MOOC on 'programming in Java' within the framework of the edX High School Initiative, which is supported by the US Government and financed by private funders. This initiative aims to offer *advanced placement credit courses* that can be used by high

school students in the USA to gain credit recognition in tertiary education: most colleges and universities in the United States grant credit and placement for qualifying Advanced Placement scores. Although this initiative is primarily for students in the USA who are in the final years of their high school education or in the first years of college education, the course is open to students from other countries as well.

MOOCs delivered over MiríadaX and edX have been designed as introductory courses for a general audience. The topics they cover vary from engineering to humanities, as UC3M aims to promote a wide range of fields in which it sees itself as having a high international reputation. However, one interviewee noted that courses in engineering and computer science in general attract far more learners than courses in other fields. Courses oriented towards the acquisition of specific skills tend to be highly popular:

> *"Technological courses are highly demanded by users. Our course in Java has more than 50.000 registered learners. Our course in paintings in English had no more than 15.000 registrations."*

UC3M mainly relies on the dissemination activities of the MOOC platforms where it is present (edX and MiríadaX) to promote its MOOCs. Some interviewees noted that a challenge for UC3M is the relative lack of visibility of edX in Spanish speaking countries, compared to the main alternative platform -Coursera. One of the reasons for that may be that the Coursera platform also now operates in Spanish, while edX's remains English only. UC3M and two other Spanish universities involved in edX have discussed with the platform ways to facilitate the translation of the portal into Spanish, to increase enrolment in their edX courses. This conversation is in progress.

UC3M also uses its own communication channels –social media and press- to promote its MOOCs but these are limited and cannot easily reach a global audience. For example UC3M's MOOC on art and paintings was promoted through the university's social media, its internal magazine, and a company that UC3M subcontracted to promote this course amongst Twitter users that have associated interests e.g. making use of Twitter accounts related to museums, cultural associations, etc.

Surveys of UC3M MOOC participants suggest that satisfaction levels are very high (4,49 points in a scale from 1 to 5 is the overall rating of the UC3M MOOCs that had finished by May 2015). 85% of MOOC participants reported that they would do a similar course again with the same MOOC teaching team (UC3M, 2015:7). Average completion rates are around 10%, which is in line with other MOOCs offered in the edX platform.

7.3.3 SPOCs

MOOCs have had an impact on on-campus teaching. In parallel to MOOCs UC3M now offers a range of SPOCs (Small Private Online Courses) mainly targeted to on-campus students. They use the same method and technology as is used for MOOCs in the normal campus teaching. The only difference is their smaller number of students.

As with UC3M MOOCs, SPOCs are also run on OpenedX platform and videos are delivered over UC3M YouTube Edu channel –open access. The first SPOCs (Zero Courses –see below in this section) were delivered over the Khan Academy platform (2012-2014), but from 2015 the university decided to use OpenedX to have a homogeneous layer of technological platforms used for open education at the University.

Regarding the on-campus impact of SPOCs, one interviewee noted that:

> *"It will be very interesting as it will be possible to flip the classroom and also address some of the more commonly criticized aspects of MOOCs –for example, we will be able to control peer review among students in a way that cannot be controlled in a MOOC environment."*

UC3M delivers 3 types of SPOCs:

1. Regular Courses: SPOCs that are taught within the regular semester to complement face-to-face teaching;

2. R – Courses: these are revision SPOCs, which serve for revision and repetition of courses students failed during the semester; these students are given the opportunity to repeat the course in a SPOC environment instead of going to the whole lecture series when the course is available again; and

3. Zero Courses: remedial revision SPOCs aimed at new entrants to the university, so that they can catch up academically in key subjects –most often physics and mathematics- and achieve an optimum level of knowledge attend the courses at the university.

7.4   Research

In 2007 UC3M launched its E-Archivo[91], the university's Open Access repository. E-Archivo is an open source solution built on DSpace and mainly maintained by the University itself. Its aims are to collect, store and preserve the scholarly production (mainly publications) resulting from the academic and research activities of the university, in digital format, and offer open access to it. The collection primarily contains doctoral theses, but also periodicals edited by UC3M, working papers, preprints, articles, conference proceedings and reports.

The key challenge is the reluctance of researchers to upload their research outputs, fearing the copyright problems with publishing houses. Library staff helps researchers to deal with copyright issues and contacts commercial publishers if/ when necessary on behalf of the authors. An interviewee also noted that:

> "*Researchers in most of universities in Europe experience problems with open access research (…) They are reluctant to upload the materials and it is necessary to make these processes automatic and to have some firm mandate from institutions*."

All researchers at the University are invited (but not obliged) to upload their research outputs in the archive. UC3M also plans to make available the master and bachelor theses of their students through the repository Three years ago UC3M Library started the integration of the E-Archivo and the university's research information system into an integrated research environment to facilitate access to the research outputs of the university.

7.5   Operations

The UC3M makes publicly available a wide range of information about its operations through its website. This includes information on university governance, governance structure, organizational plan, information on trade unions, and its 2010-15 strategic plan. Measures to support transparency and open governance and leadership include information on the University's Ombudsman as well as the statutes and regulations of the University. Key resolutions from University bodies are also available. The University does not make the minutes of meetings available openly on its website. The last point may represent an area for development. However our review shows that the UC3M approach to open leadership is well developed.

UC3M has also placed significant emphasis on the management of open education in recent times. The roots of the systemic approach at the UC3M to the management of open education were established in 2012 through the establishment of two working groups to coordinate the creation, use, dissemination and conservation of OER and support instructors in this area (Fernández and Webster, 2014):

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[91]   http://e-archivo.uc3m.es/

- *MaREA:* Is a multidisciplinary working group composed of Faculty members who are specialists in Intellectual Property Rights, Open Access and OER and interactive technologies, as well as members of the Library and Communications and Computing Services. It was set up to define policies and strategies for creating, managing and disseminating quality educational resources.
- *UTEID* (Unit for Educational Technology and Innovative Teaching): Is a taskforce made up of experts from different services of the university, including academic staff. Its main task is to support academic staff in the development and delivery of MOOCs and SPOCs, the use of new educational technologies, and the protection, preservation and dissemination of these resources. This taskforce evaluates proposals for new MOOCs and SPOCs, organises trainings for course design, content creation and performs student evaluations.

UC3M has been working towards the establishment of a systematic approach in relation to the quality assurance of open education initiatives and materials and in relation to the training of teaching staff on the preparation and use of MOOCs and SPOCs. Proposals for new MOOCs and SPOCs are selected based on an open call to academic staff, and once the courses finish UC3M and the MOOCs platforms it uses send satisfaction surveys to students. These mechanisms are expected to help in the continuous improvement of the quality of UC3M open education initiatives.

It should also be noted that UC3M has used 'learning analytics' provided by the MOOCs platforms to improve its MOOCs and SPOCs provision. This has helped, for instance, to improve the tools to facilitate interaction and collaboration between learners. In the first set of MOOCs delivered using miríadaX learners had the opportunity to use a Questions&Answers tool, Forum, Twitter, Facebook and MentorMob tools. Experience showed that Twitter and MentorMob tools were not highly used by learners, so they were not used in the following rounds of MOOCs (Alario Hoyos et al. 2014).

7.6   Strategies

The development of the open education at the UC3M has been financed through internal university resources from the outset. Unlike in some other Spanish regions, the regional government in charge of higher education in Madrid does not provide financial incentives for the development of MOOCs or OER. UC3M does not currently have a specific budget for OE, although it is planning to have a dedicated budget for its Digital Education activities in the future. The exact volume of the university's investment was reported to be difficult to estimate as most of it is associated with staff costs –for example the time invested by Library and IT service staff who work on MOOCs and SPOCs as part of a larger portfolio of duties. The university has also invested also in equipment such as cameras and a recording studio, although these investments were reported not to be large. UC3M has so far pooled resources from various areas to implement its OE initiatives.

As already mentioned, faculty participation in open education initiatives is recognised as a teaching merit that has academic –in terms of part release from face-to-face teaching- and financial –in the calculation of salary supplements- recognition. The delivery of a MOOC course is seen as a teaching load equivalent to 12 to 24 ECTS, depending on the course.

The reliance on indirect institutional funding has implications for the profile of teaching staff attracted to these activities, the scale of involvement of the institution as a whole in open education activities and, finally, its future sustainability. As noted previously, the interest of teachings staff in submitting proposals for a MOOC or SPOC seems to be decreasing, and the profile of lecturers normally attracted to this kind of activity is young lecturers and non-tenured academic staff who are aiming academic promotion. The current funding model also limits the scale of OE activities at UC3M. While UC3M can deliver a small amount of MOOCs, the university would be unable to produce a large

volume of MOOCs. Interviewees agreed that the sustainability of this business model is a future challenge to which UC3M does not have an answer yet. So far, UC3M has relied on the business models of the platforms with which they cooperate. One interviewee mentioned:

> "*We do not have a business model…I do not think that any institution dealing with this kind of education has a clear business model yet. We are following the business model of the platforms we operate with... If students pay for certificates the platforms will give you a small percentage of the money they receive, but this is a relatively modest volume of funds. Of course with a large number of students this income stream could become significant, but it is too early to achieve this. We will probably explore this aspect in more detail in the future, but we currently cannot speak about a business model or a planned business model.*"

7.7   Outcomes and impact

One of the main outcomes from open education for UC3M has been the large number of students from all over the world registered in their MOOCs. It is estimated that the MOOCs offered by UC3M so far have had more than 100,000 registered learners. The number of registrations varies between around 5,000 in the first MOOCs to around 50,000 in the case of its MOOC on Java programming. The use of OCW is difficult to be measured, as its use does not require registration.

UC3M argued that it is too early to have reliable evidence of impact for learners engaged in its MOOCs, and that there has been little emphasis on measuring the impact of previous open education initiatives, such as OCW, on learners. UC3M's understanding is that learners are satisfied with the courses offered. However there is no data regarding the benefits of participation, for instance in terms of employability, yet.

Interviewees, on the other hand, noticed some positive impact of open education on staff's "use of technology in educational and pedagogical practice" and an increase in the global visibility of the university.

> "*I do not know how many of the Indian students that are following our courses will become our students…I do not think that there is a clear outcome in that respect, but it has clearly increased the visibility of our institution. I think that in the future that will be measurable…I would not be surprised if MOOC initiatives start to count in international university rankings in the future…*"

Interviewees observed that faculty uses more and more OER to prepare their lectures. Universities are not only producers of content, but also consumers. Participation in open education initiatives helps staff to enhance their knowledge on the use of OER produced by others, to improve their knowledge and teaching practices, interviewees argued. The production of OER has in the opinion of some interviewees also raised awareness among academic staff regarding the importance of copyright issues and the use of Creative Commons licenses.

The University offers courses to staff who want to learn new pedagogical skills, the use of new technological tools or how to create new teaching materials are those offered by the Library and IT service within the support unit for MOOCs and SPOCs delivery. These training courses have so far been only offered to staff involved in the production and/ or delivery of MOOCs and SPOCs, but the UC3M has detected an increase in interest in the last two or three years by other members of staff who want to improve their teaching practice and acquire formal pedagogical training. It would nevertheless be too early to say that staff involved in MOOCs/ SPOCs may as a result have better *general* pedagogical skills than those who are not involved in these courses –instead they will have received specific training to create those kinds of courses. The Human Resources department of the UC3M offers every year general courses, including courses on

pedagogical aspects, for teaching staff, whether or not they are involved in MOOCs/ SPOCs.

Regarding its recognition policy, UC3M does not have a specific policy for certification for participation in its MOOCs. It follows the policies of the two MOOC platforms with which they work (edX and MeriadaX). The University only uses its own badges system for its 'Zero Courses' (SPOCs offered to new entrants to the university). In the future, and specifically for SPOCs, UC3M is considering the introduction of Mozilla badges linked to students' LinkedIn profiles, so that people can show to potential employers that they completed certain courses.

UC3M does not give any ECTS credits on the bases of certificates issued by MOOC platforms or other university providers, except for doctoral studies. Doctoral students can choose to take a MOOC in an accredited platform in agreement with their supervisor as one of the transversal skill courses that are required as part of doctoral programmes in Spain.

7.8   Challenges and prospects

The challenge of changing pedagogical practices and the attitude of teaching staff towards open education is the central challenge that UC3M tries to overcome through the provision of technical support and training. Many members of academic staff are sceptical about the teaching methods and formats associated with open education.

Another important challenge that remains relates to staff's lack of knowledge regarding copyright/ intellectual property rights. A further practical challenge is the preservation of digital materials that are created for MOOCs and SPOCs. They are produced in specific formats that can become out of date and may not be transferrable to new formats.

In terms of future prospects and potential for sustainability of open education initiatives, interviewees called for stronger policy incentives, from European and national authorities, to strengthen open education initiatives. These are currently, at least in the case of UC3M, entirely dependent on the institutional support that the university is able to provide. As one interviewee noted:

> "*European and Spanish universities need clear incentives to further engage in open education...this means additional funding but also regulations that provide incentives for participation (…) There is also another motivator that is acknowledgement; this can be translated/ reflected into rankings….open education should be included in university rankings…Without policy incentives it will never happen on the general basis…There will be good initiatives, but they will be scattered; they will not be sustainable.*"

Finally, another challenge is for UC3M to improve and expand the recognition for participation of its students in open education courses. Such recognition is currently well developed for doctoral level courses only.

7.9   Conclusions

UC3M is an example of an early adopter of open education in Spain and, indeed, in Europe. UC3M's initiatives in open education were reported to be based on the belief that open education -and more broadly increasing access to education opportunities- is one of the core missions of public universities, and the desire of the university to increase its global visibility. Partnership work between different parts of the university has been key to the implementation of open education. The case study has documented, in particular, the importance of the role of the technical staff working at the UC3M Library and IT services in supporting academic staff in open teaching (for example MOOC production) and research, through the provision of advice and guidance.

The main challenge for the future of open education initiatives at UC3M lies in the limits of its funding model for open education initiatives, and its reliance on internal resources.

There are also challenges regarding the interest of academic staff with regards to participation in MOOCs initiatives under the current conditions. Interest in MOOC production seems to be decreasing, and this may be due to internal factors –such as relatively high numbers of unsuccessful proposals in previous UC3M calls for MOOC preparation- and the current system of incentives for participation –as academic promotion systems in Spain prioritise research over teaching and the benefits from participation may be seen to compare unfavourably to the work required by open education initiatives. UC3M is currently looking at ways to meet these challenges and continue to enhance its open education activities.

UC3M should also consider ways to develop measures to assess the impact of participation in its open education initiatives on learners, and consider ways of expanding recognition derived from participation in open education.

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8.   Case study 6: AGH University

Abstract: AGH University – a research-intensive public university specializing in science and engineering – is engaged in open education through its e-textbooks initiative. E-textbooks are open educational resources that provide supplementary content to support students' learning on degree courses offered by the institution. E-textbooks contain text and images similar to traditional textbooks, but also include animations, quizzes, and other interactive features that aid students' learning. The books are created by lecturers at the university to support the courses they teach, and they are licensed through a Creative Commons license that permits adaptations and sharing for non-commercial purposes and requires attribution and sharing on equal terms. For this case study, two members of staff were interviewed (one e-learning developer and one vice-rector) in addition to analysis of the institution's website and documents. The case of AGH shows how repositories for open educational resources can be used as part of a blended learning strategy at universities, and may be a model for other institutions.

8.1   Introduction

This case study examines AGH University's Open e-textbooks as an example of open education in Europe. Founded in 1919, AGH University is the largest technical university in Poland with 15 faculties, 4,200 staff and approximately 36,000 students (combining all undergraduate and postgraduate). [92] The university specializes in science and technology, and has its origins as an academy of mining.

The idea of openness is central to much of the University's approach to education. Its activities in open education began in 2004, when the Centre for e-Learning adopted Moodle as an open platform for learning. In 2010 it launched its OER repository (Open AGH), and it has been actively developing open e-textbooks since 2013.[93] The move to open education was motivated by a desire to provide better academic support to students on degree programmes, reduce barriers to study associated with the cost of textbooks, and as part of a philosophy of openness in education. The university is engaged in open educational networks (e.g. the Coalition for Open Education), publishing and conference presentations related to OER, and will be hosting the Open Education Global Conference (associated with the Open Education Consortium) in 2016.

8.2   Enabling conditions

Interviewees reported several enabling conditions have made the Open AGH e-textbooks initiative possible. First, the AGH's status as a public university has been important in creating a context that favours open education: the university does not charge fees and is primarily concerned with providing quality education to meet the needs for skilled professionals (particularly in engineering and the sciences). As indicated in its mission statement, the University "serves science and industry through educating students, the development of academic staff, as well as research and development."[94] This public mission creates a context that fits naturally with open education; in particular; open educational resources (OER) are helping the institution to fulfil its institutional mission.

A second enabling factor reported by interviewees has been the support from many academics at the institution for open education initiatives. Both interviewees mentioned that open education resources were initially created on a voluntary basis: lecturers were committed to the values of open education and saw potential benefits in terms of their students access to course material. They therefore committed their own time (on top of their teaching, research and administrative responsibilities) to creating e-textbooks.

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[92]   See http://www.agh.edu.pl/en/university/facts-and-figures/
[93]   See http://www.cel.agh.edu.pl/about-us/
[94]   http://www.agh.edu.pl/en/university/

Third, support from the management was reported to be very strong. The rectorate is involved in open education and interviewees indicated that it has formally committed institutional funding to the creation of OER and formally supported such activities in strategy documents. However, there is no direct measurement of either the inputs to open education (because some of the activities are voluntary) or the outcomes.

8.3 Teaching

AGH University's approach to open education focuses primarily on teaching. Furthermore, it is important to note that OER are used exclusively in the context of blended learning. This approach is required because the University's degree courses, which are mostly in Science and Engineering subjects, all require a combination of lectures and laboratory/applied work. Complete distance learning is not allowed under regulations of the Ministry of Science and Higher Education and implementations of this policy in the University[95]; therefore, OER is used by AGH in blended contexts only, although other users may share the resources in any context they see appropriate (i.e. the repository is completely open to the public). E-textbooks supplements students' study in lectures and demonstrate some features of laboratory work, but it is not used for entirely distance-based learning (as is often the case in MOOCs).

The e-textbooks themselves are accessible through the Open AGH repository[96], which currently contains 100 titles in 20 subject groups, which range from physics to engineering to foreign languages. Typically each e-textbook is arranged into several modular units, with a combination of text, images and interactive content in each unit. Textbooks are available in a combination of Polish of English (i.e. some titles in each language, but the majority are in Polish). All content on the site is licensed under a Creative Commons Share-Alike 3.0 license. Textbooks are created by academics (i.e. lecturers and professors) at the University. Participation in content creation is largely voluntary, although some funding is also available to support content creation. The University has relied on staff seeing the value of creating OER and therefore participation is based on individual motivation rather than any kind of selection process or contractual requirement. However, based upon interview data there is some possibility that OER creation may be measured in staff workloads or teaching evaluations in coming years.

Quality Assurance for e-textbooks is undertaken at the Faculty level, as the power to award degrees is devolved to Faculties. The e-textbooks are referenced to the National Qualifications Framework, and a conference paper published by team members' details how the programme was piloted and underwent feedback from academics at the university.[97]

8.4 Research

The University is active in research and has requirements for research from its academic staff, which is reflected in a large volume of research output. Details of all research outputs are made available through the University's institutional repository[98], which includes bibliographic data in various formats. However, in most cases full-text versions of the papers are not available through the repository. Open Leadership at the institution can be understood primarily in the context of support from senior management for the creation of open educational resources. This is not formally mentioned in University documents but is inferred from the responses of interviewees.

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[95] http://www.cel.agh.edu.pl/dla-pracownikow/ - Google Translation
[96] http://open.agh.edu.pl/
[97] Grodecka, K. and Kusiak, J. 2014. Quality and openness - open academic e-textbooks for STEM. http://conference.oeconsortium.org/2014/wp-content/uploads/2014/02/Paper_63-etextbooks.pdf
[98] http://www.bpp.agh.edu.pl/

8.5   Operations

In terms of open operations, the University is engaged with the wider open education community. It is participating as an active member of networks such as the Open Education Consortium[99] and the Coalition for Open Education[100]. Members of the team have also published a national level report on OER through UNESCO's Institute for Information Technologies in Education. The report provides a comprehensive overview of open education initiatives throughout Poland.[101]

8.6   Strategies

Two aspects of AGH University's approach to open education are key to understanding its business model in this area. First, AGH is a public university, which does not charge tuition fees. Therefore, there is no need to consider open education in relation to lost fees or as in any way undermining the core business model of the university. Furthermore, the only direct cost associated with study at AGH University is the purchase of textbooks. Interviewees mentioned that students might have to buy several books for a course, as only some chapters from each book are relevant to the given course. Transitioning to e-textbooks can potentially save students' money and also provide a central, organized repository of course material. Interview responses indicate that the university invests in e-texbooks primarily out of a commitment to openness and because it believes that this approach is the best way to meet the needs of the students and serve its interests. Interviewees did not mention plans to develop other forms of open education (e.g. MOOCs).

Second, interviews revealed that the business model and inputs to OER come from a combination of core institutional funding, which has been allocated after observing benefits of open education (i.e. improved access to learning materials), and external grant funding. With respect to the latter, the institution has obtained funding for the creation of OER and related activities from government at the local, national and European levels.

Because OER are used to support degree programmes that are delivered through blended learning, the use of open learning does not require the exploration of new business models involved other forms of open education (e.g. charging for certificates and badges in MOOCs). Interview responses show that there is no form of accreditation directly linked to the use of open textbooks; rather the open textbooks support existed accredited learning programmes offered by the University, which are referenced to the national qualifications framework. Responses also suggested that the reason for this approach was a desire to better support and enhance learning among students at the institution, rather than development of an entirely new medium of delivery.

8.7   Outcomes and impact

Some evidence of the results of the initiative is found in the growing number of e-textbooks that are available. The primary outcome of the Open AGH e-textbooks is in providing students with access to open learning materials that support their studies, and enhanced possibilities for learning. However, the University does not directly monitor access/ use made of the textbooks. Interviewees also indicated that there is a possibility that the University will use the creation of OER as part of its evaluation criteria for lecturers.

A key outcome that was mentioned in both interviews is increased engagement with other stakeholders through open education. Most notably, the University has been active in creating links with secondary schools through open education: it has created open

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[99]   http://www.oeconsortium.org/
[100]   http://koed.org.pl/english/
[101]   http://iite.unesco.org/publications/3214727/

educational resources that are used in secondary schools and has also offered local secondary schools access to its network resources (e.g. storage, virtual machines, software, etc). There are also plans to work with primary schools in the near future, with the University's Centre for e-Learning developing the content. Additionally, the university has produced open educational resources for emergency rescue workers through an externally funded project.

8.8   Challenges and prospects

The University has conducted a survey to identify and respond to challenges that they are facing in respect to open education. Some challenges identified include relatively low awareness among academics and misunderstandings of the Creative Commons licensing rights. With respect to the former, the interviewees did not mention formal awareness-raising measures (e.g. an event) but suggested that awareness had spread through networks of academic colleagues. With respect to the latter, some academics felt that the open nature of the license would allow private companies to profit from the open resource. However, the Centre for e-Learning has pointed out that this is not likely, because the "share alike" license entails that any private publisher would also have to provide the content on open terms.

An additional challenge is communicating to academics that e-textbooks are different from ordinary textbooks. An e-textbook is not simply an online version of a paper textbook, but instead it has different possibilities for interaction and new ways to present content. Specifically, e-textbooks are less text-heavy than traditional books and rely more on images, animations and interactive features (e.g. quizzes).

Finally, funding the creation of OER is difficult, and the availability of more funding streams directly for this purpose would help the University in this area. However, interviews clearly showed that there is no direct measurement of the costs of open textbooks creation, so it is not possible to provide numbers on this point. The senior management also mentioned that opportunities for international collaboration within Europe would improve the quantity and quality of OER, by enabling the sharing of both content and practices. Specifically, interviews with the senior management indicated that they would welcome the opportunity to work in groups or consortia of European universities, which could involve sharing and translation of open education content and discussions on practice.

8.9   Conclusions

The Open AGH E-Textbooks initiative provides a good example of one approach to open education. Specifically, a public university is able to provide enhanced support to students and reduce students' costs by creating an OER repository, which is made available to the public for free through the internet. The programme appears to have gained widespread acceptance throughout the University and interviewees mentioned that it has generated international interest. There are a few other points about the case that are particularly noteworthy:

- The philosophical commitment to the concept openness in education was reported to be widespread. This commitment is espoused by the University leaders, noted in its websites, and reflected in its use of open licensing and adoption of open source software.

- The unique example of partnership with local schools shows that the benefits of OER in Higher Education do not need to be confined to Universities. In the case of AGH, collaboration with schools facilitates progression from secondary school to University, because students become more familiar with the University and what it offers. Other institutions might seek ways to work with external partners – including but not limited to secondary education.

- The University has adapted the open education approach to fit its needs. Specifically, it has created resources that can be used in the context of blended

learning as required by its degree programme, but the resources are shared so they may be used in other purposes.

The University is very active in national and international networks on open education and is presenting its views and research in these forums. These networks include the Open Education Consortium[102] and the Coalition for Open Education.[103] It will host the Open Education Global Conference (associated with the Open Education Consortium) in 2016.

Further information and references

Table 6: Number of E-Textbooks by Subject

Subject	E-Textbooks
Architecture	3
Chemistry	1
Economics and Business	7
e-Learning	3
Publishing	1
Electronics & Telecommunications	7
Physics	14
Geography and Cartography	1
Geology	20
Mining and Geology	1
Graphics	3
Computer Science	19
Material Engineering	4
Environmental Engineering	2
Foreign Languages	2
Mathematics	6
Mechanical Engineering	4
Metallurgy	2

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[102] http://www.oeconsortium.org/
[103] http://koed.org.pl/

9. Case study 7: Bavarian Virtual University (BVU)

Abstract: The Bavarian Virtual University (BVU) is an example of a network of universities and universities of applied sciences working in online education. While BVU is not a developed case of open education, some of its features resonate with the philosophy of open education -most notably in terms of its aims to increase flexibility in learning. The support and pedagogical approaches employed also have relevance to open education providers. BVU was set up in 2000 by the nine universities and the 17 universities of applied sciences of the Free State of Bavaria, one of the 16 German Länder. BVU represents an online platform that offers online courses organised and delivered by its member higher education institutions to students from Bavaria (for free) and across Germany and the world (for a low fee). The courses offered come from almost all disciplinary fields. Law, medical sciences, business studies and key skill courses are the best-represented disciplines. The courses BVU provides are equivalent to two to six ECTS credit points. Member universities are allowed to integrate them into their study programmes.

The online platform offers course materials, tutoring services and assessment. The intensity of the support provided depends on the course offered: case study participants argued that problem-oriented individualised learning based on case studies requires less tutorial support than online seminars -in which individual topics often are completed successively and students may be required to work together in small groups, demanding significant tutorial support. The vast majority of courses currently on offer are in German.

List of interviewees:

> Dr. Paul Rühl, Bavarian Virtual University
>
> Armin Rubner, LMU Munich
>
> Prof. Dr. Dr. Heribert Popp, Technische Hochschule Deggendorf

9.1   Introduction

Bavarian Virtual University (Virtuelle Hochschule Bayern) is a network of universities set up in 2000 by the 9 universities and the 17 universities of applied sciences of the Free State of Bavaria, one of the German federal states (Länder). Bavaria currently has more than 330,000 students, and feels the need to increase the proportion of its population with a university degree (Rühl, 2013). BVU in this respect represents a part of Bavaria's strategy to enhance and improve the possibilities to attend and successfully complete higher education (Rühl, 2013). The BVU, similarly to its member universities, is almost fully financed by the Bavarian Ministry of Higher Education (Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst). BVU is not an independent legal entity: it is legally dependent on the Ministry of Higher Education.

In practical terms BVU is an online platform that offers online courses organized and delivered by its member institutions to higher education students from Bavaria, Germany and the world. The courses offered come from almost all disciplinary fields, but law, medical sciences, business studies and key skill courses are the best-represented disciplinary fields. The courses BVU provides are equivalent to two to six ECTS credit points. Member universities can integrate them into their study programmes. BVU itself, however, does not offer whole study programmes, only individual courses. BVU courses are not self-instruction materials: tutoring is provided by trained and paid tutors, who are experts in the relevant academic subject. The reported mission of the BVU is to help its member universities to enlarge and enrich their programmes, and help students to organize their studies more flexibly (Rühl, 2013). Offering flexible modes of study had become an increasingly important goal and rationale for BVU because of the growing number of non-traditional students in Bavaria and in Germany (students with children, students who work etc.). In addition, BVU courses were reported to aim to promote

lifelong learning and open education at member universities as a response to expected expansion of the student population, demographic unbalances (with substantial population growth in some parts of the state while other regions face a serious decline) and growing student diversity (Rühl, 2013).

9.2 Enabling conditions

Interviewees agreed that there was not one single rationale for the creation of BVU. Firstly in the late 1990s there was a trend across Europe to create e-learning materials and offer e-learning possibilities at higher education institutions. Distance teaching and learning has never been a very developed feature of German higher education landscape compared to the USA or Nordic countries, and Bavaria decided to address this situation[104].

It is important to stress here that in the German concept the terms "open education" is not used and it becomes untranslatable. The majority of interviewees as well as documents on BVU and similar initiatives use the term e-learning and teaching and claim that courses of BVU are in principle open:

> *"It is first important to talk about what we mean by open as opposed to closed. Our courses are open to everybody from all around the world. No questions are asked about students' former education and the only requirement is that these students pay as small fee (70 Euro for an average course). Besides that everyone from all over the world is free to take part in our courses."*

BVU claims to have taken a realistic approach to e-learning, seeing it as a supplementary and activity to regular teaching and learning. As one interviewee mentioned:

> *"We did not see e-learning as a panacea by which you can change higher education completely, making all learning easier, less expensive etc. We always though that e-learning is a good thing to complement, to aid regular face-to-face teaching and learning, but it is not the answer to all problems that we see in teaching and learning."*

Strong state involvement was a feature of BVU from the start. The idea for its creation originated in some universities in Bavaria, but the Bavarian State soon mandated that all universities in the State take part and become BVU members. Some universities interviewed for the production of this case study contrasted this with their later decision to get involved with the iTunes U or Coursera MOOCs platforms, as those decisions emanated from their institutional strategies. As one of the interviewees noted:

> *"The engagement in the BVU is not a voluntary matter. Every university within Bavaria is a part of it and it is already in its construction. The constitution of BVU is organised by a Government Act. There is no option to be in or out...the only thing you can choose is whether you are more or less active and want to offer courses over BVU."*

While some larger universities see BVU as one of many initiatives in the area of distance and e-learning in which their university by default participates, the smaller institutions in Bavaria see participation in BVU as a mechanism for decreasing dropout rates from their programmes (which they need to specify to the State in the framework of their funding negotiations) and as an instrument for improvement of quality of teaching and learning. The structure of BVU was reported to open up more possibilities for students and

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[104] This has been related to the relatively developed network of higher education institutions in Germany and to the system of financing higher education, which offers free education without tuition fees -so there is no competition between expensive face-to-face tuition and more affordable distance education, as in some parts of the world (Rühl, 2013).

teaching staff of smaller regional institutions and universities of applied sciences because the offer of BVU can increase the diversity of their usual study offer:

> *"In our regional universities of applied sciences we do not always have experts in all field and professors for all courses, but we can offer our students to take these courses from other HEI within BVU instead. This is a great thing as it enables small universities of applied sciences to obtain access to a whole set of additional BVU courses for our students -as in one big online campus." –case study interviewee*

The main rationale for establishment of BVU as a distance education provider was to cater for the demand for more flexibility in higher education, in order to increase participation –and reduce dropout rates. These are policy priorities for the Bavarian state. BVU referred to studies which report that today more than half of German students are not traditional full-time students –instead, they are students who at the same time provide care for their children, other relatives, or are working to fund their studies, for example. It is this trend that creates the need for more flexible modes of study. Online teaching and learning is seen as one of the answers to this need. This has become particularly visible with the introduction of the Bologna system of studies and process, and the increase of Master-level courses on offer –as a result of the movement from long bachelor courses in Germany to a (shorter) BA plus MA structure. As one interviewee noted:

> *"It is wise to offer master programmes with a high proportion of online teaching and learning…It is not feasible that all universities offer all the online courses needed, but in cooperation they may complement each other. If we treat our university system as a system and we boost cooperation among universities in the field of online teaching and learning then we can get quite large portfolio of online courses with a rather limited amount of money."*

Interviewees thus justified the creation of BVU as a cooperation platform also with reference to cost effectiveness reasons. BVU's systemic approach enables it to utilize resources from a large network of member institutions to offer an extensive list of courses that covers the majority of disciplinary fields of study. It should be noted that BVU is implemented in a state financed system of higher education, which has traditionally relied on cooperation between institutions. Interviewees noted that a similar structure would be more difficult to implement in a system of higher education based on tuition fees and competition among institutions.

9.3   Teaching

BVU delivers a large number of courses. In the academic year 2013/2014, the BVU delivered a total 661 courses. It had 127,120 course enrolments by approximately 46,454 individual students (BVU, 2014[105]).

BVU defines its approach to online teaching and learning as "macro-level blended learning with the aim of offering high-quality teaching with intensive tuition in a cost-effective way". By macro-level blended learning BVU understands "the integration of single online courses into courses of study or curricula which otherwise (and for the most part) consist of "traditional" face-to-face courses (seminars, lectures etc.)" (Rühl, 2013). In such a system students are able to earn credits for courses they complete online, but they cannot complete their degree through pure online education, as the majority of courses that they are required to take are taught face-to-face. BVU considers this combination of face-to-face courses with courses that are delivered online (possibly complemented with a final face-to-face examination) much more flexible than micro-level blended learning (understood as the combination of face-to-face teaching and web-

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[105] Figures for the academic year 2014 / 2015 are available at:
http://www.vhb.org/fileadmin/download/statistikflyer.pdf

based teaching within a single course). Moreover, the occasional participation in BVU courses does not lead to the social isolation sometimes associated with e-learning (Rühl, 2013).

BVU courses offer different pedagogical approaches: some courses are based on virtual seminars with intensive student cooperation, some are organised as online lectures with tutorials, and some function as virtual laboratories. The key characteristic, as one of the interviewees noted, is that students receive tutoring by academic experts in the field. This tutoring is funded by the BVU. BVU does not rely only on peer feedback or self-assessment.

The course offer depends on the interests of staff at BVU member institutions, and there is no deliberate policy on balancing the number of courses offered by different member institutions. Seven major universities in Bavaria provide the bulk of BVU courses. Among its 30 members only 2 small institutions do not offer any courses themselves.

The main target group of the BVU are Bavarian students enrolled at higher education institutions in Bavaria (more than 95% of all users). Students from outside Bavaria or users who are not students can participate and pay a relatively small fee. The main reason for this is that BVU courses are created to meet as closely as possible existing study programmes at Bavarian universities and universities of applied sciences. They are not created to meet specific demands of people interested in further education or in additional training for their jobs. This is unlikely to change in the future. As one interviewee explained:

> "*In the near future there will not be any changes. The first reason is that the demand of by our main target group is growing rapidly and needs all our resources.*"

Opening the BVU to further education students (in relation to programmes like MBA or other business courses) would place BVU in a position to compete with the offer of its member institutions. Interviewees reported that in other fields further education courses do not have a high demand and their organisation and delivery would not be cost efficient.

The process of choosing new courses to be offered at BVU was reported to be designed to foster cooperation of higher education institutions and consists of two main steps: first a call for proposals, and then a call for tender.

BVU member universities are invited to submit proposals for new online courses twice a year. For each course the interested universities are obliged to form a partnership with at least one other BVU member institution. In the case of academic fields that are taught only at one member university (e.g. veterinary science), universities from outside Bavaria are also eligible to be partners. Proposals by a single university are not eligible, with the rare exception of cases where a subject is taught at just one Bavarian university (e.g. veterinary medicine). The universities that apply to organise a BVU course are required to indicate the study programme(s) in which this online course will replace face-to-face teaching. Furthermore, they have to provide the estimate of the number of students they expect to participate in the course each academic year, as well as to commit to the automatic recognition of credits obtained through that course (Rühl, 2013).

The BVU Programme Committee reviews the proposals submitted. BVU specially fosters courses that enrich current study programmes and facilitate the establishment of new study programmes (e.g. master programmes at universities of applied sciences) (Rühl, 2013). On the basis of the recommendations of the Programme Committee, the Steering Committee decides which proposals to fund. The partnerships submitting the proposals are then invited to submit detailed descriptions of the courses.

The second stage is the call for tenders for the development of the course and tutorial support. The tender is published on the BVU website and is sent to organisations of

distance learning in German speaking countries. BVU claims that their aim is not to reinvent the wheel and fund the design and development of courses if a suitable course for the given purpose exists elsewhere and a license for the BVU can be obtained (Rühl, 2013). In the majority of cases bids are submitted by one of the institutions of the partnership that made the course proposal, and very rarely there are competing bids or bids coming from universities outside Bavaria. In the call for tenders bidders make a bid generally for both for the production of the course and for the tutorial guidance of the students. The production of standard courses with an equivalent of two teaching hours per week and semester (mostly 3 ECTS credit points) can be funded with up to 45,000€. Costs exceeding this sum must be borne by the consortium -although interviewees agree that none of the courses have exceeded this sum yet.

In order to be accepted as the producer of a proposed course, bidders have to sign a contract with the BVU where, as a rule, they transfer BVU the exclusive right to use the course online (Rühl, 2013). BVU does not have a policy that promotes the use of OER in their courses and the choice of teaching materials and the task of obtaining relevant licences is left to the course providers. Interviewees justified this with reference to the variety of disciplinary cultures of course producers:

> "*We leave the final decision to the course provider and to teachers. We have to take into account the variety of cultures in different fields of study. We have a policy of maximum flexibility and maximum respect for the established culture in the given field of studies."*

The institutions that provide the course and individual professors (as course leaders) commit themselves to keep the course in operation for at least five years. The professors in charge for the course are responsible for its delivery and also choose and supervise tutors.

Once a course is organised it is also open to other BVU member institutions outside of the partnership and their students free of charge. However, the recognition of credits is not automatic and these students have to go through the recognition procedures that their home institutions specify.

BVU has a centralised QA system for their courses. BVU claims that, in general, the courses that it offers are subject to more rigorous QA mechanisms than the regular courses offered by Bavarian higher education institutions. The development of every new course is supervised by experts from the partnership that submitted the course proposal, and by the project management of the BVU Office. Together, they approve the new course for inclusion in the BVU programme (Rühl, 2013). Students evaluate their courses every semester and the results of these evaluations are discussed with relevant deans from institutions and individual lecturers. Additionally, there is a mid-term evaluation of the course operation (normally after five semesters) whereby each course is evaluated by two peer experts (always professors from outside of Bavaria). One of the evaluators focuses on matters of media, pedagogy and didactics, and the other on the subject content (Rühl, 2013). Student and expert evaluations are discussed by the BVU Programme Committee and the Steering Committee and with the course providers. Interviewees confirm that the majority of problems reported so far are minor issues raised in the students' evaluations. These issues are usually resolved by the BVU Office, in cooperation with individual teachers.

9.4   Research

BVU is not a platform for the cooperation in the area of research.

9.5   Operations

Relevant committee minutes and regulations of the BVU are available online (in German) and the general management of BVU can be considered as open. BVU is not an independent legal entity. It formally functions as part of state administration. Its

structure is defined in the Government regulation by which it is established. The basic body of the BVU is the Assembly of Member Universities, in which each member university is represented by a Commissioner, who in turn is the key person for all BVU affairs within her/ his institution.

The BVU Steering Committee consists of three people. The President and two Vice Presidents are presidents of member higher education institutions. The President of the BVU is usually the President of a university, and one of the Vice Presidents is President of a university of applied sciences.

The Programme Committee consists of eight people, most of them vice presidents for teaching and studies of member higher education institutions. There is a balance of representation between universities and universities of applied sciences.

While all positions mentioned so far are held by professors as part of their ordinary workload, the Managing Director and the employees of the BVU Office work for the BVU full-time. The BVU Office currently has 17 FTE staff who work on BVU finances, project management, public relations, student registration and technical support. The Office is located in Bamberg.

9.6   Inputs, finance and business models

The operation of BVU relies strongly on the public funding it receives from the Bavarian state budget. Between 2000 and 2015 a total of € 58.2 million were spent on the BVU. Its annual budget is currently €6.2 million. The bulk of this sum comes from the Bavarian state budget and other state programmes including German Federal programmes. The member universities contribute one Euro per student and semester, i.e. a total of around €0.7 million per year. This funding allows students enrolled at Bavarian higher education institutions to take BVU courses for free. Other persons have to pay a moderate fee.

The total member contributions are approximately in the region of 700.000 Euros. The largest contribution comes from the Ludwig Maximilian University in Munich, at approximately 100.000 Euros per year, while the smallest institution pays just over 6.000 Euros per year. In addition, there is an allocation of 1.2 million from the Bavarian State budget which covers the staff costs and the costs of running the BVU Central office.

The programme funding, which is annually around 4 million Euros, is additional to this. This funding finances the development and updating of courses as well as student tutoring. Professors running the courses select tutors themselves and they are usually advanced postgraduate students. Every professor course leader is free to send their tutors to the tutor training programme organized by BVU, which it is organized annually at some of the BVU member universities.

BVU finances the development of around 70-80 new courses every year, contributing up to 45.000 Euros per course. For each course universities get a grant after the lecturer provides the financial plan about how they want to distribute that money. BVU also provides funding for course updating, provided that there is still a demand for the updated course. BVU expects courses to run for at least 5 years and every professor who receives funding for the creation of a course has to agree that (s)he will personally oversee it for a duration of 5 years. Tutoring is paid for every semester by BVU on the bases of the number of students who apply for credits in the given course. Tutors are paid through the additional annual grants received from BVU.

In addition most BVU member universities have self-financed development units (media labs) which coordinate the creation of BVU courses. In the case of larger universities like LMU in Munich these units coordinate all online and open education initiatives -like MOOCs and I Tunes U.

The case study revealed different views regarding the payment of membership contributions:

> *"The Board is not happy about it because they have to pay that money, but it brings benefits to the university too. Of course the Chancellor (Kanzler) may say that their contribution can be spent elsewhere in the university. But if they count the amount of funding they get (40-50.000 Euros per course, at least 8 courses per year) that is much more than what they pay into BVU as a membership contribution." –Case study interviewee.*

Some interviewees stressed that BVU is the only available funding source for teaching besides the regular institutional funding from the Bavarian state.

The motivation of individual professors to apply for the development of a BVU course does not come from financial incentives, because they cannot receive any additional salary supplements. The benefits are more indirect, as one interviewee explained:

> *"They get possibility to create tutor jobs and have freedom to select the students who they will employ for that role. For some professors a motivational factor is the desire to become well known beyond their own university. There are many professors now cooperating in the BVU that have become quite well known in the whole of Bavaria exclusively due to their BVU courses. Also some of our professors are experts in creating such courses and it is attractive to get money to create these courses for their own chair."*

The BVU funding model is thus highly dependent of public funding, which at the moment are available. Despite general budget public expenditure cuts funding for BVU was reported to 'very probably' continue in the future; the number of students is estimated to grow even further. It has been forecasted that the number of enrolments in 2018 will be almost double compared to 2013 (Rühl, 2013). A shift in the direction of revenue generation through the offering of further education courses is highly unlikely to happen, as it is understood as contrary to the idea of cooperation among universities:

> *"There is no push for us to go in the direction of further education and revenue generation. At the beginning some stakeholders considered that the BVU could be financed by its own revenues, but soon they began to understand that this would not blend well with the idea of cooperation among universities. We have a complex situation as on the one side the State stimulates competition between universities but at the same time sees the benefits of universities' cooperation. And if BVU would start anything which member universities would interpret as competition to their own activities then the idea would be dead". –case study interviewee.*

9.7 Outcomes and impact

9.7.1 Outcomes

BVU has produced various outcomes. In terms of pedagogical outcomes, interviewees signalled the requirement for cooperation with other institutions as a beneficial feature of the BVU since it leads to collaboration and mutual exchanges and learning in the area of pedagogy.

When it comes to teaching, BVU has experienced a rapid growth in terms of student numbers and number of courses on offer since its creation. In 2000/01 85 courses were offered (number of enrolments 2,103), up to 265 in 2004/05 (19,823 enrolments) and 407 in 2009/10 (66,421 enrolments). The latest figures show that in the academic year of 2013/2014, BVU delivered a total of 661 courses and had 127,120 enrolments by

approximately 46,500 individual students[106] -so that approximately one in eight Bavarian students was a BVU user. Completion rate at BVU is also relatively high and 57% of enrolled students manage to pass the course exams and receive ECTS credits for the attended course (BVU, 2014). Based on the interviews the growth trends in student numbers are expected to continue showing the high demand for more flexible modes of teaching and learning and reflecting changing and more diverse student population in Germany and Bavaria.

9.7.2 Impact

BVU offer was reported to get positive reviews, in particular from part time students and those students who require flexible teaching and learning. As one interviewee pointed out:

> "*In our student evaluations we often get very positive comments from students with young children or other care responsibilities. This is rewarding as it shows that the initiative helps people who otherwise would not complete their studies*."

BVU was also reported to contribute to the reduction of dropout rates and to make a visible impact on the performance, in particular, of smaller universities of applied sciences in this area. BVU courses were also reported to allow non-traditional students such as those entering higher education without the secondary education exam (Abitur) to enter higher education, but through a vocational route in secondary education combined with a set number of years of work experience. It allows these students to study and work at the same time and increase their chances of completing higher education degrees. For example it was reported that in the one of Bavarian universities of applied sciences which incorporated a large number of BVU courses into its study programmes students coming from the vocational track (vocationally qualified) achieved better grades on average than students from traditional educational background who followed regular courses.

9.7.3 Recognition policy

BVU has a liberal access policy and in the majority of BVU courses there are no requirements for prior education. There are some exceptions like courses in the medical field, which use patient data –these courses can only be used for the education of future doctors and not for the general public.

With regard to BVU's recognition policy, students receive ECTS credits after successful completion of their courses. All credentials are issued by the university responsible for the course and not by BVU. Students who complete courses are granted automatic recognition of their credits if they come from the institutional consortium, which agreed to propose and/or offer that course in the BVU network. Students from other institutions have to apply for recognition of their course credits within their own institutions and study programmes. The recognition process is based on the academic decision of the relevant study programme coordinators –based on the BVU course fit, content and profile compared to the courses specified in the study programme in which students are registered. Interviewees from universities point out that they were not aware of any cases of complaints about the recognition of their courses at other universities, although they indicated that there may be occasional recognition problems for university students who obtain credits in courses taught by universities of applied sciences' lecturers. This is not a systemic problem and when it occurs the recognition can be facilitated by communication between the two professors concerned.

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[106] The data for 2014 / 2015 can be found here:
http://www.vhb.org/fileadmin/download/statistikflyer.pdf

9.8 Challenges and prospects

The number of students attending BVU courses is expected to continue growing fast in the future. Interviewees agree that this constant growth is a challenge organisationally and financially, but also that the challenge of offering greater flexibility for higher education studies was an increasing priority and needed institutional responses.

A further challenge is that the change in academic cultures that is triggered by online education offered through BVU is not always equally welcomed across the Bavarian higher education sector:

> *"We have several thousand professors in Bavaria and not all of them are happy with the idea of online education. There are still many who perceive BVU as a competitor to what they are doing. There are deeply rooted fears and it is a challenge to convince everyone that what we are doing can help them and that they can profit from it" -Case study interviewee.*

Universities involved in activities such as MOOCs and I Tunes U, besides their BVU involvement, also noted the relatively limited human resources devoted to universities as a main challenge for the future, especially in the context of growing demand for its services.

9.9 Conclusions

The case of BVU provides an example of education-focused cooperation between state funded universities in the German state of Bavaria. It represents the case of state coordinated and funded action. BVU promotes and coordinates the development and implementation of tailor-made online courses offered at Bavarian higher education institution for students (without additional costs for students) and others (for a low fee). Online courses are developed according to a 'blended learning at macro level' model, meaning that the courses are fully incorporated in the study programmes at universities and universities of applied sciences. BVU represents an example of a systemic policy measure targeted at offering more flexible learning modes for an increasingly diverse higher education student population in Germany. Interviewees argued that after more than a decade of existence, the success of this initiative is reflected in its increasing student and course numbers as well as in student satisfaction reports and in the reduction of dropout rates for students from non-traditional backgrounds.

BVU funding and business model, which is based on public funding, may be under pressure in the future if the current trends in growth of student demand continue at a similar rate in the future.

The concept of BVU aims to foster cooperation between higher education institutions in Bavaria, which is expected to result in pedagogical benefits and significant cost efficiency benefits. This was reported to be the case especially in the case of smaller institutions which are able to increase their study offer significantly by incorporating BVU courses into their study programmes. As one interviewees noted, in a primarily state funded system of higher education -like the German- the only way to increase system cost efficiency and reduce duplication of efforts is through cooperation programmes and projects like BVU.

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10. Case study 8: OpenupEd

This case study focuses on OpenupEd, a pan-European initiative aiming to promote a common vision of openness in MOOC offer and fostering collaboration between institutions. OpenupEd has developed a set of quality criteria for MOOCs (based on European values as equity quality and diversity) that works as a quality brand for its members. The case shows that OpenupEd is growing slowly and needs to move out of the distance universities' world if it wants to scale up and spread its vision of openness on education. For this to be done, the initiative should offer extra services oriented to catch traditional universities interested on starting MOOCs and avoid to rely financially on membership fees, at least in its take-off phase.

List of interviewees

> Mr Darco Jansen, programme manager at OpenupEd

> Mr Edmundo Tovar, Responsible for Open Education Office at Universidad Politécnica de Madrid. This is not yet an OpenupEd member but it has submitted an application.

> Mr. Nicola Paravati, Coordinator of UNINETTUNO OpenupEd initiative and member of the executive committee at OpenupEd.

10.1 Introduction

The OpenupEd initiative is a non-profit partnership for MOOCs set up by the European Association of Distance Teaching Universities (EADTU) and supported by the European Commission. This initiative works as a central node of a network of decentralized MOOCs providers that commits with a common philosophy of openness. OpenupEd is focused on promoting a specific view of openness in education, increasing the visibility of the members and guaranteeing the quality of the MOOCs under its umbrella. Additionally, some common services are offered to its members.

OpenupEd is an interesting case study for OpenEdu because it is an example of initiative trying to boost the cooperation and coordination of Higher Education Institutions in a concrete field of Open Eduation: the MOOC offer. Although OpenupEd members usually are leaders in the field of Open Education and early MOOC adopters their initial experience can be extrapolated to other institutions aiming to opening up education via MOOCs and cross-institutional collaboration.

10.2 Enabling conditions

According to an OpenupEd programme manager the initiative was born as a response of the EADTU to two circumstances: the need of a quick and common action to the extension of the MOOC phenomena at European level identified in a 2012 survey of its members[107] and the preparation of the Opening up Education initiative by the European Commission (European Commission, 2013). At a time when the American universities were clearly leading the MOOC landscape under a for-profit oriented model the idea of making a European counterpart was welcome. Therefore, the initiative was set up trying to reflect some of the previously identified European values such as equity, quality and diversity.

After the germinal phase of vision definition, the initiative was officially launched in April 2013 including at the beginning 40 MOOCs from 11 different institutions supporting the features and values of OpenupEd. Nowadays, the initiative has considerably grown in number of MOOCs offered, but it has grown to a lesser extent in terms of new

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[107] Mainly, EADTU consists of distance universities and national associations of conventional universities with member/s involved in distance education.

institutions involved. In addition to the founder institutions, three new universities became members so far. These are: Open University of Cyprus in January 2015, FernUniversität in Hagen (Germany) and Athabasca University (Canada) in October 2015. According to OpenupEd managers there are two other universities that are going to join in December 2015-January 2016: Hellenic Open University and Dublin City University. Additionally, University of Derby is under review process.

OpenupEd is focused on Europe, however recently it started a participation in an UNESCO project called "Globalizing OpenuEd, which in words of openupEd manager aims to reach out from the European OpenupEd MOOCs initiative to institutions in other parts of the world (primarily Asia and Africa), in order to inspire, explore, and support them to establish similar partnerships working in a global network of linked initiatives. So far Open University of Nigeria (OUN) has joined to OPenupEd as an associated member[108] under the umbrella of this project.

10.3 Promoting a common vision of Openness in education

As stated on its website, "OpenupEd aims to contribute to opening up education to the benefit of learners and the wider society. The vision is to reach out to all those learners who are interested to take part in online higher education in a way that meets their needs and accommodates their situation". For this, the initiative supports the openness of the education from a holistic point of view removing all unnecessary barriers to learning and providing the learners a reasonable chance of success in education. A comprehensive list of barriers and how MOOCs and OpenupEd MOOCs can overcome them have been recently developed in Mulder and Jansen, 2015. In general, removing barriers implies an understanding of openness that goes beyond free (gratis) and includes other dimensions as open accessibility, open licensing, freedom of place, pace and time, open entry, open pedagogy (Weller, 2013 at Rosewell & Jansen, 2014). In words of a programme manager of the initiative this conception of openness is in line with the philosophy and experience of EADTU members on distance learning and Open Education.

At operational level, the OpenupEd conception of openness is reflected in the eight features of the OpenupEd framework[109].

1. Openness to learners
2. Digital openness
3. Learner-centred approach
4. Independent learning
5. Media-supported interaction
6. Recognition options
7. Quality focus
8. Spectrum of diversity

The link between the features and the broad European principles mentioned in the "enabling conditions" point is defined in the OpenupEd webpage as follow: features from 1 to 4 are related with equity, features 4-7 to quality and feature 8 to diversity.

The above described features work like guiding principles to which OpenupEd supports, but they are not mandatory characteristics to become partners of the initiative. To become partner of the initiative, applicants first need to make a self-assessment exercise of all the features. After that, they are required to develop a roadmap, focused

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[108] http://www.openuped.eu/partners/110-associate-partner
[109] A complete description of the features could be found here: http://www.openuped.eu/images/docs/OpenupEd_quality_label_-_Version1_0.pdf or in the features tab of the OpenupEd webpage: http://www.openuped.eu/mooc-features

on some (or all) of the features, detailing how they plan to opening up their educational offer. Therefore, OpenupEd consists of members that in practice have different configurations of openness on its courses and, therefore, different degrees of compliance with the ideal situation of full openness supported by OpenupEd philosophy.

10.3.1 Promoting quality on MOOCs offer: the OpenupEd quality label

OpenupEd aims to prompt higher education institutions to become more active in quality open education via MOOCs. The OpenupEd label[110] was launched in January 2014 as a tool to facilitate this process. The label is based in the previously developed by EADTU E-xcellence label for e-learning in higher education[111] and it is necessary to be achieved for non-EADTU members that aspire to become members of the initiative. EADTU members obtain the OpenupEd label automatically as they pass an internal review based on E-xcellence label. According to data from the OpenupEd webpage, so far no non-EADTU member is part of the initiative, but currently OpenupEd is progressively expanding its scope and some universities have applied for the OpenupEd quality label. Therefore, the real impact of the quality label remains to be seen.

The quality process for achieving the OpenupEd label is defined in Roswell 2014 as follow:

1- OpenupEd partners will be Higher Education Institutions (HEI) which meet national requirements for quality assurance and accreditation.
2- The HEI should have an internal QA system in place to approve a MOOC.
3- The HEI obtain the OpenupEd MOOC label at entry by a self-assessment and review process that will consider benchmarks both at institutional and course level (for two courses initially).
4- The HEI should endorse the eight OpenupEd features (below). All MOOCs must comply with the features openness to learners and digital openness'.
5- The OpenupEd MOOC label must be renewed periodically. Between institutional reviews, additional MOOCs will be reviewed at course level only.
6- The institution evaluates and monitors its MOOCs in presentation.
7- The overall quality process is intended to encourage quality enhancement through self-assessment and review.
8- The OpenupEd MOOC benchmarks are themselves provisional and open to revision.

The OpenupEd label includes a list of 32 benchmark statements that allow self and external assessment at both, course and institutional level. The 21 benchmarks for institutional level are grouped in six categories: strategic management, curriculum design, course design, course delivery, staff support and student support. Additionally there are 10 benchmarks at course level. The complete list of benchmarks can be found in a public document (Rosewell, 2014).

Consistent with the idea of supporting the diversity approaches not all benchmarks are expected to be achieved by all institutions. Variety is welcomed and institutions can choose a set of benchmarks that fits with their own model and culture of openness. The benchmarking process is conceptualized as an improvement tool and not as a definitive goal to be achieved. Regarding to the features, all them must be endorsed and considered by the institution to obtain the quality label, however there are two that are a must for becoming a member: openness to learners and digital openness.

As reflected in a recent paper (Roswell and Jansen 2014), the self-assessment and review process mentioned in the third point of the quality process are focused around

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the benchmarks. At this point the process works as follow: First, institutions should carry out a quick scan of what is its position regarding the benchmarks to identify which ones fit to their strategy and what are their weakness and strengths on the identified ones. Secondly, a more detailed self-assessment process including different stakeholders should be carried out to gather evidence for each benchmark, including the level of support of the OpenupEd features. Thirdly, a roadmap detailing how to improve in the benchmarks is developed by the member of the consortia. Finally, the self-assessment documents and the development plan are reviewed by two independent external assessors who make suggestions of improvement to be considered by the institutions. After some years, OPenupEd plans to control the degree of compliance with the original roadmap and promote a new self-assessment and roadmap process. However, because OpenupEd is a recent initiative, no university has arrived to this point yet.

10.3.2 The content: MOOCs, digital openness and open licenses

In spite of the fact that digital openness includes both, online free access to courses and open licensing, in practice, only the first is a mandatory requirement. According to OpenupEd manager, this initiative promotes all its members to adopt an Open license policy regarding the content[112], but it is considered a medium term goal. Currently open licensing is not an initial requirement to become part of the initiative but rather, according to OpenupEd manager, what is expected is that in some years all the members will be using open licensing models.

There are many reasons why OpenupEd considers the licensing an important issue. The main reason is the protection of the author's rights and the clarification of what can be done with the content of their MOOCs. But at least two more reasons have been identified in the interviews. First, the initiative considers that informing learners/customers about the openness of the content is an ethical responsibility. This information allows them to do better and foment more responsible choices in the educational market. Secondly, the initiative considers that open licensing foster the innovation and variety in education by extending the audience and enhancing the knowledge circulation between learners, creators and institutions, which are able to reuse, revise, remix and redistribute the original content adapting it to their own needs.

The integration of some extra developments around licensing in the OpenupEd strategy is being discussed. The first one, where privacy issues are in the core of the debate, is to support an open data policy. However, more innovative developments are also being considered. An example is the discussion around the possibility of supporting the reuse of full MOOCs, including not only the content but also the tests, exams, interaction channels etc.. Nevertheless, the acceptance of this last option would depend on the strategy and business models of the individual partners. A university that would charge the students for additional services as tutor support, social interaction tools, or recognition would be a priori reluctant to adopt the open licensing of all the services.

10.3.3 Recognition of Open Learning

A priori, the OpenupEd quality label guarantees a quality educational experience that can bridge between informal and formal level (Rosewell and Jansen, 2014) and therefore, the existence of at least one free recognition option is a must to become part of the initiative. Courses that not offer this possibility are not considered MOOCs. However, what type of options to offer is still a choice of the institutions and sometimes, when institutions use a multi-provider platform to deliver its MOOCs the offer of recognition options is linked to the requirements of the platform. Completion certificates, badges or ECTS are some examples of the recognition options offered. In the case of ECTS, the provision of certificates can be free, but when a student wants to use it in formal education, they usually need to pay a fee.

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[112] Has to be note that there is not position around open software

This means that despite OpenupEd supports the recognition of the successful course completion through ECTS credits this is not a mandatory option. Indeed, the offer of ECTS for MOOCS is still not incorporated in all the institutions. UNED and UNINETTUNO are examples of universities offering ECTS for some of its MOOCs.

But the offer of ECTS for MOOCs is not an easy issue. As detected during the interviews carried out for the case study there are at least two important issues that make the offer of ECTS still not fully compatible with the concept of Openness as supported by OpenupEd. Currently, is very usual that ECTS for MOOCs are only recognised in the institution, or at best at the country, where it is provided. Indeed, interviews show how universities are still in a previous phase where they are concerned about the integration of the MOOC offer into the internal formal education offer. OpenupEd would like to achieve the ECTS provided by any of its members to be recognised by the others members, but it is seen as a medium-long term objective because there is still a lack of confidence between institutions. Additionally, if online exams are not provided, the offer of ECTS does not bring equal opportunities to all the learners. The opportunities vary depending on the learner´s country of residence. The reason is that some learners might have to travel to a different country or region (the university one) in order to be able to carry out the face to face exams that conduct to ECTS credits.

10.4 Membership and organisation

OpenupEd is led by the EADTU, but not all EADTU members [113] are members of OpenupEd. The reasons identified in the interviews for not joining the initiative are diverse. First of all, not all EADTU members have a clear position towards the MOOC offer. Secondly, there are some of them that consider the effort to develop MOOCs according OpenupEd features too high. On the other hand, some universities decided to become members even when its regulatory frameworks do not entirely fit with the OpenupEd described features. This is the case of universities which cannot release their content as OER because they have a contract with the authors of the content including copyright (e.g. Anadolu University) or universities that are not incentivized to use OER by the legal framework since, next to the number of students, are also funded by the development of traditional educational content (e.g Fern Universität in Hagen University).

Currently there are 14 OpenupEd individual members [114] and 8 extra partners in planning[115]. The analysis of the interviews carried out for the case study shows that all them, (whether face-to-face or distance universities), have a tradition of engaging with previous Open Education offer such as OER and OCW. The transition to MOOCs is thus facilitated by an existing strategy and infrastructure, and in some cases it is even considered as a natural evolution.

The OpenupEd members are required to be institutions with the capacity to define a broad strategy around Open Education and with the capacity to recognise MOOCs into the formal educational system awarding ECTS. Therefore, the members have to be institutions which are part of the formal Higher Education system of their own country and not individual initiatives are able to join to the consortium. The member institutions pay an annual fee of 2,500 euros.

Diversity is a core element in the conception of OpenupEd and therefore the initiative embraces a decentralized model where the member institutions are in the lead. A clear example is the fact that unlike other for-profit MOOC initiatives, at OpenupEd every university is free to choose what platform to use (some choose existing Learning Content Management Systems as Moodle, others develop their own software to create the

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[113] http://www.eadtu.eu/members/current-members
[114] http://www.openuped.eu/partners/77-current-partners
[115] http://www.openuped.eu/partners/52-partners-in-planning

courses as UNED's OpenMOOC...). Additionally, all content and data (including its analytics) are generated and curated at member level.

This decentralized model is expected to foster the diversity of pedagogical approaches, software and languages, but on the other hand, the main shortcoming identified by OpenupEd central staff is the fact that the initiative depends completely on the efforts and commitment of the partners.

A key issue within the OpenupEd initiative is the tension between exclusiveness and inclusion that underlies its membership model. On the one hand the inclusion of a large number of institutions is consistent with the mission of spreading the OpenupEd principles and conception of openness. But, on the other hand, OpenupEd aims to work as a quality brand and therefore some entrance controls are required.

Consistent with the philosophy of spreading its vision of Open Education, the initiative follows the principle of open membership [116], allowing external non-EADTU higher education institutions become members. It nevertheless has to be noted that in order to protect the OpenupEd quality brand the entrance requirements for them are different.

No entrance requirements are applied to full EADTU members. The logic that underlies that decision is that, although there are variations, open universities a priori share a minimum philosophy of openness that makes them closer to the ideals defined by OpenupEd. In addition, to be part of EADTU, they need to pass a review that shows they are maintaining a quality standard. The external candidates however, are subject to a review entrance procedure where they are required to show a high level of commitment with the OpenupEd features through an institutional development plan to achieve them. In order to monitor how seriously an institution is embracing their features, the institution must obtain the OpenupEd quality label. In between these, the members of national associations that are part of EADTU are subject to light entrance requirements.

10.5 Strategies

Currently OpenupEd is part of EADTU and does not have a separate legal statement. From a legal point of view OpenupEd is considered as an activity of EADTU. This implies that the initiative is partially maintained by EADTU funds: a mix of members' fees, European Commission Lifelong Learning annual operating grant[117], and projects money. But in parallel OpenupEd has its own funding sources comprising the specific membership fees of the non-EADTU members and the income from its own participation in MOOC-related projects[118].

According to an OpenupEd programme manager interviewed for this case study, the next milestone to achieve in the financial plan of the initiative is the sustainability through a foundation-like model. Currently a large part of the funds depends on temporary sources but in order to become sustainable the initiative aims to increase its structural funding. An estimation done by the initiative shows how, maintaining this fee, around 35 members would be needed in order to the central services become financially sustainable. It means less than 100,000 euros per year needed to cover the costs of the central services. After this amount is reached the initiative could consider adding extras services to the members or even reducing the membership fee.

When compared with the huge amount resources that other MOOC initiatives has available less than 100,000 euros may seem small, but has to be noted that the fees are not comparable because of the different services offered. OpenupEd does not aim to

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[116] Additionally, the initiative has undertaken actions to promote its philosophy outside Europe and has opened the October 2014 strategy meeting to everyone interested on the initiative.
[117] European associations active at European level in the field of European integration and education and training.
[118] Currently two MOOC related projects: EMMA and HOME.

compete against for-profit oriented MOOC initiatives as Coursera, EDX or FutureLearn but rather to support an alternative decentralized model closer to the concept of openness as defined by their features. In words of one of the interviewees, they just are not competing in the same playfield.

Regarding the business models for MOOCs offered by OpenupEd members, there is no clear trend to be observed. It sees that there is no widely accepted account of costs and benefits. On one hand, it is not obvious how to measure the benefits associated with the MOOC offer[119] costs, on the other hand, are sometimes covered with money from different budgets, hindering transparent calculations. Despite the fact that it is still in an early stage, an example of a business model that seems to work is the one of the Italian distance university UNINETTUNO. The model consists of offering video lessons, materials and forums for free, but if students want ECTS credits and/or tutor support, then they have to pay for it. UNINETTUNO declares to have a good transfer of students from free to official for pay courses. The university started offering 4 courses and now is offering around 227 of which 123 are listed in OpenupEd webpage. As all courses offered by UNINETTUNO are based on existing courses the associated costs of making them free are relatively small.

Although there is not a clear measurement of the benefits, from the point of view of OpenupEd members, the two main advantages of the initiative are the enhanced visibility that the participation in the initiative entails and the diversification of the channels through which courses are offered in order to reach different profiles of learners (including international learners). Being part of OpenupEd means being recognised as a member of a well-know, distinctive and quality-controlled brand that positions the university as a supporter of the features of openness described above. Additionally, OpenupEd offers its portal that works as a directory linking to the institutional platforms (Mulder & Jansen, 2014) increasing the visibility of the courses offered by the university and facilitating the transnational market coverage through a collective exposure of the courses in the webpage.

Although they are not mentioned as part of the advantages in the interviews with representatives of OpenupEd members, the initiative also offers other services that can be leveraged by them, as the opportunity of joining in cross-national projects with external funding, the opportunity of sharing expertise and good practices between members, the possibility of participating in internal meetings or receiving support when exploring the incorporation of open education in the institution. When asked about this support, OpenupEd manager explained that it is not directly provided by the central services of the initiative, rather when a university ask for support on a specific topic of its open education strategy, OpenupEd redirects the question to a member who is expert on the topic. Therefore, OpenupEd works as a central node fostering contacts with its open education expert network. The details of the support, including the price, are a bilateral agreement and OpenupEd does not play a role on setting them.

Finally, according to the interviews carried out for this case study, Openuped is exploring more services to be offered in the future. Some of the ideas are: licensing support, joint platform offer, scalability of pedagogical designs, sharing data on business model, shared infrastructures for examination, or the coordination the MOOC offer through joint micro-programmes consisting of various MOOCs.

However, during the interview with OpenupEd coordinator, it was clear that, taking into consideration the current number of members, OpenupEd does not have enough resources for providing all these services, and therefore that increasing the number of members is a key issue. In order to overcome this limitation, an alternative approach set up by OpenupEd is to develop services within European projects, and sustain them later

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[119] However during the case study universities planning to measure the impact of the MOOC offer in some outputs as the number of enrolments in formal courses have been detected.

on with their own resources (e.g. HOME project is developing ways to collect data about business models, pedagogies, or institutional strategies that can be maintained once the project is finished).

10.6 Outcomes and impact

OpenupEd is promoting a quality brand for open education and, so far, one of the major outcomes has been the creation of OpenupEd quality label, which can be used by any university (not necessarily member of OpenupEd).

Regarding the number of institutions involved in OpenupEd initiative, it has not grown as expected by its managers. The initiative started with 11 members and, more than two years and a half later, it has only has three more members. An explanation given by OpenupEd is that the initiative focused on consolidating a small cluster with strong internal collaboration before start its expansion phase. According to the interviews, in 2015 the initiative was going to incorporate new members, 5 from EADTU and 2 external, but in December 2015 only three new members these new memberships have still not been formalised. In addition to these confirmed membership, there are more applications being valued.

When analysing the number of MOOCs, figures from OpenupEd webpage show how the majority of members offered or are offering a low number of courses. The exception is UNINETTUNO, who according to data on Openuped webpage at 09 November 2015, is offering 123 of the 185 listed courses. Reference should be made to the fact that 154 of the 185 courses offered (including MOOCs offered by UNINETTUNO) can be started at any time and have not a fixed schedule.

Table 7: Number of listed courses per learning provider

University	N
Anadolu University	2
Kaunas University of technology	3
Ministère de l'Enseignement Supérieur et de la Recherche.	5
Moscow State University of Economics, Statistics and Informatics	6
Open University of Israel	8
Open University of the Netherlands	6
Slovak University of Technology in Bratislava (FEI)	1
Open University of the UK	18
UNED	11
Universidade Aberta	1
UNINETTUNO	123
FernUniversität	1
TOTAL	**185**

Note: When a MOOC is offered in different languages is listed only once. In the webpage (Consulted on 10-Nov-2015) there are no listed MOOCs from Athabasca University or from Open University of Cyprus. However the second offered at least a MOOC according to OpenupEd University managers.

Similarly to the number of institutions, it is also expected a growth on the number of MOOCs mainly due to new offer from Anadolu University (around 63) and Open University of the UK (around 30).

10.7 Outcomes and impact

The main challenge that OpenupEd faces is it expansion. In order to attract more universities and expand its network beyond Open Universities and EADTU world, OpenupEd needs to offer more services which expand its added value. However, paradoxically, due to its business model, OpenupEd needs more memberships to be able to expand the services offer as planned. That's why alternative financial models, as the currently implemented model of creating services under the umbrella of European projects and sustaining them beyond the duration of the project, represent an opportunity for growing.

An additional challenge faced by the initiative is the management of the European higher education institutions diversity. Different languages, different understandings of what openness means for education, different legislations etc. makes difficult to offer pan-European services. However, OpenupEd is doing an effort to identify common interests in order to prioritize the services and face the future with more guaranties of success.

If the initiative overcomes these two barriers it could be able to growth enough to be a key player in the Open Education field and make its vision of openness and quality more prevalent among EU institutions. OpenupEd should take advantage of the momentum generated by the growth of MOOC offer in Europe and attract more universities within its umbrella. Otherwise, universities will position themselves in other MOOC initiatives making difficult its future incorporation to OpenupEd.

10.8 Conclusions

OpenupEd is a pan-European initiative aiming to coordinate the efforts of Higher Education institutions to opening up education via high quality MOOC offer. Unlike most of the for-profit MOOCs providers OpenupEd understanding of openness goes beyond free (gratis) and includes open licenses, open pedagogy, support the offer of ECTS for MOOCs, etc… Therefore, OpenupEd is positioning itself with a different model of MOOCs to the Open Education Ecosystem, enhancing options for learners and institutions.

The initiative only accepts members which support its philosophy of openness and offer high quality MOOCs. Therefore it can be considered as a forefront of Higher Education European institutions looking for set good practices around the MOOC phenomenon. It remains to be seen if the initiative can have a longer term impact and attract other more traditional institutions towards opening up through the use of MOOCs.

OpenupEd also demonstrates the importance of a collaborative approach between different players. This common front could also encompass the sharing of good practices and research results, and foster a common response to European issues such as the recognition with ECTS credits of the MOOCs offered by other consortia members. Finally, this initiative also shows the difficulties of working with the diversity that European higher education institutions landscape entails.

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11. Case study 9: ALISON

Abstract: ALISON is an Irish-based for-profit social enterprise that claims to be one of the largest free online course providers in the world. It is a European non-traditional education player with a model that is possibly of a disruptive nature in addressing specific work-based skills. ALISON has developed a sustainable business model using mainly Open Education Resources (OER) produced by third parties while getting fees from advertisements and printed certificates and a premium model consisting of paid extra services for learners, educators and employers. The content quality assurance mechanisms used by ALISON are different from the ones used by traditional education players.

List of interviewees

Mike Feerick, CEO and founder of ALISON

Dr Eric Corbett, responsible for content at ALISON

11.1 Introduction

ALISON is an Irish for-profit social enterprise offering online courses free of charge. They have developed their own education and training model focusing on workplace skills courses and providing assessment, testing and non-formal learning certification.

ALISON targets developed and developing countries and implements a profitable business model. This model is based on low cost integration of courses in the platform, by using a combination of private content, Open Educational Resources (OER) and collaborating companies' educational resources, and revenues from advertisement, certificates and extra-services. It has been suggested that some courses lack quality (Jeans, & Schreurs, 2014), which may be related to the low cost model of content integration.

ALISON focuses on basic workplace learning and its courses are not formally accredited. Learners can, however, download their learning records for free or purchase physical certificates.

11.2 Enabling conditions

According to the CEO of the company, ALISON was set up in 2007 as an attempt to use technology and business innovation to offer education free online. At that time, the costs of online business (e.g. servers) were decreasing and the possibilities of monetizing webpages were growing. The main idea behind ALISON's creation was to combine business and social impact by using technology to offer alternatives to the traditional educational systems.

ALISON started by offering English language and IT courses to a relatively small number of enrolled students. In the last few years, however, the company has considerably increased its offer and number of learners, at the same time as the number of available OER on the Internet has grown. Currently, ALISON is exploiting a market niche by offering workplace skills, an area where open education is still underdeveloped (Falconer et al. 2013, Castaño-Muñoz et al., 2013) despite the recent emergence of specific MOOCs dedicated to practical work-related skills. In a way, ALISON works like a repository of (quite static) curated free courses in this area.

11.3 Teaching

ALISON's short courses, mainly focused on work skills, are based on online materials and quizzes. Their number is growing fast and ALISON claims that two or more new courses are added per week. The company believes that the incorporation of new courses is the key to keeping learners enrolled on the platform.

All the courses offered by ALISON are relatively short when compared to traditional courses and can be defined as micro-courses. They can be divided into two types that lead to different certification options: "certificate courses" that involve around ~~one~~ two and half hours of study; and "diploma courses" that involve around nine to ten hours and often consist of the aggregation of short certificate courses. Despite the name, "diploma" courses are only recognised by some businesses, but not by formal accreditation bodies, as the word 'diploma' would usually imply, and nor are they intended to be, according to ALISON. '

ALISON's state that their courses are created or adapted using learning theories and methodologies, such as the Cognitive Theory of Multimedia Development (Clark & Mayer, 2011) [1].The courses are divided into ten categories: Diploma courses; Business and Enterprise Skills; Digital Literacy and IT Skills; Personal Development and Soft Skills; Languages; Health and Safety and Compliance; Health Literacy; Financial and Economic Literacy; Schools Curriculum; and Health and Safety (Irish legislation only). Some courses that target school students and basic literacy cover parts of the school curriculum (e.g. courses based on the Khan Academy's OER which covers the US curriculum). According to the figures provided by the company, the topics that have attracted most interest are Computer Literacy, Diploma in English Language Studies, Diploma in Project Management, Diploma in Psychology and Diploma in Business Management (ALISON, 2014).

11.4 Content

The company's main target group consists of international learners. Consequently, the company is currently focusing on content that can easily "travel" across different countries and cultures. This usually means general workplace skills rather than specialized ones.

ALISON's content can be divided into text and image and video content. Whatever the category is, ALISON rarely creates its own content and usually adapts existing content[120]. The company's staff defines the specific course topics which they or the learners they consult consider relevant. Once the topics are defined, ALISON staff search for materials suitable for the ALISON platform. According to them, material on a specific topic is not always available, although they usually have no problems finding it. Currently, the content available in the ALISON courses mainly comes from two sources:

1- **Open Educational Resources** that can be remixed and redistributed. Some examples of this content are Open Learn of the Open University of the UK[121] or the Global Text Project[122], which is more focused on providing open content for developing countries. ALISON's practice, when dealing with this type of content, is to break it down into small pieces that fit the length of the courses offered by the company. Additionally, if there is no assessment [123] or list of learning outcomes [124] embedded in the original content, the company develops them. Table 8 shows an example of the process of integration of University content into the ALISON model.

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[120] The content for the Health and safety authority in Ireland and the McMillan's Math Doctor are exceptions. In this cases ALISON has collaborated with the partners to develop the resources, focusing more in the technical than in the content part.

[121] http://www.open.edu/openlearn/

[122] http://globaltext.terry.uga.edu/

[123] IT is also true when there is no assessment in quiz format, which is the only format used by ALISON.

[124] Using Bloom's taxonomy.

1- Detection of a need: e.g. a basic Chinese language course.

2- Search for material: e.g. material from Cambridge University under creative commons.

3- Inform the university that this information will be used (although due to the license this is not necessary).

4- Examine the Cambridge resources (texts, videos, etc…).

5- Discuss how to present the course: e.g. as six certificate courses (approx. 1.5 hour of study per certificate).

6- Break material down into small modules: e.g. talking about yourself, your family, etc…

7- Adapt the material to a format compatible with the ALISON platform. Adaptation to the Moodle-based platform using articulate storyline software and SCORMS.

8- Create assessment based on the content: e.g. Cambridge had created assessment in quiz format for its Chinese language material, and ALISON added some extra questions.

9- Publish on the web, following multimedia reference guidelines.

10- Write learning outcomes, lesson summaries and course description.

2- **Collaboration with content providers** (e.g. British Council, Microsoft) There are three main reasons why publishers publish their content on the ALISON webpage. The first is to increase the access to their content. The second is to enhance the visibility of their courses and institutions. Some institutions publish courses on ~~in~~ ALISON as examples, in the hope that some learners will go to their institutional courses after trying them on ALISON. The third is because the publisher is interested in the revenue obtained from the courses based on their resources (through sharing of advertisement or certification income). In some exceptional cases, ALISON has bought portfolios of content that they believe to be relevant.

11.5 Licensing

ALISON does not have a common licence for all the content on its platform. Instead, it uses either a content or course-based licensing mechanism. The type of licence applied will depend on where the course content comes from.

When the content comes from available OER, the company recognises the source of the content and maintains the original license. Although the source of the content is clearly indicated on the platform, the type of licence did not use to be, but ALISON has recently changed this and licenses are now clearly showed in the factsheets of the courses.

When the content is developed by ALISON or published by a collaborating company, ALISON does not support a policy for open licensing. As we explain in Section 4, ALISON's main income comes from the google "pay-per-click" system and therefore the more traffic the company has on its platform, the higher its income is. ALISON's CEO argues that, as the company needs to attract traffic to its own platform to enable its business model to be sustainable and scalable. It avoids sharing the traffic with other platforms, it has no interest in using a license that would make it possible for other websites to publish ALISON content. Moreover, collaborating publishers (e.g. Microsoft) often do not make their content available under open licence when publishing on the ALISON platform.

11.6 Recognition

ALISON is not a formally accredited institution and therefore it cannot offer formal education or deliver official certificates. However, it has set up its own certification model, which includes paid and free certificates. The company states that there are currently (December 2015) more than 750,000 ALISON "graduates" worldwide making ALISON one of the largest free online course providers.

In order to obtain an ALISON certificate, learners need to assess their own knowledge by achieving at least 80% in the course assessments (including the final one). The quizzes are usually developed by ALISON or the publishers, and if a learner fails, reassessment is allowed.

When a learner passes the self-assessment test, he/she is allowed to choose between three types of certificate. The first is the learner record certificate which is always for free, the second is a pdf certificate which usually has to be paid for; and the third is a certificate or diploma parchment (depending on the length of the course), which must always be paid for as it needs to be printed.

There is no identity control when a learner takes the online quizzes that lead to a certificate, and therefore it would be easy to cheat. To solve this issue, ALISON offers the "ALISON Flash Testing" service to employers. This for-payment service enables employers to carry out an instant live test with job applicants who say they have studied with ALISON in order to check their knowledge. No information about the number of users of this system was provided for this case study, so it is not clear if many employers are interested in using it.

ALISON courses are not mapped against European Frameworks like ECTS or EQF, but efforts have been made to compare the estimated educational level with the UK's National Qualifications Framework and the Irish Further Education and Training Awards Council framework. This information is included in the course fact sheets. ALISON's CEO believes that it would not be impossible to find equivalence between the European Credit Transfer and Accumulation System and ALISON's aggregated micro courses. However, this is not an immediate goal for the company, which focuses on non-formal learning rather than formal learning. The company states that finding equivalence would open the door to possible recognition of ALISON learning by other accredited institutions. The possibility of mapping ALISON courses against the European Qualifications Framework and other national frameworks has therefore not been discarded as a future strategy.

11.7 Strategies

ALISON is a rapidly growing company. It started with 3 staff members and, as of 2015, it has more than 30 staff members. The company has implemented a profitable business model, based on a low cost system of course content generation (see point 3) and a mix of different revenue sources:

- Advertisements: The ALISON webpage incorporates advertisements based on the google pay-per-click system. This means that the more clicks the advertisements receive, the more money ALISON earns. This has an effect on the visual design of the ALISON webpage. However, it is possible to pay to avoid these advertisements.
- Certificates: While a Learner Record Certification in pdf is offered for free, ALISON charges a nominal fee for the "Official ALISON certificate". These certificates can be electronic certificates (pdf) or paper-certificates (parchments). They are not accredited by any government agency, but can be used by learners in their CVs to record their non-formal learning achievements. The price of the certificates depends on the type of course and the certificate format, and the location of the learner as developing country prices are discounted. It must be noted that as of writing, no certificate pricing information is initially available to learners on the website. They only receive this once they have successfully finished the course.

The CEO argues, however, that this is changing and full lists will be available in advance to all. At the moment, learners can write to ALISON support for information on the price of the certificates. The general guideline prices for certificates, as of 2015, are as follows:

- o **Certificate**: Parchment: €27, Parchment Framed €37, PDF €21.

- o **Diploma**: Parchment €96, Parchment Framed €115.

- Extra services: ALISON offers two extra services for a fee. The first service is *ALISON manager*[125] which is a system that allows teachers, trainers, and human resource managers to create learner groups that can be overseen and managed as they complete the course. The maximum number of learners per group is 50 and prices vary from €40 to €200 per group, depending on the contracted features. The second service is *ALISON Flash Testing*[126], which is a service for employers to instantly test whether job-candidates really have the knowledge covered by their ALISON courses. This verification is important because assessment quizzes leading to ALISON certificates have no identity-control system. This service costs between €10 and €750, depending on how many months the user signs up for the service, and the maximum number of candidates and tests.

- Investors: ALISON has investors but remains majority controlled by its founder and CEO.

Advertisement and certificates are the company's two main revenue sources. These revenues are sometimes shared with the publishers as a way of encouraging them to publish their material on the platform.

11.8 Outcomes and impact

In 2014, ALISON offered 600 courses (ALISON, 2014). The company has reported that it has reached around 6 million learners worldwide, where learners are defined as all the individuals who have ever registered on the web site during ALISON's 7 years of existence. Taking into account that in early 2014, their figures showed 3 million learners (of which 61% were women), ALISON seems to have experienced enormous growth in 2014/2015.

ALISON courses are mainly offered in English. According to the company's user tracking system, in 2014 the two countries with the most learners were the United States and the UK. India, Pakistan and the Philippines followed. This data supports ALISON's statement that it targets not only developed countries but also developing ones. Africa is another market exploited by ALISON (Lagos and Cairo are surpassed only by London as the cities with the most ALISON learners). They now have 1.5m learners in the area.

Aside from the UK (545,001 learners) and Ireland (97,245 learners), European learners make up the minority of ALISON enrolments (122,944 from other European Countries)[127]. The main reason given for this by the CEO of the company is Europe's linguistic diversity, and also its familiarity and requirement for accredited certificates. These reasons, and Europe's rigid regulations on issuing certificates, make ALISON less successful among European learners.

Although it was not possible to access information about the number of enrolments, and completion rates were not available for the overall population of ALISON learners, the company did provide access to some information about UK learners. In 2013, the

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[125] http://es.alison.com/manage
[126] http://alison.com/free-training/Welcome-to-Flash-Testing
[127] Source: ALISON analytics. July 2014.

average ALISON learner in the UK enrolled in 1.8 courses, and around 16% of learners obtained a certificate.

11.9 Challenges and prospects

One of the main challenges for ALISON is its dependency on content created by third parties. Its entire model is based on re-using existing content. If these sources were no longer available, it would have to revise its strategy.

During the interview with ALISON's CEO, he outlined two possible future plans related to the personalization of learning. The first would be to offer personalized learning by making it possible for learners to accumulate micro-learning courses from a repository. The second would be to explore the possibility of publishing courses produced by individuals and courses with very specialized content, which could attract a reasonable audience if published on a global scale.

Also, more recently, ALISON introduced a free learning management system for all its learners. Anyone (e.g. schools, colleges) can set up a group online and monitor the learning of others for free.[128]

11.10 Conclusions

Unlike the MOOC movement, where providers are still experimenting with new business models, ALISON's model seems to be consolidated. The company states that it is committed to offering education free of charge without entrance barriers, which is in line with the principles of open education.   ALISON is an interesting case of a non-traditional education player using the potential of OER and free of charge content to reach millions of learners worldwide. It is a European company that is achieving scale and continues to grow rapidly.

Further information and references

ALISON courses: http://alison.com/AllCourses

ALISON Flash Testing: http://alison.com/free-training/Welcome-to-Flash-Testing

ALISON main web page: http://es.alison.com/

ALISON Manager: http://es.alison.com/manage

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[128] https://alison.com/groups/about

12. Cross-case synthesis and conclusions

12.1 Introduction

This chapter synthesises the study findings.

12.2 Enabling conditions

The institutions studied referred to four main conditions that facilitate involvement in OE –see Figure 9. *Academic staff motivation is key*, given that several institutions reported that involvement in OE is (a) voluntary and (b) rewarded to a limited extent in career promotion procedures, which tend to prioritize research performance.

The *pool of available knowledge* (in terms of both technological and pedagogical aspects) at the institution is also a key factor. HEIs that had long-standing experience in the use of electronic learning management systems stated that they facilitated the transition to OE initiatives. The existence of specific professors with expertise in OE was a resource to convince leadership/ colleagues of the advantages of OE and support them in the adoption of OE.

Leadership vision or alternatively "buy in" help catalyse OE initiatives. Leadership has levers available to drive OE initiatives. It has the capacity to identify priorities and allocate resources to support OE –either directly or through teaching and learning or innovation funds for projects, the creation of support structures, etc. Leadership commitment may be affected by internal trends (such as the desired to innovate on teaching and learning) or contextual changes, as discussed below.

Figure 4: Enabling conditions for involvement in open higher education
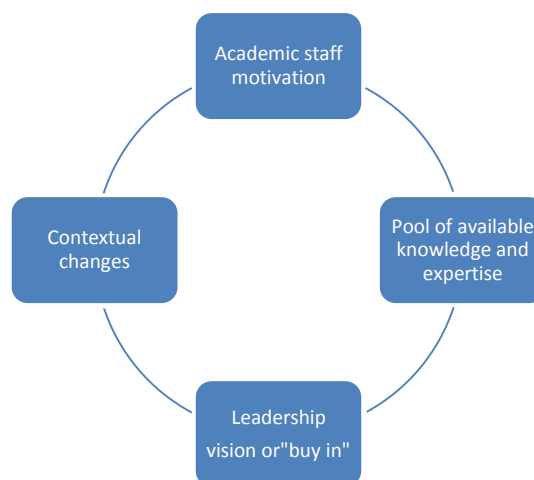
Source: Own

Contextual changes include the influence of global trends towards greater use of open teaching and research and the Bologna process –the Bologna process was reported to lead to a need to adapt education materials, which some institutions linked to making those materials suitable for inclusion in OCW repositories. *Regarding open research*, the importance of national initiatives such as the REF in the UK, which established incentives –and more recently requirements- for the use of open research repositories, was highlighted. Two other contextual changes have enabled participation in OE: the availability of *new technological solutions* –such as new types of learning platforms and repositories- and the expectations of *increasingly digitally literate population*.

Discussions on enabling factors most often referred to factors that are endogenous to HEIs. This would suggest that HEIs believe that internal dynamics are the key factor for involvement/ non-involvement in OE.

12.3 Rationales

The cases analysed illustrated several rationales to become involved in OE. These relate to two major themes: the public mission of higher education institutions (HEIs) and institutional enhancement. *The case studies revealed that institutional enhancement motivations –particularly regarding reputation and enhancing the quality of learning for traditional students- are often the driving force in institutional discussions about OE initiatives –such as MOOCs.*

Figure 5: Higher education institutions' rationales for involvement in OE

Public mission	Institutional
•Spread knowledge in society	•Enhance institutional visiblity/ marketing
	•Enhance institutional reputation
•Support widening participation agenda (including non-traditional students, workers and the unemployed)	•Enhance capacity for teaching innovation
	•Increase quality -academic suport to and achievement by regular students
	•Improvement of learning outcomes for regular students
•Reduce the costs of accessing higher education	•Enhance recruitment
	•Increase offer to regular students

Source: Own elaboration

Visibility and reputation were reported as rationales for the establishment of national OE initiatives and networks. At the systemic level, the stimulation of participation in OE was also related to cost containment in some case studies –in particular in the context of movements to increase and widen/ diversify participation in higher education.

## 12.4 Activities

12.4.1 Open teaching

12.4.1.1 Nature of the activities

The definitions of OE encountered in the case studies varied from structured definitions to institutions that declared not to have a clear understanding of the term. Structured definitions included characteristics such as: (a) materials should be available to learners at no cost, (b) there are no minimum participation requirements, (c) users should have freedom to adapt, reuse and modify those materials, (d) technologies used should be, as far as possible, in open and editable formats. Given that the definition of OE is evolving and not settled it may be advantageous to conceptualize OE in a continuum from "minimally" to "fully" open, rather than in a dichotomist (open/ non-open education) way.

Activities related to open teaching documented in the case studies include the production of open courseware (OCW), small private online courses (SPOCs), Tiny, Open-with-Restrictions courses focused on QUality and Effectiveness (TORQUEs) and Massive Open Online Courses (MOOCs), and the use of video and audio- sharing platforms (such as You-Tube channels and i-Tunes). *Some case-study institutions reported to be re-focusing from using several of these media to concentrate on MOOCs* -while academic staff is expected to progressively implement activities such as SPOCs and TORQUEs

without targeted additional support. The focus on MOOCS was justified with reference to the wide audience that they can attract.

Figure 6: Content-related strategies to reach large audiences in MOOCs
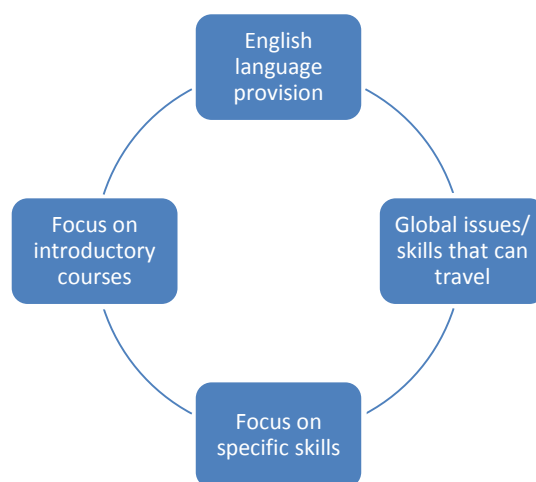
Source: OpenCases

HEIs used a variety of content-related *strategies to reach a critical mass of learners* –see Figure 10. These include provision of OE in English, addressing global issues/ issues that can travel to attract students from around the globe, focusing on specific skills with labour market relevance and a wide appeal, or introductory courses –which again can reach a wide audience. While these strategies aim to reach a critical mass of learners they also *limit the range of knowledge available through OE and exclude some audiences* –i.e. those who are not proficient in English. That said, it should be noted that there is also a significant volume of OER in other languages than English –such as French, German or Spanish. The focus on introductory courses, has the additional advantage for educational institutions that it stimulates interest in HEIs' regular programmes, rather than compete with them.

12.4.1.2 Target groups

Open teaching has *various target groups*. These include learners from around the world –from *free learners* (who participate out of interest without a desire for academic credit) to those who desire formal academic credit- but also, increasingly, *on-campus students* (to enhance achievement, reduce failure or enable greater flexibility to re-take failed courses). Some HEIs reported to be using OE as a way to re-engage with their *alumni and working professionals* who may be interested in using their 'extension schools'. A number of OE initiatives aim to prepare those interested in participating in higher education –for example by preparing secondary school students for entrance examinations. *Academic staff* is also a target group for OE as producers and as consumers of open teaching and open research. *The case studies did not report any instances in which university management was considered a target group for OE initiatives* (e.g. on open operations, which refers to the ways and organisational culture through which organizational information is made openly available –normally through institutional websites- and new technologies are used for decision-making processes to become open to a wider audience and engage stakeholders).

HEIs use several strategies to enhance the visibility of their OE initiatives amongst their target groups. These include placing their OER in OE platforms, bringing their OE initiatives together under one umbrella website, and using their own communication channels (social media/ press) to promote their OE initiatives. The use of OE platforms tends to be favoured for their potential to reach a global audience.

12.4.1.3 Staff incentives and support

Participation in open teaching initiatives is *largely voluntary and depends on individual motivation*. Incentives for academic staff participation were generally reported as low, as career progression tends to depend on research performance, rather than teaching innovation or effectiveness. *Only a minority of institutions reported to reward participation in OE initiatives as a 'teaching merit',* which could lead to salary increases and recognition in workload allocations.
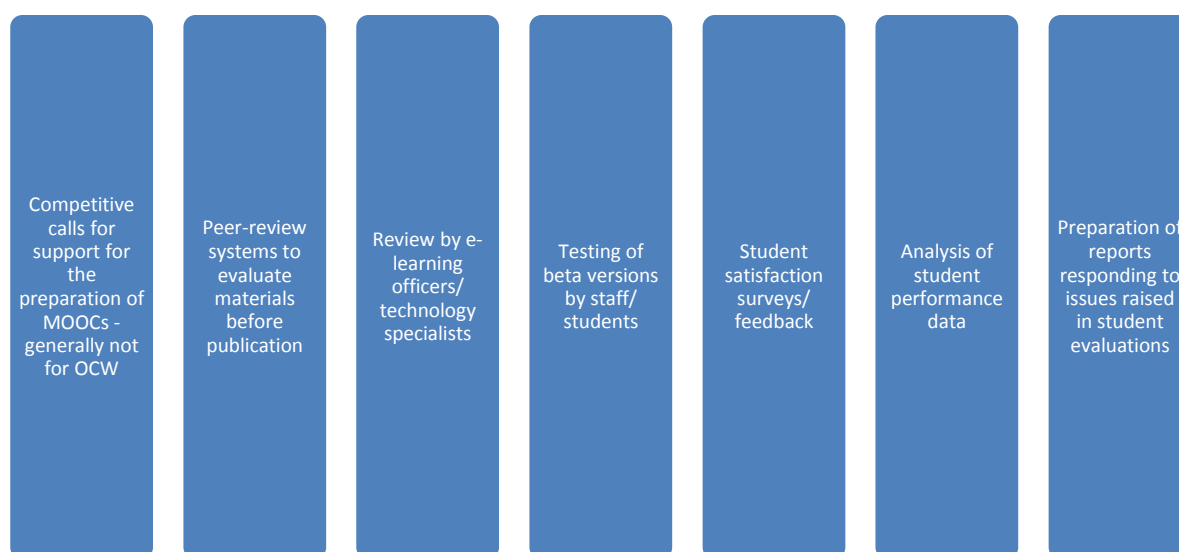
Academics were reported to have more incentives to take part in *open research* initiatives, as these can enhance their research visibility and citations. However, and while academics are encouraged to deposit research outputs in open repositories and contribute to other open research activities –such as publishing in open access journals-, *take-up is still limited,* which was associated with *lack of knowledge* regarding copy-right issues and reputational incentives to publish in high impact factor journals, rather than open journals. It should nevertheless be noted that a range of open journals are establishing/ growing their reputations to be on a par with traditional high impact journals. In some cases, like the UK, *governments are stimulating participation* in open research in the assessment of research quality.

HEIs and OE networks use a range of *strategies to support academic engagement* with OE. They provide targeted *training* (on pedagogical, presentation, technical skills) and *dedicated support services* –provided by library staff, e-learning officers, teaching assistants and graphic designers. Support services are particularly important as they make involvement in OE less time consuming for academics –and lack of academic's time (given the various demands of their jobs) and expertise in OE are two of the main reasons for non-involvement in OE. The fact that *training courses tend to be restricted* to staff who are already involved in OE initiatives may preclude other staff from beginning involvement in OE. This is partly mitigated by the production of *guidelines and examples* to staff, which can be accessed by all members of HEIs. It should also be noted that even when training is offered to all only a "core" set of staff with a strong interest in OE tend to take-up those training opportunities.

12.4.1.4 Quality assurance

HEIs generally reported to have *enhanced quality assurance mechanisms* for their open teaching initiatives. Many OE courses are based on on-campus courses, which are accredited and undergo quality assurance checks. In addition, HEIs employed a range of other strategies, such as:

Figure 7: Quality assurance measures used by HEIs in open teaching

| Competitive calls for support for the preparation of MOOCs - generally not for OCW | Peer-review systems to evaluate materials before publication | Review by e-learning officers/ technology specialists | Testing of beta versions by staff/ students | Student satisfaction surveys/ feedback | Analysis of student performance data | Preparation of reports responding to issues raised in student evaluations |

Source: OpenCases

Some of *these elements were used more often than others, or in combination.* For example, while calls for proposals are used often, the analysis of learners' performance data is not always possible (OCW), or simply not done. Case study institutions also reported that academic staff has incentives to provide very close scrutiny to OE materials, given the public access provided to them.

Quality assurance for the process of making research openly available was based on checking publishers' policies for making research outputs available from institutional repositories. This was *in addition* to standard quality assurance measures associated with the content of the research material -such as peer review processes.
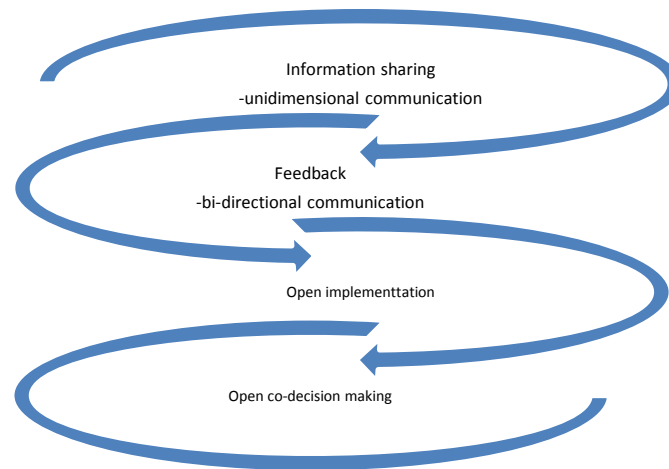
12.4.2 Open research

The initiatives observed in open research were fundamentally based around the use of *open access repositories*: open access research and less commonly open data repositories and the production of open software. These were sometimes based on open source IT solutions, although not always. The repositories aim to collect, store and preserve the scholarly production (mainly publications) resulting from the research activities of the university, in digital format, and offer open access to it. The protection and preservation of OER was highlighted as an *area that will require further work* in the future. Some HEIs noted that involvement in open research had led to open research becoming one of the substantive areas of research activity for the university.

12.4.3 Open operations

'Operations' is the *least known dimension of OE*. The notion of 'open management' or 'open operations' had not been used as such in the institutions under study. Some higher education institutions saw open operations as being *less linked to their core mission* than open teaching and open research. While the case study institutions had less to say about open operations than about open teaching or research, this is a new area in the agenda of open education, and deserves exploration.

Institutions adopted four main kinds of actions in terms of operations –Figure 12.

Figure 8: Open operations actions

Information sharing
-unidimensional communication

Feedback
-bi-directional communication

Open implementtation

Open co-decision making

Source: OpenCases

Some of the HEIs and networks studied make a *wide range of information about their operations on their websites*. This includes information on human resources management, news, meetings and activities, promotion procedures, governance, organizational structure and plans, strategic plans and the statutes and regulations of the HEI. *Institutions combined this with contact/ feedback mechanisms about management issues. 'Open implementation' -*whereby tasks to be implemented by the institution are shared on the institutions' website, so that other parties can express an interest in contributing to their implementation- and the use of open technologies for participatory decision-making were much less frequent. One institution used *open technologies for participatory decision-making*: decision-making meetings are streamed live and third parties are invited to contribute to them and open planning consultations are also employed. *While information sharing is widespread, open implementation and co-decision were not.*

Besides the implementation of open operations, OE has also led to changes in the *operational structure of universities.* This can be seen in the establishment of specialized support units for OE, working groups on OE-related issues, and the transformation of the role of existing units (for example libraries, to provide additional support on copyright/ intellectual property issues related to OE). Secondly, OE has led to creation of new national and international networks to support HEIs' activities in this area.

12.5 Strategies

The institutions studied varied in the level of attention they provide to the development of business models around OE. Some of the institutions were primarily funded by government, and did not see the generation of profit as their mission –rather to spread knowledge. They considered shortfalls generated by OE activities as an investment to meet their public function to spread knowledge or in visibility and reputation. The use of OER to support on-campus degree programmes has relaxed the need to explore new business models in some institutions –as this links investment in OE with investments in teaching quality for regular students. An exclusive emphasis on regular students may seem contradictory to the spirit of OE –in particular if it leads to a neglect of other concerns, such as widening participation. However, when it is only one aspect of OE amongst others it provides an additional justification for OER production. As noted in Figure 13 networks and HEIs reported to draw income for OE from a variety of sources.

Figure 9: Funding sources for OE initiatives

- Public funds/ internal HEI resources
- Student support services (tutoring, etc.)
- Examination and certification
- Professional education activities
- Additional recruitment into regular programmes
- External grant funding (European, national, regional, private foundations)
- Fees from third party commercial use

Source: OpenCases

Public funds/ internal HEI resources are often not directly allocated to OE, but to teaching and learning innovation or staff development funds. For networks and additional source of income are membership subscriptions. HEIs covered in the case studies did not report to rely on income from advertisement. It should be noted that HEIs commonly *rely on institutional/public funding as a central source of income for OE*, which has *implications for the scale of their involvement in OE activities and its sustainability.*

Institutions *did not generally have a clear view on the exact volume of investment in OE.* They reported difficult to provide estimates because a large share of it is associated with staff costs –for example the time invested by Library and IT staff who work on OE as part of a larger portfolio of duties- and/ or embedded in other general costs. Investments in equipment and infrastructure were reported to be modest in most cases. Additional investments are in the form of payment of salary supplements to staff – although these were uncommon- and to assistants in the creation of OER. Libraries may also invest in open research for example through the creation of 'open access funds' to pay for the publication of research as open access. Nevertheless, most institutions reported that the deficits derived from investment in OE were not large, and one institution reported that their OE work was self-financing (for example OERu).

Finally, the case studies highlighted the *importance of thinking about the relevant unit of accounting for the analysis of financial aspects*. Results will be different if this is the HEI or society as a whole –nationally or globally. For instance, the generation of OER may have a cost to the university, but this may be lower than learners' savings in the purchase of learning materials. Similarly, some interviewees argued that the sharing of OERs enables HE systems to operate more efficiently than through the development of materials at each institution to teach largely similar courses, and that OE may save HEIs money in library subscriptions for UG courses. The results of costs and benefit assessments, therefore, will be *different if different levels –for example HEI or society as a whole (nationally or globally) or both- are included.*

12.6 Outcomes and impact

Success in OE is often judged/ measured in terms of *volume of participation*, rather than other indicators such as meeting local or national needs, learning acquired or employability results. This is a *limited conception of success*, but one that is relatively easy to measure. Some institutions reported that their involvement in OE was too recent so as to be able to fully assess outcomes and impact.

12.6.1 Courses produced/ materials available and number of learners

HEIs and OE networks have made *available a large volume of OER* -TU Delft alone reported to have made over 10,000 lectures available via OCW and i-Tunes. While the production of OER has resource implications, there is good potential to increase the volume of open research at modest costs – through the use of open institutional research repositories. *HEIs do not always monitor/ are not always able to monitor the use made of OER.* This is particularly the case for OCW, as use does not require registration and users can access from different computers. It is nevertheless possible to state on the bases of the data available that OE initiatives have reached a *large number of learners.* Institutions reported hundreds of thousands –sometimes millions - of users. Data on the profile of the users of OE is scarcer, but data available from FUN MOOCs suggests that OE is used, primarily, by middle-aged males with higher education qualifications. While the extent to which this finding can be generalized is open to question, it points out to a need to assess the contribution of OE to the widening participation and equal opportunities agendas.

12.6.2 Institutional visibility, recruitment and reputation

The use of OE materials by large numbers of individuals leads to *enhanced visibility*, which is expected to lead to enhanced *reputation and recruitment* of students into regular programmes –after students 'get a taste' for the education provided at the institution via MOOCs. Increased visibility and reputation were also linked to increased value of the qualifications awarded by the institution *in the labour market*. *Open research has similar advantages for academics* (increased visibility and "impact" of their work on academic and non-academic audiences). An outcome of participation in OE initiatives that was mentioned in several case studies was increased visibility/ engagement with *external stakeholders* –HEIs, schools, professional bodies/ employers and foundations.

12.6.3 Educational process and innovation in teaching and learning

OE was reported to have had an impact on the use of *new pedagogies and tools* -both in OE and in on-campus teaching- associated with the use of discussion fora, video, social media or mentoring tools. This was reported to have led to greater use of collaborative learning, independent learning and –in the case of on-campus students- also flipped classroom approaches. These approaches were associated with *deeper learning* and *more efficient learning* –enabling the inclusion of more materials into courses' syllabae- and some evidence in this respect was available –see in particular the Delft TU case study- although *more research in this area is still needed*.

Case study data suggests generally *high levels of satisfaction* with MOOCs –the open teaching experience for which more data were available. *Average completion rates, however, are generally low* -around 5%-10%- for this kind of course. Some institutions were uncertain regarding the real impact on student learning, and called for time to *better evaluate the benefits of OE approaches in relation to pedagogical matters.* Learning analytics can be used to explore ways to improve the educational process, although few HEIs referred to this.

12.6.4 Credentials

The issuing of certificates of completion is common practice. This may either have had some ID verification or not. Certification is much more common in some types of OE experiences than in others (e.g. OCW, which tends to be conceptualised as a non-certificate granting activity). *The award of academic credit on the bases of learning resulting from OE experiences is much less common,* and this is an issue that deserves further exploration. HEIs mentioned 'trustworthiness' as a problematic issue in relation to certification: identification of the person taking an assessment and ensuring that

candidates do not use external help during the examination process. Partnerships with other institutions may be a way to address this issue.

12.6.5 Progression in education and the labour market

The case studies yielded *little data on the effects of OE on progression in education (formal or informal) and the labour market*. A minority of institutions have looked at the effects of the use of OER on improving on-campus courses' pass-rates and average marks, with positive results. However, this is clearly an area for further work.

12.7 Challenges

12.7.1 Maintaining the importance of the widening participation agenda

One challenge for the OE movement is to maintain the *'social justice'* elements related to widening participation to higher education. This was reported to have diluted in recent times, as discussions have shifted to the use of OER to increase quality of teaching and achievement in on-campus programmes. While this is important, the widening access agenda should not be neglected. An issue to resolve is the demarcation of the *boundaries of widening participation*: some institutions noted that given that they are funded by national government their mission is to educate, primarily, people from that country and not free learners from other parts of the world.

12.7.2 Cultural considerations

Changing attitudes towards OE was reported as a central challenge, as many academics are sceptical about the teaching methods associated with OE and about the use of materials produced by others. Some HEIs try to overcome this challenge through the provision of *training and support,* for instance communicating to academics the pedagogical implications and possibilities for content presentation and interaction that formats such MOOCs, as e-textbooks or videos offer. Similarly, a key challenge to open research is the *reluctance of some researchers* to upload their research outputs on open research repositories. Some institutions reported that only 10%-20% of their research output is deposited in repositories. This was justified with reference to fears of copyright problems with publishing houses and lack of automatization of the process.

12.7.3 Time and expertise

A related challenge is the lack of academics' and administrators' *time* to get involved in OE initiatives, as the production of OER can be a labour intensive process. Moreover, staff perceive that time spent on OER production is *not rewarded* to the extent that time spent on other activities is –see also the next point on "incentives". Another important challenge is staff's *lack of knowledge* –on technical, pedagogical and legal aspects. A further practical challenge is *lack of expertise* on the scalability and compatibility of technologies used at different individual institutions and the preservation of digital materials that are created for OE –as formats can become out of date and not be transferrable to new formats. The challenge of knowledge extends to *policy-makers*, who were reported to have a limited understanding of the ways in which OE could contribute to the achievement of their goals. The situation clearly varies by country in this respect.

12.7.4 Staff and institutional incentives

One barrier to OE are the limited incentives (such as the inclusion of OE activities in workload models, recruitment or promotion criteria, institutional and peer recognition) academic staff have –given that academic promotion pathways tend to prioritise research over teaching- compared to the volume of work that the development of OE initiatives can require. The cases also documented that greater incentives could be put in place to stimulate HEIs' involvement in OE, through additional funding and/ or regulation –for example through its inclusion as a criterion in teaching or research evaluation

exercises, or the establishment of a requirement to make research open. The inclusion of OE as an indicator in university rankings was mentioned as a strong incentive to be involved in OE –for example in the U-Multirank, and other international or national rankings.

12.7.5 Teaching philosophies and curricula

Interviewees reported *challenges associated with the use of purely online education*, and referred to the need to combine OE with 'within the institution' laboratory work, at least in some subjects –particularly science and technology based. Government regulations may also not allow the award of certain qualifications on the basis of pure distance learning. Humanities and social sciences staff, by contrast, tends to be less confident in the use of technologies for teaching.

12.7.6 Measurement of impact

HEIs and networks mentioned challenges associated with the *design of more robust and systematic measures of the impact of OE* (on students, staff and universities). In particular they noted the need to research the labour market outcomes of OE on learners, and on institutional visibility and prestige.

13. Recommendations

Based on the discussion and conclusions outlined in this report, the following recommendations can be formulated:

Rationale and enabling conditions

Higher education institutions, networks and governments have a range of rationales to be involved in open education. These rationales reflect different strategic priorities. At present, there is a risk that the agenda for widening participation through OE loses momentum. Yet, this is a key objective of the OE movement. It is thus recommended that the agenda for widening participation through OE is revitalised, and established as a priority at national, regional and institutional level.

In order to scale-up the take of OE initiatives, it is recommended that sectoral organisations (e.g. associations) have a key role in the establishment of systems to enhance university leadership's 'buy in' in OE. This is likely to require greater efforts to further integrate OE initiatives and other strategic reform processes, instead of treating them as self-contained actions, to enhance staff's responsiveness to OE.

It is recommended that sectoral organisations and HEIs be supported –as appropriate- by national and European institutions in this endeavour. In this respect, the establishment of additional incentives for HEIs' involvement in OE should receive consideration. This could take the form of additional funding and/ or regulation. The inclusion of OE as an indicator in university rankings would provide a strong incentive for HEIs to be involved in OE.

Teaching

Open teaching is at the core of open education initiatives in Europe. It is thus recommended that HEIs and other stakeholders design and implement more effective systems to raise staff awareness of and expertise on OE -to facilitate the development and implementation of OE initiatives- and that they provide greater incentives for staff to become involved in open teaching in terms of career progression and in workload allocations. It is also recommended that institutions better integrate training on OE initiatives with the general training they offer, so that training on pedagogical, research and operational aspects includes reference to open education whenever applicable.

Open education does not always provide coherent curricula and learning pathways that enable progression. In this context, HEIs and other stakeholders should stimulate the production of coherent curricula through OE. Today, the elements of OE that aim to offer full educational experiences (such as MOOCs) tend to focus on introductory and 'taster' courses (to attract large numbers of learners and attract students to more specialized regular universities programmes). Greater of learning analytics can also help to improve open educational experiences.

Assessment is key to the success of open education. In this respect, it is recommended that HEIs and other stakeholders work on the design of trustworthy and cost-effective assessment procedures for OE to increase the award of academic credit to recognise the learning acquired through OE.

Research

It is recommended that HEIs and other stakeholders explore ways to design more effective systems of incentives for staff to become involved in open research. These can include the adoption of models that require that open research measures be considered in applications for (public) funding or research assessment exercises.

At the same time, it is recommended that HEIs explore ways to better support academics in the process of inclusion of research outputs in open repositories and/ or explore ways to automatize that process, to ensure that a greater volume of research is made available "open" timely.

Looking at the long-term, institutions and other stakeholders would need to place greater emphasis on the establishment of systems for the conservation of OER, as this is a relatively neglected but crucial topic, given the pace at which technologies evolve.

Operations

'Open operations' has generally been an undervalued aspect of openness. Institutions generally have based their approach on making information openly available to stakeholders. It is recommended that HEIs explore ways in which open implementation and co-decision may be used to contribute to the achievement of their institutional objectives and enhance the transparency, engagement and quality of their decision-making processes.

Sustainable strategies

It would be important that HEIs and other stakeholders put greater emphasis on the measurement of the inputs to OE and of its outcomes. Both aspects have implications for strategies, which in turn may affect institutional actions and commitments in the area of OE.

Currently, many HEIs have rather undefined strategies in relation to OE, and depend on external subsidies or their general budgets for OE activities, which presents risks for the further development of OE. In this context, it is recommended that HEIs and other stakeholders explore ways in which the sustainability of OE initiatives can be further enhanced. This may not only include the diversification of funding sources and pooling of resources for OE initiatives but also (at the individual academic level) the production of OER in such formats that they can be easily updated.

It is recommended that European and national institutions put systems in place to ensure the presence of less spoken languages in OE, so that OE can be accessed by individuals with competence in different languages and fewer people are excluded from the advantages of OE.

Outcomes

There is currently relatively limited information regarding the outcomes of OE in the European context, which calls for greater use of systematic evaluations in this area. In this regard, it is recommended that HEIs, governmental actors and other stakeholders also expand the ways in which success is measured in the area of OE, to include aspects beyond volume of use, and that data is systematically collected on those success measures. These may include the contribution of OE to local or national needs, HEIs' visibility, staff career progression, learning acquired, improvements in terms of teaching and learning processes, progress in education or employability results/ labour market integration.

Finally, it is recommended that HEIs and policy-makers ensure that reliable data on the profile of the users of OE is systematically collected at the institutional and systemic level, so as to be able to better assess the contribution of OE to the widening participation agenda.

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Annex I: French Digital Agenda Targeted Actions

Key action	Rationale
Priority axis 1: Better learning outcomes and employability	
Support the development of guidance measures for students	The 2013 University Act[129] ensures continuity between upper secondary education (*lycée)* and the first cycle at higher education. The rationale for key action 1 is that ICT (as common communication means among young people) can play a key role in this area via MOOCs, interactive platforms offering information on higher education programmes/fields of studies, pathways, work methods in the sector, etc.
Support students' achievements through digitally enhanced pedagogies	ICT is seen as a key means for adapting pedagogical approaches/processes able to reach wide audiences in higher education, nowadays and in the future. Challenges in this area e.g. include: the need to diversify pedagogical methods and access to content; personalised guidance, online tutoring, etc.
Launch a national platform	The aim here is to host, through a unique website: online training provision/MOOCs which should take the form, in the long term, of qualifying trainings. The platform is primarily addressed to French higher education institutions (HEIs) but is also open to any European or international HEIs. It went live in its pilot version in October 2013
Foster students' employability thanks to ICT/digital learning	In this area, ICT makes possible interactive initiatives (through tailored platforms) enabling students to: look for traineeships; gain information on how to validate formal/non-formal or informal competences; get in touch with alumni, etc.
Offer innovative online training provision to address growing demand of continuing training	The 2013 University Act embeds for the first time lifelong learning in universities' core missions. In this remit, one of the key actions of FUN is to contribute to the development of continuing training via online facilities. At university level, the provision of such training is currently under-exploited (representing only 4% of 8 billion EUR invested in overall continuing training at higher education level).
Priority axis 2: Facilitate pedagogical innovation	
Train and support teaching/pedagogical staff to ICT	Equipping teaching and pedagogical staff with appropriate knowledge and competences in digital pedagogies is crucial. Since September 2013, all prospective teachers are being specifically trained in this area, for better using and teaching ICT in classrooms. A MOOC aimed to support them was furthermore launched in early 2014.

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[129] LOI n° 2013-660 du 22 juillet 2013 relative à l'enseignement supérieur et à la recherche.

Recognise and reward researchers for their involvement in integrating ICT in their pedagogical practices	Researchers' ('enseignants-chercheurs') career progression opportunities essentially build so far on their research activities rather than on their teaching duties and achievements. The shift induced by ICTs in teaching and learning makes important to re-consider the above. A group of reflexion (bringing together different HE stakeholders) has been set up in this regard.
Support HEIs in the implementation of the digital strategy (i.e. allocating 10% of the 1000 posts created annually by the Ministry in charge of higher education (MESR))	This priority action directly links with the objective to support/increase students' achievements over the first HE cycle. Allocating 'digital-oriented 'posts is aimed to contribute to e.g. guidance services, ad-hoc pedagogical support services addressed to students, etc.
Lauch a 'France Université Numérique' foundation	Launched in 2014, this body is aimed to coordinate the 'training' strand of the HE digital strategy.
Integrate 'digital indicators' for the purpose of monitoring the contracts signed between MESR and universities	Digital learning/teaching is now an important component of any contracts ('contrats de site' in French) signed between the MESR and university mergers. In order to ensure a proper follow-up of e.g. good practices of infrastructures, 'digital indicators' should be progressively integrated in those contracts.
Foster evidence-based research on digital pedagogies including in the field of e-education	One of the main objectives here is to foster research and synergies/partnerships in the area of e-learning through: a national network of stakeholders from university, business sector/industry and the civil society and the funding of theses focusing on 'digital studies'. Ultimately, this should serve to support the development of innovative approaches (e.g. serious games, virtual courses, etc.).
Encourage HEIs to rationalise their IT infrastructures	The Campus d'@venir initiative is a sub-action part of priority axis 2. Signed in 2013 by the Minister of higher education and research and the head of the Caisse des Dépôts et Consignations, the Campus d'@venir agreement sets a roadmap for 2013-2017. This brings together 5 priorities including on digital learning. As from 2015, the new contracts between the State and the regions prioritise the establishment of renovated/modernised and eco-responsible campuses. Priority actions 12 to 16 relate to the Campus d'@venir initiative. One of the main objectives of key action 12 is among other things to mutualise and secure HEIs data through eco-responsible data centres.
Offer Cloud-based services to HEIs (e.g. for accountancy, HR matters, etc.) and pedagogical platforms	In line with the above, priority action 13 related to the Campus d'@venir initiative. Examples of mutualised HE Clouds are emerging.

Integrate ICT and related pedagogical innovation in buildings/building renovation	The main objective here is to better integrate ICT in HE environments so as to build up Campus d'@venir with open digital spaces, connected classrooms, digital libraries, etc.)
Encourage and develop digital services for HEIs and their users	The main objective here is to support the development of a wide range of digital services (e.g. mailboxes, mailings, video conferences, multiservice cards giving access to library, public transports, etc.).
Improve HEIs' information systems performance and the inter-operability among HEIs and MESR's bodies	The rationale here is to improve the efficacy of the administrative services for improving the quality of services offered to students ultimately. This requires strengthening the inter-operability among HEIs and MESR's bodies which is being discussed among key stakeholders.
Priority axis 3: Openness and international attractiveness of French higher education	
Develop a 'Francophonie' specific action	Using ICT for modernising and making French HEIs/HE provision more visible abroad and notably in francophone countries across the world is another key objective of FUN. Key action 17 is supported and guided by a reflexion among key stakeholders (e.g. MESR, Agence universitaire de la francophonie, French and other francophone HEIs) aimed to better identify target countries' training needs.
Articulate French initiatives with European and international strategies	In order to position FUN in a globalised setting, gaining better knowledge on relevant initiatives (incl. funding or partnership opportunities) at European or international level is key.

Annex II: Example of interview topic guide

TOPIC GUIDE TEMPLATE

Case study interviews

1. Background information
1.1.   How is open education understood/ defined at your institution?

2. Rationale
2.1.   Why is your institution engaged in open education practices?

3 Enabling conditions
3.1.   Where did involvement with open education start? [check whether it started at staff/ departmental/ faculty/ university level and whether/ how it was mainstreamed]
3.2.   What factors, in your view, facilitated that involvement?

4. Activities and target groups
4.1.   What activities does your institution carry out in the area of open education? [check all of the following: teaching/ research and operation]
4.2.   Which of those activities are considered more important and why?
4.3.   Who is your main audience for open education and why/ how is that audience changing?
4.4.   What strategies does your institution use to enhance the discoverability of its open education initiatives?
4.5.   What quality assurance measures have been put in place so far for your open education initiatives and how do those relate to your institution's general quality assurance systems?
4.6.   How has open education affected other areas in your institution? [access policies/ pedagogy/ use of technology/ research/ recognition of prior learning practices/ collaborations with other institutions or stakeholders]

5. Strategies
5.1   What are the costs and benefits of your institution's open education initiatives?
5.2.   What are the sources of funding to cover those costs?
5.3.   How does your institution's business model affect the practice of open education?
5.4.   Do you expect a change in your institution's business models as a result of open education? If so, in what direction?

6. Outcomes
6.1.   How many learners has the institution had to date in its open education initiatives?
6.2.   What are the expected and actual outcomes of being engaged in open education practices for your institution? Why?
6.3.   Does the institution provide any sort of recognition of learning achievements from OE learning? Why and how? –check whether badges, certificates, etc. are issued or not and why.

7. Impact

7.1   Is there any evidence of impact of the use of OE activities on students' satisfaction, learning, their further progression within the education system or their employability?

8. Challenges and prospects

8.1   How do you think that policy incentives could help higher education institutions to engage in open education?

8.2.   What main challenges has your institution faced so far in relation to open education and how has it address them?

Additional questions

Do you have any suggestions for interviewees for this case study?

Do you have any suggestions regarding documentation from your institution that we should review?

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