Business Models in OER, a Contingency Approach

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Abstract
We will present an analysis of data from a literature review and semi-structured interviews with experts on OER, to identify different aspects of OER business models and to establish how the success of the OER initiatives is measured. The results collected thus far show that two different business models for OER initiatives exist, but no data on their success or failure is published. We propose a framework for measuring success of OER initiatives.

Keywords
review, interviews, Open Educational Resources, business models

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Introduction

Open Educational Resources encompass a wide set of resources – e.g., learning materials, courseware, software tools, educational services and support – that are freely shared within an educational community. There are many ways to do so, in terms of underlying technology, development, maintenance, support, and funding schemes. Downes (2007) provides an overview of these diverse models for funding, technical, content and staffing. But although several case studies and other reports on OER initiatives have been published (e.g., Caswell, Henson, Jensen & Wiley, 2008; Smith, 2009), it seems that sustainable OER business models have yet to take shape (Stacey, 2007; Smith, 2009).

This study focuses on analyzing some of the current OER initiatives according to the Canvas model of Osterwalder & Pigneur (2010). This model identifies 9 building blocks: a) value proposition, b) customer segments, c) customer relationships, d) channels, e) revenue streams, f) key resources, g) key activities, h) key partnerships and i) cost structure. Furthermore, we systematically review the literature on OER, focusing on a) which (case) studies exist that measure effects of OER, and b) what performance indicators, are used in these studies.

Method

Interviews

Semi-structured interviews (see e.g., Lindof & Taylor, 2002) were conducted with 10 experts, all participants in the Open Courseware project.[1] These interviews were videotaped for analysis afterwards. In these interviews, answers to the following questions was sought:

1. What type of OER are offered?
2. Why do you provide OER?
3. How do you develop the OER?
4. How do you support or maintain the OER?
5. How do you deliver OER to your customers?
6. Who are your customers?
7. How do you interact with your customers?

8. How do your customers value your products?
9. How are the OER embedded in your organisation?
10. Are there partners involved in the development or delivery of OER?
11. What are the life-cycle costs of the OER?
12. How do you finance the OER?
13. Do the OER generate revenue?
14. What are the costs of NOT providing OER (e.g. missed opportunity in sales of regular products, consequences of lower ranking image)?

Additional information on each of the initiatives was collected from their websites.

Literature review

For the systematic review on OER, a computer search was conducted on the internet database Scopus using search term Open Educational Resources as keyword. The search resulted in 32 hits. These search hits were imported in Excell. Studies that evaluated impact, effect or use of OER were selected from these. On the basis of the abstracts of these 32 references only 11 met the selection criterion. The selection did not include any publications before 2007.

Results

Interviews and Internet search

Information from the interviews (http:// http://dspace.ou.nl/simple-search?query=helsdingen&submit=Go) and websites of the organizations, is structured according to the 9 building blocks of the Canvas. But first, the goals and ambitions of the initiatives are stated.

Goals

The organizations state a variety of reasons for delivering OER, and even within an organisation, different departments can have different reasons to offer OER. However, we can distinguish four major goals that the organisations want to reach with their OER:

Enhance their reputation: to attract new students, to generate funding, to be able to start fruitful collaborations with other institutes.

Support students and researchers: offer easy ways for finding information, to stimulate collaboration between departments, to offer future students good insight in what can be expected from fee-based programs.

Enhance the quality of their education: using innovative technology, creating collaborative and open learning environments, and open distribution means teachers are encouraged to enhance the quality of materials, use the input from outside the institutions for enhancement of materials.

Share knowledge: provide self-learners, alumni and others with access to the knowledge resources of the institute, create new insights and develop new approaches for education collaboratively in the open learning environment.

Value proposition

Three types of propositions can be distinguished: a) materials that may serve as building blocks for developing courses and courseware, b) introductory courses or parts of a course meant to provide insight into a complete course or that is additional to other (closed) course material, or c) complete courses that can be taken, including online interactive sessions with peers, but with minimal teacher feedback or support. Sporadically, feedback from a coach or teacher was provided to learners in the open course. None of the initiatives listed here provide accredited diplomas or certificates for their open courses.

Customer segments

Several classes of customers are identified. The largest group, for most of the initiatives listed in table 1 (http://dspace.ou.nl/simple-search?query=helsdingen&submit=Go), are self-learners. These may be people that, as stated by Patrick McAndrew,[2] are looking to connect to other people with the same interest. At the University of California at Irvine, for example, there is a group of people studying materials on gifted children that have now formed an online community. As not all initiatives provide tools for social networking, however, there are also individual learners just working through the materials. A second group of customers is formed by students that are enrolled in fee-based programs at a college or university. These students may be distributed and thus more efficiently reached or they use the open materials in addition to the closed materials of the fee-based program. The third largest group is educational professionals, using the open materials for developing or enriching their own courses.

Looking at table 1, some other types of customers can be identified, such as special needs or disadvantaged groups, or people without access to on-campus programs, but whether these are reached remains unclear. MIT OCW statistics, for example, show that their audience comprises of 42% students, 43% self-learners, 9% educators and 6% other.[3] From these statistics, special needs groups cannot be distinguished from the self-learners.

Customer relationships

We can roughly identify two types of relationships: one-way content-push relationship and the everyone-contributes relationship. The content-push relationships sometimes have a secondary aim to market fee-based programs to their customers. Although they solicit feedback from their customers, no real collaboration or input is sought for developing or adapting the materials that are offered. In everyone-contributes relationships the customer is also contributing to the materials. Here, marketing of fee-based programs is less common, although Wikieducator has set up a mirror site to advantage fee-based services, and Flatworldknowledge advertises print-on-demand books. The materials published on e.g. Wikieducator or Connexxions are not reviewed by the organization, but the identity of the developers and of people that contribute to the materials is published.

Channels

Most OER are offered through a dedicated website. The organizations that also offer fee-based programs usually have a link from their homepage to the OER website. Some organizations now offer web 2.0 tools for social networking and community building, however, only two organizations have integrated these tools in their courses in the sense that working within a virtual group is a requirement of the course.

Many, but not all, organizations have their courses being listed in courseware databases (OCW finder, Connexxions, Merlot).

Revenue streams

Most of the organizations rely on foundation or government funding and are not actively seeking for (financial) revenue from their OER activities. Although they indicate that enhancing their reputation by providing high-quality OER may generate more funding. For some, revenue might be expected from transfer into fee-based programs or products, although not many organizations promote that transfer. UCLA at Irvine presents information on whether the free course can also be taken for a credit and thus directs learners who are interested in accreditation to their fee-based program. They also target their marketing of fee-based courses at specific communities that have emerged around an open collection. Similarly, Flatworldknowledge presents its fee-based products next to free offers, thus generating continuous attention for these. MIT OCW has, apart from its' request for donations, integrated revenue generating activities in its open courseware materials: All reading materials have a link to a retail website that sponsors MIT OCW for each sale it thus makes.

Other approaches for creating revenue are requesting micro-contributions from individuals, or offering fee-based services, although not many organizations have implemented such schemes successfully. Wikiwijs has a different strategy in that offers access to open and closed content, thus generating interest from vendors/ distributors of closed educational materials. This interest results in collaborations with commercial parties and may thus generate revenue.

Apart from the financial revenues, organizations expect to generate revenue that is not directly expressed in money: Better quality learning materials, more co-operation with other institutions, reducing number of drop-outs among students of the first year fee-based programs, to name the most mentioned.

Key resources

The key resources are mainly the individual teachers or faculty members at the universities and educational institutes that are asked to develop their courseware for self-study and open online access. Staff for audiovisual support, e-learning expertise, or legal issues are usually associated with a small centralized services desk. For the organizations such as Connexxions, Wikieducator or

Flatworldknowledge, the key resources lie outside their span of control, i.e. they are dependent on individuals who are contributing in their personal capacity.

Key activities

We can distinguish between three types of activities: a) digitizing existing courses and course materials, b) making digitized materials suitable for self-study and free distribution, and c) creating an active community that uses and contributes to the open courseware. Educational institutes are mainly involved in the first two activities, although the StOER initiative is also focused on creating an active user-community because some of its open content is organized around that community. For organizations such as Wikieducator, Connexxions, Wikiwijs and Flatworldknowledge, the main activities involve creating an active user and contributor community.

Key partnerships

Many of the initiatives in table 1 are single institute activities, sometimes with support of institutions that are more experienced in OER or e-learning. An example of the latter is the support of MIT for the UOC OCW initiative. Few collaborations exist, but mainly at the level of exchange of ideas (TU Delft & OU NL), and not many in collaboratively developing OER.

Cost structure

The costs for creation and distribution of open online educational materials are high, estimates vary from 10.000 to 150.000 euros per course (Johanson & Wiley, 2010). Cost drivers in this process are the man-hours involved in digitizing text-based materials, creating courses that are suitable for self-study, and making video or audio podcasts. These fixed costs differ for the initiatives listed in table 1. Distance-learning institutions already have most of their materials digitized and suitable for self-study, but regular universities often have to start from scratch. Although often not counted in their costs, their major cost drivers are the teachers having to adapt all their materials for online publication, followed by the support from some centralized educational office in legal, audiovisual and other services. It is the latter that seems often solely accounted when costs are regarded. For organizations that rely mainly on contributions from individuals, such as Wikieducator, the fixed costs are very low. Typically, a staff of 2 can manage day-to-day business.

Variable costs are usually lower for OER, because most organizations do not provide any services to their customers other than the content. Thus, it requires only updating of materials and maintaining the website. In the community based initiatives, such as Wikieducator or Wikiwijs, the costs for updating, maintaining, reviewing and adapting materials, as well as providing feedback, coaching and support, is distributed among all individual contributors. The only variable cost left for the distributor is cost for data- storage, website support and maintenance.

Literature review

Table 2 (http://http://dspace.ou.nl/simple-search?query=helsdingen&submit=Go) presents an overview of the outcomes obtained in the recent literature on OER. Many of the 11 studies that covered specific OER effects measures or case evaluations, focused on capturing the user experience. Performance measures identified in these studies are, e.g., ease of use, re-use behaviours, attitude towards specific OER elements, formation of communities. Other issues that are assessed in the listed studies are the costs of OER development, and revenue generated by OER. There we no studies that focused on evaluation of the learning value of OER and impact of OER on distribution of knowledge in society. Therefore, we also studied the websites of all the initiatives listed in Table 1, to identify whether evaluation data were published there.

Many OER providers keep track of website statistics: amount and origin of visits, what they download, and so forth. The OU collects data on the amount of students they attract through the Openlearn initiative for their fee-based program. Also, anecdotal evidence for customer satisfaction and successes is collected in the form of personal stories from customers, and examples of efficient re-use of materials. The UCLA at Irvine also gathers data on their reputation in terms of Internet presence (ranking at search engines, # websites linking to their pages) and occurrence in regular press. However, establishing whether other goals are reached, such as whether or not the open educational materials are of better quality than closed materials, or whether drop-out rates of first year students in the fee-based programs are lower as a result of the OER provided, is not often established.

Discussion

This study focused on investigating OER initiatives using the analysis model of Osterwalder & Pigneur (2009). We have conducted interviews, reviewed literature and searched on the Internet to collect information on the business model of the various initiatives. Although the initiatives differ on many aspects, using this model we can distinguish two different groups of OER initiatives.

The first group focuses mainly on pushing OER content on their website as a service for students, self-learners and educational professionals. These organizations do not have OER at the core of their business plan, but rather offer OER as an addition to their regular business. They are mainly involved in digitizing their educational materials, and making them suitable for self-study and open access publication. Their focus is on enhancing their reputation and offer support to students and researchers. Because they have little interaction with their users and only few of these type of organizations offer social software tools, they do not seem to be interested to use the community for establishing collaborative learning environments, or for reviewing /revising published learning materials.

In their aim to share knowledge and enhance the quality of learning, they may not be as successful as they hope to be. First of all, they do not seem to adapt their proposition to specific customers. Many of the OER courses are adaptations from fee-based courses, thus giving the impression that the special needs of self-learners, or disadvantaged groups, have not been considered in the development of the OER. Maybe this is because they lack knowledge: Apart from

some rough demographical data, many are not collecting details on the learning needs of their customers. Secondly, many of the OER are content oriented, instead of organized to create meaningful learning experiences for the learner. Thirdly, the open learning environment that these organizations have created provide little or no feedback to learners, other than worked out examples that they can use to verify their own solutions. With respect to their ambition to share knowledge, the lack of interaction with their customers in the creation and adaptation of OER suggest that these institutions are not so much sharing but rather giving away.

Revenues generated by these organizations usually are government or foundation funding and transfer to fee-based programs, although not many seem to actively promote this transfer. They usually offer the OER in a dedicated, separate website, and they do not have smart teasers or interactive webtools integrated in their OER presentation to seduce users to look at fee-based programs.

The second group of OER initiatives are organizations that are dedicated to creating and servicing a large community of contributors and users of OER. Their business model is built around the OER. These organizations' primary activity is to realize a web-environment and active community in which developing, sharing, adapting and finding OER is facilitated and encouraged. Their goals seem to be to share knowledge and to enhance the quality of learning materials. However, they often lack a vast knowledge base, do not employ course developers, teachers or researchers, and thus are dependent on the contributions of independent individuals. The materials offered are very diverse: They range from complete language courses to small learning objects such as pictures. They usually do not have an official peer-review procedure although some form of quality control may emerge from the virtual community using and adapting materials. The organizations are actively seeking input from their visitors, offer tools for OER development, facilitate search for OER is facilitated and re-use of materials is encouraged. Even training programs and workshops are organized to teach users how to create OER. However, support in the didactical aspects of the OER is somewhat lacking: The OER are often content-oriented, and only sporadically materials are found that present meaningful activities to learners. In the latter case, feedback is usually provided by peers. Thus, although sharing and interaction may result in large amounts of materials offered, frequent revisions and reviews, the quality of materials and learning experiences cannot always be guaranteed.

Revenues generated by these websites are mainly government or foundation funding, although schemes such as crowdfunding, promoting fee-based services or materials are increasingly implemented. Nevertheless, because these initiatives thrive on individuals contributing in the personal capacity, their costs of operation are much lower than for the other group of organizations.

Our review of literature showed that effect or impact evaluations are rare, and mainly focus on user experiences, not on societal impact or learning effects. Therefore, for establishing whether the analyzed initiatives are successful we propose performance indicators as listed in table 3. These are translations of the identified goals into desired effects for which performance indicators can be defined, formulated in such a way that data on them can be collected on the basis of observation of 'going concern'. This is similar to the pre-existing-control-transfer method (Campbell & Stanley, 1963) where performance data from the older group can be compared to data of performance by the new group who were educated with the new technology.

Conclusions

Two different groups of OER initiatives can be distinguished: those that have OER as an addition to their regular activities, and those that are centred around OER. They differ on their ambitions, and many other aspects, however, we have not found differences in the success of these types of initiatives. This is partly due to the fact that not many impact or effects studies are published. For follow-up we propose a framework for measuring success based on performance indicators that are derived from the ambitions of the OER initiatives and formulated such that measurement is relatively easy.

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Tables

Goal	Desired effect	Performance indicator
Enhance reputation		Rank
	Attract new students	Mutation in growth percentages of new students per year
	Generate funding	Success rate of proposals
	Collaborate with other institutes	Mutation in growth of # of collaborations
Support students & teachers	Offer easy ways of finding information	User evaluations
	Collaboration between departments	Mutation in growth of # of collaborative projects
	Offer insight in fee-base program for future students	Difference in first-year drop-out rates between programs with open content and programs without open content
Enhance quality of education	Better quality materials	Expert evaluations Average revision cycle for learning materials
	Better learning experiences	Compare student results of fee-based programs that provide open content with student results of programs that only offer closed content.
Share knowledge	Educate self-learners	# of self-learners # virtual communities active on a subject
	Support alumni	# of alumni website visitors # of active alumni
	Creation and innovation in collaboration	# of adapted materials # of contributions from individual learners # of discussion groups, or other virtual communities

Table 3: goals, desired effects and performance indicators for the success of OER. Note: The data on number of new students, or number of collaborations need to be related to the average growth that has been observed in these numbers during the years that no OER were available, or they need to be compared to growth numbers of other departments that are similar but do not offer OER.

Notes

1. Open courseware project is a collaboration of higher education institutions and associated organizations from around the world creating a body of open educational content using a shared model. See http://www.ocwconsortium.org/aboutus
2. see interview at http://http://dspace.ou.nl/simple-search?query=helsdingen&submit=Go
3. http://mit.ocw.edu/ans7870/global/09_Eval_Summary.pdf

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