



# Jorum Open Educational Resources (OER) Report

**Authors:** Catherine Fleming and Moira Massey

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### Related Documents

RELATED DOCUMENT	DETAILS
Jorum Collections Policy	<a href="http://www.jorum.ac.uk/docs/pdf/Jorum_Collections_Policy.pdf">http://www.jorum.ac.uk/docs/pdf/Jorum_Collections_Policy.pdf</a>

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## Executive Summary

### *The purpose and background to this report*

The Jorum Open Educational Resources (OER) Report sets out to explore learning and teaching (L&T) materials on open access globally, focusing on definitions of “open” being used by various projects and services, the current state of play, and lessons that can be drawn from the review for the service and the Joint Information Systems Committee (JISC). In addition, a case study focus is included, looking in some detail at the Open University’s OpenLearn service.

The report has been written in year 2 of Jorum Service-in-Development, which has established the Jorum repository service for UK Higher and Further Education (H/FE). The Jorum service is provided by the JISC-supported national data centres EDINA and Mimas, based in the Universities of Edinburgh and Manchester respectively.

Further context for the report is that JISC and the Jorum Steering Group have directed that the Jorum team produce a fully-costed business plan by November 2007 for ongoing service from August 2008, which should consider providing an open repository service.

It is an important time to be thinking about providing an open service in L&T materials. It is clear from this report that momentum in OER provision is gathering pace around the world and the UK will want to play its part in this movement. There are particular considerations in offering an OER service that are included in this report, but the view of the Jorum team is that in order to provide a sustainable Jorum service, this is the way forward.

### *Audience for this report*

Initially the audience for this report will be the JISC. The intention is to publish this report at the Jorum website once JISC have signed it off. The audience is expected to be anyone in the UK educational communities, and similar communities globally, who is interested in offering educational materials on an open basis.

### *The concept of “openness”*

The concept of ‘openness’ is often associated with the growth of open access research journals and was catalysed by the desire of academics to break away from the restrictions of the traditional publishing model. There is also a history of ‘openness’ with regard to software. Definitions of ‘Open’ are constantly evolving and vary according to context.

### *Open Educational Resources*

‘Open Educational Resources’ (OER) is a recent term used to describe a particular type of open content which originated after the inception of MIT’s OpenCourseWare project.

The Open e-Learning Content Observatory Services (OLCOS) project aims to foster the creation, sharing and reuse of OER in and beyond Europe. According to the OLCOS Roadmap 2012, there is no authoritatively accredited definition yet of what is understood by the term ‘Open Educational Resources’ (OER), but it encompasses the kind of

learning and teaching objects provided by Jorum, along with courseware that Jorum does not provide. The Roadmap says that existing proposed definitions of OER share the following core attributes:

- Access to open content (including metadata) is provided free of charge for educational institutions, content services and end users such as teachers, students and lifelong learners;
- Content is liberally licensed for reuse in educational activities;
- Open content standards and formats are employed to facilitate easy reuse of content;
- Software is used for which the source code is available (i.e. Open Source), along with open Application Programming Interfaces (APIs), and authorisations to reuse Web-based services (e.g. RSS feeds).

The Roadmap points out that, "These are rather demanding principles and, in fact, repositories of educationally relevant resources often do not fully abide by them."

The data centres believe that there is no necessity that a repository of open content has to be hosted in open source software. Rather, the repository should meet open standards and specifications for exchange of data.

### *The growth of OER*

The Organisation for Economic Co-operation and Development (OECD) state that, in January 2007, they identified 3,000 open courseware resources available from over 300 universities. In addition, in repositories such as the Open University's OpenLearn, there were hundreds of thousands of pieces of content or materials in global repository services representing thousands of freely available learning hours. The majority of producers of resources and OER projects are located in English-speaking countries in the developed world. The institutions involved so far seem to be well-reputed internationally or in their countries, rather than institutions that are unknown or have low status.

### *Sustainability*

Sustainability in the context of this report can be seen as that given by Wiley in a recent paper for the OECD: "An open educational resource project's ongoing ability to meet its goals". He suggests that such a project has to find sustainability in two areas: the production and sharing of the resources, and the use and reuse of the resources by end users.

For Jorum and JISC, it is probably clearer to state that sustainability has to be found in three areas, because unlike many other OER services, Jorum is largely collecting content provided by others, rather than making available its own publications (although some resources go into Jorum that the data centres have produced). The three areas in which sustainability has to be found are therefore: the ongoing production and contribution to Jorum of resources by teachers and contributors from other institutions and organisations; the use of those resources by end users in the educational community, both teachers and learners; and the distribution side, i.e. the service provision that enables all of this to happen. There are real costs involved in each of these three areas, some of which can be met without direct funding by involving the community.

### *Benefits of OER*

The OLCOS Roadmap 2012 suggests that benefits of OER include:

For teachers and students:

- A broader range of subjects and topics to choose from;
- Content that can be easily modified and integrated in course materials;
- Saves time and effort through reusing resources for which Intellectual Property Rights (IPR) issues have already been resolved;
- Engages teachers in leveraging the educational value of resources through providing their own personal assessments, lessons learned and suggestions for improvements;
- Provides teaching and learning communities with easy-to-use tools to set up collaborative environments (e.g. Wikis, social networking, content feeds etc);
- Promotes user-centred approaches to education and lifelong learning; users not only consume educational content, but also develop their own ePortfolios and share study results and experiences with peers.

For educational networks and institutions:

- Provision of long-term conceptual framework for alliances in the creation, sharing and provision of educational resources;
- Allows higher return on public funds through better cost-effectiveness when reusing resources and sharing of development costs;
- Promotes digital competence for the knowledge society beyond basic ICT skills through making available tools and content that allow learners to develop their critical thinking and creativity;
- Enrich the pool of resources and tools for innovation in teaching and learning practices, including resources from public sector information agencies, libraries, museums etc;
- Lead to a leverage in the quality of educational resources through quality control, feedback and improvements within content alliances, communities and networks;
- Foster lifelong learning and social inclusion through easy access to resources that may otherwise not be accessible by potential user groups.

### *OLCOS Roadmap 2012 recommendations*

For educational repositories:

- Do not follow a 'top-down' strategy of delivering learning objects; empower teachers and learners;
- Support individual content creators and communities of practice with useful tools and services;
- Make licensing of content as easy as possible;
- Allow for easy discovery and access to resources;
- Assist open content initiatives in the creation of rich metadata and provide semantically enhanced access to resources.

### *Licensing*

Most OER projects and services around the world use Creative Commons licences, or variants thereof, to enable contributors to share materials for reuse, repurposing and

republishing. It is likely that the Jorum OER repository would use them too, subject to a number of matters that require prior investigation. It is recommended that the JISC Legal Expert Group, which was first formed on 19 June 2006, be asked to re-convene to discuss them.

### *Quality Assurance*

The current Jorum service offers quality assured metadata, added to resources by the JISC Intute team. For the open OER service, the option would exist to reduce the amount of formal metadata added, and allow social tagging and folksonomy functionality for users to add their own metadata tags. Jorum should also participate in research based on the experience of users as to whether formal or informal metadata-adding processes are more useful, or whether both are considered necessary.

The open Jorum service should consider facilitating a peer review process, run by third parties such as HE Academy, ALT and the RSCs, that would bring in people from the community who are prepared to devote time to fully review resources in the repository, alongside informal review processes facilitated by Web 2.0 functionality (in addition to any other processes, such as the star rating and comments functionality in the current service).

### *Technical platform*

A key decision will be whether to persist on the basis of presenting the service via repository functionality; or use a repository system at the backend and use a web-based learning environment on top.

The underlying technical platform must be robust and free of performance issues, as far as possible.

### *Promotion/incentives*

The OECD has provided a list of incentives for governments, institutions and individuals to get involved in OER projects. The Jorum OER service should consider production of promotional policies in the light of the incentives provided by the OECD, as they are building on proven research results with organisations and people involved in OER currently.

The Jorum OER service should work with stakeholders such as HE Academy, the Association of Learning Technology and the JISC Regional Support Centres, to ensure that reward mechanisms are provided, in terms of peer review processes, informal Web 2.0 review processes, publicity for contributors, award schemes and close links with professional societies.

### *Business Planning*

OER services encourage others considering providing an OER service to make the assumption that the open repository will give rise to new funding opportunities and look for revenue-generating opportunities for sustainability purposes.

The recommendation is to focus less on the features of products and the technology, and more on understanding what users want and deliberately growing the OER product

for them. In this case, opportunities to generate revenue should naturally become apparent.

There are several funding models already in use by other OER projects and services that could be utilised, at least in part, by the Jorum OER service.

There might be an opportunity to use resources saved from reducing the amount of detailed metadata added to provide more formal pedagogical quality checking processes. This would enable the Jorum OER service to provide both formal and informal quality assurance processes in both metadata and pedagogy.

#### *Additional factors*

Opening up the Jorum repository is likely to lead, not only to greater demand on the server from the UK, but also from many countries abroad, perhaps particularly in the developing world. Current OER projects and services see one of their major roles as providing opportunities for the developing world to access free resources. It is likely that our service would be picked up by other OER services and promoted around the world.

This gives rise to planning, resource and cost implications. Decisions would have to be made about which users would be offered full support in the Jorum OER Designated Community, and which would be considered to be part of the Extended Community and therefore not receiving the same degree of support.

# 1. Introduction

The scope of the Jorum Open Educational Resources (OER) Report has been agreed with the funding body, the Joint Information Systems Committee (JISC). The scope of the report is to examine learning and teaching materials on open access around the world, focusing on:

- The definitions of “open” being used by the various institutions, projects and services;
- The development of open learning and teaching materials globally and the current state of play;
- Where institutions, projects and services are providing course materials on open access, whether they provide all of their materials or just tasters;
- The lessons that we can draw from this study for Jorum, and JISC generally.

The report includes a focus on the Open University Open Learn initiative, achieved by a watch on its development through the course of the activity. This focus includes:

- A summary of the history and purpose of the OpenLearn initiative;
- The development of the OpenLearn project for the duration of this report;
- A focus particularly on the LabSpace area of the OpenLearn project.

Research for this report commenced in February 2007 and the draft report was completed in July 2007. It is to be submitted to JISC in August 2007.

The report has been written in year 2 of Jorum Service-in-Development, which has established the Jorum repository service for UK Higher and Further Education (H/FE). The Jorum service currently has 363 institutions signed up for the Jorum User service and 84 institutions signed to the Jorum Contributor service. The Jorum service is provided by the JISC-supported national data centres EDINA and Mimas, based in the Universities of Edinburgh and Manchester respectively. Further context for the report is that JISC and the Jorum Steering Group have directed that the Jorum team produce a fully-costed business plan by November 2007 for ongoing service from August 2008, which should consider providing an open repository service.

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## 2. The Concept of 'Openness'

This section considers what is meant by 'open' and considers various areas in which the concept is being used.

The concept of 'openness' began with the growth of open access research journals and was catalysed by the desire of academics to break away from the restrictions of the traditional publishing model. By opting to make their research articles available on open access they would retain the copyright in their own work which would also have the benefit of being free to users. University Libraries would no longer be compelled to pay large subscription charges to buy back the work of researchers working within their own institutions and funded largely by public money.

Definitions of 'Open' are constantly evolving and vary according to context. For example, 'open source', 'open access' and 'open content' each have different meanings of 'open'. For 'open access' material this means it is made available free for all users; the term 'open' describes the mode of delivery. For 'open source' software and 'open content', the term 'open' refers to the type of licensing model which is being used.

'Open Educational Resources' (OER) is a much more recent term used to describe a particular type of open content which originated after the inception of MIT's OpenCourseWare project.

### 2.1 The Open Access Movement

The Open Access (OA) Movement has been made possible by the development and growth of the World Wide Web. It is based on the idea that scholarly knowledge and cultural heritage, now available in digital form, should be disseminated freely across the Web for the benefit of society as a whole<sup>1</sup>.

The Budapest Open Access Initiative (BOAI)<sup>2</sup> defines OA as an old tradition and a new technology that have converged to make possible an unprecedented public good:

"The old tradition is the willingness of scientists and scholars to publish the fruits of their research in scholarly journals without payment, for the sake of inquiry and knowledge. The new technology is the internet. The public good they make possible is the world-wide electronic distribution of the peer-reviewed journal literature and completely free and unrestricted access to it by all scientists, scholars, teachers, students, and other curious minds."

However the BOAI also points out that, while OA journal literature should be provided without cost to its readers, this does not mean it is costless to produce. Despite this, research shows that the "... overall costs of providing open access to this literature are far lower than the traditional forms of dissemination"<sup>3</sup>. In addition it is generally

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<sup>1</sup> Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, October 2003  
<http://oa.mpg.de/openaccess-berlin/berlindeclaration.html> [July 2007]

<sup>2</sup> Budapest Open Access Initiative, December 2001 <http://www.soros.org/openaccess/read.shtml> [July 2007]

<sup>3</sup> Odlyzco, A.(1997) *The Economics of Electronic Journals*. First Monday, Vol. 2 (8) 1997.  
[http://firstmonday.org/issues/issue2\\_8/odlyzko/index.html](http://firstmonday.org/issues/issue2_8/odlyzko/index.html) [July 2007]

accepted that OA research articles are more widely cited than those which are only available through subscription.

Peter Suber<sup>4</sup> defines 'open access' information as being, "Digital, online, free of charge, and free of most copyright and licensing restrictions". In his 'Open Access Overview' he discusses the many different definitions of OA and identifies those contained within the Budapest, Bethesda<sup>5</sup> and Berlin<sup>6</sup> statements as being the most influential.

There are some differences between the three statements but they have the following points in common:

- OA content must be free of charge for all users with an internet connection;
- Permission is given for all legitimate scholarly uses;
- Authors should have control over the integrity of their work and the right to be properly acknowledged and cited.

Suber comments, "While removing price barriers without removing permission barriers is not enough for full OA under the BBB definition, there's no doubt that price barriers constitute the bulk of the problem for which OA is the solution. Removing price barriers alone will give most OA proponents most of what they want and need."

## 2.2 Open Source Software

According to the Jorum Report on Open Source Software Repository Systems (November 2005)<sup>7</sup>, open source software (OSS) can be defined as follows:

"Open source refers to a software licensing model where the source code of the software is typically made available royalty-free to its users, under terms allowing redistribution, modification and addition, though often with certain restrictions. Open-source programs are often, though not exclusively, developed through a collaborative effort in which a number of persons, often with no formal association with each other, contribute elements of the final software."

OSS is usually, but not always, 'free'. JISC OSS Watch<sup>8</sup> explains, "Nothing in an OSI-approved<sup>9</sup> licence prohibits anyone from charging for a particular piece of open source software; however this rarely happens. Since the licence enables anyone to redistribute the software freely, any customer could make millions of copies and just give them away."

## 2.3 Open Materials for Learning and Teaching

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<sup>4</sup> Suber, P (June 19 2007) Open Access Overview <http://www.earlham.edu/~peters/fos/overview.htm> [July 2007]

<sup>5</sup> Suber, P. (June 20 2003) Bethesda Statement on Open Access Publishing <http://www.earlham.edu/~peters/fos/bethesda.htm> [July 2007]

<sup>6</sup> <http://oa.mpg.de/openaccess-berlin/berlindeclaration.html> [July 2007]

<sup>7</sup> [http://www.jorum.ac.uk/docs/pdf/JORUM\\_osswatch\\_final.pdf](http://www.jorum.ac.uk/docs/pdf/JORUM_osswatch_final.pdf) [July 2007]

<sup>8</sup> <http://www.oss-watch.ac.uk/resources/beginners.xml> [July 2007]

<sup>9</sup> The Open Source Initiative (OSI) is a US corporation actively involved in OS community building, the stewards of the Open Source Definition (OSD), which defines what constitutes an OS licence, and the body for reviewing and approving OS licences. See <http://www.opensource.org/about> [July 2007]

Whilst the Open Access movement began initially to bring about the free dissemination of research articles, many other types of 'open' materials now exist for teaching and learning.

### 2.3.1 Open Content

The term 'open content' was first coined by David Wiley, who founded the OpenContent project<sup>10</sup>, and put together the first content-specific (non-software) licence in 1998 with input from Eric Raymond, Tim O'Reilly and others.

Keats<sup>11</sup> explains that, "The idea of open content has its background in the OS software movement, and can be considered a license agreement, a philosophy, a way of doing things, as well as the content produced and distributed according to the open content license agreement. As a philosophy, open content refers to the principle that content should be freely reusable so as to make knowledge available as common knowledge for the common good (see Newmarch<sup>12</sup>). A key fundamental of open content licensing is that any object is freely available for modification, use, and redistribution with certain restrictions."

The largest open content project is Wikipedia<sup>13</sup>.

### 2.3.2 Open Courseware

Wiley's original licences were created for educational materials, and among the first applications of these 'Creative Commons' (CC) licences<sup>14</sup> were two major open content projects (Connexions<sup>15</sup> and MIT OpenCourseWare<sup>16</sup>) in the field of what has come to be called 'open courseware', both funded by the William and Flora Hewlett Foundation<sup>17</sup>. Just as OS avoids re-inventing the wheel by building on existing code, so open courseware aims to save time, effort and money by making educational material freely available for others to re-use, extend and improve.<sup>18</sup>

The term 'open courseware' (or opencourseware) was first used to describe the materials made available through the MIT OCW initiative.

Open courseware materials consist of learning resources which combine together to form a cohesive course of material. In addition to the basic content, open courseware can also contain other resources to support teachers and learners to use and repurpose the materials as well as community building tools. An important feature of open

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<sup>10</sup>Wiley, D. (2003). *Learning Objects: Difficulties and Opportunities*.

[http://opencontent.org/docs/lo\\_do.pdf](http://opencontent.org/docs/lo_do.pdf) [July 2007]

<sup>11</sup>Keats, D. *Collaborative development of open content: a process model to unlock the potential for African universities*. First Monday, February 2003. [http://www.firstmonday.org/issues/issue8\\_2/keats/](http://www.firstmonday.org/issues/issue8_2/keats/) [July 2007]

<sup>12</sup>Newmarch, J. *Lessons from Open Source: Intellectual Property and Courseware*. First Monday, May 2001. [http://firstmonday.org/issues/issue6\\_6/newmarch/](http://firstmonday.org/issues/issue6_6/newmarch/) [July 2007]

<sup>13</sup><http://www.wikipedia.org/>

<sup>14</sup>Creative Commons <http://creativecommons.org/> [July 2007]

<sup>15</sup>Connexions <http://cnx.org/> [July 2007]

<sup>16</sup>MIT OpenCourseWare <http://ocw.mit.edu/index.html> [July 2007]

<sup>17</sup><http://www.hewlett.org/> [July 2007]

<sup>18</sup>Moody, Glyn (2006) *Learning the lesson: Open content licensing*. LWN.net, <http://lwn.net/Articles/181374/> [July 2007]

courseware is that it comes with an assurance of quality based on the reputation of its institution of origin.

### 2.3.3 Open Educational Resources

The term 'Open Educational Resources' (OER) was first adopted at UNESCO's '2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries', funded by the Hewlett Foundation<sup>19</sup>. At the second UNESCO Forum in 2004, OER was defined to include:

- Learning resources—courseware, content modules, learning objects, learner-support and assessment tools, online learning communities;
- Resources to support teachers—tools for teachers and support materials to enable them to create, adapt, and use OER, as well as training materials for teachers and other teaching tools;
- Resources to assure the quality of education and educational practices.

The Open e-Learning Content Observatory Services (OLCOS)<sup>20</sup> project aims to foster the creation, sharing and reuse of OER in and beyond Europe. The OLCOS Roadmap 2012<sup>21</sup> is one of its major outputs. According to the Roadmap, there is no authoritatively accredited definition yet of what is understood by the term OER, but that existing proposed definitions of OER share the following core attributes:

- Access to open content (including metadata) is provided free of charge for educational institutions, content services and end users such as teachers, students and lifelong learners;
- Content is liberally licensed for reuse in educational activities;
- Open content standards and formats are employed to facilitate easy reuse of content;
- Software is used for which the source code is available (i.e. Open Source), along with open Application Programming Interfaces (APIs), and authorisations to reuse Web-based services (e.g. RSS feeds).

The Roadmap points out that, "These are rather demanding principles and, in fact, repositories of educationally relevant resources often do not fully abide by them. Hence, readers should be aware that when ... we refer to 'open' resources or ... projects, there may be several criteria that these do not meet, while still being developed in the spirit of the current Open Access movement in research and education."

The data centres believe that there is no necessity that a repository of open access content has to be hosted in open source software. Rather, the repository should meet open standards and specifications for exchange of data.

Both learning objects and open courseware can be described as types of OER. The differences between them are largely in terms of granularity, but also the context in which the content exists. Wiley has defined learning objects as any digital resource that can be reused to support learning<sup>22</sup>. Many other definitions also exist, including in the

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<sup>19</sup> [http://www.unesco.org/iiep/virtualuniversity/forumsfiche.php?queryforumspages\\_id=13](http://www.unesco.org/iiep/virtualuniversity/forumsfiche.php?queryforumspages_id=13) [July 2007]

<sup>20</sup> <http://www.olcos.org/english/home/> [July 2007]

<sup>21</sup> OLCOS Roadmap 2012, January 2007 <http://www.olcos.org/english/roadmap> [July 2007]

<sup>22</sup> Wiley (2000) [http://opencontent.org/docs/lo\\_do.pdf](http://opencontent.org/docs/lo_do.pdf) [July 2007]

Jorum Collections Policy<sup>23</sup>. This states that Jorum does not collect courseware, but rather learning objects, learning designs, learning assets, assessments and teaching support materials, and all of these categories are defined in the policy.

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<sup>23</sup> [http://www.jorum.ac.uk/docs/pdf/Jorum\\_Collections\\_Policy.pdf](http://www.jorum.ac.uk/docs/pdf/Jorum_Collections_Policy.pdf) [July 2007]

### 3. The development of open educational resources

This section examines the development of OER from its beginnings to its current position as global phenomenon.

#### 3.1 Beginnings

In October 2002 Massachusetts Institute of Technology (MIT) took the groundbreaking decision to make a range of MIT courses free and openly available on the Web<sup>24</sup>. It had initially been intended that this should be a business venture but it was soon felt this would be 'questionable on both economic and ethical grounds', as reported by Professor Miyagawa<sup>25</sup>. The decision was taken to start the MIT OCW website which now hosts around 80% of the courses currently run at MIT. The OCW model was chosen because it is based on self-contained courses and reflects the way education is typically organised in universities.

Benefits for MIT include:

- OCW advances the mission and image of MIT throughout the world;
- It generates pride among alumni and MIT staff and stimulates collaboration among faculty;
- It is a marketing tool for recruiting new students.

MIT OCW is funded jointly by the Hewlett Foundation, the Andrew W. Mellon Foundation<sup>26</sup> and MIT.

MIT reports<sup>27</sup> that, "Participation of MIT faculty in MIT OCW is voluntary, although judging by the number of MIT's faculty who already have published courses on MIT OCW, we expect that virtually all MIT courses will be available on the MIT OCW Web site by the end of 2008. Professional Web design and production resources are available to MIT faculty to develop and maintain the MIT OCW course sites. MIT is committed to the long-term support of the MIT OCW educational environment."

#### 3.2 Current situation globally

In response to MIT OCW, open content consortia are being formed, either to widen access to MIT's materials (e.g. China Open Resources for Education<sup>28</sup>), or to develop their own open content projects (e.g. Japan OCW Alliance<sup>29</sup>). Both of these initiatives are part of the OpenCourseWare Consortium<sup>30</sup>, set up to foster the development of open courseware projects throughout the world and receiving support from the Hewlett Foundation. In order to participate in OpenCourseWare Consortium activities, "Institutions must have committed to publishing, under the institution's name, materials from at least 10 courses in a format that meets the agreed-upon definition of

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<sup>24</sup> <http://ocw.mit.edu/index.html> [July 2007]

<sup>25</sup> OECD/CERI *Motivations, benefits and barriers for institutions producing Open Educational Resources*. OECD/CERI Second Expert Meeting on Open Educational Resources. Barcelona 26<sup>th</sup>-27<sup>th</sup> October 2006 (workshop meeting)

<sup>26</sup> <http://www.mellon.org/> [July 2007]

<sup>27</sup> <http://ocw.mit.edu/OcwWeb/Global/OCWHelp/help.htm#q22> [July 2007]

<sup>28</sup> <http://www.core.org.cn/en/> [July 2007]

<sup>29</sup> <http://www.jocw.jp/index.htm> [July 2007]

<sup>30</sup> <http://www.ocwconsortium.org/about/index.shtml> [July 2007]

opencourseware. Organisations that do not publish their own content but whose activities further Consortium goals—such as translation and distribution affiliates—also participate in Consortium activities.”

In addition to China Open Resources for Education (CORE) and Japan OCW Alliance, members of the Consortium also include:

- Universities from the USA, for example:
  - MIT OCW
  - John Hopkins School of Public Health
  - Tufts University
  - Utah State University
  - University of California, Irvine
  - University of Massachusetts, Boston
- The ParisTech OCW project comprising of 11 member universities
- OpenLearn from the Open University in the UK (see Case Study in Section 4 of this report)
- The Open Universiteit Nederland
- AEShareNet in Australia

Other member projects are based in Brazil, Canada, Cuba, Denmark, Hungary, India, Iran, Ireland, Pakistan, Portugal, Russia, South Africa, Spain, Sweden, Thailand and Vietnam.

One of goals of the Consortium is to ensure the long-term sustainability of opencourseware projects by identifying ways to improve effectiveness and reduce costs. Although many currently receive funding from the Hewlett Foundation and the Mellon Foundation, it is not clear how long this support can last.

At the time of writing this report, the only UK member of the OpenCourseWare Consortium is the Open University.

The Organisation for Economic Co-operation and Development (OECD) in a recent major report<sup>31</sup> stated that, in January 2007, they identified 3,000 open courseware resources available from over 300 universities. In addition, in repositories such as OpenLearn, there were hundreds of thousands of pieces of content or materials in global repository services representing thousands of freely available learning hours. The report noted that, “Although the dominant language so far is English, translation of resources combined with a growing number of non-English OER projects cater for greater language diversity and increased global use. The potential number of users is enormous.”

The report continues, “The majority of producers of resources and OER projects are located in English-speaking countries in the developed world. The movement grows both top-down and bottom-up: new projects are started at institutional level and individual teachers and researchers also use and produce OER on their own initiative. The institutions involved so far seem to be well-reputed internationally or in their countries, rather than institutions that are unknown or have low status.”

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<sup>31</sup> OECD May 2007. *Giving Knowledge for Free: the emergence of Open Educational Resources*. pp 40–45 <http://213.253.134.43/oecd/pdfs/browseit/9607041E.PDF> [July 2007]

## 4. Case Study: OpenLearn

This section is a case study of one prominent OER service, of particular relevance to Jorum, because it is based in the UK.

### 4.1 Background to the OpenLearn Project

OpenLearn<sup>32</sup> is an Open Content Initiative of The Open University UK (OU). Its aim is to make freely available on the internet a selection of higher education learning resources and provide on-line tools to manage learning and support the development of collaborative learning communities.

The OpenLearn website was launched in October 2006 and by early June 2007 it was reported<sup>33</sup> that, "Half a million people in 160 countries are now using the free learning materials made available through OpenLearn".

Currently the site already hosts over 2,500 hours of learning materials in the Learning Space and more than 4,500 hours in the more experimental LabSpace.

It is hoped that by 30 April 2008, the amount of content to be made available will steadily increase in the Repository, known as the 'Learning Space', and the Depository, known as 'LabSpace' (see paragraphs 4.2.2 to 4.2.4), from a total of 900 learning hours to 13,500 learning hours combined.

The OpenLearn project is of particular significance in the OU's efforts to widen access to hard-to-reach groups and tackle educational disadvantage, within both the developed and developing worlds.

#### 4.1.1 Funding

The OU have been successful in securing funding from the Hewlett Foundation. The published aims of the OU given in the first funding application<sup>34</sup> are particularly relevant to the mission of the Hewlett Foundation:

- To promote the educational well-being of the community generally;
- To promote educational opportunity and social justice by providing high quality education to all who wish to realise their ambitions and potential.

The first tranche of funding received from the Hewlett Foundation was US \$9.9 million (GBP £5.65 million in 2005). It was announced<sup>35</sup> on 28 June 2007 that OpenLearn has received a further grant of \$4.45 million from the Hewlett Foundation, following submission of a second application in March 2007<sup>36</sup>, which will enable it to double the amount of free learning by April 2008 and provide access to more interactive tools.

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<sup>32</sup> <http://www.open.ac.uk/openlearn/home.php> [July 2007]

<sup>33</sup> <http://www.open.ac.uk/openlearn/news/news-full.php?id=11216> [July 2007]

<sup>34</sup> [http://www.open.ac.uk/openlearn/\\_assets/06sngppqpwminsmlxov.pdf](http://www.open.ac.uk/openlearn/_assets/06sngppqpwminsmlxov.pdf) [July 2007]

<sup>35</sup> <http://www.open.ac.uk/openlearn/news/news-full.php?id=11336> [July 2007]

<sup>36</sup> [http://www.open.ac.uk/openlearn/\\_assets/twnvxam0rxsmz5ok8q.pdf](http://www.open.ac.uk/openlearn/_assets/twnvxam0rxsmz5ok8q.pdf) [July 2007]

(The funding for OpenLearn is in addition to the \$8 million programme being run by the OU to develop an online virtual learning environment (VLE) to meet the learning needs of its registered distance learners<sup>37</sup>.)

#### 4.1.2 Factors influencing the launch of OpenLearn

Sclater<sup>38</sup> reports that the OpenLearn project has come about as a result of the OU questioning its own future in a world where free content is growing rapidly. Does this mean the OU is losing its value or “does it become even more important to provide high quality local content for students where much of the material out there is poorly designed or of dubious authenticity?”

The OU can offer:

- High quality content from an internationally renowned organisation;
- Excellent student support built on many years experience in distance learning;
- An established strategic partnership with the BBC - a major open content provider;
- A commitment to full participation in the open content community and for adopting open source for its electronic learning support tools;
- Cutting edge research and innovation through its own Knowledge Media Institute (KMi) and Institute of Educational Technology (IET).

#### 4.1.3 Associated risks

The OU is a distance learning organisation; therefore, the decision to make its course materials freely available on the Web could create a threat to its core business (unlike MIT OCW)<sup>39</sup>. However the OU has a track record in engaging in pioneering activities and ultimately it was felt that this was a worthwhile thing to do despite the risks. It was arguably even more risky to continue without change in a world where students may make their choice of course based on the accompanying technologies offered alongside the course content.

#### 4.1.4 The way forward

The OU have concentrated on adding value to their highly regarded course material through developing a collection of community building Web 2.0 tools and services.

OpenLearn provides an innovative environment where content can not only be used but re-purposed and contributed back into the system.

In the OU's application to the Hewlett Foundation it was stated:

“The key issue is not so much access to content itself –which in an information rich world is increasingly easy – but rather *how to use content in empowering ways*.

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<sup>37</sup> Sclater, Niall (2006). *Putting the Open University on the Internet*. Proceedings of the 22<sup>nd</sup> World Conference on Distance Education. Rio de Janeiro, 3-6 Sept 2006.

<http://ccvap.incubadora.fapesp.br/portal/materiais/462.pdf> [July 2007]

<sup>38</sup> Sclater, N. (2006) *op.cit.*

<sup>39</sup> McAndrew, Patrick (2006) *Motivations for OpenLearn: the Open University's Open Content Initiative*. UOC UNESCO Chair in eLearning. Third International Seminar. OER: Institutional Challenges. Barcelona, 22-24 November 2006. <http://www.oecd.org/dataoecd/4/56/38149250.pdf> [July 2007]

“Electronic provision permits exploration of new ways of delivering *non-formal* learning opportunities, which can stimulate an appetite for further learning and have the potential to serve as the basis for creating educationally effective learning communities.”<sup>40</sup>

OpenLearn community building tools and initiatives include:

- OpenLearn-daily is an RSS feed providing ‘feedcycles’ of single units delivered daily until a whole course has been completed. Currently six courses can be accessed in this way;
- Forums – available for individual course units;
- MSG Instant Messaging to enable communication between students studying the same unit/course;
- Learning Journal – can be kept private or made available to other learners;
- Knowledge Maps which can be shared between learners and/or educators;
- OpenLearn Conference 30 -31 October 2007;
- OpenLearn Newsletter.

#### 4.1.5 Licensing of OpenLearn

OpenLearn publishes OU course content under a CC licence allowing users to download and reuse the materials, amending them to suit their purpose and context.

- The OU is committed to making use of the CC licence ‘Attribution-Non-Commercial-Share-Alike’ 2.0 and this will be used for content presented in both the Learning Space and LabSpace;
- Tools created by the OU for use in the project will be licensed under the GPL licence found at: <http://creativecommons.org/license/cc-gpl>;
- Third party content may not be available in its entirety because of restrictions by rights holders. The OU are already in discussion with representative rights organisations – including the UK talent unions – with a view to negotiating blanket licensing agreements. It is hoped the project will identify ways of making more embedded third party content available.

#### 4.1.6 The IMS Global Learning Consortium Learning Impact Awards 2007

In April 2007 the OpenLearn project won a prestigious Platinum Award, one of three top honours, at the IMS Global Learning Consortium Learning Impact Conference in Vancouver<sup>41</sup>.

This was the first global competition of its type and attracted nominations from around the world. Twenty five finalists were judged on learner achievement, impact on faculty adoption, financial return, impact on access, impact on accountability, and use of interoperability standards.

The OpenLearn entry received full marks from the award judges in the area of ‘Expanded Access: Impact on reaching new populations’.

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<sup>40</sup> <http://www.open.ac.uk/openlearn/assets/06sngpqpwmmsmwov.pdf> [July 2007]

<sup>41</sup> <http://www.imslobal.org/learningimpact/index.html> [July 2007]

## 4.2 The OpenLearn Environment

As stated earlier, the OU is developing an integrated VLE to support the needs of its 200,000 distance learners. OpenLearn content is also being made available through the same technical infrastructure. The OpenLearn environment is divided into two separate areas; a repository area known as the Learning Space and a depository area known as LabSpace.

### 4.2.1 Platform

Unlike MIT, the OU decided to use an open source platform for OpenLearn and selected Moodle<sup>42</sup>. Sclater<sup>43</sup> reported that there had been a lot of debate about using SAKAI<sup>44</sup>, but on evaluation this was found to be not as functionally mature with a complex architecture requiring a steep learning curve. Moodle was viewed as offering the following advantages:

- *Uptake across the educational sector*  
Moodle was already widely adopted by FE colleges in the UK and many HE institutions were interested in it. SAKAI, requiring payment of an annual fee to join a relatively small group of institutions, was not viewed as a true open source option. In addition, the use of Moodle offered increased potential to exchange and sell educational content.

- *Positive attitude shown by the Moodle community*  
Existing Moodle users and developers appeared to welcome the involvement of the OU

and this offered greater possibilities for new partnerships and markets.

- *Collaborative learning was supported*  
Moodle was able to support the rich range of new pedagogies made possible with the Web. The OU course content was originally written for paper-based presentation but courses were now being designed incorporating more learning activities for students, which utilised social software to support collaborative learning.
- *Student retention rates should improve*  
Tutors would be able to monitor the activities of their students better and provide remedial assistance where necessary.

### 4.2.2 Learning Space

Learners are initially directed to the Learning Space<sup>45</sup> to access course content and they have the use of several tools, which are also common to LabSpace (see paragraph 4.2.4). Learning Space opens on a list of 12 items, 11 of which are topics such as Arts and History, Business and Management etc, and 1 of which is "How To ...", which contains a number of guides to the tools available in Learning Space. The opening page also lists the number of units available in each topic. They currently range from 16 in Health and Lifestyle, up to 42 in Science and Nature.

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<sup>42</sup> <http://moodle.org> [July 2007]

<sup>43</sup> Sclater, Niall (2006).*ibid.*

<sup>44</sup> <http://sakaiproject.org> [July 2007]

<sup>45</sup> <http://openlearn.open.ac.uk/index.php> [July 2007]

When you click on a Topic, you see a list of the units available therein, presented as follows:

Earthquakes [link to unit]

Earthquakes shake the ground surface, can cause buildings to collapse, disrupt transport and services, and can cause fires. They can trigger landslides and tsunamis – in short, earthquakes can be very destructive. In this unit you will look at why, ...

**Time:** 8 hours

**Topic:** [Science and Nature](#)

**Last Modified:** June 6th

**Level:** Introductory

Once in the unit, there is a list of links to the various sections of the unit. The Moodle interface presents the unit in the centre of the browser page, and around it are a number of other links e.g. on the right, to related educational resources, to the unit in alternative formats (e.g. print), and to a relevant forum. On the left, there is a Google tool indicating other users of the same unit currently logged in around the world, links to other tools e.g. Knowledge Maps (see paragraph 4.2.4) and a full list of the topics available in Learning Space.

Putting “earthquake” in the search box retrieves 83 items that are relevance ranked. The top link is to the opening page of the earthquake unit, and the others are to pages within the unit, among other mentions at the Learning Space site. The search results list also offers an option to search for earthquake in the OU site.

### 4.2.3 LabSpace

LabSpace<sup>46</sup> is intended for educational practitioners and more adventurous learners. This is the most innovative part of OpenLearn and links into research which is taking place at the Open University.

“The aim is to feed through altered material and material developed by other providers from the Depository to the Repository, with decisions on this transfer resting with a review team drawn from The Open University and partner institutions. In order to populate these sites, the University will draw on its extensive curriculum content.”<sup>47</sup>

LabSpace is divided into four main areas of activity:

#### 1. Research

The Research Zone is where users can read and participate in research being carried out into the OpenLearn project. Research results can be disseminated and users are invited to contribute to research forums to discuss common issues.

#### 2. Collaborations

This area is for collaborative activities and projects. It provides a free area where partners or members of an organisation can collaborate on the research and development of open educational resources.

<sup>46</sup> <http://labspace.open.ac.uk/> [July 2007]

<sup>47</sup> [http://www.open.ac.uk/openlearn/\\_assets/06sngpqpwminsmlwov.pdf](http://www.open.ac.uk/openlearn/_assets/06sngpqpwminsmlwov.pdf) [July 2007]

### 3. Resources

This zone gives access to the open educational resources available from the OU. Users are encouraged to take away, reuse and remix these resources. Both 'content' and 'tools' are made available.

Units can be downloaded or taken away in several formats:

- Zip file of all the individual assets;
- Moodle back-up;
- HTML;

Assets are available in the following formats:

- Text in XML, PDF or Word;
- Animations in Flash;
- Images as GIF or JPEG;
- Audio files as MP3 and video files as MP4.

### 4. PlaySpace

The PlaySpace is an area for those who are unfamiliar with how to remix material or use the tools. It is possible to experiment with creating new units in this area which will not be uploaded to the main LabSpace environment.

In addition, a video conferencing tool ('**Flash Meeting**') has been made available to facilitate the activities of the four distinct areas of LabSpace. This allows a dispersed group of people to meet from anywhere in the world. The meeting can be pre-booked by a registered user who passes the details on to those they wish to participate.

#### 4.2.4. Tools common to both Learning Space and LabSpace

The tools common to both areas of OpenLearn are:

- **MSG Instant Messaging Service**  
Encourages peer interaction between learners located throughout the world and offers the possibility for local learners to arrange face-to-face meetings.
- **Learning Journal**  
Allows the recording of personal notes and reflections on the material being studied.
- **Forums**  
Each forum has a topic name and can be general in nature or specific to a unit of study.
- **Knowledge Maps**  
This is provided through the use of Compendium, a software tool designed to encourage critical integrative thinking by allowing users to share ideas, concepts and arguments in a visual way.

### 4.3 User reactions to OpenLearn

It was reported via the OpenLearn News pages on June 12, 2007<sup>48</sup> that half a million people in 160 countries were now using the free learning materials made available through OpenLearn.

Whilst the content is clearly proving popular, it is interesting to read the LabSpace Forum to see whether users are attempting to try out the interactive tools and whether they

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<sup>48</sup> <http://www.open.ac.uk/openlearn/news/news-full.php?id=11216> [July 2007]

have tried to reuse and remix any materials. A user posted the following comment in November 2006<sup>49</sup>, indicating some concern about the skills needed to modify resources:

“I thought I would have a go at adapting some course materials. I have a pretty clear idea about what I want to achieve, but it looks like I am going to have to learn XML to do this. I have academic expertise and am pretty IT literate, but am a bit daunted by the learning curve that I would need to go through to do an effective job of contributing to the improvement of these materials.”

The OpenLearn staff are looking carefully at issues of user participation. It was reported in the OpenAir blog posted on June 1<sup>st</sup> 2007<sup>50</sup>:

“In recent blue skies discussions about the future of the LabSpace we discussed whether the remixing of Open University course content was an activity just for a niche group of educators - or was this something that a wider community would form around.”

Laura Dewis went on to write in more detail about the thoughts of the OpenLearn staff with regard to incentivising users:

“We started off by looking at our groups of LabSpace users - real and imagined. We know there is a group of ‘willing but not able’ out there. People with content who want to publish in the LabSpace but are prevented by a lack of confidence, technical ability, time, or a sense that they need to seek permission or guidance from us.

“Some potential solutions were proposed to motivate use:

1. Provide more incentives for uploading to encourage users to get over the perceived barriers - point out they will be able to see how many people are using their materials and connect with them, we might provide ratings and reviews of their content from our subject experts, showcase great examples of uploads, make it clearer what users have contributed and create a community around contributions;
2. Set challenges by highlighting where we need help. Communicate these to the community through our forums and newsletters e.g. this is an old course with some excellent materials - can anyone out there update? Does anyone have a replacement for this third party asset that we couldn't get rights for? Can anyone translate this course as there is a lot of relevance for Spanish learners?
3. Lobby universities without an open content presence to submit their materials - perhaps only their archived materials or suggest they use the LabSpace to experiment with starting their own open content website.”

Dewis continued by considering whether it had been a good idea to separate LabSpace from Learning Space:

“Then we moved onto whether the LabSpace should exist at all. Should OpenLearn be a single site? The two ‘Spaces’ provide a focus for two distinct

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<sup>49</sup> <http://labspace.open.ac.uk/mod/forum/discuss.php?d=39> [July 2007]

<sup>50</sup> <http://conclave.open.ac.uk/openair/?cat=5> [July 2007]

groups of users - the learners and the educators. The activity of learning and teaching involve different tasks undertaken by people with different skills and needs. But academic content development and remixing is done in HE by both groups (perhaps students even remix more than educators). Yet - especially in a virtual learning environment where usable design can be a challenge at times - by mixing more complicated functions in with the learning, we could alienate the learners who are using OpenLearn to gain confidence in learning.

"So is this segregation of the 'Spaces' necessary and helpful? There was a comment that having spaces creates a false distinction on the internet, where people constantly move between sites. Also what is on the edge very quickly becomes mainstream so the two sites will naturally merge. Isn't the purpose of OpenLearn to push openness forward and live the future now - even if we are years away from a more general acceptance of what it means to be really open? The fact is, unless the users are moving in the same direction as us, we just won't see take up. Are we really ahead of the game, or are we just making it difficult for other players to join us?"

The relative lack of activity in LabSpace was considered a few weeks later by Tony Hirst, who wrote in his OUseful Info blog<sup>51</sup>:

"We're now several months in to the first phase of the OpenLearn project, and content migration of OU course units into the OpenLearn environment is carrying on apace. However, my reading of the (lack of) activity in LabSpace, where the project team were hoping to see reversioned content uploads, is that: a) no-one is really sure what the license allows, and what sorts of things you could possibly do that constitute a remix; b) the process of getting content out of LabSpace, doing stuff to it, and then getting content back in to LabSpace is just too hard...The OpenLearn team, too, are maybe having second thoughts about how they see the LabSpace working for content remix."

Another cause for concern has been the lack of use made of the forums provided within both the Learning Space and the LabSpace. Steve Godwin wrote in his blog<sup>52</sup> on June 27 2007:

"We are having a problem in that the number of people who are using the OpenLearn forums and making postings is rather limited. It is felt that the reasons for this may be:

- There are too many forums
- The forums are often too deeply embedded
- People may not be encouraged to enter the forum

Ideas discussed include making it look like there is just one forum, but with many threads, reducing the total number of forums so that there are a few key ones, centred around discipline areas for example."

#### 4.4 Thoughts on OpenLearn

The OpenLearn project is essentially a huge laboratory experiment incorporating many unpredictable factors. Will users want to use the range of Web 2.0 tools on offer or will

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<sup>51</sup> <http://blogs.open.ac.uk/Maths/ajh59/010436.html> [July 2007]

<sup>52</sup> <http://openlearn.blogspot.com/> [July 2007]

they play safe and engage with the content in a traditional and more static way? It is likely users will take a while to gain the confidence to engage with the interactive tools, especially if they have had no previous experience in using similar tools before.

Educators may also find the LabSpace area complex and time-consuming to fathom; however, those with experience of designing in Moodle will be far less daunted by the process.

OpenLearn has, arguably, far more in common with Connexions at Rice University than MIT OCW. Connexions encourages collaboration between authors of small 'modules' of material which can be linked together in different ways to form larger collections or courses. MIT OCW only accepts educational material originating from MIT<sup>53</sup>; however, it does give users access to discussion groups via the Centre for Open Sustainable Learning<sup>54</sup> (COSL).

The second grant from the Hewlett Foundation to OpenLearn can be viewed as a vote of confidence in what it has achieved so far and will allow the team to tackle some of the issues they have encountered regarding user engagement.

#### **4.5 Lessons for Jorum from the OpenLearn experience**

Some of the lessons that can be drawn from the OpenLearn case study for an open Jorum repository service are:

- Consider applying for supplementary funding from philanthropic organisations such as the Hewlett Foundation, especially to support wider aims of the service in terms of lifelong learning and the promotion of learning open to groups that do not traditionally engage in education;
- Make the assumption that the open repository will give rise to new funding opportunities and look for revenue-generating opportunities (as in the experience of Connexions reported in the following section) for sustainability purposes;
- Sharing materials between institutions will ultimately reduce costs, providing that they are of a sufficiently high quality, and use every effort to get this message across;
- Ensure that the tools provided to teachers and learners for remix and reuse of materials are as easy to use as possible, otherwise they will be daunted;
- Provide as many incentives as possible for contributors;
- Highlight areas in which the OER service needs help and communicate them to the community;
- Consider whether areas for content and tools/activities need to be as separate as Learning Space and LabSpace are in OpenLearn, or whether they can be presented in as connected a way as is possible in order to help users become confident contributors as well as users, repurposers as well as reusers, republishers as well as downloaders;
- Ensure that Web 2.0 tools for communication are as upfront and easy to use as possible, to encourage postings and content reviews.

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<sup>53</sup> See FAQs at: <http://ocw.mit.edu/OcwWeb/Global/OCWHelp/help.htm#q21> [July 2007]

<sup>54</sup> <http://oslo.usu.edu/> [July 2007]

## 5. The OLCOS Roadmap 2012

The Open e-Learning Content Observatory Services (OLCOS)<sup>55</sup> project aims to foster the creation, sharing and reuse of OER in and beyond Europe. The work of OLCOS is based on the "... necessity to equip individuals with the core competencies they need to successfully participate within a knowledge-based society". It views the development of OER as critical to support this. The OLCOS Roadmap 2012<sup>56</sup> is one of its major outputs, a significant report which reviews the "current and likely future developments in OER and recommends how various challenges in OER could be addressed".

The report is based on research work, expert workshops and other consultations with many international projects promoting the creation, sharing and reuse of OER.

The approach used by OLCOS is to emphasise educational 'practices' rather than educational 'products'. Its rationale is to identify behaviours which will bring about the 'expected benefits of OER'.

The document has been produced as a tool for educational decision makers within stakeholder organisations. It aims to inform them of the key factors necessary to bring about the growth of high quality OER and to provide them with a framework for strategic planning which will help bring this about.

### 5.1 Benefits of OER

The OLCOS Roadmap 2012<sup>57</sup> suggests that benefits of OER include:

*For teachers and students:*

- A broader range of subjects and topics to choose from;
- Content that can be easily modified and integrated in course materials;
- Saves time and effort through reusing resources for which Intellectual Property Rights (IPR) issues have already been resolved;
- Engages teachers in leveraging the educational value of resources through providing their own personal assessments, lessons learned and suggestions for improvements;
- Provides teaching and learning communities with easy-to-use tools to set up collaborative environments (e.g. Wikis, social networking, content feeds etc);
- Promotes user-centred approaches to education and lifelong learning; users not only consume educational content, but also develop their own ePortfolios and share study results and experiences with peers.

*For educational networks and institutions:*

- Provision of long-term conceptual framework for alliances in the creation, sharing and provision of educational resources;
- Allows higher return on public funds through better cost-effectiveness when reusing resources and sharing of development costs;

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<sup>55</sup> <http://www.olcos.org/english/home/> [July 2007]

<sup>56</sup> OLCOS Roadmap 2012, January 2007 <http://www.olcos.org/english/roadmap> [July 2007]

<sup>57</sup> Roadmap 2012, January 2007 <http://www.olcos.org/english/roadmap> [July 2007]

- Promotes digital competence for the knowledge society beyond basic ICT skills through making available tools and content that allow learners to develop their critical thinking and creativity;
- Enrich the pool of resources and tools for innovation in teaching and learning practices, including resources from public sector information agencies, libraries, museums etc;
- Lead to a leverage in the quality of educational resources through quality control, feedback and improvements within content alliances, communities and networks;
- Foster lifelong learning and social inclusion through easy access to resources that may otherwise not be accessible by potential user groups.

## 5.2 Drivers and enablers for OER

The OLCOS Roadmap 2012 suggests that drivers and enablers for OER are:

### *Short-medium term [to 2009]*

- International interest e.g. UNESCO, OECD, World Bank, private Foundations etc;
- Healthy competition among leading institutions in providing free access to educational resources;
- OER 'latecomers' will need to convince through highly useful resources; active user communities will be of critical importance;
- Some Distance Teaching Universities and Open Universities make open self-learning resources accessible as a way to attract new students;
- Breakthrough of the Open Access (OA) principle in educational publishing;
- Funding bodies requiring results of academic and educational projects to be made available on an open basis;
- Widespread tried and tested know-how in distributed open access repositories e.g. systems based on OAI-PMH);
- The 'industrialist' Learning Objects (LO) approach has run out of steam (there is widespread agreement that availability of a 'critical mass' of LOs does not necessarily promote innovation in learning and teaching);
- Tremendous use of Social Software tools and services outside the educational sector;
- Availability of RSS feeds which enrich educational portals;
- Emergence of personal learning environments ('e-learning 2.0');
- Licensing open content will become easier through standardisation of user information and plugins;
- Open Source Software (OSS) is more widely used in Higher and Further Education institutions.

### *Longer-term [to 2012]*

- Policies emphasise educational innovation and organisational change to better align educational institutions with the requirements of a knowledge society;
- Understanding that ICT-based lifelong learning needs to be promoted through easy access to educational resources, although e-coaches and blended learning will often be required;
- The Bologna Process [which aims to create a European Higher Education Area by 2010, in which students can choose from a wide and transparent range of high quality courses and benefit from smooth recognition procedures] could become a

driver for cross-border collaborative development, especially through Joint Programmes and Degrees;

- Global competition in Higher Education and decline in student numbers in Europe due to demographic trends;
- Creative Commons licensing is firmly established and is being used increasingly;
- Open content repositories will increasingly surface from the Deep Web;
- New systems for creating and handling group-based learning designs may become more widely used;
- Semantic applications will provide new ways to access knowledge resources.

### **5.3 Innovation and change in educational practices**

OLCOS warns that the long term success of OER projects will only be brought about through innovation and change within educational practices. They say that essential to this is the fostering of communities of practice through the adoption of Web 2.0 tools and services.

Current barriers to this transformation include:

- Critical lack in educational innovation for learner-centred and collaborative learning practices and processes which foster the development of competencies and skills necessary for a knowledge society;
- Commercial educational content is bound by licensing in such a way as to prevent adaptation and reuse. This represents a barrier to open sharing and therefore commercial material will most likely not bring about open learning processes which foster the right competencies and skills necessary for a knowledge based society. However, for the time being, commercial content will continue to be used as it plays such a major part in the supply of educational content;
- Large scale educational repositories commissioned by ministries of education are taking a 'top-down' approach by making a lot of commercial content available centrally rather than open content. The problem here is this perpetuates the traditional practices of teaching and learning. It upgrades delivery of the content but does not use collaborative tools and services which would encourage innovative approaches.

OLCOS expects that innovation will happen gradually when educators and students start to use Web 2.0 tools in other parts of their lives and new forms of online communication and collaboration slowly gain ground. As a result of this, a stronger shift towards e-learning can be expected to occur that will build on social software tools and services "for collaboratively creating and sharing content, while also drawing on publicly funded educational and e-content repositories, including offerings of public-private partnerships".

### **5.4 Critical inhibitors to the growth of OER**

The OLCOS Roadmap 2012 identifies the critical inhibitors for OER as:

*Short-medium term [to 2009]*

- Growing competition for scarce funding resources (also within institutions);
- Difficulty in finding a balanced approach for open and commercial educational offerings;

- Possible implementation of rigid Digital Rights Management systems by organisations e.g. publishers, Royalties Collecting Societies, cultural heritage institutions;
- Further success of the OA principle in the academic field requires overcoming fears of low recognition of OA publications, especially among young researchers (although surveys have shown OA publications outperform traditional ones with respect to citation);
- Need to reinforce institutional OA policies;
- Barriers to making research data openly available for further research and teaching will remain;
- Lack of know-how for enabling innovative educational settings to emerge;
- Educational repositories will need to think more carefully about how to be used for communities of practice;
- Further uptake of OSS will require more in-house capacity building;
- Need for more cooperation between OS tool developers and educators.

### *Longer-term [to 2012]*

- Business models will remain difficult: the right mix of income streams must be found;
- Lack of institutional policies and incentives for educators to excel in OER;
- Models that build on teachers in the creation and sharing of OER will need to invest considerable effort in training and support;
- Little innovation by most academic and educational publishers (the problem of investing ahead of 'e-readiness' of most educational institutions and teachers);
- Creation of educational metadata will remain costly;
- Lack of ontology-based educational Semantic Webs. Ontologies are among the most valuable OER that domains of knowledge and learning can share;
- Educational repositories will need to implement more advanced tools and services (e.g. Web-based resources for referencing, annotating and recommending resources; connections to codified knowledge in domains e.g. thesauri, domain ontologies);
- Library services may be slow to find their place in open learning environments – it is widely felt that libraries will need to adapt better to the considerable changes in information behaviour and Web-based environments.

## **5.5 Recommendations**

The OLCOS Roadmap 2012 makes the following recommendations:

### *For educational policy makers and funding bodies:*

- Promote open educational practices that allow for acquiring competences and skills that are necessary to participate successfully in the knowledge society;
- Foster the development of OER by demanding that resources that have been fully or largely funded by public money are made freely available on institutional and/or central repositories under an appropriate licence (e.g. Creative Commons Attribution-ShareAlike or GNU GPL); producing regulations that emphasise that open content standards and formats should be employed in content creation and provision; and with regard to software-based systems and tools that are developed or acquired by educational institutions, requiring that wherever possible and reasonable open technical standards/specifications should be used and OS software licensing be employed;
- Support the development of widely-used, state-of-the-art and sustainable OA repositories;
- Demand public-private partnerships to concentrate on ventures for innovating educational practices and resources.

### *For educational institutions:*

- Scrutinise whether educational institutions are employing innovative approaches beyond teacher-centred knowledge transfer;
- Promote sharing and reuse of OER and experiences with other institutions and organisations;
- Establish reward mechanisms and supportive measures for developing and sharing OER and experiences;
- Clarify copyrights and define licensing systems of making OER available. Contracts with educators and researchers should acknowledge the IPR of

authors, but require non-exclusive rights for the institution to make resources available under appropriate licences.

*For teachers:*

- Clarify the professional role, appropriate approaches and required skills of a teacher in a knowledge society;
- Employ open educational practices to help learners acquire competences for the knowledge society;
- Make use of tools and services that support collaborative learning processes and learning communities;
- Share proven learning designs, content and experiences through open repositories and licences.

*For students:*

- Demand educational approaches that allow for acquiring competences and skills for the knowledge society;
- Suggest open learning processes using new tools and services;
- Develop e-Portfolios and make study results available to others;
- Respect IPR of others and make one's own creative work available under an open content licence.

*For educational repositories:*

- Do not follow a 'top-down' strategy of delivering learning objects; instead empower teachers and learners;
- Support individual content creators and communities of practice with useful tools and services;
- Make licensing of content as easy as possible;
- Allow for easy discovery and access to resources;
- Assist open content initiatives in the creation of rich metadata and provide semantically enhanced access to resources.

*For developers and implementers:*

- Involve teachers and students in the development of learning tools;
- Promote open educational practices through help in setting up appropriate tools such as Wikis, Weblogs, RSS feeds etc;
- Favour institutional learning environments that support group-based, collaborative learning practices;
- Closely observe the development and consider testing learning design-based systems.

The roadmap enlarges on its recommendations for educational repositories as follows:

- *Do not follow a 'top-down' strategy of delivering learning objects; instead empower teachers and learners to do and achieve something themselves*

Repositories should promote open educational practices where users are not treated as consumers, but as potential co-creators of shared, commons-based resources. Barriers must be removed that prevent the growth of content-sharing communities.

- *Support individual content creators and communities of practice through useful tools and services*

OER repository initiatives often start from the notion of 'build it and they will come', yet experience shows that this often leads to difficulties in finding appeal and usage. A better approach would be to consider how tools and services can make it beneficial for content creators and providers to make use of the repository. In short, if a repository does not become a place for individuals and groups who take a keen interest in their own content, there is little likelihood to see it flourish.

- *Make licensing of content as easy as possible*
  - Ensure users are guided to licensing information as well as to provide the right detail of information;
  - Licensing tasks should be made as easy as possible which is vital if users are invited to contribute content;
  - Keep the number of allowed licences as low as possible, ideally one licence for all the content that is shared, with little restriction regarding reuse.
- *Allow for easy discovery and access to resources*
  - Let search engines find and index material which allow users 'to come through the back door';
  - Provide for federated searching based on Open Archive Initiative metadata harvesting;
  - Offer Really Simple Syndication (RSS) to teachers and learners as well as to educational portals.
- *Assist open content initiatives in the creation of rich metadata and provide semantically enhanced access to resources*
  - Inform initiatives early about the importance of quality and consistency of metadata (e.g. controlled vocabularies);
  - Help familiarise teachers and students with knowledge organisation systems such as thesauri, classification schemes, taxonomies and ontologies, as these will increasingly be made available by semantic web applications;
  - Demonstrate to user communities the benefits of semantically enriched resources e.g. through offering concepts-based access to resources, semantic browsing or tools such as semantic Wikis.

## **5.6 Lessons for Jorum from the OLCOS Roadmap 2012 recommendations**

The recommendations for educational repositories are listed below, with suggested lessons that we can draw from them and possible ways forward:

*A. Do not follow a top-down strategy of delivering learning objects; instead empower teachers and learners to do and achieve something themselves*

The aim of the current Jorum service, and every future incarnation, is to involve the community in creating, contributing and sharing content. In this, Jorum contrasts

favourably with the kind of service that the National Learning Network (NLN)<sup>58</sup> created, which could be viewed as a top-down service delivering learning objects.

However, the current Jorum service is not able to follow through all the stages implied by empowerment i.e. creators can download, reuse and repurpose materials from Jorum, but they cannot then republish them in the repository (for legal reasons explained later in this report). Every stakeholder involved in the service is committed to turning around this situation to enable greater participation.

#### *B. Support individual content creators and communities of practice through useful tools and services*

The key lesson here is that Jorum must provide more tools, or ways of getting easily to tools, to assist the authoring and content creation process. At the moment, we assume that all of this happens outside our service, as effectively we are providing just a repository. Other OER services make this process much easier than we do.

In addition, as already noted in the lessons from the OpenLearn project, we must provide upfront Web 2.0 tools for communication and support purposes. Again, while the postings should be visible to all, there are decisions to be taken over who will be allowed to contribute.

#### *C. Make licensing of content as easy as possible*

This is a recommendation that the current Jorum service does not meet for historical reasons explained earlier in this report. All stakeholders are committed to redressing this. It is likely that the Jorum OER service would use Creative Commons licences, in common with projects and services elsewhere.

The Roadmap also recommends keeping the number of licences as low as possible, ideally one licence for all the content that is shared, with little restriction regarding reuse. It might not be possible for us to have only one licence, as there is no such thing as UK law, but it would probably be a wise aim to keep the terms the same across the geographic licences.

#### *D. Allow for easy discovery and access to resources*

The current Jorum service already allows searching of metadata by OAI-PMH and RSS feeds. It will also shortly introduce SRW/SRU machine interfaces. In addition, it is likely to be part of year 3 R&D work to integrate the service with Google searching methods to expose content for search and retrieval.

#### *E. Assist open content initiatives in the creation of rich metadata and provide semantically enhanced access to resources*

As discussed earlier in this report, it should be an aim of the ongoing Jorum service to provide both formal and informal metadata processes, and the suggestion of the Roadmap that OER services should offer concepts-based access to resources, semantic browsing and tools such as semantic Wikis should be noted.

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<sup>58</sup> <http://www.nln.ac.uk/> [July 2007]

*F. Pay particular attention to the following:*

*Appropriate rewarding mechanisms*

The Jorum OER service should work closely with stakeholders such as HE Academy, the Association for Learning Technology and the Regional Support Centres, to ensure that reward mechanisms are provided, in terms of peer review processes, informal Web 2.0 review processes, award schemes and close links with professional societies.

*Business models*

This is currently being considered in the Jorum business planning process for service from August 2008.

In addition, it would be useful to study the lists of benefits and drivers/enablers provided by the Roadmap to enhance the Jorum promotional materials and the incentives to share and use materials that we can offer, in conjunction with other organisations (see Section 7 of this report).

## 6. Sustainability and OER projects/services

This section explores a number of factors that contribute to sustainability for OER projects and services, including key lessons for a Jorum OER repository service.

### 6.1 Wiley's working definition

In a paper commissioned by the OECD, Wiley<sup>59</sup> gives a working definition of sustainability. In the context of his paper, a context that is also applicable to Jorum, he suggests that sustainability can be seen as, "An open educational resource project's ongoing ability to meet its goals". He suggests that such a project has to find sustainability in two areas: the production and sharing of the resources, and the use and reuse of the resources by end users.

For Jorum and JISC, it is probably clearer to state that sustainability has to be found in three areas, because unlike many other OER services, Jorum is largely collecting content provided by others, rather than making available its own publications (although some resources go into Jorum that the data centres have produced). The three areas in which sustainability has to be found are therefore: the ongoing production and contribution to Jorum of resources by teachers and contributors from other institutions and organisations; the use of those resources by end users in the educational community, both teachers and learners; and the distribution side, i.e. the service provision that enables all of this to happen. There are real costs involved in each of these three areas, some of which can be met without direct funding by involving the community.

### 6.2 The MIT view

Charles Vest (Professor Emeritus of MIT) reports<sup>60</sup> that if open-source materials are to reach their full potential for use by scholars, teachers, students, and self-learners, at least four fundamental issues need to be addressed:

- **Intellectual Property Rights (IPR):** The MIT OCW License is based on CC License 2.5: (Attribution – Non-Commercial – Share Alike, also known as BY-NC-SA);
- **Quality Control:** Certification of the accuracy and appropriateness of scholarly and teaching materials placed on the Web is vital;
- **Bandwidth:** Developing countries need easy access to broadband to harness the potential of open-source materials;
- **Cost:** Business plans should be developed to ensure as far as is possible that content is free to users.

Vest sees the growth of open educational materials to be particularly important to the developing world.

Key lessons for Jorum from the MIT view are:

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<sup>59</sup> Wiley, D. *On the Sustainability of Open Educational Resource Initiatives in Higher Education*. Paper commissioned by the OECD's Centre for Educational Research and Innovation (CERI). OECD, 2007. <http://www.oecd.org/dataoecd/33/9/38645447.pdf> [July 2007]

<sup>60</sup> Vest, C.M. *Open content and the emerging global meta-university*. EDUCAUSE Review, Vol.41, No. 3 (May/June 2006): 18-30 <http://www.educause.edu/apps/er/erm06/erm0630.asp?bhcp=1> [June 2007]

- Our licensing model must be as easy as possible;
- It is worth spending time on issues of quality control, especially working with others to undertake formal peer reviewing, as well as providing opportunities for informal reviews;
- Jorum and JISC should note that the observation made by Vest that OER materials are particularly important to the developing world is also the view of other OER projects. Opening up our repository is likely to lead not only to greater demand on the server from the UK, but also from many countries abroad, perhaps particularly in the developing world. It is very likely that other OER projects and services would advertise our presence around the world, whether we did so or not, because it would be viewed as a key player in the field.

### 6.3 The Connexions view

Dholakia et al<sup>61</sup> suggest that there are too many OER programs being seeded that will compete for scarce financial resources from governmental and philanthropic organisations for them all to have long-term funding on this basis. They argue that projects looking for sustainability focus too much on the features of their products and the technology, and not enough on understanding what the users want and deliberately growing the OER product for them. If projects did this, they state, opportunities to generate revenue naturally become apparent. Indeed, Connexions has too many revenue-generating opportunities to undertake them all and the team has to prioritise. The four principles on which Connexions works in terms of sustainability are:

- Increase the equity of the Connexions brand (by staying true to its values) where brand equity is defined as, “the added (usually intangible) value endowed to products and services by the brand”;
- High quality, ample, modular, continually updated, personalised on assembly, published on demand content;
- An engaged and involved user community;
- Site usability.

Connexions is currently funded by the Hewlett Foundation.

Key lessons for Jorum from the Connexions view are that:

- We need to increase the brand equity of the service, for which we need agreed values. These values have to consider carefully any partnership with commercial organisations and ensure that the OER resources themselves remain open to all;
- We need to focus more on engaging the user community and less on the features of our products and technology;
- We must focus on quality assurance in the service;
- We must present ourselves through a website designed with usability in mind. It has to be easy for our community to come to us and for us to satisfy their needs.

### 6.4 The OpenLearn view

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<sup>61</sup> Dholakia, U.M., King W.J., Baraniuk, R. *What makes an open educational program sustainable? The case of Connexions*. May 2006. <http://www.oecd.org/dataoecd/3/6/36781781.pdf> [July 2007]

The OU's application to the Hewlett Foundation<sup>62</sup> outlines its approach to sustainability. The project will be used as an opportunity to explore sustainability models and a key outcome will be a plan for future sustainability, identifying opportunities to generate new income streams and to reduce costs by embedding open content within the OU's systems and processes. The approach includes the following:

- An intention to experiment with new technological approaches to the development and presentation of curriculum content which will ultimately help to reduce costs.
- The development of structured authoring and digital asset management systems to reduce the costs of open content materials where possible.
- Anticipation that open content provision will have a positive impact on its core business of developing courses for and delivering them to registered students who receive assessment, support and accreditation.
- Additional services could be offered for purchase, for example personal tutorial services and various forms of assessment.
- Sharing of materials developed by other institutions will significantly reduce the initial investment costs associated with course production, providing the materials are of a sufficiently high quality.
- Additional external funding opportunities will be explored.

A key lesson for Jorum from the OpenLearn view is:

- We need to think about the differences in support required for students registered with an institution for an accredited course, as opposed to learners and educators who are accessing OER. This has a bearing on the decisions that we need to take for business planning, especially with regard to which groups would form part of our Designated Community and which would be considered to be part of our Extended Community, if we offer an OER service.

## **6.5 Decisions that need to be taken by OER projects and services**

Wiley suggests that OER projects, "... must be explicit in stating their goals and tenacious in focusing on them. If sustainability is a project's ongoing ability to meet its goals, then without a clear understanding of its goals, no OER project can be sustainable." He argues that the following decisions have to be taken conjointly by OER projects:

- Their organisation i.e. size, structure and degree of centralisation;
- Types of resources to be offered and the media formats in which they will be shared, noting that there are many instances in which the easiest format for the project to capture resources in will be the most difficult format for users to reuse;
- The types of end user reuse most likely to help the project meet its goals e.g. how much explicit support will be offered, and will the website link to reuse tools offsite? Will they be integrated into the OER project website itself? If support is provided centrally, it is available but expensive; if decentralised across volunteers, it is inexpensive but somewhat unreliable;
- Finding and utilising non-monetary incentives to engage as many participants as possible;

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<sup>62</sup> [http://www.open.ac.uk/openlearn/\\_assets/06sngpqpwminsmwxov.pdf](http://www.open.ac.uk/openlearn/_assets/06sngpqpwminsmwxov.pdf) [July 2007]

- Which of the many available funding models is most likely to result in levels of funding sufficient to allow the project to meet its goals in an ongoing manner.

Wiley points out that, "... there are no national policies requiring higher education institutions to maintain publicly available websites with information about their available programmes etc ... Yet almost 100% of institutions spend a significant amount of human and capital resource providing these web-based services. After a few early adopters showed the benefits of providing this kind of information via the Internet, other universities had to follow suit in order to stay competitive. Ideally, OER projects will become another service that the public simply expects ... and each institution will find the will and resource within itself to engage in these projects."

## 6.6 Arguments for government, institutions and individuals to share OER

The OECD<sup>63</sup> picked up on Wiley's arguments and suggests that there are incentives at all levels, governmental, institutional and individual, to participate in OER projects. The report finds three reasons for governments to support OER projects, which are that they can:

- Expand access to learning for everyone but most of all for non-traditional groups of students and thus widen participation in tertiary education;
- Be an efficient way of promoting lifelong learning;
- Bridge the gap between non-formal, informal and formal learning.

The OECD states that institutions that are involved in OER projects mention six types of reasons for doing so:

- The altruistic argument that sharing is in line with academic traditions and is a good thing to do;
- Educational institutions should leverage taxpayers' money by allowing free sharing and reuse of resources;
- Quality can be improved and the cost of content development reduced;
- It is good for the institution's public relations to have an OER project as a showcase for attracting new students;
- There is a need to look for new cost recovery models as institutions experience growing competition;
- Open sharing will speed up the development of new learning resources, stimulate internal improvement, innovation and reuse, and help the institution keep good records of materials and their internal and external use.

An additional different type of motivation is mentioned too: the risk of doing nothing in a rapidly changing environment, which picks up on Wiley's comments in the previous paragraph.

The OECD summarises the incentives for individuals as follows:

- The altruistic motive, as for institutions;
- Personal non-monetary gain, such as publicity and reputation within the open community;
- Free sharing can be good for economic or commercial reasons, e.g. as a way of getting publicity, reaching the market more quickly and gaining first-mover advantage.

The OECD also suggests that independently of whether institutions engage in OER projects, OER can be expected to affect curriculum, pedagogy and assessment. Students will be able to compare the curriculum of internationally reputable institutions and make decisions between them. OER is likely to accelerate changes in the traditional teaching role and the evolution of more independent learners, with demand enhanced for recognition of competences gained outside formal learning settings.

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<sup>63</sup> OECD (May 2007). *ibid.*

The OLCOS Roadmap 2012 suggests that, "An issue repositories should emphasise much more strongly is the question of preservation and perpetual access to results of collaborative projects." It observes that many institutions and educational networks are already aware of the demands of long-term archiving. However, at the level of the individual member of staff, it quotes a study<sup>64</sup> at the University of Vienna's Centre for Teaching and Learning that suggests that this may be a key way to motivate research and teaching staff. This study, undertaken in connection with the introduction of a new digital asset management system found that many were interested in the long-term accessibility of their material, in comparison with which topics such as "learning objects" or "metadata" were met with only little interest.

All of these incentives are areas that Jorum can use for publicity and promotion purposes. Most relate to the current service, but all are applicable for the proposed open service and should be utilised in promotional activity.

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<sup>64</sup> OLCOS Roadmap 2012, *op cit.* p104 [July 2007]

## 7. Sustainability and Jorum

This section picks up on some of the themes introduced in the previous sections of the report and considers in more detail key sustainability issues for a Jorum OER repository service.

### 7.1 Licensing

#### 7.1.1 Issues for the Jorum OER repository

IPR issues for the Jorum OER repository, some of which are discussed by Korn and Oppenheim<sup>65</sup>, include the following.

##### *IPR in educational materials*

The issue of IPR in educational materials seems to be giving particular difficulties in the UK. In the USA, academic staff own copyright in their learning and teaching materials and it is easy for them to share in OER projects using CC licences. In the UK, institutions have been encouraged to view IPR in educational materials as residing with the institution and potentially giving rise to revenue-raising activity. (See, for example, the UK HE Funding Councils' and JISC's advice to HEIs: "HEIs should own the IPR in the e-learning materials created by their staff, and contracts of employment should make this specific"<sup>66</sup> and JISC Legal's advice to FEIs: "In most cases a college will own copyright in any materials created by its staff. Ownership will transfer to the college as a result of the staff's contract of employment"<sup>67</sup>.)

This means that the creation of an OER repository in the UK will rely on the willingness of institutions to allow their staff to deposit and share materials created in the course of their employment. As some institutions view these materials as a source of revenue, and others are concerned about the liability put on the institution in the current Jorum licence, it can be seen that potential conflicts of interest arise. In addition, it is likely that if the Jorum repository used licences such as CC, some deposits would be made in good faith by staff who did not know that their institution did not view them as being authorised to share them. The UK Funding Councils are keen for institutions to think through these issues and create IPR policies, but the current advice to institutions to assert ownership of educational materials is potentially in conflict with the principles of establishing a national open sharing repository.

It is also in conflict with the contrasting situation with research outputs from universities, which as the JISC-funded TrustDR project points out<sup>68</sup>, by custom and practice institutions have allowed academics to give away to publishers in return for research ratings and advancement – and have then bought back in terms of journal subscriptions.

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<sup>65</sup> Korn N and Oppenheim C. *Creative Commons Licences in Higher and Further Education: Do We Care?* Ariadne, Issue 49, October 2006. <http://www.ariadne.ac.uk/issue49/korn-oppenheim/> [July 2007]

<sup>66</sup> HEFCE, SFC, HEFCW, DEL (NI) and JISC. *Intellectual Property Rights in e-learning programmes*. July 2006. [http://195.194.167.100/pubs/hefce/2006/06\\_20/06\\_20.doc](http://195.194.167.100/pubs/hefce/2006/06_20/06_20.doc) [July 2007]

<sup>67</sup> Eversheds and JISC Legal. *Copyright in Further Education*. December 2003. [http://www.jisclegal.ac.uk/pdfs/Copyright\\_FE.pdf](http://www.jisclegal.ac.uk/pdfs/Copyright_FE.pdf) [July 2007]

<sup>68</sup> Casey J, Proven J, Dripps D. *Discussion 1: the Main Legal, Educational and Technical Issues*, pp4-5. Part of the TrustDR IPR Institutional Development Pack. Currently open for comments at: <http://trustdr.ulster.ac.uk/outputs.php> [July 2007]

“While institutions give away arguably the most valuable IP in research, managers fret about the IPR in teaching and learning materials and worry about how to manage it.”

### *Deposit of resources that contain items owned by third parties*

The OU OpenLearn Learning Space CC licence<sup>69</sup>, which like MIT OCW is a BY-NA-SA licence, does not directly mention the rights of third party content providers, although this is referred to obliquely. The Terms and Conditions<sup>70</sup> at the OpenLearnsite (which print out, like the licence itself, to five pages long) include the following:

3.2 By posting or submitting any material for inclusion on LabSpace you confirm that it is:

3.2.1 not defamatory or obscene;

3.2.2 not in any way illegal or infringing any law or any person's rights;

3.2.3 your own work and it can lawfully be published from this Site; and

3.2.4 not as far as you are aware the subject of any dispute or court proceedings.

You will allow us and all users of this Site to use all such materials on the terms of the Creative Commons Licence.

If the Jorum OER repository allows input of items containing third party content, Terms and Conditions would have to be provided at the website that clearly state the contributor's responsibility with regard to this. A decision would have to be taken as to whether or not to make them required viewing for contributors in order to mitigate the risks being taken by the service providers.

Another potential way to tackle this is to prohibit deposit of third party materials in the open repository and insist that any materials containing them must be put in the restricted area i.e. open to only H/FE. But this is likely to generate negative publicity.

### *No such thing as UK law*

The OER repository might have to offer different CC licences for the countries of the UK, because there is no such thing as UK law. In addition, there is disagreement about whether or not the CC licences are valid in any of our legal systems here in the UK (but see comments later about this).

### *Licences between individuals; or between institutions and JISC Collections/HEFCE?*

The Jorum deposit licence is currently between institutions/organisations and HEFCE, acting on behalf of all the UK F/HE funding bodies. If we were to use CC licences for the Jorum OER repository, clarification needs to be sought on whether the JISC/HEFCE would agree to having CC licences that are between individuals and require assertion by the depositor that s/he has the permission of rights-holders, including his/her institution, to deposit materials in Jorum. It is not clear whether or not CC licences can be made between institutions and JISC Collections/HEFCE. The TrustDR project believes that they can, but legal advisors at HEFCE and JISC Legal seem less sure about this [this assertion is based on the author's telephone conversation with the project manager of the TrustDR project and also on past advice received from the parties mentioned]. Whatever is decided, licences between individuals would also be required, to satisfy the institutions in which the academic staff definitely own their materials e.g. University of Cambridge.

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<sup>69</sup> <http://creativecommons.org/licenses/by-nc-sa/2.0/uk/> which links to the full text at:

<http://creativecommons.org/licenses/by-nc-sa/2.0/uk/legalcode> [July 2007]

<sup>70</sup> <http://openlearn.open.ac.uk/mod/resource/view.php?id=15> [July 2007]

It is likely to be simpler to follow the current CC model of individual – individual, with the requirement for an assertion to be made as described further in paragraph 7.1.3.

### *No non-endorsement clauses in CC licences*

Decisions would need to be made about issues that might matter to the stakeholders in the OER repository. Examples are the fact that no CC licence is available that includes 'non-endorsement' clauses to prohibit use by political or campaigning organisations or organisations with values repugnant to educational institutions. The BBC Creative Archive licence<sup>71</sup> was devised to rule out this use and, although based on CC ideas, it is not a CC licence because the BBC by its charter cannot allow use by political or campaigning use of its materials and therefore it had to create a new licence. (It also has a different range of symbols to CC licences.)

### *Legal protection for service providers*

There must be sufficient legal protection in place at the Universities hosting the service and at JISC Collections/HEFCE to take the additional legal risks implied by having an OER repository. Key risks are end user misuse of materials; deposit of materials with third party content, the rights to which have not been cleared; and the misuse of any service function that allows contributions, whether to the repository of content, or a supplementary Web 2.0-type facility.

The host Universities and JISC Collections/HEFCE must be prepared to take into account the fact that CC licences do not mention database rights (although these exist whether or not they are mentioned to end users).

## **7.1.2 Creative Commons licences**

CC licences have generated a momentum of their own around the world and have, as the TrustDR authors<sup>72</sup> point out, "...a well-established and growing body of users and proponents worldwide" for their "... simplicity, ease of use, widespread take up and of course, to a degree, intellectual fashion". The authors point out that the CC system is based on copyright, property and contract law, and argue that they are suitable for use by organisations as well as individuals. They suggest that, successful action having been brought and won by rights-holders under CC licences, the licences must be viewed as legally valid.

In addition, a study for the Common Information Environment (CIE) Group (which includes JISC, British Library, Museums Libraries and Archives Council (MLA), the NHS National Electronic Library for Health (NeLH) and UK e-Science Core Programme) by Intrallect Ltd<sup>73</sup> and University of Edinburgh's AHRC Research Centre for Studies in Intellectual Property and Technology Law<sup>74</sup>, found that public organisations using CC licences could provide the following benefits:

- Maximising the use and reuse of resources primarily funded by UK tax payers

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<sup>71</sup> See [http://creativecommons.bbc.co.uk/licence/nc\\_sa\\_by\\_ne/uk/prov/](http://creativecommons.bbc.co.uk/licence/nc_sa_by_ne/uk/prov/) [July 2007]

<sup>72</sup> Casey J, Proven J, Dripps D. *Discussion Two: the Pros and Cons for using Creative Commons (CC) Licences in Digital Learning and Teaching Materials*. Part of the TrustDR IPR Institutional Development Pack. Currently open for comments at: <http://trustdr.ulster.ac.uk/outputs.php> [July 2007]

<sup>73</sup> <http://www.intrallect.com> [July 2007]

<sup>74</sup> Barker E, Duncan C, Guadamuz A, Hatcher J, Waelde C. *The Common Information Environment and Creative Commons*. October 2005. [http://www.intrallect.com/index.php/intrallect/knowledge\\_base/general\\_articles/creative\\_commons\\_licensing\\_solutions\\_for\\_the\\_common\\_information\\_environment\\_1](http://www.intrallect.com/index.php/intrallect/knowledge_base/general_articles/creative_commons_licensing_solutions_for_the_common_information_environment_1) [July 2007]

- Promoting a culture of openness and freedom of information
- Consistent and transparent of digital resources
- Improved perception of “value for money”
- Reduction in effort of dealing with enquiries for information/resources
- Reduction in effort of developing a reuse policy by sharing a common policy
- Reduction in legal input required through adoption of existing licences rather than drafting new and varied licences in each organisation/group/project
- Enhanced PR, potentially leading to increased use of other services
- Choice of licences offers flexibility
- A framework for rights clearance conditions in future projects

The benefits for end users would be:

- Wider access to previously unavailable digital resources
- Clear, unambiguous and permissive conditions of use
- Reusable at the point of discovery
- Reduced confusion through common set of well-recognised licences and symbols
- Ability to redistribute and make derivative works (in permitted cases)
- Search engines offer searches based on conditions of use

There had been an idea that CC licences could not be used for educational materials made available to colleges and universities in technically protected environments such as VLEs and intranets. However, the CIE report found that this was not necessarily the case. CC licences forbid technical protection measures on licensed works, but as long as the work in the VLE or intranet can be further distributed using its CC licence, then it would not be viewed as restricting the licence. However, if the conditions of use of the VLE or intranet forbid redistribution outside of the protected area, that would be forbidden. The authors suggest that this can be tackled by the institution making it clear that the general VLE or intranet terms of use will exempt items with a CC licence in the protected area. The report’s stance on this has been backed by the CC organisation.

### **7.1.3 Possible licensing model for Jorum OER repository**

There has been recognition for some time that the current licensing model for the Jorum service, although robust and attracting some approval from those who wish to ensure that their materials are protected, is on the whole causing problems in the light of the development of OER worldwide. The JISC and the Jorum Steering Group have given a general steer in the direction of the possibility of opening up the Jorum as an OER repository.

The reasons for the Jorum Deposit Licence being restrictive are historical and relate to the JISC’s wish to ensure that the licensee represented the whole community (as opposed to the option of using one of the Universities at which the service is based). The reasons also relate to the fact that, at that time, the debate on CC licensing was at an early stage. Because JISC Collections had not yet been established as a legal entity, the licensee became HEFCE, acting on behalf of all the UK funding councils. Unfortunately, HEFCE could not take out insurance to protect itself against claims arising from misuse of the Jorum materials, and therefore a licence was put in place that restricted use of the service to UK HE and FE institutions and forbade republication in the repository of modified materials derived from Jorum.

This means that materials currently in the service cannot be made available on an OER basis, unless the depositing institutions re-license them under a new scheme such as CC for a new OER repository service. This would be difficult, because many of the materials were deposited by projects that have now disbanded. It is likely that many of the materials currently available will have to continue to be made available under their original terms of use for the foreseeable future and therefore there would have to be a legacy area in the repository service.

The new Jorum open service would need to be introduced alongside the legacy service. Contributing materials to the repository could be based on CC licence(s) between individual and individual, for the reasons explained in paragraph 7.1.1. The service would need to educate contributors in the matter of ownership of the materials that they wish to deposit. A click-through agreement at the website would be required, including an assertion to the following effect:

"I assert that I am the rights-holder or am permitted by the rights-holder(s) to deposit this <item>, making it available to users on the basis of [specific Creative Commons licence] and I warrant that this <item> contains nothing unlawful ...", using similar wording to that quoted in paragraph 7.1.1 from the OU OpenLearn site.

Terms of use derived from the CC licences would also have to be provided for end users of the materials. They would be derived from the permissions granted by the contributors.

## **7.2 Sources of materials**

The Jorum Service-in-Development currently operates in two strands: Jorum Contributor and Jorum User. Both strands work on the basis of legal relationships between HEFCE and institutions/organisations. As explained above in paragraph 7.1, the proposal would be to replace this in the Jorum OER repository with CC licences between individuals (but noting the higher risk levels that this entails). In addition, both strands of the current Jorum service are open only to staff in UK F/HE.

By its nature, an OER repository would be open to the world for use of the materials, with no barriers such as currently exist in Jorum. So the Jorum User part of the Jorum OER repository would be open to all, although it is less easy to agree who will be part of the Designated Community and who will be part of the Extended Community, from the point of view of degree of support offered. The main groups that we can consider with regard to the communities to be designated as either Designated or Extended are:

- Staff in UK F/HE;
- Students in UK F/HE;
- Other educational sectors in UK e.g. schools, work-based learning providers, Adult and Community Learning (ACL) – both staff and students;
- Educational providers in other UK sectors such as Cultural Heritage, National Health Service (NHS), Research Councils, Government bodies such as the Ministry of Defence, local authorities etc – both staff and students;
- Other educational providers around the world;
- Students/learners/anyone around the world.

Probably from the outset of service, UK F/HE staff and students should be regarded as the Designated Community for the User part of the Jorum OER service and offered

higher levels of support than the other groups. (This is different from the current service, which is not open to students.) Whether this changes as the service matures remains to be discussed.

It is not so easy to decide to whom the Jorum OER repository Contributor service should be open. All services, including forums, blogs etc, have to decide this issue and often put barriers in the way of having contributions from any and all, even if it is only an easy registration process.

It is easy to agree that the Jorum OER repository Contributor service would be open to teaching/support staff in UK F/HE. The problem arises in whether to extend it to other groups listed above, and in that case, which of them would belong to our Designated Community, and which to our Extended Community, for support. Restricting the Contributor service at all also requires decisions to be made about authentication, authorisation and/or registration.

The Contributor strand of the Jorum OER repository could commence on the basis of the current position i.e. open to UK F/HE staff, with the possible addition of UK F/HE students (but this needs careful thought). This position has the risk of turning away useful content, and if adopted, might be done on the basis of being a temporary stance while the service matures. Content coming in from other sectors not only gives rise to issues of support, but also to matters such as provision of new metadata schemas in the repository. In addition, allowing other educational providers/students around the world to contribute would raise the issue of materials being available in other languages. (We have not yet been able to address the issue that languages other than English exist within the UK and have already encountered issues with not having metadata available in Scottish Gaelic or Welsh.)

High levels of support could be required for those wishing to contribute collections of materials from other UK educational and sectoral bodies, if they became keen to use Jorum rather than create their own repository. This would impact on both the Contribution and User service and needs careful thought and discussion between the service-providing parties. Metadata provision would certainly be an issue here, as we know already that sectors such as schools and ACL require different terminologies to those currently available, but this would not be an insurmountable problem.

From the point of supporting the individual contributor, we could perhaps look to the experience of OpenLearn, which is experiencing relatively little interest in deposit of materials via LabSpace (paragraph 4.3 of this report refers). It is possible that, assuming the higher risks are acceptable to all parties in the service provision, opening up the Jorum OER repository Contributor service would not result in the requirement for high levels of support for individuals, especially if a simple registration procedure were implemented and it was a very easy process to author and submit, with provision of simple tools at the site. We could restrict levels of support in line with Designated and Extended Community definitions, as above. In addition, evidence in this report from the OECD and OLCOS is that most OER materials around the world are in English. We could take the view that it is a UK repository and materials will be in English.

There is also the issue of quality. Restricting the Jorum OER repository Contributor service to certain groups reduces (although, without a pre-publication quality control process, does not eliminate) the risk of having poor materials in the service (section 7.5 of this report discusses this further).

If experiences from other repositories elsewhere in the world are replicated in the Jorum OER service, the expectation would be that more rather than fewer materials would be attracted on the basis of provided an open user service. We know of instances where materials have been available (e.g. from some HEFCE Centres of Excellence in Teaching and Learning (CETLs) and research council educational materials) which have been placed elsewhere because Jorum has not been open to all users. The consistent theme in these cases has been the expressed wish to use Jorum, as the project leaders do not wish to have to provide or manage a repository service, but their remit is to make their materials more widely available than Jorum allows currently. The offer of making the metadata records of their resources available via OAI-PMH has not been sufficient in some cases to induce deposit in the service. However, the prospect that Jorum may become an open service has been welcomed by these project leaders and we expect that their interest will help to populate an OER repository.

Finally, restricting and/or making difficult the Jorum OER Contributor service offends one of the key principles of sustainability for OER services, namely that the users can themselves make updates to materials where these are required and republish the revised versions. Educational materials on the whole, with the exception of materials on fundamental principles, tend to require refreshment in terms of content and pedagogy. Even those on fundamental principles can start to look dated in terms of format or methods of explanation.

## 7.3 Technical platforms

### 7.3.1 Open source or proprietary

The current Jorum service runs on a proprietary software system called intraLibrary from Intrallect Ltd. This system was procured with funding from JISC in 2005 in a procurement exercise run under EU regulations. intraLibrary conforms to the concept of interoperability in supporting the sustainability of educational materials, having been developed in line with open standards for both metadata and content packaging.

The Jorum report on Open Source Learning Object Repository Systems<sup>75</sup>, written in November 2003, suggested that:

“As user requirements expand to demand more and more features, in shorter periods of time, the OSS/FS [Open Source Software/Free Software] software development model may be an efficient method of achieving these goals. Based on the contents of this report, the Eduplone<sup>76</sup> repository seems to provide the closest match to the Jorum requirements. The product builds on the strong attributes of the Plone application as demonstrated by the Connexions model, and incorporates the IMS specifications essential to Jorum.”

Dholakia et al<sup>77</sup> explain that Connexions is based on an open source software system called *Rhaptos*<sup>78</sup>, “... a Plone-based educational content management system, developed in-house. Connexions’ content architecture is embodied in CNXML, a variant of XML. The architectural philosophy maximises the use of metadata and semantic content, facilitating the search and construction of semantic webs. Furthermore, Connexions encourages the use of domain specific markup languages, such as MathML, which embed semantic content.”

Ferreira and Heap<sup>79</sup> report that OU OpenLearn is being operated as part of the institution-wide move towards using XML for course development and production. Both the Learning Space and LabSpace areas are hosted within the Moodle VLE under development for deployment across the OU. The authors say:

“OpenLearn has established an automated publishing process that places a huge strain on the workings of the project, as any changes to the Units on the VLE must be done on the source XML, which is then used to generate a set of HTML pages via an XSL transformation. The adopted schema is that being developed for the whole institution, together with proprietary plug-ins for Word. ... The wide variation of styles and structures for courses across [the OU] ... means that it is technically very difficult to devise a single schema and hence an XSL transformation that will convert all the original materials into pedagogically-meaningful sets of HTML pages to be published on the VLE.

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<sup>75</sup> <http://www.jorum.ac.uk/publications/index.html> [July 2007]

<sup>76</sup> <http://www.contentmanagementsoftware.info/plone/eduplone> [July 2007]

<sup>77</sup> Dholakia U, King W, Baraniuk R. *What makes an Open Education Program Sustainable? The case of Connexions*. pp 4 – 6. May 2006. <http://www.oecd.org/dataoecd/3/6/36781781.pdf> [July 2007]

<sup>78</sup> <http://rhaptos.org> [July 2007]

<sup>79</sup> Ferreira G and Heap N. *From print to Web: issues in re-purposing for an Open Resources Repository*. Paper presented at EADTU Conference 2006: Widening Participation and Opportunities by e-Learning in Higher Education, Tallinn, Estonia, 23-24 November 2006. Available under OU OpenLearn LabSpace Research area [requires login, but anyone can create one for him/herself] at: <http://kn.open.ac.uk/public/workspace.cfm?wpid=6478> [July 2007]

The need for close interaction between pedagogues, researchers and technologists is clear given that re-sectioning for technical reasons may have a considerable impact on the 'content'".

The OLCOS Roadmap 2012, quoted earlier, points out that current proposed definitions of OER projects include the attribute that software is used for which the source code is available (i.e. Open Source), along with open Application Programming Interfaces (APIs), and authorisations to reuse Web-based services (e.g. RSS feeds). The Roadmap also points out that not all OER projects and services implement every one of the suggested attributes. The data centres believe that there is no necessity that a repository of open access content has to be hosted in open source software. Rather, the repository should meet open standards and specifications for exchange of data.

In addition, the Jorum open OER repository can expect a much heavier load on the server and therefore the underlying technical platform must be robust and free of performance issues, as far as possible.

### 7.3.2 Functionality

Functionality is available in the intraLibrary system that allows basic search, advanced search, browse, preview of objects prior to download, and download of objects to local environments. On entry to the software system, the user must put in search terms or choose a browse term in order to see a list of objects matching the terms. From there, s/he can choose to preview or download objects. In this sense, the current Jorum service has a 'library' feel to it, as is implied in the name of the software system. The learning environment into which the objects are downloaded is assumed to be at the end user side, and the current pedagogical environment assumed by the Jorum service is one in which the teacher should decide which objects to use and download them to the local environment to make them available to students. It is not possible under the current service parameters to direct the student to Jorum, either to search and locate content to download to e-portfolios, or to use the content online.

The library-type functionality was also mentioned by one of the attendees at a focus group held in the recent Jorum External User Evaluation<sup>80</sup>:

*It looks like a library catalogue, which looks too formal to me. If you go to Amazon or YouTube, it feels more human.*

The current service contrasts with OER services, which operate on the basis of providing materials in an online learning environment to which the teacher can direct students. The materials tend on the whole to be text-based (see next section for more details), and also to be accessible via browse and simple search functionality, rather than having the advanced search functionality and metadata available in intraLibrary. A decision needs to be taken on whether to persist with the library type of presentation of the service, or whether Jorum should use a repository system as backend only. It is understood that IVIMEDS<sup>81</sup>, for example, provides a web-based learning environment on top of the intraLibrary repository system.

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<sup>80</sup> Report due to be sent to JISC by end of August 2007

<sup>81</sup> <http://www.ivimeds.org/>

## 7.4 Types of resources and formats for interoperability and sustainability

### 7.4.1 Overall picture of OER projects/services

Wiley<sup>82</sup> reports that:

“Textual content is by far the most frequently shared type of content in current OER collections. This content takes on a variety of forms, including HTML, XML and PDF. Collections with large amounts of scientific or mathematical content tend to favour PDF because it is currently so much easier to publish directly from Word, OpenOffice or LaTeX to PDF than to reproduce equations and other content in the equivalent HTML + MathML.

“Audio content ... is comprised largely of files using the MP3 format, though some audio content is available in Windows Media and Real formats.

“Video content ... is available in a wide variety of formats with no clear leader across projects. Windows Media, Real, Quicktime and MP4 formats can all be found in collections around the Internet.

“Simulation content is still quite rare ... The simulations that can be found are generally developed in the Java or Flash formats.

“Other interactive content ... (such as drills or formative assessments that offer immediate feedback) are currently largely authored in Flash, although some Java may be found, as well as some content utilising AJAX techniques ...”

### 7.4.2 Examples of OER projects

The Connexions project provides detail online<sup>83</sup> of how to repurpose and republish modules derived from the service. This is done using CNXML and XML editors.

OpenLearn allows repurposing of its units using Moodle, zip, XML and print methods, and republication in LabSpace<sup>84</sup>. Ferreira and Heap report that, where permissions to use third party content in the original OU course materials cannot be obtained for OpenLearn, “... extensive revisions, which may impact both pedagogy and quality, may be necessary”. Furthermore, course components containing commercial software components may have to be precluded from OpenLearn on grounds of cost. “One option ... is to replace proprietary software with Open Source alternatives, and the resource implications, particularly in terms of potential need for subject-specific expertise, are being examined.” The authors continue, “... we also face constraints imposed by the present state of development of the XML/XSL tools and the VLE; for example, we are unable to deliver many of the rich, interactive components developed in Java. Tantalising excerpts must therefore be ‘parked’ until such time as development resources become available.”

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<sup>82</sup> Wiley, D. *On the Sustainability of Open Educational Resource Initiatives in Higher Education*. Paper commissioned by the OECD’s Centre for Educational Research and Innovation (CERI). p 11. OECD, 2007. <http://www.oecd.org/dataoecd/33/9/38645447.pdf> [July 2007]

<sup>83</sup> <http://cnx.org/content/m11804/latest/> [July 2007]

<sup>84</sup> <http://labspace.open.ac.uk/course/view.php?id=2398&loginquest=true> [July 2007]

The OpenLearn team are also working on how to deliver audio-visual elements, given that some of the original course materials contain videos that exceed 120 MB, and are usually delivered on CD or DVD to learners. This issue is also a concern with regard to the Special Education Needs and Disability Act 2001 (SENDA). The OU requires all Web-based materials to contain image descriptions and AV transcripts that can be processed with a screen reader. Some of the courses put forward to the OpenLearn team by departments in the OU have never been written up in this way because they have been delivered in print rather than over the Web.

From the press release accompanying the recent additional funding from the Hewlett Foundation, it would seem that some of these difficulties will be tackled by OpenLearn with the extra \$4.45 grant.

### **7.4.3 The current position in Jorum**

Jorum differentiates learning objects from learning assets and defines both in the Jorum Collections Policy<sup>85</sup>. Learning objects are defined as self-contained units of learning, which should consist of one or more closely-related learning objectives with appropriate instructional content. They may also, but do not have to, include an assessment. Learning assets are defined as useful single file objects that could be used in learning, teaching or both, but are presented in themselves without any learning objectives. Jorum also collects learning designs, such as lesson plans and other outcomes of the process of planning learning activities, teaching support materials, such as case studies, reviews of materials and guidance for teachers, and assessments. Jorum does not collect full courses and modules.

In order to contribute a resource to Jorum, it must be in the technical format of an individual file, a content package or a "virtual object" i.e. a link to web based resources.

The purpose of content packaging is to support content interoperability i.e. to enable transport of files easily between repositories such as Jorum, and Virtual Learning Environments (VLEs) like Moodle, WebCT and Blackboard, without losing all the information (metadata) about the resource or the navigational information described in the package. Content packages can also function as 'containers' for individual files that are relevant to each other (e.g. a presentation with supporting text handouts or assessments). Correctly created, a content packaged item will run in a VLE, using the VLE's own navigation system rather than a system incorporated into the actual content. Content packages tend to support interactive, multimedia learning objects.

The intraLibrary software accepts all file formats used in the production of learning and teaching materials, so there is no problem currently in providing access to interactive materials.

Jorum is flexible in the size of files that can be contributed. However, media-rich resources may be quite large and at present Jorum does not support media-streaming. For larger files (greater than 20 MB) the Jorum team work in consultation with the contributor of that material, for example someone who wished to deposit large video files.

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<sup>85</sup> [http://www.jorum.ac.uk/docs/pdf/Jorum\\_Collections\\_Policy.pdf](http://www.jorum.ac.uk/docs/pdf/Jorum_Collections_Policy.pdf) [July 2007]

Currently, users are allowed to download materials from Jorum to their own desktop or learning environment and reuse or repurpose them locally. They are not allowed to republish any repurposed resources back into Jorum because of the restrictions in the licensing model explained in section 7.1. The aim of the new Jorum service would be to make this possible and enhance the sustainability of the service.

While Jorum currently restricts contribution by type of resource, it does not do so on grounds of format, although this is under review as part of the research and development work, and policy on this may be reviewed at a future date. A preservation policy, in particular, must consider ongoing access to materials deposited in proprietary formats that may not continue to be available in the future.

#### **7.4.4 Implications for sustainability**

Wiley's paper considers the implications that types of resources and the formats in which they are deposited have on whether or not they can be reused and repurposed. He says, "In the case of most adaptations of OER, access to the source code is absolutely necessary to make the required changes. For example, to edit an HTML page you need to be able to access the HTML file itself. While this may seem like a trivial thing, some commercial learning management systems such as WebCT purposefully obfuscate the code within these files so that adaptations are much more difficult to make ... from a reuser's perspective, textual content is much more amenable to adaptation than either audio or video.

"Also because most users will not be highly technical, a critical part of helping users reuse materials is connecting them with tools that make it easy to translate materials and make other content-related adaptations. For example, an inline WYSIWYG editor will allow many more people to edit content than a large text field sprawling with XML.

"... an OER project that runs for 20 years producing hundreds of thousands of OER will not have been sustainable if the critical goal of enabling meaningful reuse of materials was never reached."

For the Jorum OER service, it is recognised that the provision of tools to support repurposing and republishing, in line with the recommendations from the OLCOS Roadmap 2012, is a key issue for sustainability.

### **7.5 Quality Assurance**

#### **7.5.1 Technical**

In the current Jorum service, contributors are asked to carry out certain checks on deposit of their materials. In addition, as stated in the Jorum Collections Policy, the Jorum support team will act where they receive alerts or queries from other users unable to play materials and technical checks reveal problems with them.

The Jorum team checks around 10% of materials as they are added to the repository, notified by alerts generated by the system, and the Intute cataloguers check that all materials catalogued by them (i.e. all objects apart from single file assets such as images) run correctly when they add metadata. If they do not, the cataloguers notify the Jorum support team.

#### **7.5.2 Metadata**

In the current Jorum service, contributors are required only to add the title, short description, subject area and rights-holders in terms of metadata. They can add more if they wish. The remaining fields are either added automatically by the system, or completed by Intute information staff. The issue of collecting detailed metadata and its value to users was addressed in the recent Jorum External Evaluation exercise. A majority of participants in the focus groups thought that:

*... the metadata is unnecessarily complex and there's probably too much of it ...*

On the other hand, others thought that:

*... the application of metadata in Jorum is one of its defining features ... what makes it useful ... it's pretty much anarchy if you don't have that ...*

Despite the amount of metadata being collected by Jorum and the fact that advanced search functionality is available, participants reported that users were frustrated with certain aspects of the search:

*... you can't do a search on a particular [subject] area and the educational level ... people found that frustrating ...*

*... [having] 'Level of Difficulty' in terms of how it's defined in the LOM only makes sense if you also some information about the educational level and it doesn't look as if you can search on educational level as well ...*

It was suggested by one person that formal cataloguing could be replaced by, or supplemented with, user-generated tagging, which among other things, would reduce costs of running the service:

*... maybe we need the formal metadata for the cataloguers but I also think there should be informal stuff ... I think it'd be better to put it down to the 80/20 rule. Use something like Dublin Core for each one and then hire more people to actually go in and participate in the community of the system. It's those informal links ... to get people to look at other resources [by] adding this informal metadata [you] bring people into the system ...*

### **7.5.3 Pedagogical**

The Jorum service does not currently have an editorial team, nor does it provide pedagogical evaluation of materials added to the repository. However, star rating and comments facilities are both available in the repository and users are encouraged to add ratings and evaluative comments to resources as they find them. However, users do not use this facility very much, as they have to return to the system after download to make a comment and there is little incentive to do this at present.

### **7.5.4 Quality control in an open Jorum service**

#### *Risk*

Continuing with the technical and metadata quality assurance policies as outlined above when and if the Jorum repository service becomes an open service entails greater risk than is experienced with the current restricted service. This is because it is believed that, even in order to offer the quality control currently available, the current Jorum service seems to act more as publisher than host. Hosting services such as Internet Service Providers rely on Notice and Takedown (N&T) Policies to put the onus on the user to report content with problems of various kinds, including IP problems, and do not check the content before it is published. Offering the kind of current levels of quality assurance in terms of metadata and technical checks seems to push the Jorum service more into the field of being a publisher rather than a host. The former entails higher legal risks than the latter. It should be noted that Jorum has never to date been asked to remove any content from the service, or encountered any problems with misuse of content. Having content on open access would of course increase the level of risk.

It is far easier for a service offering open access to research publications to act as host rather than publisher and rely on N&T policies. The experience of the Jorum service-in-development is that it is very difficult for a learning object repository service to act entirely as host. The content is far more complex than that collected by an open access repository.

#### *'Formal' and 'Informal' metadata collection*

The Metadata Ecology for Learning and Teaching (MELT) project<sup>86</sup>, part of the European Schoolnet and funded under the EU eContentPlus programme, is working on using social tagging and 'folksonomies' alongside expert information staff. Expert or trained indexers are to enrich some MELT content, while teachers will be provided with 'folksonomy' and 'social tagging' tools so that they can add their own metadata, and automatic tools will also be used. The tools to allow teachers to add metadata are becoming available at the time of writing this report. The project plans to deliver both formative and summative evaluation reports by December 2008.

The open Jorum repository service would be an excellent opportunity to offer social tagging and folksonomy functionality for users to add their own metadata tags, and for Jorum to participate in research based on the experience of users as to whether formal or informal metadata-adding processes are more useful, or whether both are considered necessary. It must also be decided whether in fact to continue with adding the detailed metadata available currently in the system, or whether to switch to a more limited scheme such as DC-Education<sup>87</sup>, which is currently under development.

#### *'Formal' and 'informal' pedagogical reviews*

Jorum is examining Web 2.0 developments for best practice in offering facilities for users to provide pedagogical reviews at the website. Connexions offers post-publication review opportunities to users, arguing that in terms of learning content, one person's meat may be another's poison. However, for the proposed open Jorum service, there might also be an opportunity to use resources released from reducing the provision of detailed metadata to provide a number of more formal pedagogical quality checking processes, alongside informal ones.

For example, representatives from HE and FE – perhaps from HE Academy<sup>88</sup>, the Association for Learning Technology (ALT)<sup>89</sup> and the JISC Regional Support Centres (RSCs)<sup>90</sup> - could be given resources to run a peer review process that would bring in people from the community who are prepared to devote time to fully review resources in the repository. (This would also reflect the proposed way forward for QA in metadata outlined above i.e. in having both formal and informal processes.)

A model for more formal peer review may be found in the process operated by the MERLOT<sup>91</sup> service in the USA. MERLOT materials are divided into different subject areas

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<sup>86</sup> [http://info.melt-project.eu/ww/en/pub/melt\\_project/welcome.htm](http://info.melt-project.eu/ww/en/pub/melt_project/welcome.htm) [July 2007]

<sup>87</sup> [http://dublincore.org/educationwiki/DC\\_2dEducation\\_20Application\\_20Profile](http://dublincore.org/educationwiki/DC_2dEducation_20Application_20Profile) [July 2007] and [http://dublincore.org/educationwiki/JISC\\_20CETIS\\_20MDR\\_20SIG\\_20Meeting\\_20Report?action=highlight&value=DC-Education+Application+Profile](http://dublincore.org/educationwiki/JISC_20CETIS_20MDR_20SIG_20Meeting_20Report?action=highlight&value=DC-Education+Application+Profile) [July 2007]

<sup>88</sup> <http://www.heacademy.ac.uk/> [July 2007]

<sup>89</sup> <http://www.alt.ac.uk/> [July 2007]

<sup>90</sup> <http://www.jisc.ac.uk/rsc> [July 2007]

<sup>91</sup> <http://taste.merlot.org/peerreviewprocess.html> [July 2007]

(currently 15), each of which has its own Editorial Board, whose members are drawn from and supported by partner institutions. Editorial Boards are responsible for:

- Expanding and managing the collection of online learning resources related to the discipline
- Implementing the peer review process (according to discipline specific criteria (based upon a common evaluation criteria) and posting peer reviews
- Recruiting and training peer reviewers
- Education and outreach to the community of educators in their discipline

Members of the Editorial Boards are university staff with:

- Expertise in the scholarship of their field
- Excellence in teaching
- Experience in using technology in teaching and learning
- Connections to professional organisations in the discipline
- Experience in conducting peer reviews of online learning resources

The Editorial Boards use the following criteria in the peer review process:

- Quality of content
- Effectiveness as a teaching tool
- Ease of use for students and staff

Operating a process of this kind also offers opportunities to provide reward systems such as award schemes and working with professional societies to enhance the collection.

A meritocratic model may also be found in open software projects, such as Apache Software Foundation<sup>92</sup>, in which the more skilled and experienced check the code delivered by others in a meritocracy. The aim of an open Jorum service would be to have community buy-in to the repository service to provide both peer review/award system processes and informal Web 2.0 based reviews, as both seem to have been successful in building subject communities for other repository services.

### *Pre-publication quality checks*

Many OER services, especially those provided by institutions, are keen to ensure that any materials provided on open access have been quality checked before publication in terms of pedagogy, to uphold the good name of the institution and/or service. It would be feasible for the Jorum OER service to build a quality step into the contributing workflow, to stop content being published immediately in the repository. However, the issue is then who checks it and on whose authority it is published. It is impossible for the data centres to take this on, not only in terms of having limited staffing, but also from the fact that materials can be contributed in any subject area.

Many of the materials contributed to Jorum (and this seems very likely to continue into an open Jorum service) have already been checked pedagogically, because they have been created by teachers working in project teams, or by teams funded by public grants. It would therefore seem wasteful to build in an additional step to the workflow to “catch” this kind of content.

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<sup>92</sup> <http://www.apache.org/foundation/how-it-works.html> [July 2007]

The main risk in this area arises from having a Jorum OER Contributor service open to individuals working on their own account, or to people acting maliciously. Given that much content is likely already to have been checked before submission, as argued above, it seems better to rely on post-publication reviews, formal and informal, and on takedown policies to remove offending content. This runs the risk of having content in the service that exposes us to allegations of providing materials of little or questionable value, but this is also the position of any open service on the web and most people (and educators) seem able to understand that there will be nuggets of gold in these services. It is arguable that even poor quality materials can have educational uses, or can be repurposed into better quality versions.

## 7.6 Funding

### 7.6.1 Funding models

In a paper for the OECD, Downes<sup>93</sup> listed the funding models of OER projects currently in existence as:

- *Endowment model*, in which the project attracts base funding and sustains itself from interest earned on the fund e.g. Stanford Encyclopaedia of Philosophy<sup>94</sup>
- *Membership model*, in which a coalition of organisations contribute funding, which generates revenues for the open project e.g. the Sakai Educational Partners Program<sup>95</sup>
- *Donations model*, in which the project requests and receives donations, managed by a non-profit making foundation e.g. Wikipedia and the Apache Foundation<sup>96</sup>
- *Conversion model*, in which something is given away free of charge, and advanced services or features are charged to the customer e.g. Elgg<sup>97</sup> and LAMS<sup>98</sup>
- *Contributor-Pay model*, in which contributors pay for the cost of maintaining the contribution and the service provider makes the contribution available free of charge, e.g. the Public Library of Science<sup>99</sup>
- *Sponsorship model*, in which the project is supported by a commercial partner and the resources are made available free of charge, e.g. MIT iCampus Outreach Initiative, which is sponsored by Microsoft<sup>100</sup> and Stanford on iTunes, sponsored by Apple<sup>101</sup>
- *Institutional model*, in which an institution assumes the responsibility for an OER initiative and it becomes part of its organisational mission e.g. MIT OpenCourseWare
- *Governmental model*, in which government agencies fund OER projects e.g. Canada's SchoolNet

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<sup>93</sup> Downes, S. *Models for Sustainable Open Educational Resources*. National Research Council, Canada, January 2007. <http://www.oecd.org/dataoecd/3/5/36781698.pdf> [July 2007]

<sup>94</sup> <http://plato.stanford.edu/> [July 2007]

<sup>95</sup> [http://www.sakaiproject.org/index.php?option=com\\_content&task=view&id=233&Itemid=462](http://www.sakaiproject.org/index.php?option=com_content&task=view&id=233&Itemid=462) [July 2007]

<sup>96</sup> <http://www.apache.org/> [July 2007]

<sup>97</sup> <http://elgg.org/> [July 2007]

<sup>98</sup> <http://www.lamsinternational.com/> [July 2007]

<sup>99</sup> <http://www.plos.org/> [July 2007]

<sup>100</sup> <http://icampus.mit.edu/Outreach/> [July 2007]

<sup>101</sup> <http://itunes.stanford.edu/> [July 2007]

- *Partnerships and exchanges*, in which exchange of resources rather than exchange of funding is the focus and are often bilateral e.g. Memorial University of Newfoundland and the Federal University of Ceará UFC in Brazil<sup>102</sup>

Dholakia et al discuss the following three funding models, which Connexions has pursued based on their analysis of what adds value to their users' experiences:

- *Substitution model*, in which the educational content disseminated via the OER project replaces the use of other technologies such as virtual learning environments (VLEs), proprietary data repositories and even text-books. The cost savings can be used to fund the OER project. The University of California at Merced is employing this model, with the intention of using Connexions across its curriculum, and the National Council of Professors of Educational Administration is developing a Connexions knowledge base that will supersede the print materials that they currently produce.
- *Partnership model*, in which funding is found from various sources, including governmental and philanthropic organisations, but also professional societies, trade or industry groups and individual firms, that focus on a particular niche e.g. a subject area. A variation of this model would be a *consortium model*, in which the OER project charges a fee from affiliated universities and institutions for joint development. The government of Vietnam is deploying Connexions throughout the country to support science and engineering education. National Instruments (NI), a software firm based in Austin, Texas, has placed the entire contents of its LabVIEW (its flagship and industry-standard software development tool) Basics 1 course manuals into Connexions.
- *Segmentation model*, in which the OER project provides open access to all the educational content, but in addition provides 'value-added' services to specific user segments and charges them for those services. Connexions works with several print-on-demand presses, which allow the delivery of customised textbooks, and printed versions of courses at low cost. For example, a 300-page hard-bound engineering textbook sells for \$15 – 20, as opposed to \$100 – 150 from a traditional publisher. In a joint venture with Cambridge University Press, Professor Alfred Hero's book on statistical signal publishing will be made available simultaneously as a traditional book and freely in Connexions.

Of the Downes and Dholakia models, it is suggested here that the following could be applicable for consideration by JISC and Jorum:

*Contributor-Pay model*, in which institutions and organisations that wish to sell materials could have an area in which to do this in the repository and would pay JISC for the service provision, but this would require a mechanism for collection of payments.

*Conversion/segmentation model*: Jorum could offer access to materials freely and fund the service, at least partially, by offering other services, such as providing access to server space to manage UK institutional repositories on their behalf, and the provision of repository advisory services.

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<sup>102</sup> Barreira, R.T. *Virtual UFC*. Paper for UNESCO Forum on Open Courseware for Developing Countries. July 2002. [http://www.wcet.info/unesco/barreira\\_brazil.pdf](http://www.wcet.info/unesco/barreira_brazil.pdf) [July 2007]

*Governmental model:* JISC could carry on providing funding to Jorum. In the longer term, if the main service can find other methods of funding itself, this could be limited to dealing with ongoing R&D for example, or the provision of the ongoing Jorum service that must deal with the restricted materials already in the repository, or for an archive system.

*Partnership model:* It would be feasible for Jorum to apply for funding to philanthropic organisations such as the Hewlett Foundation and to other governmental organisations such as the EU, to develop particular elements of the service, and possibly also to professional societies to fill empty niches, such as subject areas.

Variant of the *sponsorship model*, whereby JISC Collections could negotiate inclusion of a collection of materials provided by commercial publishers in the Jorum repository, to showcase/promote them via Jorum.

### **7.6.2 Meeting costs with resources other than funding**

Wiley<sup>103</sup> suggests that some of the real costs of running OER projects can be met with resources other than money. The example he gives is that of open source software projects, which continue year after year without paying the individual contributors involved. "People will often volunteer to do things you could never pay them enough money to do ... When people find more value in participating in an activity than the cost of participating in the activity, they are likely to participate."

Wiley argues that, "By paying attention to this cost/benefit analysis, and increasing the value inherent in participating in OER projects for staff, teachers and learners, we may be able to decrease the amount of extrinsic incentives (such as money) that are necessary to sustain OER projects."

The open Jorum service should work with other OER services to create a sharing community, contributing in terms of resources and also reviews/commentary. In addition, partnerships with organisations such as HE Academy, ALT and RSCs, should be developed further to involve and enthuse as many people as possible, and provide incentives in terms of publicity and award schemes.

## **Conclusions**

This section is a summary of the key lessons from the report for future consideration by the Jorum team and JISC, both in the business planning process and also for use in promotion of current and future Jorum services.

### *Business Planning*

- Consider applying for supplementary funding from philanthropic organisations such as the Hewlett Foundation, especially to support potential wider aims of the service in terms of lifelong learning and the promotion of learning open to groups that do not usually engage in education;
- Make the assumption that the open repository will give rise to new funding opportunities and look for revenue-generating opportunities (as in the experience of Connexions) for sustainability purposes;

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<sup>103</sup> Wiley, D (2007). *ibid.*

- Focus less on the features of products and the technology, and more on understanding what users want and deliberately growing the OER product for them. If we do this, according to Connexions, opportunities to generate revenue naturally become apparent;
- We need to increase the brand equity of the service, for which we need agreed values. These values have to consider carefully any partnership with commercial organisations and ensure that the resources contributed to the new open service themselves remain open to all;
- There might be an opportunity to use resources saved from reducing the amount of detailed metadata added to provide more formal pedagogical quality checking processes, alongside informal ones.

### *Funding models*

Of the Downes and Dholakia models, it is suggested here that the following could be applicable for consideration by JISC and Jorum:

- *Contributor-Pay model*, in which institutions and organisations that wish to sell materials could have an area in which to do this in the repository and would pay JISC for the service provision, but this would require a mechanism for collection of payments;
- *Conversion/segmentation model*: Jorum could offer access to materials freely and fund the service, at least partially, by offering other services, such as providing access to server space to manage institutional repositories on their behalf, and the provision of repository advisory services;
- *Governmental model*: JISC could carry on providing funding to Jorum. In the longer term, if the main service can find other methods of funding itself, this could be limited to dealing with ongoing R&D for example, or the provision of the ongoing Jorum service that must deal with the restricted materials already in the repository, or for an archive system;
- *Partnership model*: It would be feasible for Jorum to apply for funding to philanthropic organisations such as the Hewlett Foundation and to other governmental organisations such as the EU, to develop particular elements of the service, and possibly also to professional societies to fill empty niches, such as subject areas.
- Variant of the *sponsorship model*, whereby JISC Collections could negotiate inclusion of a small collection of materials provided by commercial publishers in the Jorum repository, to showcase/promote them via Jorum.

### *Technical platform*

- A key decision will be whether to persist on the basis of presenting the service via repository functionality; or use a repository system at the backend and use a web-based learning environment on top;
- The underlying technical platform must be robust and free of performance issues, as far as possible.

### *Service*

- Accepting that the Jorum OER service will be open to all users is easier than accepting that the Contributor service will also be open to everyone; many factors need to be addressed, including cost, metadata, quality control and support;
- The Designated Community and Extended Community for both Contributor and User aspects of the Jorum OER service, especially in terms of offering support, need to be agreed;
- Ensure that the tools provided for reuse and repurposing of materials are as easy to use as possible, otherwise many will be daunted;
- Jorum must provide more tools, or ways of getting easily to tools, to assist the authoring and content creation process. Other OER services make this process much easier than we do;
- Present Jorum through a website designed with usability in mind. It has to be easy for the community to come to us and for us to satisfy their needs;
- Ensure that Web 2.0 tools for communication are as upfront and easy to use as possible, to encourage postings and content reviews;
- Highlight areas in which the service needs help (e.g. subject areas that need more content) and communicate them to the community;
- There is an opportunity to reduce the amount of detailed metadata added currently in the system, and use informal methods alongside formal processes;
- Consider introducing concepts-based access to resources, semantic browsing and tools such as semantic Wikis;
- The types of resources to be offered and the media formats in which they will be shared must be considered, also in the light of retention and preservation issues.

### *Promotion/incentives*

- Study the OECD list of incentives for institutions and individuals, and the OLCOS Roadmap 2012, and consider production of promotional policies in the light of them (as they are proven results of research with organisations and people actually involved in OER now);
- Work with stakeholders such as HE Academy, the ALT and the RSCs, to ensure that reward mechanisms are provided, in terms of peer review processes, informal Web 2.0 review processes, publicity for contributors, award schemes and close links with professional societies.

### *Legal/Licensing*

- There must be sufficient legal protection in place at the Universities hosting the service and at JISC Collections/HEFCE to take the additional legal risks implied by having an OER repository;

- Consideration should be given to running the Jorum OER repository on the basis of CC licences that are between individuals and require assertion by the depositor that s/he has the permission of rights-holders, including his/her institution, to deposit;
- There are a number of issues with using CC licences. It may be a good idea to ask the Jorum Legal Expert Group to re-convene to discuss them.

### *Quality Assurance*

- Consider offering social tagging and folksonomy functionality for users to add their own metadata tags, and for Jorum to participate in research based on the experience of users as to whether formal or informal metadata-adding processes are more useful, or whether both are considered necessary;
- Consider facilitating a peer review process, run by third parties such as HE Academy, ALT and the RSCs, that would bring in people from the community who are prepared to devote time to fully review resources in the repository, alongside informal review processes facilitated by Web 2.0 functionality;
- Decisions on technical checking of materials deposited have to be made e.g. whether to check a proportion of materials added, and when and how this will be done.

### *Additional factors*

- Opening up our repository is likely to lead not only to greater demand on the server from the UK, but also from many countries abroad, perhaps particularly in the developing world. Current OER projects and services see one of their major roles as providing opportunities for the developing world to access free resources. It is likely that our service would be picked up by other OER services and promoted around the world;
- Current HEFCE/JISC Legal advice to institutions to assert ownership of learning and teaching materials and regard them as revenue-raising opportunities could be seen as being potentially in conflict with the principles of establishing a Jorum OER repository.

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