

University of the Future

Abdul Rahman bin Ahmad Dahlan, Ahmed Shihab Ahmed, Li Yao

Abstract— Future is a beautiful word with unlimited imaginations. We need to be reality regardless how many fancy ideas we have about future. At the contemporary age, we experience changes every single day, so as our universities. By deploying the relationship among academic, industry, and government, it formed an emergent entrepreneurial paradigm in which the university plays an important role in technological innovation. In this paper, we are going to apply our fruitful ideas and concepts about the University of Future based on survey, interviews and two types of analytical tools which are Business Model Canvas and Value Proposition Design to conduct an ideal business model for our university of future. Base on the application of different tools and methodology, we found out that the University of Future Needs to be innovative, flexible, and value-added as well as advanced technology utilities. As the data and information are collected in limited basis, the finding might not be comprehensive in certain extent.

Index Terms— University of future, Business Model Canvas, Value Proposition Design, global mobility, higher education, integration, cost

I. INTRODUCTION

Higher education is under pressure to meet greater expectations, whether for student numbers, educational preparation, work-force needs, or economic development. Meanwhile, the resources available are likely to decline. New models, an intense focus on the student experience, and a drive for innovation and entrepreneurship will ensure that higher education continues to meet society's needs. Information technology supports virtually every aspect of higher education, including finances, learning, research, security, and sustainability, and IT professionals need to understand the range of problems their institutions face so they apply IT where it brings greatest value. Creating this future will require collaboration across organizational and national boundaries, bringing together the collective intelligence of people from backgrounds including education, corporations, and government [1], [8], [9].

Higher education's purpose is to equip students for success in life in the workplace, in communities, and in their personal

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lives. While this purpose may have remained constant for centuries, the world around colleges and universities is undergoing significant change. With colleges and universities so well known for their traditions, emerging changes might escape notice. The campus, the library, the refereed journal article, the classroom, and the traditional-age student may be common features of higher education yet might not adequately describe higher education's future. Consider a few changes already evident [1], [11].

□ Formal, traditional boundaries are becoming more permeable and porous. There has been a rise in interdisciplinary fields (e.g., nanotechnology, bioethics). Leading faculty is recruited worldwide. The physical constraints on when and where students participate in education are being removed through open and online education, as well as competency- or experience-based credentialing.

□ The classroom is no longer limited to a three-dimensional space for the dissemination of knowledge. Students have virtually limitless access to information, faculty, tutors, and each other. Digital libraries and repositories make materials instantly accessible. And, learning is increasingly facilitated by exploration, interaction, and problem solving. Thanks to large data sets and collections, students at small or remote campuses have access to large-scale resources.

□ The library is not defined as a building for books. Many disciplines rely almost exclusively on online resources, whether books, journals, data, or artifacts. Students may consider the library more a social place than a site for the reference desk or physical books. And size of collections becomes less critical in an era when Google and other large-scale digitization projects make it possible for any institution to have access to millions of books.

□ The digital environment is a □ place □ for social interaction and community exchange. Although the value of the campus as a physical place continues, an increasing number of interactions are online, including the emergence of virtual, multinational research organizations.

□ Scholarship and research are becoming more □ conversational. □ There is less reliance on communication through formal publications; an increasing number of exchanges occur through e-mail, preprints, and monitored blogs. The journal article may continue to serve as a means of credentialing authors for the purposes of promotion and tenure, whereas the scholars' contributions to a field are posted elsewhere.

□ Digital technology and the unprecedented scale of data, as well as the nearly limitless ability to reconstitute it, have altered the conduct of traditional research and scholarship. Theory and experimentation have been augmented with computation, involving modelling, simulations, visualization, and so on.

□ The more traditional model of a university or college providing most of its services physically on (or near) a

campus is changing. More and more services and programs originate off-site, sometimes shared, distributed, or aggregated by other colleges and universities or outsourced agencies.

The vision of our future university is to be a university of choice for outstanding students, faculty and staff from all over the world. We aspire to be the university that best integrates outstanding scholarship, inspired teaching and real-life involvement. [2]. The University enriches its students and society by creating knowledge, fostering academic and experiential learning and serving communities in all over the world. We build on the strength and diversity of our people students, faculty, staff and alumni to strengthen our position among the best universities in the world, recognized for excellence in teaching, learning, research, artistic creativity, professional practice and service to the community [2].

II. PROBLEM STATEMENT

A large number of students are enrolled worldwide, especially in those developing countries. As the demographic changes, future big youth populations are the major source of fresh enrolment for universities. Future students has different desires compared with current ones as living style is keep on changing. Most of the living style is involved with high technology applications. Rising competition from various new universities are giving pressures as their uniqueness are attracting students' attention. As the rival external environment, universities are calling for change and reshape with what they are doing now. This paper attempts to create a conceptual business model for university of future.

III. METHDOLOGY

By applying Business Model Canvas (BMC) and Value Proposition Design (VPD) those two analytic tools it assists us to formulate, design, analyse and finalize a conceptual framework. Business Model Canvas (BMC) describes how the organization creates, delivers, and captures its value by dividing the entire business into 9 building blocks [3]. Value Proposition Design is a plug-in tool to the Business Model Canvas which creates value for customers [4]. Survey and interview were done with local and foreign students as well as academic staffs and lecturers in order to gain more information and opinions about how those internal participators predict about the University of Future.

IV. LITERATURE REVIEW

• Global Mobility

According to the Parthenon Group education consultancy, 2.5 million students all over the world are studying overseas instead of their home country, which creating a worth \$30 billion a year for the US, the UK, Canada and Australia those top academic western countries in year 2014 [5]. This is no doubt a huge revenue for both university and government for those countries. However, this Global Mobility is keep on growing due to demographic changes. According to "Long-Term Global Demographic Trends" report (2001) that by 2020, the world population will reach to 1.5 billion. Most of the population grew in Asia and Africa [6].

Besides this glancing trend, the youth bulges need to take into consideration. There are different studies mentioned this significant trend which most of the developing nations having the largest youth populations, such as China, India, Pakistan, Afghanistan, Saudi Arabia, Yemen, and Iraq. They are the major driving force for higher education industry, particularly, China. As Financial Times forecast this trend, the population of Chinese students study abroad is anticipated to increase 15 per cent per year and maintain this growth until 2018 [5]. In a word, the upcoming economy is somehow terminated strongly by demographic changes [7].

• Intense Competition

Since earlier 1980's, people in China start to go to overseas for higher education, such as USA, UK, Canada, and Australia. Start from that period, the percentage of studying abroad is growing with a robust growth. Followed by a rapid growing of student agency industry. Now still, the trend is still keep on growing and maintain its leading position. Under such a great opportunities for those targeted top academic higher education providers of those leading western countries, they actually cannot be neglect the potential and rising competitions. The competition is not only by the rising new entrants to higher education industry but also those who are adopt the progressive technology to their education, such as online learning universities.

English as the world's lingua franca was providing the competitive advantage for those leading western universities which native language is English. Students came far away from home country to get the essence of language learning for both living and studying life. However, this competitive advantage is no more being optimistic as there are fresh new competitors for instance: India. India is entering English course market by enhancing their quality of learning. Furthermore, other European countries, especially in Nordic countries and Holland attempted to take a share of the spoils as well [5].

• Cost is the driving force

Core cost is burdening university in certain extent which heavy administration cost, advertisement cost and technological cost are the major players. Overabundance of administration aligns with the traditional way of working process which makes the university spend a big amount on its daily operations. From a student who has intention to study in particular university, the administration works start to working on it. Consulting process, confirmation stage, enrolment, and various administration task involved throughout students' entire study period, at last the graduation, alumni related work which may involve a lot of staffs from different departments. Those operations taken place huge cost for university.

To compete with other universities, proper advertisement need to be applied which cost a big amount by different channels to publish. But those cost is consider necessity to spend with. As technology playing a key role in operation of a university, it's obviously that investment in technology infrastructure took a big percentage as a whole. It's crucial for university to find a way to lower the operation cost in order to compete with the rest.

• Disruptive Technologies

Technology development has changed our life entirely since it appears. Most of the time, the various changes occurred in various aspects of our life. It affects the universities in a same

way. Once you are left behind in terms of applying the timely technology, you are out of the game already. To keep up with the trend and maintain the competitiveness, universities need to be very cautious about any changes occurred in technology aspect. Younger generations, especially the future youth, they grow up with technologies, as such; universities should adapt their preference of learning style. Well covered Wi-Fi service, automate payment pattern, advanced technological classroom, and many other services and facilities that make ease their learning [12].

Beside those services and facilities adopted by technology, the learning manner also changed a lot. Online learning is no more something fancy or new-fangled. Its optional choice for those who unable to attend the class in physical classroom, else they are unable to pay for high cost of living abroad. Conducting the lecture by Real-time learning might be an ideal solution which benefits both students and university. From students' side, they are able to receive quality lecturing on a real-time basis. From universities' side, they can use in two flexible way, either launch this type of program for overseas students or they can hire those top ranking lecturers from other universities to strengthen its soft competitiveness.

• **Integration with industry (Tailor their learning)**

As the report found a large and growing urban population will somehow change the economy and many other aspects [6]. Higher Education is no more for minority instead of democratic. The universities should tailor itself to integrate with industry in order to ensure itself still standing in education industry.

Public University is integrated in offering wider range of the programs compared with those smaller private university or colleges. Based on Future is here report, the researchers found that the private higher education market made \$2.4 billion in Malaysia in 2012 [5]. Private sector is rising up with a strong tendency within education industry. Private higher education seeking for the minority student market which offered with the one that student actual needs and wants [10].

• **Outdated Courses and programs**

The Financial Times authors predicted that the conventional relationship between universities, students and national economies was calling for reshape which pressures each party [5]. As the above tendency discussed, change for universities already been put on the agenda. Hillman gave the description of new trend as "more students, more focus on teaching, a more international outlook, a more diverse range of providers and more collaboration on research" [5].

To be unique may help university to stand still in competition with others. As the current courses and programs are offered almost the same as one another, continuous updated technology, and changing preference of students are the factors that require the universities to change their outdated courses and programs. Except those basic courses and programs may remain the same, the rest should be follow the market trends in terms of course structure, textbook, and so on.

V. THE BUSINESS MODEL CANVAS

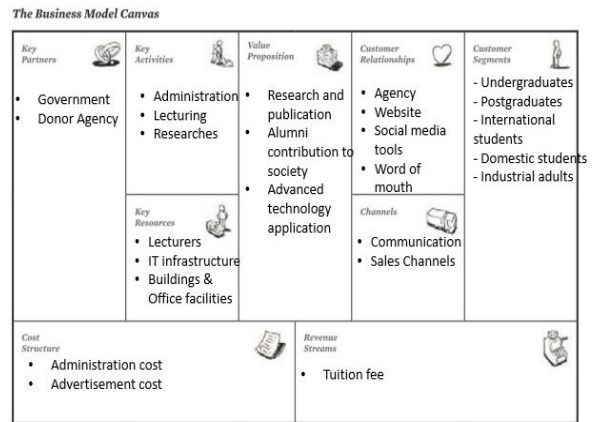


Figure 1. BMC model [Ernst & Young, The University of Future]

Key Partners

- Government

Government is one of the key partner of university as the big percentages of the fund from Government side. In reality, Government is aimed to promoting efficiency and equity in both the financing and delivery of public policy goals. Both financial and policy matters are interrelated and essential for government to do decision-makings, such as the amount of fund to which sector, which university, what outcome should the university be fulfilled and so on.

Besides the key funder of the university, Government is also the guider of both universities and industry. The relationship between government, universities and industry is essential significance in knowledge economy. The regulation of education by government surely has direct effects with the rest of the economy. Government is the disseminator of the structure of entire education industry in terms of portions & population of the professionals, graduates, technicians which are needed, the various types of sectors, the created knowledge on certain field is needed and so on. As those structures are clearly stated, here the related regulation comes along. Governmental regulation is the one to decide how many lawyers, doctors, engineers, teachers, etc. were needed as well as what kind of researches are required in the national interest. Resources could be allocated accordingly to universities who were trusted to deliver the right qualified individuals. (Mark William Johnson, Institute of Learning and Teaching, University of Liverpool)

University research is a key resource for knowledge creation. As this importance of university research, Government normally spends half of the cost to ensure the research is able to complete. By creating new knowledge and the base for new products and processes, universities normally use their research activities to educate students who able to become the potential scientists, teachers, and leaders in industry and in different government sectors. In a way, we can indicate the university research is a long-term, national investment for the future. Because of this common view, Government funding on research is crucial important for university, industry and government itself.

- Donor Agency

Donor Agency normally offers both technical and financial support when a developing country lacks of resources and finance for its education programs. For instance, the Global Partnership for Education (GPE) has supported 61 developing countries to try to make every child receives a quality based education for those who living in fragile and conflict-affected countries. However, donor agencies also support domestic universities and other education institutions. It might be those universities who lack of sufficient capital to carry out an excellent program or research. There are also donor activities hold because specific area for education, for instance: the annually donation for Islamic education.

To keep a good relationship with donor agency is crucial as university itself need to develop and keep competitive advantages needs sufficient capital and resources to perform all the activities.

- Business organizations participation

We heard that the societies are complaining about the graduates are not performing and contributing to organizations they worked for. To overcome this rising issue, the cooperation with business organization become urgent and crucial. Universities and organization are cooperating with each other and share resources on its own. Business organization is the role to invest or maybe owing part of shares of university by acquiring potential employee from graduates with specific requirement. By offering scholarship or support specific research to hire future employees in advanced. University is the one who supply human resources for business organization according to its criteria. By offering professional training, it's also a way to benefits for business partner for tailored training program.

Key Activities

- Administration

Efficient and effective administration can lead to different outcome of university performance. Basically, the updated technology is being utilized in daily administration activities in order to enhance the productivity as well as the ease of work. Each division and faculty performs accordingly as well as takes responsibility to be worked as one.

- Lecturing

Quality teaching is always the core intangible asset for a university. As a main channel to deliver knowledge, lecturing is crucial for a university to be unique as well as building up image among other universities. Absolute advanced technology plus excellent lecturing, learning is no more suffering for students instead it shifts into interests.

- Researches

Why research is so important for university? By using results of university research technology transfer has been done whereby the research findings are transferred from assumption to the private sector for potential development into products, processes or system. Products developed from university technology transfer can be touched wide range of fields where biotechnology, IT, psychological and

economical industry.

- Training & Workshop

Training workshop conducted for various needs of professionals, organization staffs, and team members may lead in skill development including communication, presentation and team work; problem solving and development of creative solutions. By delivering the proficiency of various skills and solutions, university is much trustier compared with those training centers whereas they can't compete with university in terms of groups of outstanding professionals and quality services.

Value Proposition

- Islamization

Islamization is coming to the world stage since last decade as Islamic finance and banking system are getting into people's sight. More and more university starts to try to touch Islamic finance field by launching degree programs. As the capitalism is leading still for current world, people experience the negative impacts gradually. By comparing with both capitalism and Islamization, the answer is obvious that Islamization is far more advanced and talent for entire society.

- Integration with social and Islamic knowledge (Ulu-Albab Model)

As urgent call from those collapses from current capitalism and so-called "human development" or "sustainable development" from western world leaders, it's time for integrated worldly knowledge and perfect Islamic knowledge comes into stage. Islamic intellectual and cultural values offered more wholesome alternatives for modern man and society because they were grounded in a worldview of the inherent harmony and complementarity between Divine revelation and human reason. Financial crisis, uneven development and poverty problems are calling for solutions where the solution needs to form from its deep capitalism foundation.

- Research and publication

Research and publication is a way to create knowledge and deliver those created knowledge to the public. Value of research and publication played as platforms for new initiatives, expand opportunities for multilateral collaboration, and accrue benefits not only to the university itself but also to the society.

- Alumni contribution to society

Based on the excellent quality knowledge delivery and training for graduates, they are carrying transferred knowledge based their own experience and understanding. As good performance and contribution to their organization and even society, they are building up university's image and reputation at the same time. Beside those perfect research findings, books produced by university, alumni are another type of tangible "product".

- Advanced technology application

To be differentiated with competitors in education industry, the degree and depth of IT application is key factor

for vital. People who live in global village, natural distance are no more a big issue or problem. Online learning, E-books, E-classroom are coming to education industry. To be competitive in this fast changing world, apply advanced technology makes huge difference in terms of learning, lecturing, and hands-on experience. It makes learning and lecturing in a different way which more attractive, alive, vivid and much more interesting [12].

Cost Structure

- Administration cost

Basically, administration part is the biggest portion among all the expenditures. Cost reduction or minimization is main focus for any organization, university as well. It doesn't mean to be lower the quality instead all the ingredients of running system should maintain the quality standard. The effectiveness of utilizing those assets, systems is a way to maximize the cost has been spent.

- Advertisement cost

Outstanding and excellent in domestic wide which is not enough for university to grow internationally. Proper and suitable advertising cost is necessary for acknowledge people in other part of the world there is such an excellent university exist. The percentage of the advertising cost should be reasonable as it's no sense for result less spending.

- Outsourcing cost

It might be very costly when outsourcing is occurred. As advanced technology applied in many aspects of university, the IT infrastructure needs to invest huge amount of money to implement. For installing the data in cloud, university needs to buy cloud service outside of the university. The server maybe located in US or other country. Anyway, it's costly to pay for this outsourcing service but on the other hand, it's saving expenditures on launching cloud server by university its own.

Revenue Streams

- Tuition fee

As university has different sources of students and industrial adults, university can charge tuition fees higher for international students than domestic students. Buy charging students differently according to their properties, it may help university to gain more profit for this differentiation.

- Training & Workshop revenue

Those industrial adults who taking training workshop programs can charge them higher compared with students. This is another main source of revenue. Normally, these one-time programs are short and efficient together with quality that deserves to pay high for it.

- Conferences

By conducting conferences, this is another resource of extra earnings for university. By analyzing the availability and facilities of university, conducting conference is not difficult for university to complete.

- Seminar/Conference Room rental

Most of the times, those seminar room and conference room are empty in university. In order to maximize the usage of those facilities, university can rent out to outsiders by charging them rentals.

VI. THE VALUE PROPOSITION CANVAS

Here we contribute one VPD model for International students before our survey has accomplished:

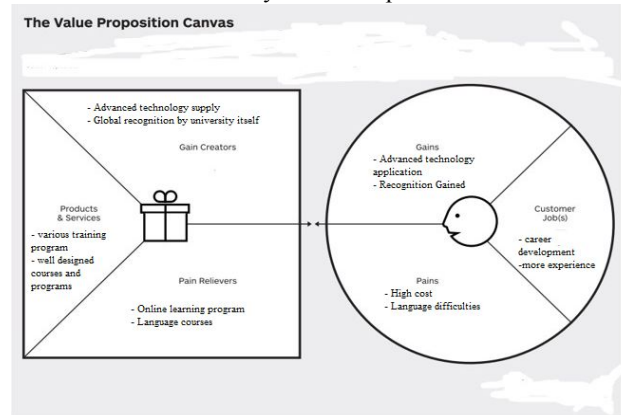


Figure 2. VPD model [Ernst & Young, The University of Future]

VII. ANALYSIS AND FINDING

The objectives of the survey were to:

- Define opinions towards issues and ideas related to desired higher education models.
- Discover student attitudes about what their university will and should look like in the future.

Based on our survey, we found that 85% out of the 20 international students expect being "educated" in a value-added way. Instead of the goal of gaining a degree certificate, the mindset needs to be created which emphasizes lifelong learning through the learning process. Compared with current outdated courses and programs, they are seeking for refresher courses, online mentoring and coaching, learning new skills as well as availability of free learning materials. Further, those desired courses and programs should be available in real-time to meet students' schedules instead of the institutions'. Business organizations also need to be involved more in the driven positions as they are future job creators and enablers. In a word, students expect the future university to be accessible, flexible, innovative, and job-focused. This is what they see in the near future.

Through the interview with 10 academic staffs who from different faculties in International Islamic University Malaysia, they mentioned that the world is changing so fast, as well as knowledge and education. So that they predicted the most of the universities needs to change their business model, particularly technology development is growing rapidly in this century. University will change fast due to those changes of technologies. Most of the interviewers have the consensus that they believe they have to reshape their current working style into simple and efficient way; the lecturers have to prepare for altering current way of lecturing by using white board shift to digital mode. Books might not be necessary in papers but E-books. Staffs and lecturers noticed the threats and they have the intention to be changed.

FINAL BUSINESS MODEL CANVAS

The Business Model Canvas

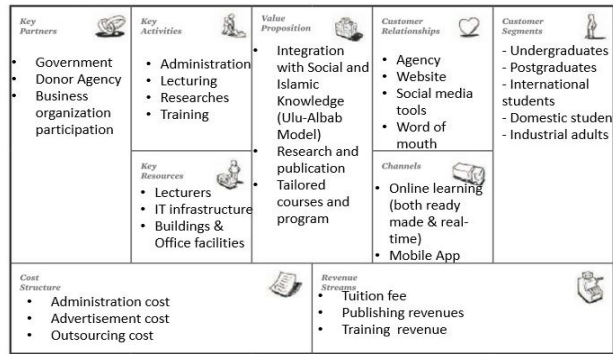


Figure 3. Final BMC model

THE DEVELOPED VALUE PROPOSITION CANVAS

Here we contribute one VPD model for International students after our survey has accomplished:

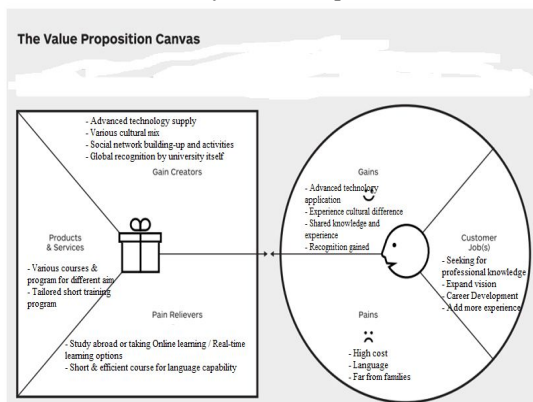


Figure 4. Final VPD model

CONCLUSION

In conclusion Universities should recruit more teaching-stream faculty, and concentrate on delivering higher quality undergraduate and postgraduate education. Universities should scale back undergraduate enrolments, and augment its role in graduate and professional education. Higher education is a great national asset. Its contribution to the economic and social well-being of the nation is of vital importance. Its research pushes back the frontiers of human knowledge and is the foundation of human progress. Its teaching educates and skills the nation for a knowledge-dominated age. It gives graduates both personal and intellectual fulfilment. Working with business, it powers the economy, and its graduates are crucial to the public services.

REFERENCES

[1] Caudit, Jisc, Surf, and Educause. (2010). "The Future of Higher Education: Beyond the Campus," white paper, January, <http://www.educause.edu/library/PUB9008>.
 [2] University of Victoria. (2012). A vision for the future: Building on excellence: A strategic plan for the University of Victoria. Retrieved from <http://web.uvic.ca/strategicplan>.
 [3] Balaji Viswanathan (2012). What should everyone know about the Business Model Canvas?. Retrieved from

<https://www.quora.com/What-should-everyone-know-about-the-Business-Model-Canvas>

[4] Alexander Osterwalder. (2012). Achieve Product-Market Fit with our Brand-New Value Proposition Designer Canvas. Retrieved from <http://businessmodelalchemist.com/blog/2012/08/achieve-product-market-fit-with-our-brand-new-value-proposition-designer.html>
 [5] The Future of the University. (2014). Financial Times. Retrieved from <http://www.ft.com/intl/reports/future-of-university>
 [6] Long-Term Global Demographic Trends. (2001). Retrieved from https://www.cia.gov/library/reports/general-reports-1/Demo_Trends_For_Web.pdf
 [7] Mamta, b. (2014). George magnus: These 5 Big Demographic Trends Are Shaping The World Right Now. Retrieved 11 March 2016, from <http://www.businessinsider.my/5-demographic-trends-shaping-the-world-2014-4/#5msIP4woV2CwxSLR.99>
 [8] Henry Etzkowitz, Andrew Webster, Christiane Gebhardt, Branca Regina Cantisano Terra, "The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm", 2000.
 [9] Sarah Murray, 2014. Assessment of quality becomes tricky as higher education become global
 [10] <http://www.ft.com/intl/cms/s/2/075bb09a-283a-11e4-9ea9-00144feabdc0.html#axzz41oukLWrs>
 [11] Edwin Heathcote, 2014. How universities are using bold campus architecture to market themselves
 [12] <http://www.ft.com/intl/cms/s/2/a0b4cb1c-283c-11e4-9ea9-00144feabdc0.html#axzz41oukLWrs>
 [13] Eliza Anyangwe, 2012. The university of 2020: predicting the future of higher education; Guardian News and Media Limited
 [14] <http://www.theguardian.com/higher-education-network/blog/2012/aug/24/higher-education-in-2020>
 [15] 3 forces shaping the university of the future; Drew Gilpin Faust, President, Harvard University; 2015;
 [16] <http://www.weforum.org/agenda/2015/01/three-forces-shaping-the-university-of-the-future/>



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