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### **RESEARCH ARTICLE**

# MOOC Providers and their Strategies

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**Abstract**—Massive Open Online Course (MOOC) have gained a lot of popularity and are likely to cause disruptions in the current way of knowledge dissemination in the Higher Education System. In this paper, we present a comparative study of the three largest MOOC providers— Coursera, EdX and Udacity. Our study highlights the operational aspects of MOOC providers, the strategies being used to overcome competition and the challenges faced by them. We also explore their revenue model and their alternatives to deliver a better product for sustained future growth.

**Keywords**— MOOC; Udacity; Coursera; EdX; Comparison of MOOC key Players

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## I. INTRODUCTION

Online and open education is undergoing tremendous changes in its content, business model and delivery. This new wave of change is being ushered by the advent and growth of MOOC (Massive Open Online Course). The New York Times called the year 2012 as the year of MOOCs because in that year we saw launches of Coursera, Udacity and EdX – which are MOOC platforms based on partnerships between various founding universities and provide free online courses to anyone with an access to internet anywhere in the world.

### What is a MOOC?

In simple terms, a MOOC is an online course which can be attended by a large number of participants, has a defined duration (4-10 weeks) and follows a certain pedagogy in which initial weeks are spent in understanding the content while the last one or two are used for submission of assignments / final presentations for assessment. Students on average need to dedicate 2 to 6 hours/week (some may do more based on their interest) to complete the course successfully.

There are two main types of MOOC:

- 1) *cMOOC*: ‘c’ in cMOOC stands for “connectivist”, inspired by the same name of education theory, developed by one of the instructors- George Siemens. It is based on the idea that learning happens within a network. CMOOC runs on open source platforms and are based on the *peer learning model*. It does not follow the traditional Professor-Centric approach of pedagogy; rather it focuses on learners’ community and connections. Learners interact with each other through digital tools such as wikis, social media, blogs etc. to share and create knowledge. cMOOC are available on the internet but not necessarily delivered via the cloud as the focus is on community and connections and not on scalability. The founding institutions of cMOOC are Abathasca and Manitoba universities in Canada.
- 2) *xMOOC*: They are online versions of traditional Professor-Centric approach for learning formats, involving lectures, instruction and discussion. They run on specialist software platforms owned by

private enterprises. The content is provided by the partnering Universities and the technology is managed by the entity that owns the platform. The three largest xMOOC providers are Coursera, edX, and Udacity. Considering the large volume of users, focus of XMOOC is primarily on scalability. They are thus hosted and delivered via the cloud.

## II. COMPARISON OF 3 KEY PLAYERS (COURSERA, UDACITY, EDX)

In this section, we focus on the 3 biggest xMOOC providers - Coursera, EdX and Udacity, and compare them across certain parameters that relate to their operations / strategy.

### A. Brief History

- 1) *Coursera*: was founded in 2012 by two computer science professors at Stanford University – Daphne Koller and Andrew NG when they saw that their first online courses had enrolments greater than 100,000. They realized that there was a need to make education more accessible and global. Coursera is a for-profit entity. It has proprietary platform on which content provided by participating universities is hosted.
- 2) *EdX*: was founded in 2012 by partnership between MIT and Harvard (to which other Universities joined later). It is a non-profit initiative. edX has an open platform which seeks to enable open access to quality education.
- 3) *Udacity*: was also born out of a Stanford university experiment in 2011 in which Sebastian Thurn and Peter Novig offered their “Introduction to Artificial Intelligence” course online to anyone for free and received more than 160,000 student enrollments from 190 countries. Their aim is to bridge the gap between education, employment and skills. Udacity is also a for profit initiative.

### B. Key numbers: Volume wise how do they stack up?

TABLE I shows the magnitude of all the three key players in terms of their volume. It is clearly visible that Coursera is the biggest player with maximum number of students, courses available, and institutional collaborations followed by edX and Udacity.

TABLE I  
VOLUME COMPARISON

Provider	No of Students	Courses/Courseware	Institutions
<b>Coursera</b>	7 million +	640+	100+
<b>EdX</b>	2 million +	175+	45+
<b>Udacity</b>	1.5 million +	35+	10+

### C. Other Operational Aspects / Features

We have identified following 9 key parameters/ features on which we compare these three companies:

- 1) *Profit motive*: Whether they are for-profit / not-for-profit organization.
- 2) *Free to Access*: Whether they provide free access to students or they charge fees
- 3) *Certification Fee*: Whether they charge students fee to provide them certificates for completed courses.
- 4) *Institutional Credits*: Whether other colleges/institutions provide credit for courses completed on the MOOC platforms.
- 5) *Specialization*: Whether the platform is offering courses in a bundle that helps students specialize in a particular area (for example in data analytics, psychology etc).
- 6) *Open Platform*: Whether their platform is open to others for development.
- 7) *Coaching*: Whether they provide options to students to help tutor them with Faculty/others assigned as coaches.
- 8) *Peer Connect*: Do they allow forums where students can connect and discuss.
- 9) *Physical Presence*: Do they have designated physical places in cities where students can meet up in person (managed by providers and not as a result of social collaboration amongst participants).

TABLE II  
COMPARISON OF KEY FEATURES

Initiative	For profit	Free to access	Certificate fee	Institutional credits	Open Platform	Specialization	Coaching	Peer Connect	Physical Presence
<b>Coursera</b>	*Yes	*Yes	*Yes	*Partial	No	Yes	No	Yes	Yes
<b>EdX</b>	*No	*Yes	*Yes	*No	Yes	No	No	Yes	No
<b>Udacity</b>	*Yes	*Yes	*Yes	*Partial	No	Yes	Yes	Yes	No

\*(SOURCE: Wikipedia, May 2014)

While all platforms allow free access to students, they charge a certification fee to provide verified certificates, only Coursera and Udacity have courses that allow university credits to their takers. Coursera and Udacity also provide sources under specific specializations (like Data Analytics etc). Coursera has tied up with American Counselate to provide physical touch points to its students in other countries by Learning Hubs. EdX is certainly behind on these aspects compared to the other 2 players.

**D. Revenue Generation Aspects**

Based on information available in the public domain, we deduce that following options are available to the MOOC players to make money.

- *Certification:* MOOC providers can create their own certifications which students can then use to claim credits at other educational institutes / corporate.
- *Secure Assessments:* Validation of students who complete assessments (authentication).
- *Employee Recruitment:* Allow potential employers to search / reach out to students who are undergoing / completing courses.
- *Applicant Screening:* Allow universities to screen applications for their courses / admissions.
- *Human Tutoring:* Students seeking further help can opt for these services.
- *Selling the Software:* Share the technology / platform to other universities to host courses.
- *Sponsorship, Advertisement etc.*
- *Tuition Fees:* Charge nominal fee for certain courses.
- *Corporate Training / Executive Education:* Allow corporate to use the content and provide the same for corporate training.
- *Licensing :* Licensing of Course content
- *Tie up with Publishers / Authors:* For use of certain books during courses.

In its agreement with partner Universities, Coursera mentions points 1 to 8 from above list as its revenue generation options. But from the information available on website we cannot make out whether it is using all eight options presently or just a few of them. Table III summarises the revenue generation options of all the three organisations. Information presented in this table is based on the data available on each company’s website (data retrieved from website in May 2014)

TABLE III  
COMPARISON OF REVENUE GENERATION METHODS

<b>Coursera</b>	<b>EdX</b>	<b>Udacity</b>
<ul style="list-style-type: none"> <li>▪ Certification</li> <li>▪ Verified Assessments</li> <li>▪ Employee Recruitment</li> <li>▪ Corporate Training</li> <li>▪ Tuition Fees</li> <li>▪ Applicant Screening</li> </ul>	<ul style="list-style-type: none"> <li>▪ Certification</li> <li>▪ Licensed course content**</li> <li>▪ Course Hosting &amp; Support to people using open platform**</li> <li>▪ Executive Education**</li> </ul>	<ul style="list-style-type: none"> <li>▪ Certification</li> <li>▪ Employee recruitment</li> <li>▪ Corporate Training</li> <li>▪ Subscription</li> <li>▪ Tuition Fees</li> </ul>

\*\*These attributes are pilot mode (not yet visible) revenue generating options for EdX

In terms of options to generate revenue – Coursera and Udacity (being for profit) have more features that provide with much needed revenue compared to EdX (which is not for profit organization; still piloting various aspects to decide which one it will pursue further). Since EdX is an open platform, it can charge universities for hosting their courses on its platform and providing the related support. Udacity charges a monthly subscription fee from students who get enrolled for selected full courses (not the free courseware) and gives them access to projects, code-review and feedback, a personal Coach, and verified certificates.

### ***E. Mobile Strategies***

With more and more users now accessing internet via their mobile devices (Smart phones, tablets etc) it is important for these providers to plan their strategies on providing ease of use to their key customers.

TABLE IV  
COMPARISON OF MOBILE PRESENCE

<b>MOOC provider</b>	<b>Mobile Site</b>	<b>Responsive Web</b>	<b>Native App</b>	<b>App Platform</b>
<b>Coursera</b>	No	No	Yes	iOS, Android
<b>EdX</b>	No	Yes	No	-
<b>Udacity</b>	No	No	Yes	iOS

Coursera is ahead in this aspect as well. It has native apps available for iOS and Android which students can use to enrol and watch videos/access to other course content. Udacity also has an App available but it caters only to iOS platform. EdX does not have any App available but their site is customized to adjust to mobile browsers. They may be behind in their mobile strategy right now and definitely need to catch up but they are staying in the game with responsive web nature of their site which makes viewing their site via a mobile device the best amongst the three.

### **III. CHALLENGES OF MOOC PLAYERS**

We have listed down some of the key challenges that are being faced by players in the MOOC space and their approaches to address them.

#### ***A. Low completion of Courses/Drop in participation rates***

The percentage completion rate for courses is less than 10% for most of the courses (for few courses it goes as high as 40%). There is enough enthusiasm at the time of course launch from students but participation drops week on week from there on. It implies that a large number of participants are window shoppers and hence the volumes (users being cited) really do not translate into potential impact in terms of course knowledge offered / revenue generated. This is one area where MOOCs need to improve. How to better engage with their participants, offer them more interactive learning and ensure commitment/motivation levels so that completion percentage increases. With newer channels like mobile apps and options to provide more touch points for their courses the MOOCs hope to improve this percentage.

#### ***B. Less Availability in Local Languages***

Most courses are targeted at English speaking population, however there's a large portion of the world where this may not be the primary language and that is not being served/grossly under-served by the current players. There are languages like Arabic, Chinese, French, Spanish, Portuguese etc that have a large untapped potential for growth if courses were offered in them. Coursera does offer courses by various participating institutions in their native languages (like French, Spanish, Hindi, etc) and also have started a translation facility to port their best content into other languages for wider use. EdX also has participating institutions from across the globe and will look at them to provide localized content. It had its first bilingual course in English and Hindi on Engaging India from Australian National University start in April 2014. Udacity tied up with a firm to have its course lectures (in video) translated into multiple languages. Failing to target these populations means that local MOOCs could rise and manage to wean away users from the global MOOCs. Already there are MOOCs being launched in various countries focusing on their native languages (for ex. Eliademy, FutureLearn, iVersity in

Europe; Veduca in Brazil; based on the EdX platform we have Edraak focusing on the Arab world and XuetangX is a consortium of leading Chinese universities offering their MOOCs).

### C. Accreditation

Accreditation from universities allows MOOCs to realize revenue from their course fees (accredited courses). Secondly, accredited courses are authenticated and valued by employers. In the United States, things are moving in the right direction for MOOCs. Five courses of Coursera were accredited by American Council on Education for credit awards in March 2013. Some courses in Udacity also in process of being accredited. Georgia Tech announced recently that it will offer its MS in Technology on Udacity platform at 1/5th of the total cost of its on campus program (\$6600 compared to \$30k). MOOCs are bent on unbundling various snippets of higher education and because of their economies of scale deliver the same content at lower cost. As a result, many universities (where budgets are a constraint) will look to tie up with them in future to get better throughput for their money.

### D. Cross-border Issues

This issue has two aspects: first one is whether credits/courses completed on MOOC offered by one country will be having relevance in another country. This becomes important in certain contexts. For example, a MBA in UK is not recognized as an equivalent degree in India and hence students looking for work are not given the same level of credit/they are not eligible to apply for government jobs based on that degree. Second aspect is whether certain countries will want to promote their own MOOCs or allow competition from global players (for ex. China or other country could restrict access to certain MOOC players if they find questionable courses). This is not a burning issue for MOOC players right now, but it will become relevant in the next 5 to 7 years as the platforms evolve and start to get more accreditation.

### E. Monetization

These players will need to figure out their best ways to make monetize their assets because venture capitalists who are investing in them (in Coursera & Udacity) would like to see returns. For them to be financially viable they will need revenue. Producing content for MOOC platform is costlier because it involves video editing, high end graphics and social/technical support is needed to make the courses engaging and hence there is need to generate returns. Though on a comparative scale – cost / user of the content is much lower than traditional universities, but as revenue streams are limited – given their main product is being sold for free – MOOCs have to be nimble to effectively maximize their streams.

### F. Market Strategy

Currently most of the players are focusing on the higher education (college/Post College) or STEM fields referring to the academic disciplines of science, technology, engineering, and mathematics (for example Udacity) or catering to people of all age groups (termed as life-long learning market). There are players out there who are also focusing on other segments like K-12 (for ex. Khan Academy) – future potential will depend on which segments these players decide to target/specialize. Coursera has made a start to offer courses aimed at teachers of K-12 and could expand in this field.

### G. Technology / Ecosystem

This issue has multiple aspects that the players must keep in mind. First is pure technology – hardware / software/cloud platform. Coursera is hosting on Amazon cloud and has a closed platform but it is allowing developers to develop Apps through APIs. EdX has taken the open source route and opened its platforms for developers around the world to help build the next generation software for MOOCs (code.edX.org). Some of its key components are provisioned using the Amazon cloud right now but it has recently tied up with Google and will be exploring delivery using the Google cloud. The second aspect is features available on the platform and how easy/difficult it is for community to use/engage them. Udacity offers multiple features to its users (some of them are paid), but others like Student Showcase (www.udacity.me) are free and allow students to publish their projects for the whole world to see. Coursera also provides multiple ways for its members to connect and stay engaged with the platform (including physical learning hubs). EdX is still trying to find its feet but is hopeful that great content (from Harvard and MIT) and options of using the credits will continue to bring users to its platform. We also discussed the mobile strategies of these players in an earlier section and believe that is going to be an important tool in engaging with the current audience as well as reaching out to a large section of the world that does not have computers (but is looking to stay connected via mobile). Also, we may see rise of new technologies / newer players that may disrupt the lead of these 3 players because it is not necessarily who has the best technology that wins the race, but who is able to make better use of their systems to deliver a relevant product to their users.

Table V summarises the all the Challenges faced by organisations and their approaches about these challenges. We have covered Monetization issue in detail in TABLE III,so we are not explaining it again in this table.

TABLE V  
COMPARISON OF KEY CHALLENGES

Providers	Completion %	Languages Available	Accreditation	Market Strategy	Technology / Ecosystem
Coursera	Low	English, Spanish, French, Chinese, Arabic, Russian, Portuguese, Turkish, Ukrainian, Hebrew, German, Italian, Arabic, Greek, Japanese	American Council on Education's College Credit Recommendation for Five courses	Broad set of courses in subjects like, physics, engineering, humanities, medicine, biology, social sciences, mathematics, business, computer science, and many more	Closed Platform
EdX	Low	English, Mandarin, French, Hindi, Spanish	Universities do not offer formal academic credit for edX coursework	Courses from top universities for post college / lifelong learners	Open Platform
Udacity	Low	English	Tie up with Georgia Tech university to offer MS in Technology	Focus on Vocational courses/ courses in STEM fields	Closed Platform

While low completion % is a challenge for all the three players, Udacity (given they have a subscription option) has slightly better rates than the other two players. All are focusing on enhancing the user experience to increase the same. Coursera because of its wider reach is able to offer courses in languages other than English and has also set up a translation services team. On the accreditation side both Coursera and Udacity have got a few tie ups to offer courses on their platform that will give university credits. EdX is also in the process and partner institutions are likely to accept the approach. Monetization strategies of the 3 players are different – while Coursera is taking the broad base approach, EdX hasn't figured out the best option for itself except platform management and Udacity is trying to specialize into a certain section (vocational courses) to make money. Technology wise, we feel that Coursera and Udacity being closed platforms will continue to innovate and add more features and open their platforms using APIs, it is edX which has got the best tie-ups and support (its relationship with google and other partners).

#### IV. CONCLUSION

The leading MOOC providers - Coursera, EdX and Udacity are looking at course specializations, options for university credits, exploring new revenue channels, going mobile etc. Coursera has built up a lead in the MOOC space. EdX is an open platform and is looking at open collaboration for new features. Udacity is focusing on offering niche features and courses (like vocational) to its users. We shall see further disruptions in terms of arrangements between the content providers, new technology (like mobile app) and monetizing aspects.

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