



ONLINE EDUCATION

MAPPING OF ONLINE EDUCATION IN CHINA
AND OPPORTUNITIES FOR SINO-DANISH COLLABORATION
AND PARTNERSHIPS

Table of Contents

Introduction	5
Online Education – a revolution with different facets	5
Online education in China.....	6
Government policies to improve equality and quality of education.....	6
MOOCs – in Higher Education Institutions in China	7
Market overview of the private sector	7
Online Education - K-12 Segment.....	8
Online Education	9
Language training segment.....	9
Online Education - Vocational training segment	9
General trend in China of online education in the private sector.....	9
Online education in Denmark	10
Strategy on online education	10
MOOCs in higher education institutions in Denmark	10
Online learning companies	11
Stakeholders	12
Course Content Providers.....	12
Tech providers	12
Resources Integrating Platforms.....	13
Possible collaboration opportunities	13
Danish Course Content Providers and Chinese Course Content Providers	13
Danish Course Content Providers, Danish Tech Providers and Chinese Course Content Providers.....	13
Danish Tech Providers and Chinese stakeholders	14
Case Studies.....	14
Case 1.....	14
DTU – Online Education is a crucial part of the sub-policy for e-learning	14
Case 2.....	15
Jiao Tong University and the online education platform ‘Best Online Courses in China’	15
Case 3.....	16
Shanghai K6KT Information Technology Co., Ltd and its Education Resource Cloud Platform	16
Conclusion.....	17
Appendix	19
References	21

EXECUTIVE SUMMARY

For the last 30 years, China and its economy has been propelling themselves forward in the world at an extraordinary pace, with growth rates matched by very few. But in recent years the growth rates have been declining, as the country tries to transition itself from basing their economy on low-price production and export, to basing it on knowledge creation, innovation and domestic consumption. As a mean of reaching that goal, one of the key focal points for the Chinese government is further developing its educational system, both in terms of geographic span, demographic span and quality. And with a booming ICT sector that in many ways have been a frontrunner for China's economic growth spurt, it is only natural to assume that online education should be a part of that mission. And it is.

This report looks at the state of the online education environment in China, in order to analyze the possible opportunities in this sector for Danish companies. At governmental level both China and Denmark have made online education a priority. 4 percent of China's GDP is allocated to education, and the amount of online education activities is growing. Large funds are being allocated, pilot projects are being carried out, and further digitalization of the educational systems is being encouraged. Several sources anticipate the market to keep growing further. By 2014 investments into online education surpassed 4.4 billion RMB, and by 2017 it is estimated that China will have 120 million online education users. The private sector has also spotted the online education sector, and three of China's biggest ICT giants (Baidu, Alibaba and Tencent) have all entered the market as well.

On the practical level online education is much more widespread in China than in Denmark. Hence the Chinese solution spans over a much broader spectrum of education initiatives. Among other things, online education is used for further education and training of employees, language training, one-on-one tutoring, and multimedia solutions with gamification of the act of learning is starting to emerge. This poses great opportunities for Danish actors on the market for both delivering innovative input to future solutions, and providing high quality content.

When looking at the online education solutions that are directly compatible (for example the ones of universities), it becomes apparent that many of the online solutions implemented are identical. MOOCs (Massive Online Open Course) have in recent years gained ground in educational sectors all over the world, and neither China nor Denmark is an exception. For example more than 5.7 million people have selected online courses at Tsinghua University, spread over 69 different courses. With Denmark's competences within high quality and stimulating education and China's massive market for just that (combined with a very strong ICT sector), cooperation between Danish and Chinese entities on the field of further improving and innovating this type of online education is definitely not unthinkable.

But as with penetrating any market in China it is much easier said than done. One of the most common mistakes foreign companies make when strategizing on how to enter the Chinese market is to underestimate the massive differences there are between the two parts of the world. This both regarding national culture, business culture and differences within specific sectors. This applies to education as well. Regarding business culture it is

very hard to navigate the Chinese market on your own in terms of dialogue with authorities, obtaining permits, getting content approved, making the right agreements and making sure your product is suited for the Chinese market. Therefore a Chinese domestic partner is strongly recommended. In terms of the educational sectors the differences here are not to be ignored either. Whereas Denmark has long been known for encouraging creativity and independent thinking through our education system (from learning by playing in the low grades of elementary school to open assignments and case studies at the universities), the Chinese educational system is not as developed on this point, and many educational settings and methods are still very formal and in some ways conservative. It should be mentioned that China is aware of this and newer teaching methods that foster independent thinking is starting to spread, but none the less there are still significant gaps between the educational styles that must not be overlooked. Customization of products, content and solutions in order to suit a foreign market is more substantial and of higher importance in China than in most other countries, again emphasizing the importance of cooperation with a domestic partner who knows said market and industry. Introducing standardized solutions made for the western markets as is, will almost certainly fail.

With the continuing rapid development of China as both a nation and an economy, education plays a vital role in order to reach the country's targets. Done right there are considerable opportunities for cooperation to be made from this, for Danish companies within the online education. The entry barriers and hurdles on the way there are, however, not to be neglected, and the intercultural gaps are to be considered.

INTRODUCTION

Online Education – a revolution with different facets

Online education goes by many names: Distance learning, e-learning and online learning. It is often described as being a revolution, as a turning point on the global educational sphere. In this report, the term “online education” is used broadly and it refers to the technological separation of teacher and student. Furthermore, online education refers to many different aspects of gaining knowledge and is spread all over and beyond the classic understanding of the school system.

In both China and Denmark online education is widely accepted as being a part of the educational agenda, but it is an area under development and there are many possibilities for innovating and international collaboration regarding future online education activities. For Danish companies who are specialised in online education and wish to expand their business, China could be a potential market for them to enter. This due to the fact that here are many content providers in Denmark offering innovative solutions that could be interesting to the Chinese market especially in the areas of vocational skill development and corporate online education.

One of the main subjects of focus within online education in both Denmark and China are ‘Massive Online Open Courses’ also called MOOCs, which is an emerging version of online education.¹ Many other higher education institutions have picked up the concept, and since 2012 the concept of MOOCs have expanded to the global scene and has in some areas revolutionised the way of perceiving education nationally and globally.

MOOCs are online, open and free. There are no entry-level demands and no limitations on participant numbers, which means that citizens from all over world have access to knowledge and education from their own computer, which they before had to pay huge sums for through tuition fees. Online Education is however much more than only MOOCs. Online Education is present in all educational levels, at companies, at NGO’s, and many providers specialize themselves in how to create platforms targeted the stakeholders.

Another online education form that is gaining traction the two countries is the “Flipped Classroom” way of teaching. This turns the traditional method of collective classroom teaching followed by individual homework outside the classroom upside down, and instead students watch lectures online individually (possibly with online discussion attached), and then meet up in the classroom to do tasks and assignments related to what they have studied online, with a teacher or instructor physically present.

The main focus of this report is the higher educational area and companies’ use of online education. Furthermore, this report will identify some of the needs and interests from the Chinese side within online education, related to the end-user’s demands (e.g. students). Furthermore some opportunities for Danish stakeholders will be outlined in order for higher education institutions, content providers, and other companies within online education to promote growth and innovation in China.

Apart from this, the Danish market of companies who provide content and technology for online education will briefly be outlined and their market challenges and opportunities described.

Finally, this report on online education may serve as input to the potential for cooperation on online education between Danish and Chinese Higher Education Institutions and companies. Furthermore, the Sino-Danish University Centre for Education and Research in Beijing (SDC) will be included in this report, as a case of the usage of online education.

ONLINE EDUCATION IN CHINA

Government policies to improve equality and quality of education

Education is high on the political agenda in China. By 2012, China was spending 4 percent of GDP on education². Li Keqiang, Premier of the State, stated in 2014 that China will give high priority to developing education and making it more equitable. Through years of efforts, China has made school education more available especially in the central and western part of China. But how to improve the quality of education is still a challenge and is therefore a main focus for the Chinese government.

In order to achieve equal access to education, the development of education informatization has been addressed in China's 12th Five-Year Plan (2011-2015). In November 2014 the Ministry of Education (MOE) together with four other ministries issued a policy aiming at full coverage of internet in all middle and primary schools in China by 2015.³ According to "*Ten-Year Development Plan for Education Informatization*" the expenditure on education informatization should be no less than 8 percent of the total government expenditure on education.⁴ Furthermore, various government support policies has led to large-scale learning technology deployments in the primary and middle schools and general content digitization efforts in the various school systems.

Technology not only changes the traditional understanding of education being conducted in a physical place; the school building. It also creates the opportunity for improving the quality of education and enables education-resources to be shared across the country. Currently, China struggle with the fact that the best education resources of outstanding teachers are mostly concentrated in more developed cities like Beijing and Shanghai. The development of ICT potentially makes it possible to share the education resources effectively to the central and western regions, and also provides business opportunities to technology providers. Shanghai K6KT Information Technology Co., Ltd is one example of a company providing solutions to enable schools to access high quality education resources from other schools. A more detailed case study of this company is also included in this report.

Concepts such as Flipped Classroom, Online Class and Teachers Online makes it possible to break through the constraints of time and space in the traditional classrooms, and provide innovative learning methods for ensuring education of high quality across schools within different provinces. As the Chinese education system is unique and has its own features, international companies that are interested in tapping into the Chinese education system need to have a local partner who understands the system and would be able to get different approvals from different authorities.

MOOCs – in Higher Education Institutions in China

The Chinese Ministry of Education has also noticed the global rise of MOOCs. They have encouraged the higher education institutes in China to establish MOOCs that suit the Chinese market and has set up the following task in relation to online education ⁵:

- Establish a number of high quality online open courses
- Certify a number of National Excellent Online Open Courses
Certify more than 1000 National Excellent Online Open Courses by the end of 2017, and more than 3000 by the end of 2020.
- Establish online open course public service platform
Encourage the use of Big Data for online courses to provide comprehensive and individual services to higher education teachers/students and public users.
- Push forward the use of online open courses
Encourage the innovation on course sharing within and across schools. While serving the public interest, it is also encouraged to explore the commercial potential.
- Regulate implementation of foreign open online courses in China and vice versa
- Strengthen the training for teachers and technical staff on the open online education
- Push forward the innovation on credit recognition and management system

A couple of open online course platforms have been established by leading universities in China. For instance XuetangX ⁶ was established by Tsinghua University. This platform was officially online in October 2013. Half a year later, in April 2014, Shanghai Jiao Tong University launched Best University Online.⁷

It is clear that Chinese government wish to improve the equality and quality of education in China. This also leads to business opportunities to the private sector.

Shanghai Jiao Tong University	Tsinghua University
<ul style="list-style-type: none">•The number of users studying for credit exceeds 30,000•Over 20 courses available•Collaborating with 40 universities	<ul style="list-style-type: none">•Over 5.7 million users selected the courses online•69 courses available•Collaborating with 62 partners

Sources:

<http://news.tsinghua.edu.cn/publish/news/4205/2014/20141010160425586568431/20141010160425586568431.html> ,
www.news.sjtu.edu.cn/info/1003/373037.htm (both Chinese)

Market overview of the private sector

Not only the public sector, but also the private sector of online education is booming in China. The growing amount of private equity going to the online education market indicates that investors expect the market to grow for the next 3-5 years. According to “2014 Sobu Education Industry White Paper”⁸ the total amount of investments in the online education sector exceeded 4.4 billion RMB (approximately 4 billion DKK) in 2014. The list of investment projects is attached in the appendix.

As a consequence of this, Chinese internet giants Baidu, Alibaba and Tencent (often referred to as BAT) have all entered into the online education market:

Baidu, the largest search engine in China, launched *Baidu Education*⁹ in 2013, which is a platform gathering information on the topics of Learning, Working, Living, Going Abroad, and Online Courses. In 2014, Baidu also acquired the Chinese online education platform Chuanke.com and invested 10.6 million USD (approximately 71.76 million DKK) in so-called *Smart Study* with a main focus on providing online language training courses.

Taobao, an online marketplace owned by Alibaba, launched *Tongxue*¹⁰ (which means classmate) in late 2013, enabling users and content providers to buy and sell online courses like normal e-commerce transactions. In February 2014, Alibaba alongside SBI Group and Temasek Holdings invested 100 million USD (approximately 677 million DKK) into TutorGroup which is one of the largest private online English language learning providers.

Tencent, the largest mass media company in China, launched *Tencent Classroom*¹¹ in April 2014, based on its live broadcasting capability, to realize online teaching and instant interactive learning. In July 2014 Tencent announced a joint venture with New Oriental Education which is a private leading language training institute.

The report “*2013-2018 China Self-paced eLearning Market*”¹² was published by Ambient Insight reports. In this report it is stated that ‘China will be the top buying country for Self-paced eLearning in Asia throughout the forecast period. The five-year Compounded Annual Growth Rate (CAGR) is 12.2 percent. Revenue reached 3.3 billion USD in 2013 and is expected to spike to 5.9 billion USD (approximately 40 billion DKK) by 2018.

According to the report “*2013-2014 China Online Education Industry Research Report*”¹³ that was conducted by iResearch, China reached 67 million online education users in 2013, with an annual increase of 13.8 percent, and it was estimated that the number of online education users would continue to grow to approximately 15 percent in the next few years, and reach 120 million in 2017.

The steady expansion of Chinese internet users provides a stable basis and developing space for a steady increase of number of online education users. And as a result of the rapid increase in the number of online education products on the Chinese market, and the differentiated user experience enabled by the internet technology, more and more users have been attracted to online education.

Online education in China now spans the entire spectrum of education and training including preschool, K-12, higher education, vocational and adult education, professional training, employee training and language training. The main drivers for the market growth are currently the segments of K-12, language training, and vocational training. These segments will be described in the following sections.

Online Education - K-12 Segment

In the Chinese education system, K-12 education directly determines whether students can be accepted at the prestigious universities. It contains the grade sum of primary and secondary education incl. kindergarten through 12th. Thus, this is the part of the education system that attracts the most attention from students and their parents. K-12 after school tutoring has a long history in China. Although the government for years has been trying to reform the education system, K-12 education is still highly exam/score oriented, and this is also why one of the biggest challenges for online education is to compete with the traditional face-to-face K-12 tutoring institutes.

In China, parents pay for the education to their child(ren) and tend to prioritize to do large investments on securing the best possible education. Hence, they also want to ensure that their child(ren) succeed during K-12, and therefore they also buy extracurricular activities and mentoring services.

Several large traditional face-to-face K12 tutoring institutes have developed and linked their offline training with online products that are not only PC based, but also moving into mobile based tutoring (mobile phone/tablets) and apps for smart-TVs. This development is also seen as being the future direction for completing the closed loop among teachers, students and parents, i.e. learning online, communicate with teachers offline/online, and providing feedback to parents. Big Data technology is also expected to be applied to collecting information about the students' learning habits and status; highlighting the areas teachers need to focus on to improve the efficiency of their teaching and the students learning progress.

Online Education

Language training segment

According to the report “2013-2018 China Self-paced eLearning Market”¹⁴ published by Ambient Insight, language learning in China is a 4.8 billion USD (approximately 32 billion DKK) industry. There are over 50,000 English language schools in China and over 90 percent are private institutes (companies).

Online language training in China primarily falls into the following categories:

- CET (National College English Test) - exam preparation
- International English tests required for studying abroad (IELTS, TOEFL, GRE etc.)
- Oral English
- English for children
- Other languages (Japanese, Korean, French etc.)

Similar to the K-12, traditional private language training institutes have been moving online and also mobile. The company New Oriental Education is initially well-known for its English training, and now it is one of the largest ‘private educational services’ provider in China. The company launched Koolearn in 2000 and by June 2013 the company had over 10 million registered users.¹⁵

Online Education - Vocational training segment

It is common in China that employees actively study for exams to obtain various professional certificates e.g. Chartered Certified Accountant, and pay for such training by themselves in order to improve their employability. Both traditional vocational training institutes and online vocational training in China are certificate/exam oriented.

In the early stage of online education within the vocational training segment, IT related courses were the main focus area. However, within the recent years, there are several non-IT related areas such as accounting and medical education programs that have arisen and become popular.

Comparing with offline training courses, online vocational training is more efficient and normally cheaper. The users of vocational training tend to have a clear goal and are seen as active users. The buying power and willingness to pay of the vocational training users are generally also higher.

General trend in China of online education in the private sector

- The trend of moving from PC based to mobile based (mobile phone, tablet, TV) is increasing

- The development of multimedia interaction technology enables content providers to enhance the user experience. Gamification has been applied not only to products targeting kids, but also products for adults
- Parents are in some cases the clients who pay for the online education for their children, but they are not the end users. They should however definitely not be forgotten when discussing future online education. Companies need to pay attention to completing the closed loop among schools/teachers, students and parents with e.g. learning online, online/offline communication with teachers, and providing feedback to parents
- Big data will be widely used in online education to enable tailor-made courses to individuals based on their previous performance, and also provide feedback to teachers on the areas they need to focus on

ONLINE EDUCATION IN DENMARK

The Danish educational system is renowned for its particular teaching style that promotes independent thinking, creativity and innovation. Online education is an area that is still developing, and there are many opportunities within the field for future international collaboration.

Strategy on online education

The digital development in Denmark is a prioritized area and the Danish Government published the “Digitization strategies” in years 2001, 2004, 2007 and 2011. Focus of the strategies have been digitization of the society as a whole, but online education has also been identified as a key area since it that concerns the entire school system from pre-school to higher education.

To reach the goal of using more digital technology in the education system some initiatives have been taken. E.g. subsidies are given to digital teaching aids, digitalisation of exams, and enhancing the digital communication platforms at the universities.¹⁶

In 2011, the Danish government set aside 500 million DKK for enhancing the use of ICT in the school system from 2012 to 2015, and has since then been prolonged until 2017.¹⁷ Also, a fund of 40 million DKK is created for the use of digital teaching technology targeted at companies¹⁸.

Overall there is a wish to increase the use of digital technology throughout the education system, but the development is still on going and the institutions are responsible for how (much) and why they implement online education.

MOOCs in higher education institutions in Denmark

Currently, three Danish universities have created MOOCs on the American online platform Coursera.org which is led by Stanford University professors. Other prominent platforms on the market include EdX, Udacity, FutureLearn and Iversity.

Some of the universities might still stand idly due to the fact that MOOC’s demands a financial investment which yield will not be visible right away, while the courses are free.

Currently, the only way they can earn from the courses on short term is by certificates, which the online users can buy after completion of a course.

University of Copenhagen	Technical University of Copenhagen	Copenhagen Business School
<ul style="list-style-type: none"> • 100,000 active users, 11,000 have completed a course • Following courses are offered: Global Health, Philosophy of Søren Kirkegaard, Constitutional Fights in Muslim world, Bacteria and Chronic infections, Origins - Formation of the Universe, Solar System, Earth and Life • Five courses are waiting to be announced 	<ul style="list-style-type: none"> • The first course had 20,000 registered users • Following courses are offered: Molecular Evolution, Organic Solar Cells 	<ul style="list-style-type: none"> • 30,000 registered users • Following courses are offered: Social Entrepreneurship, Leadership in the 21 Century, Consumer Neuroscience & Neuromarketing

Source: <https://www.mm.dk/danske-universiteter-hopper-global-online-boelge>

Integrating MOOCs into traditional degree programs is currently a challenge¹⁹. At Copenhagen University, there are 100,000 active users, but only 11,000 have completed a course. This is a result of the fact that the courses are free. However, the platform Coursera.org has created a “signature track arrangement” where 30-100 dollars (approximately 203-677 DKK) are required pr. participant if he or she wants a certificate for an accomplished course. Coursera and Udacity (another online education platform) are also experimenting with job banks with which they establish contact between their talented students and companies who request their competences.

Online learning companies

There is an increase of Danish companies that goes from having free online education services to making it a line of business. And the potential for companies to sell digital learning technology is growing and the same goes for the export potential for those Danish companies that develop teaching technology, platforms and tools. There are however also challenges that the Danish companies are facing. Lately many local initiatives are taken by the municipalities and teachers regarding the use of digital learning technology. This has led to an overall weak demand for both content and technology companies, which makes it difficult for the companies to generate healthy finances. According to the Confederation of Danish Industry, this weak demand has caused that the suppliers of the digital technology are facing a general barrier of development as the companies have difficulties meeting the international demand.

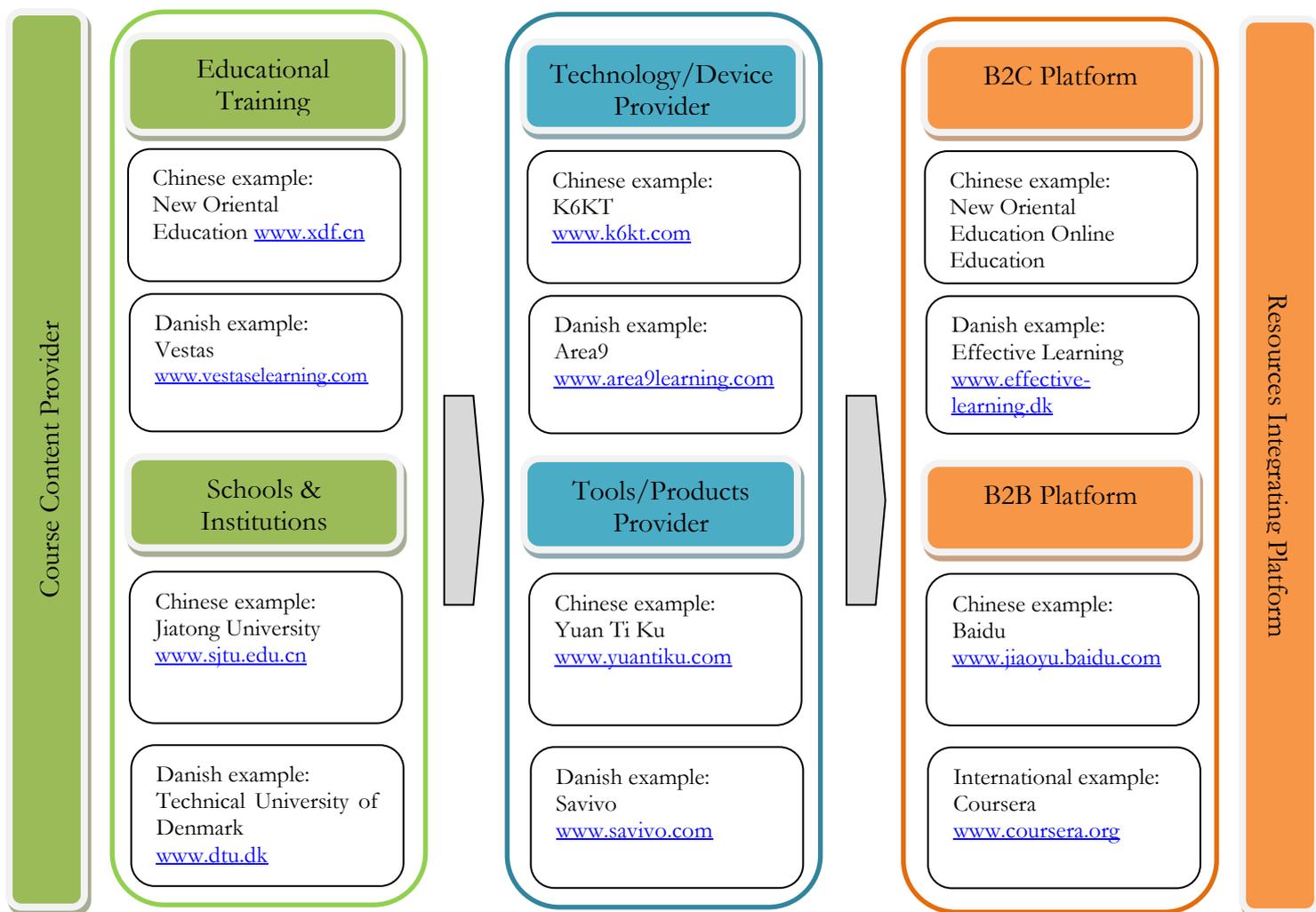
Due to the low volume of the Danish market of digital learning technology, the challenge for the Danish suppliers of online education is currently that there is no well-functioning domestic market to test and develop the products for future international expansion.

STAKEHOLDERS

There are three main stakeholders of online education, namely:

- Course Content Provider (in green)
- Tech Provider (in blue)
- Resources Integrating Platform (in orange)

Three stakeholders are illustrated in the chart below followed by further explanation.



Examples in the Chinese and Danish context are provided in each category

Course Content Providers consist of private educational training institutes, public schools and institutions that provide course content including digital resources like text, pictures, audios, and videos.

Tech providers are companies providing:

- Equipment/devices and technical solutions for online education, such as teaching application devices, flipped class devices, teaching synchronization, cloud computing, and exam service etc. K6KT is an example of a company providing technology and

- solution to enable schools to realize the pedagogical concept Flipped Classroom and the sharing of teaching resources
- Products and technology services, such as online video/audio tools, translating tools and note tools

Resources Integrating Platforms are platforms that collect content from all sources and establish a bridge between users and educational institutions. The platform could be B2C such as New Oriental Education. Teachers from New Oriental Education produce online course content which will be available on New Oriental Online Education platform for their fee-paying online users. The platform could also be B2B, i.e. collecting online course content developed by different schools/institutes. For example, Baidu Education collects all kinds of online course content in different areas from both public school such as Jiao Tong University, and also many private training institutes.

In general, Course Content Providers (both private and public sector) use the tools and/or technology services provided by Tech Providers to establish online course content, which will be then distributed on the Resources Integrating Platform (B2C or B2B). For example, Jiao Tong University as a course content provider is working with Wisedu Information Technology Co., Ltd, which is a tech provider to produce online education courses that are available on different platforms, i.e. Best University Online²⁰, which is launched by Jiao Tong University, and also on Baidu Education.

POSSIBLE COLLABORATION OPPORTUNITIES

As emphasized earlier on, online education in China and Denmark is part of the future both politically and market-wise, and international collaboration opportunities arise with this development²¹. In spite of the cultural differences regarding the respective education systems and learning traditions, there are opportunities for establishing collaboration between Chinese and Danish counterparts.

Danish Course Content Providers and Chinese Course Content Providers

As mentioned by Jiang Zhibin, Ph.D and Chair Professor from Shanghai Jiao Tong University's MOOC Development Office, Jiao Tong University is very interested in creating international partnerships and encourages foreign universities to be present at the Chinese MOOC platform. Making online courses, developed by Danish higher education institutions available on Chinese MOOCs, can benefit the institutions as a whole, as it creates a branding value through the exposure of the course content provided by the university, and also gives exposure of the professor who gives the lecture.

Joint research could also be developed among Danish and Chinese universities within Technology for preventing cheating during online exams and the use of Big Data technology into online education

Danish Course Content Providers, Danish Tech Providers and Chinese Course Content Providers

As an example of this type of jointly collaboration, Technical University of Denmark (DTU) currently collaborates with EuroTech and a university in Korea, and they plan to

share lectures by the use of EdTech. This model could very well be explored in China as well.

Sino Danish University Centre (SDC) and the Danish company Tutee serves as another example of how the higher education area and a company providing online education software can establish a beneficial collaboration in China. Tutee is a company that develops software solutions for English classes. During the fall of 2015, Tutee will do a pilot project in collaboration with SDC where they test a “Online Business English Course” on a group of Chinese SDC-students.

They will provide the students with English teachers from Denmark and through one-to-one intensive online course where they will do practical real time training in business English. The Chinese students supplement their studies at SDC will eventually receive a diploma for accomplished course in “Business English”.

The students who participate in the course commit to do an evaluation of the course and the technology. Hence, with the help of SDC, Tutee can test their product of potential Chinese users and gain knowledge from the Chinese Market.

Through this collaboration, SDC can explore the opportunities for strengthening the students’ language proficiencies through EdTech, and additionally Tutee can explore their opportunity for expanding their business to China. Although this is a singular occurrence of collaboration it might serve as inspiration for the various kinds of Danish EdTech companies that need a market with a certain level demand to test their product.

Danish Tech Providers and Chinese stakeholders

The use of Big Data technology for online education has been emphasised and identified as one of the market trend in China. Chinese Tech Providers and/or Recourses Integrating Platform would be interested in working with companies specialize in big data technology for online education to improve their existing products, and/or jointly develop solution for the Chinese market.

CASE STUDIES

Case 1

DTU – Online Education is a crucial part of the sub-policy for e-learning

DTU can be seen as one of the front-runners among the Danish universities regarding the use of and development of online learning activities. In the online education strategy of DTU, it is an overall goal that information-technological tools are integrated in education programs. DTU uses various forms of online learning activities, which are related to internal use for their students. DTU also does MOOCs and collaborative activities that are aimed at the global scene, where everybody can participate, due to the fact that an online DTU course is free. DTU is also offering a verified certificate on their MOOC’s through Coursera for 49\$.

DTU strives to achieve four overall goals for using online education:

1. To ensure that the students work more optimal and increase learning
2. To meet the students' different prerequisites
3. To support international collaboration regarding teaching and 'team teaching'
4. To ensure development of education and teaching

Examples of online education activities:

Pedagogical concepts such as 'blended learning' and 'flipped classroom' serve as a basis for how the online education activities are used at DTU, although it differs from teacher to teacher how it is used in practice. For several years there has been a great use of online courses for internal use only. E.g. an introduction course that is obligatory before starting at the university. DTU has with help from students created a so-called video-lab which is a studio where they design and edit the courses. The courses are 'tested' on campus before they are recorded and edited. This is done with help from students and IT-technicians.

The main opportunity for DTU for commercializing their courses is through professional training. So far they have no plans of commercializing their courses by targeting the university level. However, there are opportunities of financing the courses partly by providing the students with extra services like participation in webinars, and contact with the teacher. The institute DTU Wind Energy has currently developed a course targeted at professional training about wind-power, which was commercialised²². Online professional training courses could also be tailor made for individual companies. There are many Danish companies and endless other international companies in China. Some of them have already implemented online training for their internal training, i.e. communication and leadership courses. Danish content providers could potentially work with those international companies in China to provide better online education courses.

Case 2

Jiao Tong University and the online education platform 'Best Online Courses in China'

The information behind this case is collected through an interview with Zhibin Jiang, Ph.D. and Chair Professor from Shanghai Jiao Tong University (SJTU), MOOC Development Office.

For SJTU, the first step towards enhancing the online education in China in general was to cooperate with Coursera in USA and Future Learn in UK. The second step was to establish a new platform, which is now known as Best Online Courses in China. The platform was launched in April 2014 and SJTU has been cooperating with Xi'an Jiao Tong University, Chinese Science Academy, Harbin Institute of Technology and Xinzhu University in Taiwan making the courses available at the online education platform.

Jiao Tong University and online education – challenges and opportunities

So far 10,000 students have received credit for accomplishing a course at the online education platform, and 200,000 have taken a course. But only 10 percent of the students who took online MOOC in SJTU received credits afterwards.

The platform and the courses are mainly in Chinese, as the platform primarily targets mainland China, where not everyone has sufficient language proficiency to doing an entire course in English. Online education is a source for education for those parts of China that have limited access to education, and where the opportunity for online education is very valuable. Apart from that, students in the large cities use the opportunity to gain extracurricular activities.

Furthermore, the need for online education is stressed by the fact that only 58 percent of the candidates from the university get a job. Thus, there is a need for filling in the gap between what the university gives the students and what the employees demand. It is SJTU's hope that online education could help raise this number, and more students could be employed after graduating by the use of MOOCs. It is a challenge to get all the universities to credit the courses though. The challenge is to combine the online and offline attendance, and it is an issue that is discussed among the universities. So far there is no viable solution for examination online, so exams should be organised locally, where the students are physically present, and that is a difficult task in China. The universities are striving towards finding a setup where exams are accessible online, so in the future more students can get credit for the courses they attended.

Lack of sustainable business model

SJTU's MOOC program is so far funded by the universities and by financial support from different companies (the industry). During the past two years, SJTU has invested 10-15 million RMB (approximately 9-13.6 million DKK) in the project. They have been spent on MOOC course development, platform establishment and operation. Finding a suitable business model is a general challenge, as the courses currently are totally open and free for everyone. In the future it is foreseen that the students will have to pay for their certificate.

Future prospects

Jiao Tong have developed their own technology for the technical development of the courses, and furthermore have programmers hired to code and take care of the webpage. According to the university, the highly developed technology that can improve the quality of MOOCs in regards to making exams online and preventing students from cheating in exams.

Case 3

Shanghai K6KT Information Technology Co., Ltd and its Education Resource Cloud Platform

This case serves as an example of a Chinese information technology company, who provides solutions to the current needs within online education in China. The information behind this case is collected through an interview with Hequn Qian, COO of Shanghai K6KT Information Technology Co., Ltd (K6KT).

K6KT provides a product named the Education Resource Cloud Platform targeting K-12 schools. The platform is an integrated solution that enables:

- Ministry of Education to manage educational resources at different levels (provincial/municipal/district levels)

- Each school to manage the school, collect information on teachers' and students' performance, and share educational resources with other schools
- Teachers to use different applications to actualise the concept of Flipped Classroom
- Students, parents and teachers to communicate via a virtual community

Comparing to the other solutions available on the market, which normally targets individual teachers (i.e. B2C), K6KT's client is the Ministry of Education (i.e. B2B). Each school included (and thus their teachers and students) will be able to use the application as a part of their total solution. Furthermore the platform collects and stores relevant information about the different entities within the system (from performance on a provincial level down to specific class level) to evaluate and compare performance, and optimize resource sharing.

It is mentioned that operation is one of the key components for the success, as K6KT is not simply selling software, but providing an integrated total solution. They keep close contact with users at different levels, from ministry level and downwards to schools teachers, students and parents. This is done to obtain information about how they use the system in their daily work, to further develop and improve the user experience. Due to the education asymmetry, users in the first tier cities tend to have more advanced needs. K6KT consolidate common issues addressed by these more advanced users, develop new application updates, and push it to other less developed areas i.e. central and west part of China where there is a lack of educational resources.

K6KT has not collaborated with any foreign companies or organizations yet, but they are open to different collaborating opportunities. The use of 'Big Data' is also mentioned to be the future trend for online education, and it is also one of the areas K6KT is looking into.

CONCLUSION

As various the field of online education is, so are the opportunities to gain momentum of the current global rapid development. Overall, the movement from national to global level is appending, but there are for sure many opportunities for international collaboration that are waiting to be taken advantage of.

The main focus of this report has been especially the higher education institution and companies' use of online education. At the higher education institutions a wide range of activities has been identified at both the Danish and Chinese side. The purpose of the use of online education are different both looking at the universities strategies and the challenges that the two countries face. But with the same ambition of developing teaching methods and ensuring quality in education, there are good possibilities for the institutions to collaborate in the future. The cases 1-2 in this report have been a concrete example of this.

In the investigation of the possibilities for Danish companies within online education moving into the Chinese market, some relevant areas were identified. E.g. Danish course content providers who wish to develop and expand their business can choose to work across the value chain, i.e. Danish course content providers could work with Chinese tech providers, to distribute online courses on a Chinese platform. Or Danish tech providers could provide innovative solutions to Chinese Course Content Providers. Also the case of

SDC and the Danish company Tutee underlines the possibility for cross sectoral collaboration – and collaboration across the value chain.

Finally, it is recommended in this report that Danish stakeholders identify and work with Chinese partners who understands Chinese online education and the Chinese market, to develop a solution that fits the Chinese market instead of simply copying the Danish model into China.

APPENDIX

Online Education Fund Raising Statistics in China in 2014 (till November 2014)				
Education Organization	Website	Amount (Ap., USD)	Time	Investment Segment
BabyTree	http://www.babytree.com/	24,165,000	Feb 2014	Early Child Education
Kaikeba	http://www.kaikeba.com/	20,000,000	Feb 2014	IT Education
TutorGroup	http://www.tutor-group.com/	100,000,000	Feb 2014	Foreign Language Education
17zuoye	http://www.17zuoye.com/	20,000,000	Feb 2014	K12 Education
ibeifeng	http://www.ibeifeng.com/	1,000,000+	Feb 2014	Vocational Education
100 Education	http://www.100jiaoyu.net/	161,100,000	Feb 2014	Foreign Language Education
cdeledu.com	http://www.cdeledu.com/	1,200,000,000	Feb 2014	Vocational Education
xueba100	http://www.xueba100.com/	5,000,000	Feb 2014	K12 Education
shsunedu.com	http://qg.shsunedu.com/	16,110,000+	Mar 2014	Vocational Education
ZhenpuEDU	http://www.zhenpuedu.com	10,000,000+	Mar 2014	K12 Education
Leyikao	http://www.leyikao.com/	3,222,000	Mar 2014	Vocational Education
Talk915	http://www.talk915.com/welcome.jsp	1,611,000+	Mar 2014	Foreign Language Education
Kuailexue	http://kuailexue.com/	5,000,000	Mar 2014	Foreign Language Education
Haowj	http://www.haowj.com/Newindex	161,100+	Mar 2014	Foreign Language Education
Paomianba	http://www.paomianba.com/	161,100+	Mar 2014	IT Education
ChaseFuture	http://www.chasefuture.com/zh/	400,000	Apr 2014	Studying abroad
Roborobo	http://www.robobo.cn/	1,611,000	Apr 2014	K12 Education
365HLS	http://www.365hls.com/	161,100+	Apr 2014	Platform
Liulishuo	http://www.liulishuo.com/	10,000,000+	Apr 2014	Foreign Language Education
5haoxue	http://www.5haoxue.net/	1,611,000+	May 2014	Vocational Education
ikaola	http://www.ikaola.mobi/	1,611,000+	Jun 2014	K12 Education
Xuexibao	http://www.xuexibao.cn/	3,000,000	Jun 2014	K12 Education
Ifclass	http://www.ifclass.com/	Unknown	Jun 2014	Foreign Language Education
KBTC	http://www.kbtc.com	100,000,000	Jun 2014	Early Child Education
Mind Education	http://www.ilizhi.com/portal.php	Unknown	Jun 2014	Studying abroad
microoh	http://old.microoh.com/	1,611,000+	Jun 2014	IT Education
Nahao Education	Closed	Unknown	Jun 2014	K12 Education
Mofun English	http://www.mofunenglish.com	1,000,000+	Jul 2014	Foreign Language Education
iyuba	http://www.iyuba.com/	1,611,000	Jul 2014	Foreign Language Education
17zuoye	http://www.17zuoye.com/	20,000,000	Jul 2014	K12 Education
Tibird	http://www.tibird.com/	161,100+	Jul 2014	K12 Education

Yuantiku	http://www.yuantiku.com/	15,000,000	Jul 2014	K12 Education
Wanxue Education	http://www.wanxue.cn/	10,000,000+	Jul 2014	Vocational Education
Haizixuesha	http://haizixuesha.com/	1,611,000+	Jul 2014	Platform
JHYX	http://www.jhyx.com.cn	1,611,000+	Jul 2014	Platform
ChineseSkill	http://www.chinese-skill.com/cs.html	161,100+	Aug 2014	Foreign Language Education
Juren Education	http://www.juren.com	Unknown	Aug 2014	K12 Education
Oriental Wealth	http://www.dfhe.com/Default.aspx	1,611,000+	Aug 2014	Vocational Education
iyuanzi	http://www.iyuanzi.com	Ap. 1,611,000	Aug 2014	Early Child Education
Xinzhitang	http://www.xinzhitang.com.cn/	7,740,000	Aug 2014	Early Child Education
sxteach	http://www.sxteach.com	30,000,000	Aug 2014	IT Education
Chuanke	http://www.chuanke.com	30,000,000	Aug 2014	Platform
Samrt Study	http://www.smartstudy.com	10,600,000	Sep 2014	Studying abroad
Shiyanlou	https://www.shiyanlou.com/	161,100+	Sep 2014	IT Education
Jikexueyuan	http://www.jikexueyuan.com	22,000,000	Sep 2014	IT Education
Sharlpark	http://www.sharkpark.cn/	1,611,000+	Oct 2014	K12 Education
51TALK	http://www.51talk.com/	55,000,000	Oct 2014	Foreign Language Education
51liucheng	http://www.51liucheng.com	Unknown	Nov 2014	Studying abroad
Source:	Sohu Education White Paper 2014			learning.sohu.com/20141202/n406594224_9.shtml

REFERENCES

- 1 Sandeen, C. (2013). Integrating MOOCs into traditional higher education - the emerging MOOC 3.0 era. The magazine of higher learning, 34-39.
- 2 http://news.xinhuanet.com/english/china/2013-05/08/c_132367942.htm
- 3 http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/s3342/201412/xxgk_179124.html (in Chinese)
- 4 http://industry.chinaventure.com.cn/20/97/14249332397_all.shtml (in Chinese)
- 5 <http://www.moe.edu.cn/publicfiles/business/htmlfiles/moe/s7056/201504/186490.html> (in Chinese)
- 6 <http://www.xuetangx.com/> (in Chinese)
- 7 <http://www.cnmooc.org/home/index.mooc>
- 8 <http://learning.sohu.com/s2014/book2014/> (in Chinese)
- 9 <http://jiaoyu.baidu.com/> (in Chinese)
- 10 <http://xue.taobao.com/> (in Chinese)
- 11 <http://ke.qq.com/> (in Chinese)
- 12 <http://www.ambientinsight.com/Resources/Documents/AmbientInsight-2013-2018-Asia-Self-paced-eLearning-Market-Executive-Overview.pdf>
- 13 <http://service.iresearch.cn/education/20140324/229060.shtml> (in Chinese)
- 14 <http://www.ambientinsight.com/Resources/Documents/AmbientInsight-2013-2018-Asia-Self-paced-eLearning-Market-Executive-Overview.pdf>
- 15 <http://www.koolearn.com/> (in Chinese)
- 16 Regeringen. (2011). The digital path to future welfare - eGOVERNMENT STRATEGY 2011-2015. Regeringen. Copenhagen: Rosendahls-Schultz Grafisk.
- 17 http://uvm.dk/Aktuelt/~/_UVM-DK/Content/News/Udd/Folke/2015/April/150408-8-millioner-kroner-er-fordelt-til-nye-innovative-digitale-laeremidler
- 18 <https://www.folkeskolen.dk/561329/otte-millioner-kroner-uddelt-til-udvikling-af-digitale-laeremidler>
- 19 Sandeen, C. (2013). Integrating MOOCs into traditional higher education - the emerging MOOC 3.0 era. The magazine of higher learning, 34-39.

20 <http://www.cnmooc.org/home/index.mooc>

21 <http://www.theguardian.com/universitychallenge/web-based-learning>

22 <http://www.wasp.dk/Calendar/2015/09/WASP-e-learning-course?id=3aac3796-d67b-4d82-a5b7-005318939085>