

Redesigning the University of the Future (UotF) through Humanizing Education and Industry Revolution 4.0

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Abstract: Globalization and industry revolution IR 4.0 affect all aspects of life. Traditional letter rarely used by the current society. As the impact of IR 4.0, society nowadays rely and use internet as the media of communication. People also prefer to read from online news compare to traditional newspaper. Online shopping also become new trends and routine of the society. IR4.0 also affects education sector. E-Learning, smart board, E-book, E-library are some of the new technology that entered the education sector. As technology rise significantly, the higher education institution should take this as challenge and opportunity to prepare better education for the future of nation. When it comes to better education, the graduated student must be equipped with good knowledge and morality as well. To ensure this happen, humanizing education become another important aspect to be implemented in the future university. Thus, this paper research and proposed the conceptual solution to realize university of the Future by harnessing digital transformation and humanizing education.

Keywords: University of the Future, Digital Transformation, Humanizing Education, Industry Revolution, Business Model Canvas, Value Proposition Canvas.

I. INTRODUCTION

Now we are living in the era of Industry Revolution 4.0, where disruptive innovation has spread significantly. Fourth industrial revolution is the revolutionary change that occurs when IT proliferates in all industries, including primary, secondary, and tertiary industries or known as horizontal expansion of IT. And IR4 features the creative connection between technology and the market through open innovation or growth based on the open business model [1]. IR 4.0 changes the way how people interact with others and system information. Email, messaging platform, social media, cloud computing become the new trends that available everywhere and used by majority of society. The lives of adolescents and youth influenced significantly by the technology as it forces todays higher education to be rapidly changed following the transformation [2]. According to the 2018 mandate from Higher Education Minister of Malaysia, Industry Revolution (IR 4.0) should be part to revamp the Malaysian higher education system [3].

Furthermore, there will be four aspects to be included in Learning and Teaching 4.0. These aspects are:

- The learning spaces should be redesigned. For example, the use of smart board is really engaged to help student learn effectively.
- Different kinds of *pedagogies* are needed, which are heutagogy (self-determined learning), *paragogy* (peer-oriented learning) and *cybergogy* (virtual-based learning).
- Curriculum had to be fluid and organic.
- All the aforementioned should incorporate the latest learning and teaching technologies.

This shows that current government are relying and hoping on the new digital transformation that can be collaborated in the education sector to create the future university. At the same time the education sector encourages to think and have a proper plan and business mode for the education system in the future.

As the current business model of university focus on teaching and learning, and research and development only, in the future there should be more activity and technology that can be harnessed to achieve the goal of future university. In addition, future university should not be focused on technology development only, but the development of humanizing education as well. Fourth industrial revolution is the revolutionary change that occurs when IT proliferates in all industries, including primary, secondary, and tertiary industries or known as horizontal expansion of IT. And IR4 features the creative connection between technology and the market through open innovation or growth based on the open business model [4]. There must be also an innovative and dynamic business model design to fulfil all the transformation requirement for the University of the Future (UotF) [5]

II. PROBLEM STATEMENT

Nowadays, we are living in the era where technology transform quickly in all sectors, including education sector. We are no longer use a book as the only reference in university, but we combine them with variety online resources such as eBook, e-journal, and e-news. And many other things have transformed in the university after Industry 4.0, such as the use of smart card, smart board, smart computer as well as online learning in during teaching and learning activities, and many improved technology and infrastructure that used in the university environment [6]. With this situation, the higher education challenged to evolve their system to make it in line with the current and future available technology. According to Malaysia Blueprint 2012-2018 the National Education Philosophy should include balanced education as its foundation. There must be balance in education between knowledge and skills as well as etiquette and morality [7]. With this, then in the upcoming years the ambition to achieve the future of university can be achieved together with digital transformation and balance of skills and morality.

Another challenges that faced by today's students is mental health problem. According to the National Youth Health Survey 2018, mental health problem among Penang students become worrying trends, with 18.5% said to be suffering from depression [8]. Moreover, Youth and Sports Minister 'Syed Saddiq' revealed that 1 out of 10 Malaysian youths had thought about committing suicide [9]. Not only committing suicide, but some university student also committing crime and consuming drug due to lack of morality [10]. Thus, this become an important issue in the nation, and the university should take note about this challenge and should overcome with the solution to produce a better youth in the future. University of the Future should be well formulated by emphasizing on the digital transformation and humanizing education.

III. METHODOLOGY

In this paper, the researchers adapt the design thinking methodology where Literature Review, Business Model Environment Map (EM), Business Model Canvas (BMC), and Value Proposition Canvas (VPC) to support the re-designing of University of the Future (UotF) model are used. Literature review used by the researchers to learn about the current system, problem and opportunities that exist related to University of the Future.

Another method that used by the researcher is Business Model Canvas (BMC) to formulate the new enhanced Business Model for the future of university and Value Proposition Canvas (VPC). The initial BMC, VPC & EM for UotF are developed and validated via interview/survey and EM. Initial BMC validated by CIO & Head of Strategic Planning Unit – International Islamic University Malaysia (IIUM). VPCs validated by undergraduate and postgraduate both local and international students of IIUM. After validation, we develop the enhanced Business Model for UotF with recommend key digital transformation projects.

IV. LITERATURE REVIEW

Ernst & Young mentioned on their book that disruptive forces driving change. This is not only affected public sector, but it affects education activity. Moreover, in the University of the Future, Global forces will impact university sector in 5 things, which are: changing world of work, blurring industry boundaries, evolving digital behaviour, increasing international competition, and rise of continuous learning [11]. Also, they categorized university of the future into four scenarios, which are champion university, Commercial university, disruptor university, and virtual university.

With this, the higher education institution should aware of these impacts. In the future, the university will change the nature of workplaces. Some of smart machine might become a worker or take over some programmable human task and AI in the upcoming years. As it will blur the industry boundaries, university asked to perform collaboration with relevant industry to stay and sustain in education market. Digital learning such as MOOC's will become a trend in the future education. So, current university should start to implement and evolve in digital technology to remind exist in the market. Other impacts of disruptive technology are increasing international competition and rise of continues learning. This will give positive effect to the education competition as every higher education institution will give their best to ensure the quality education and higher ranking to impress international student as well to rise continues learning.

This digital transformation become one of the challenges that the university should focus when developing the future university. Another challenge that currently rise in the society is lack of morality among the student.

In recent years many crime cases occurred that involved university student such as drug, assaulting, and event involving with terrorism [12, 13]. If this can't be solved, then the similar case will be repeated in the future. University should come with the formula ad business model that can build the characteristic of its students. Just like Malaysian focus on balancing skill and moral [14]. In this paper, researchers suggest humanizing education as the solution of this challenge. University of the future should add morality and humanizing as its value to build better characteristic of the student.

Dzulkifli Abdul Razak (2017) mentioned in his book 'A New Expanded Edition Nurturing A Balanced Person The Leadership Challenge' that in humanising education, we need to have a balanced and harmonious individual, that not only knowledgeable, skilled, virtues, responsible, and capable of achieving personal wellbeing, but in the same time he must be able to contribute towards the harmony and development of their family, community, and country [15]. This can be gained if the university not only teach the soft and hard skill, but also the manners and etiquette as well.

To come with humanizing education, university also can implement the concept of Islamization which is holistic and comprehensive. This concept emphasis on Islamization of Human Knowledge (IOHK). It includes of Human Knowledge (academic aspect), and Self, Governance, and Culture and Environment (non-academic aspect) [16].

There might be some other challenges that also will occur when implementing the University of the Future, such as (modernisation of universities) [17]

- Changing culture through strategic leadership
- Institutional vision and leadership
- Digital skills for learning and teaching
- Funding models
- Need for targeted investment
- Data protection and privacy issues

Thus, this challenge should be taken consideration when the higher institution plan for the future university as the university also should collaborate with other stakeholder, industry, and government.

On their paper PWC share four tips to do digital transformation in university successfully [18], which are:

1. Understanding that digital transformation will affect not just an IT, but every part of the university.
2. Linking all digital activities with the overall vision and strategy of the university.
3. Investing in communities that built around willing and capable digital innovators
4. Adopting design approach that focuses on customer needs, not the university's internal structure.

Megatrends is another important aspect that related to the University of the Future. According to Frost and Sullivian in their research with Malaysian Investment Development Authority (MIDA), Economic Growth, Health, Wellness, and Well-Being, Connectivity and Convergence become focus now [19]. As we can see in the graph, these meg trend has a high degree impact of Malaysian economy as well as degree of certainty. And Future of University, should also aware of these megatrend aspects.

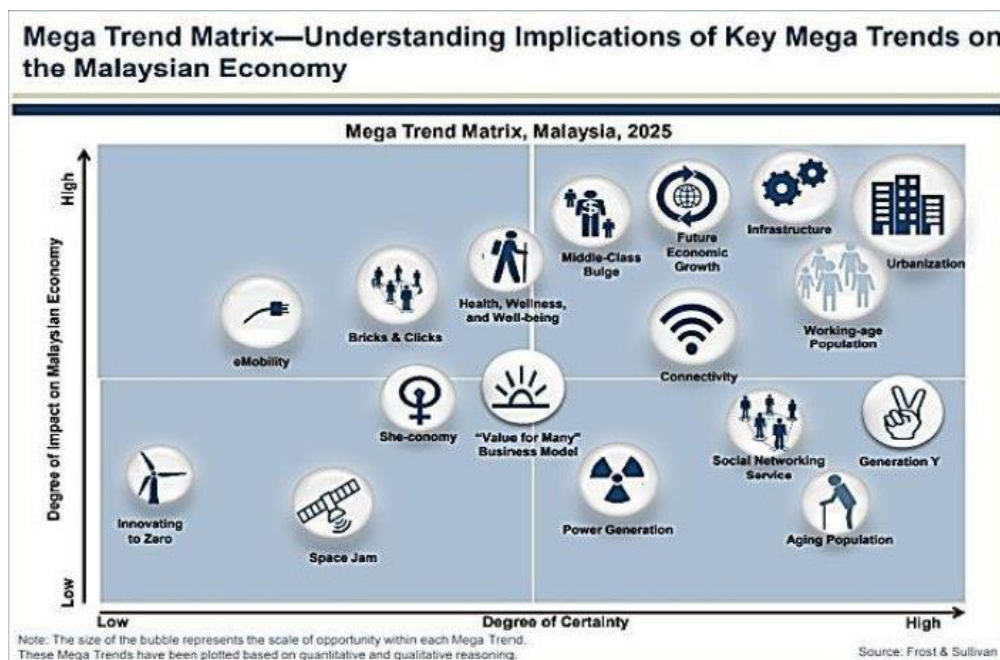


Fig 1: Mega Trend Matrix, Malaysia 2025

Then, the university should invest to the surrounding communities in the university, as this will bring a better and faster technology transformation and innovation. And finally, the university must focus on customer needs, not in the internals' need. University must discover all the requirement and expectation from its customers when establishing UotF. And in this paper, the researchers have proposed some of the business model that can be used for realizing the future university.

V. PROPOSED BUSINESS MODEL

In this paper, the researchers came with conceptual business model to support the University of the Future. To validate the business model, the researcher conducted an interview with Chief Information Officer (CIO), Head of Corporate Strategy, and 5 university students. The proposed business model included Environmental Map (EM), Business Model Canvas (BMC) and Value Proposition Canvas (VPC), and Strategic Canvas (SC).

A. Business Model Environment Map (EM)

Business Model Environment Map used to understand the environment's forces in a structured way. This is the EM for UotF through Humanization Education and IR 4.0:

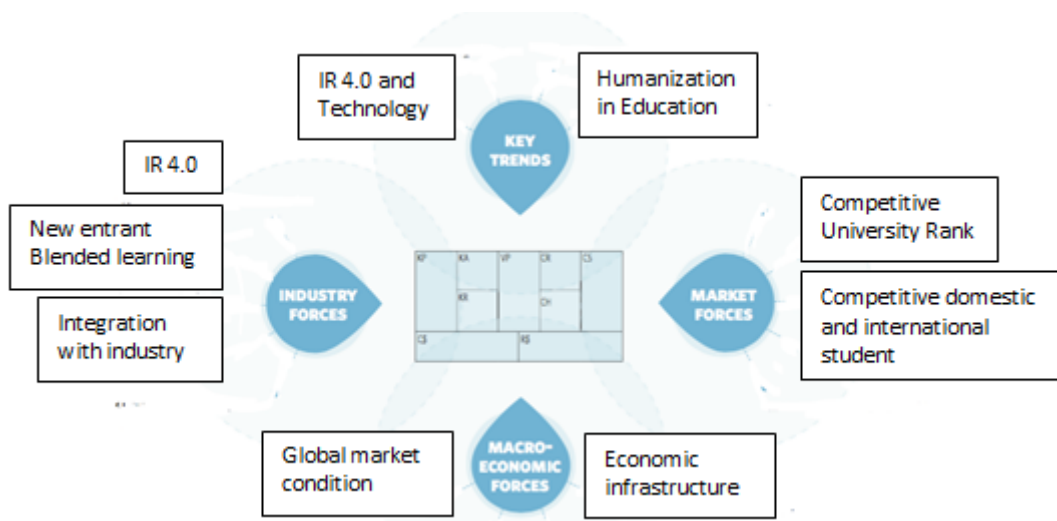


Fig 2: Business Model Environment Map

B. Business Model Canvas (BMC)

Business Model Canvas used to discover the firm's or product's value proposition, infrastructure, customers, and finances. Here, we purpose the initial BMC, which can support the future university.

The Business Model Canvas








<p>Key Partners </p> <ul style="list-style-type: none"> Ministry of Education (MoE) Higher Education Insitute Industry Non-Government Organization (NGO) Agents Stakeholder Alumni 	<p>Key Activities </p> <ul style="list-style-type: none"> Quality Teaching and Learning Research and Development Transformation University to society Innovation in Technology 	<p>Value Proposition </p> <ul style="list-style-type: none"> Humanizing Education Reputation and Ranking Sustainability Education Future Learning Integration with industry 	<p>Customer Relationships </p> <ul style="list-style-type: none"> Student Portal and Website Open Day Seminar/International Forum Agents 	<p>Customer Segments </p> <ul style="list-style-type: none"> Domestic Student <ul style="list-style-type: none"> - Undergraduate - Postgraduate International Student <ul style="list-style-type: none"> - Undergraduate - Postgraduate Industry Lecturer Alumni Government Community Donors
<p>Cost Structure </p> <ul style="list-style-type: none"> Staff Salary Teaching and Research Administration Scholarship Expenses Maintenance 		<p>Revenue Streams </p> <ul style="list-style-type: none"> Tuition Fee Endowment Fund Government Fund Investment Donation and Sponsor Research Grant Freemium Services 		

Fig 3: Business Model Canvas (BMC) for University of the Future (UotF)

1. Customer Segments

The Customer Segments is the society or the organization that involve and have a contribution in realizing the University of The Future. The customer segments included: Domestic Student (Undergraduate and Postgraduate), International Student (Undergraduate and Postgraduate); Industry; Lecturer; Alumni; Government; Community; Donors

2. Value Proposition

The Value Propositions is the value of the services that provided in the future university to satisfy the customer. The value prepositions included: Reputation and Ranking, Humanizing Education, Sustainability Education, Future Learning, Integration with industry

3. Cost Structure

The Cost Structure defines as the amount of the cost that must be paid from the activities that utilized for the University of The Future project. The Cost structure included: Staff Salary, Teaching and Research, Administration, Scholarship Expenses, Maintenance

4. Revenue Streams

The Revenue Streams is the revenue that generates from the customer to cover the cost structure to implement the University of The Future. The revenue streams included: Tuition Fee, Endowment Fund, Government Fund, Donation and Sponsor, Research Grant, Investment, and Freemium Services

5. Key Partners

The Key Partner describes the people or group of people who that act as partners order to run the University of the Future. The key partners include: Ministry of Education, Higher Education Institute, Industry, Non-Government Organization (NGO), Agent, Stakeholder, Alumni

6. Key Activity

The Key Activities is the main activities that provide in University of the Future to develop the wellbeing to the society. The key activities included: Quality Teaching and Learning, Research and Development, Humanizing Education, Digital Technology Transformation

7. Key Resources

The Key Resources describes the most necessary assets required to process University of the Future. The key resources such as: Lecturers, Online learning system, Smart Education system

8. Customer Relationship

The Customer Relationships is the type of relationship that used to develop the future university. The relationship can be built from digital, open day, forum, and agent.

9. Channels

The Channels are the parties that communicate in the future university to achieve its Value Proposition. The Channels included: Website, Student Portal, Alumni Portal, On Campus.

C. Value Proposition Canvas (VPC)

VPC or Value Proposition Canvas used by researchers to learn and discover the needs and the expectation of the customers who will utilize the future university later. Head of Corporate Strategy, CIO, and 5 students were interviewed to validate the result.

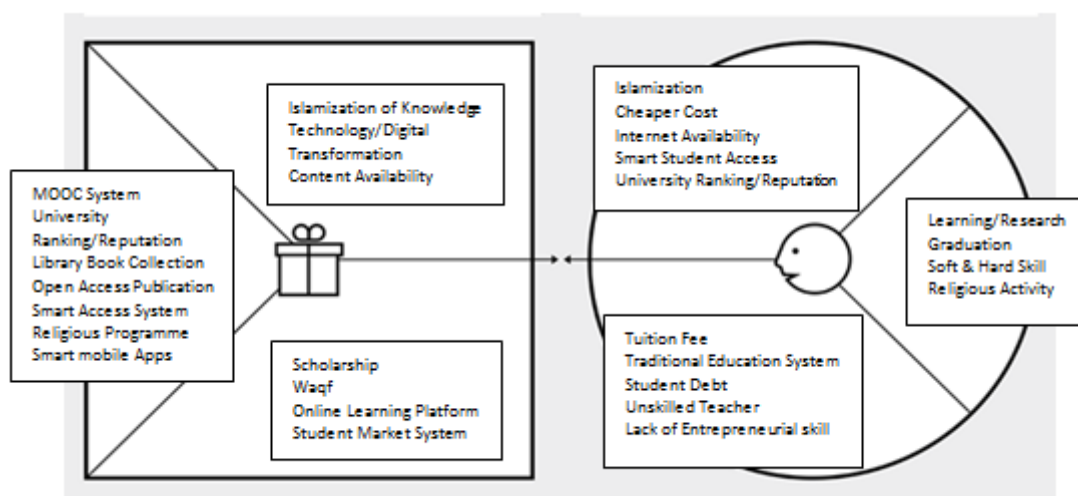


Fig 4: The Value Proposition Canvas for Student

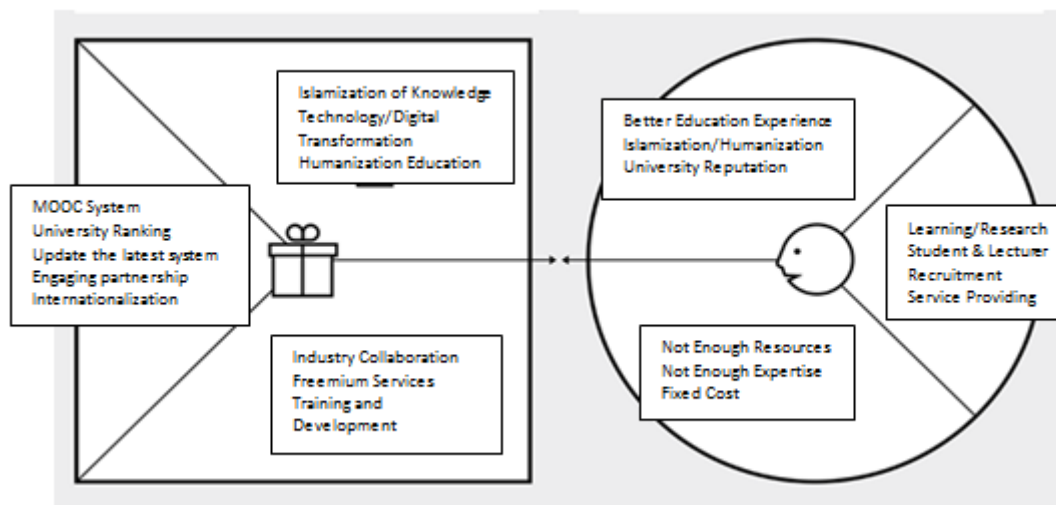


Fig 5: The Value Proposition Canvas for Higher Education Provider

D. Strategy Canvas (SC)

The researcher compared “As-Is” University against “Future” University as the context in the Strategy Canvas. The X-axis shows the competition factors in the university, while the Y-axis shows the relative limit. The result stated as Figure 6 below:

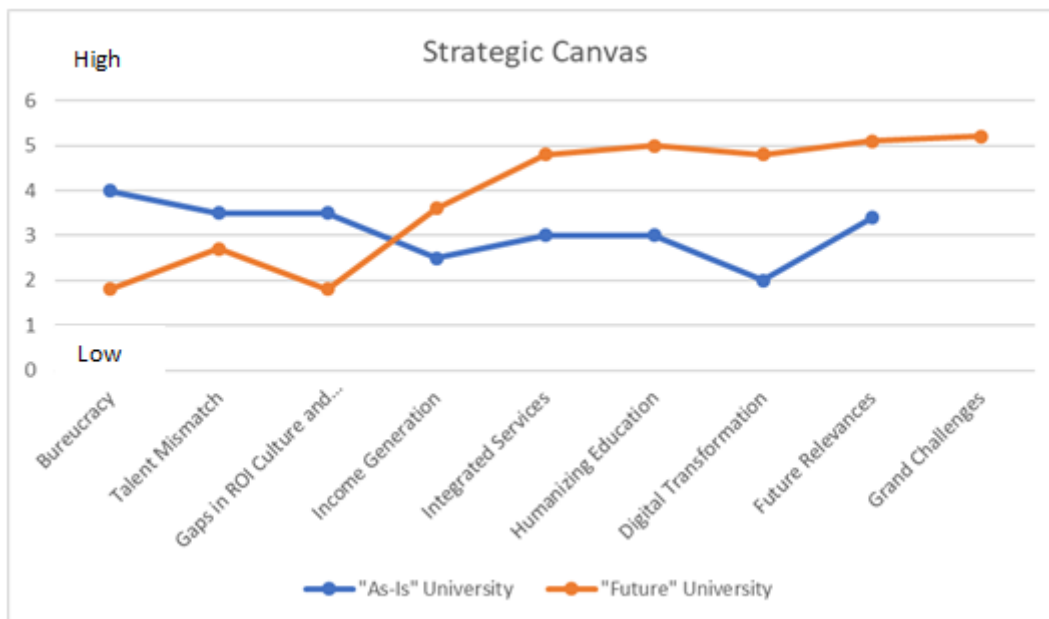


Fig 6: The Value Proposition Canvas for University of the Future

VI. CONCLUSION AND FUTURE WORKS

This paper shows the proposed conceptual business model to be implemented in developing the Future of University, which focused on digital transformation and humanizing education. This finding includes Business Model Environment Map (EM), Business Model Canvas (BMC), and Value Proposition Canvas (VPC) that can be used as a conceptual solution to realize the modern university. For future works, there must be other study conducted in the larger area to find and gather all possible business model to realize the future of university that can be sustained in the education sector and accepted by the society.

To implement UotF, university should start understanding and discovering all possibilities aspect in the university that can be supported and transformed with technology. This include student daily communication and transportation, university payment system, reporting system, and others. Secondly, higher institution also should have proper plan about which digital activities should be strengthen and which not. These activities must ensure it support the university to realize its vision and mission. And as discussed before, the future mission should harness humanizing education as well as it become a solution to the current morality problem of university students. Then, the balance of knowledge, skill and etiquette and morality can be achieved in the future higher education institute.

All in all, in todays' Industry Revolution 4.0, technology significant increase and global competition ask the companies and institution to produce better business model for the future university. Du to this, there were many challenges raised in the education sector when producing enhanced business model of the higher institution. We can't rely on the current education system and business model as it can't guarantee the success of future education as disruptive technology happen everywhere, including education sector. Another challenges that faced by todays education institution is lack of morality in the student. Therefore, the government, higher education, Non-Government Organization, and other related industry should collaborate to produce the solution for better education that can fulfil the need of future university and society.

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