

Redesigning Business Model Options for University of the Future through Humanizing Education and IR4.0

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Abstract: The specked compression placed on the university have created discussion about the need to find new the role of universities to serve the community in the better way. In reality, local universities face some difficulties with fees and graduation which make the universities' value less attractive. Business modeling tools such as Business Model Canvas (BMC), Value Proposition Design (VPD), and Environmental Maps (EM) should be applied and used in the strategy canvas for universities in order to survive in the new era and to ideate the best design strategy for the University of the Future (UoF). In the other hand, the new existence of digital transformation supports the universities to become the best marketing tools in their business. Without failed to mention, humanizing education also should be implemented within the universities in order to keep the balance of human and technology and to stay relevant for the future. This paper provides the strategies and plans to transform the university into a radiant institution with its own personality

Keywords: University of the Future; BMC; VPD; EM; SC; Digital Transformation; Humanizing Education

1. INTRODUCTION

In the era of globalization, the progress of a country depends on many sectors. Among the sectors that contribute to the growth and progress of the country's economy are development and technological sectors. Learning factors are also helping each other in advancing the industry and at the same time impact on the progress of the country.

In times of science and technology, industrial revolution 4.0 is one of the latest revolutions that highlight technology in life. As well as changing a little bit of work in life either for industry or everyday life.

For the academic sector, the university should have been introduce the IR 4.0 culture into university to apply a new aura to the students in particular.

Management, staff, and students should adapt to new, more sophisticated environments. This technological innovation will not only change the way of life for the university level, but it will also change globally. As the world preparing for the continuation of a new revolutionary move, the university must not miss and prepare for the next generation to continue to be competitive, to challenge and to contribute to this revolution. The industrial revolution 4.0 which hugely related with transformational digital age helps the university to redefine their roles. This roles effects only to the university, but to any whom relates with it. There are tools to be used to analyse, and design the issues related with the university and how to counter the problems such as Business Model Canvas (BMC), Environmental Maps (EM), and Value Proposition Design Canvas (VPD) (Dahlan, A.R.A., et al, 2018).

There is a new paradigm to business modelling that been used in this current moment which is Business Model Canvas (BMC) which was established by Alexander Osterwalder and Yves Pigneur. It consists of nine blocks to capture the real picture of business and its logics. This BMC has been divided into four important keys driven: first Value and Customer strategy which focus on Value Proposition and Customer Segment. Second, The Revenue Stream and Cost Structure

block are focusing on Finance driven strategy. Third, Key Resources and key Activities block focusing on Resources and activities. The last one is Key Partners and Channel blocks which focusing on Partnership strategy.

Next, another tool used for business strategy is Environmental Map (EM). This tool has four factors that it focusses on. First, Industry Forces: mentioning another competitor who offer similar value propositions to the similar target markets for example new entrants or existing competitors. Next, Key Trends which it evolves the parameter of laws, culture and technology and may change according to acceptations of the ideas. Third, Market Forces, this block changes as to meet up the customer's expectations. The last one is Macro-Economic Forces. This forces take care of the financial health and affect the customer's willingness and payment ability.

Thus, the aim is only to design new business model that creates values for business, but also value for customers. There are possibility for university to compete globally and become asset for the government in term of making the positive values which it stays relevant, keep growing and sustainable in the digital era.

2. PROBLEM STATEMENT

The pressure on the university have created discussion about the needs to find new the role of universities to serve the community in a better way (H, Rifca & H. Jacov, 2006). The universities should re-construct the values offered to the customer which monopolized by the students. Currently local universities face difficulty in financial issue where most of the budget have been cut down by the ministry. This made cost of higher education increasing while funding sources have been battered. (Ernst & Young, 2012; Barber et al. 2013; Frost & Sullivan, 2016). Meanwhile, there is an issue where students find hard in searching for jobs after graduation. As per quoted by (M Quinlann, Dr Kathleen., 2011), there is an issue regarding perception of holistic student development and skills between higher education community and industry society. The student development is not only for academic properties, but including the growth, emotional maturity and even their moral effectively.

Therefore, financial of universities should be improvised by adding the new input of commercial capabilities and responsive towards the current industry so that they can be compatible to the market strategy.

Apart from that, higher education should produce sufficient and ample human resource with knowledge, skills and effective moral value as mentioned in National Higher Education Strategic Plan and Vision 2020 by MoHE Malaysia.

With these kinds of vibrant challenges, universities have to appraise their values offered, reorganise the business model and put more Islamic values in order make a better foundation and better ummah in the future.

3. METHODOLOGY

This journal encompassed the design technique and system thinking approach (Lewrick et al., 2018).

The methods and tools used in this paper are BMC, EM and VPD. These strategy canvas are for analysing, formulate and also design new alternative to business model for University of the Future (Osterwalder et al., 2010 and 2014). Also, interview method is applied in this study.

The University of the Future Business Models of a Malaysian-based University is validated by the Chief of Information Officer and Head of Strategic Planning Unit of the university.

Meanwhile the VPD is collected using some survey by questionnaire based that had been collected within the respective customer segments of the university.

4. LITERATURE REVIEW

i. University of the Future

The idea of the University of the Future has been discussed in the past few years. This is because the university structure are changing as the current situation is influenced by IR 4.0. The University of the Future aims to develop institutions of higher learning as a hub that provides social interaction between students, management, university, and industry. It also creates a collaboration ties between university, students, and society. In fact, ideas of university of the future as well, reinforce organized the learning which not only for academic purposes, but to collaborate and enable greater engagement within the industry to complement the ecosystem (Greg Pringle, UoQ). In order to lead the economy, universities need to

play an important role and integrate confines that support the university-industry bonds and help for knowledge transfer and innovation driven (Prof Deborah T. AO, Curtin University).

As per quoted by (Ernst & Young, 2018), delivering the students' needs of educational and employers for tomorrow have brought them to develop four alternatives to assist university leaders and government policy makers.

First, champion university. As the world are now changing the technology into digital transformation, universities act as negotiator of knowledge in order for youth to prepare their mental and skills to adapt for the employment in the future. For instances, pursuing both teaching and research from government support and passive teaching to industry while embracing the latest technologies.

Second, commercial university. Revenue stream should be taken as priority by the universities to compete with other competitors and attract funding. Activities that can be done such as industry leverage, digital degree, start up with new business and any other possible alternatives

Third, disruptive university. Divide business model into two: Business to business and Business to consumer in order to create the best content for both partition and capture education with innovation within the community using digital platform.

Fourth, virtual university. Enable the universities to attract customers for lifetime values and satisfaction.

ii. Megatrends

Megatrends are global and sustained macro-economic forces that impact the business, economy, society, cultures and even personal lives. The impact of Megatrends on organizational functions are, marketing, innovation scouting, research & development budget, product planning and development and technology planning (Frost & Sullivan, 2010).

In addition megatrends influence the future higher education (Choudaha, Rahul & Van Rest, Edwin, 2018). This top megatrends includes urbanization which to integrate the city development which expand the capability of mobility, working life, and societies.

It also contributes to the new smart technologies and infrastructure which affect the future advance of technology. For the next generation Y, literacy towards IT is exposed so that young people would have distinct values, sophisticated lifestyle, and better attitudes. This considering for 34% of population in year 2020. Future should be ready to adapt with new technologies and high purchasing power which provide young people for huge opportunity.

It also gives power to middle class income group as this group highly affected with this new trends. Countries with high population of middle class income possess the higher purchasing power which makes them have better life ahead. Come across the higher education, public defunding continues with high expectations through academic growth and innovation (Choudaha, Rahul and Van Rest, Edwin, 2018).

iii. Fourth Industrial Revolution (4IR)

According to the founder of the World Economic Forum, (Schwab, K, 2011) in his book The Fourth Industrial Revolution explains the Fourth Industrial Revolution is characterized by the emergence of supercomputers, smart robots, unmanned vehicles, genetic edits and neurotechnology developments that enable humans to further optimize brain function.

In other words, human life will be simplified with the help of robots who will become "friends" who will manage daily affairs and tasks. It may be difficult to illustrate its logic when looking at pizza orders we make through telephone orders, will be sent using a drone service to the door. Additionally, all home affairs such as washing clothes, feeding pets and turning off the air conditioners need only push buttons on their own smartphone without the hassle of taking a maid service. To get to the office, people do not have to turn on the engine and drive in the middle of a crowded highway. All will be finished by just pressing the keypad, the passengers can connect to sleep in their respective cars and all the driving arrangements will be fully controlled via satellites to the point of safety. The scenario is even weird, but has slowly developed and evolved into a common form of norm in the future. Using the acronym of the Revolution of Industry 4.0, all daily human affairs will be shared with robots created specifically to optimize human needs and comfort.

While these technologies are still in the global test stage, many of the applications people have already enjoyed. For example, using a navigation app like Waze or Google Maps that provides drivers with route and journey information is among the earliest seeds of a world known as the Internet of Things (IoT).

Imagine the knowledge people have today contributing only one percent by the next 30 years and then the job market will be filled with individuals or highly skilled, creative and critical thinking workforce.

Thus people need a higher-education institute that is more flexible and ready to face the new challenge so that any class of society is not left behind in the globalization and digital era

In any case, the field of knowledge and education must be the core of efforts to prepare students and graduates to address the new challenges of the revolution. Graduates must acquire self-learning skills to remain relevant in the era of rapid changes (Dahlan, A.R.A., et al, 2018).

iv. Higher Education

Highly graduated is an asset that guarantees better life in the future. The goals of higher education are to provide quality in learning through teaching, students get to learn latest knowledge and sustain the development of societies in term of services (Bo Xing and T. Marwala, 2017).

Integrity, honesty, able to communicate effectively, motivate and accomplish tasks by innovating are among the criteria that are often outlined by employers as well as academic qualifications. The employers complained that graduates did not show the noble values that might have been eroded with modernity because of lack of emphasis in learning. If this is a search, it means that the package of graduates covers a variety of skills.

Meta-knowledge or 'to act' knowledge requires the ability to think and respond appropriately in any situation (Yusuf, A , MD,2016). These skills need to be reinforced and reinforced as long as students or students acquire the knowledge of their fields. To make the society innovative and creative, they need to be taught to think innovative and creative. Higher institution can provide a learning environment that creates creativity and innovation. Students should be encouraged to complete tasks that require critical thinking. They also need to be aware of the importance of lifelong learning.

Apart from that academics at higher institution also need to equip themselves with 21st century skills to showcase their scholarship and position in the ivory tower. Academic intellectuals need to deepen their fields and disseminate knowledge for mutual benefit through an effective informative approach to students, sharing and utilizing knowledge for the community. Plus, all of these can be combined with the availability of online learning techniques (MOOCs), excellent service, and ease of conducting research and development as well as obtaining grant research. Integration and collaboration between the university and the industry can indirectly attract new students and reinforce the ability of the university graduates for the employment market value.

v. Higher Education

This humanizing value should also be a culture and courtesy in society to shape human beings and to practice the values of Islam in line with absolute human values (Mansor, A, 2015). Through education and teaching in schools, a human being has learned and understands and values the good human values to be practiced in everyday life.

An education system that only focuses solely on academics and not giving due attention to the aspects of healthy moral and spiritual education will create generations with expertise and expertise in science but less appreciate morality and religion in their profession and their lives. Lack of respect for morals and religion in their profession and their lives.

The concept of science that is only based on rational, empirical and scientific methods, fails giving birth to an integrated and ethical human. Today's modern society is more than ever suffering from the negative value found in the present concept of science (Hasan, M, K, 1988).

vi. Sustainable Development Goals 4 (SDG4)

SDG4 is made based on the millennium development goals and will bring to development globally until 2030. This is related to taskforce for urbanization and uniform contexts. Also it is done as a major step towards transforming urbanization in development and pushing the bottom up changes.

SDG4's goal is to eradicate poverty, without food, prosperity and health, quality education, diversity, clean energy and affordable. Besides, it also provides job opportunities and economic growth as well as enhancing infrastructure, innovation and industry to help society.

Education, especially at the basic level, is the sole responsibility of the country. This can provide technical training and community training programs. The target in 2030 is that the education of the advocates will continue without any class felt left behind. (Egron, Eva., and Polak, 2017).

vii. Designing the University of the Future Business Model

Based on literature reviews, the business model for the University of the Future will be made using tools and approaches such as Environmental Maps (EM), Business Model Canvas (BMC), and Value Proposition Design (VPD). All of these will be used to analyze, create new formulas and create new alternative business model of the University of the Future

viii. Environmental Map (EM)

Business models are designed and implemented in a particular environment. There are several factors that affect the business model. The first market segment that started a major market that depicts attractiveness and seeks new segments. The issue driving and transforming the market from customers and values offers a perspective on what the market demand needs and analyzing how it is delivered, identifying the elements of customer moving the business to competitors. Also, the revenue element that identifies attractiveness and pricing power. This market segment focuses on customer segments, value propositions, key activities, primary sources, and revenue streams.

Furthermore, the power of the industry which includes suppliers, and other chain actors depicting the main value chain occupants in the market. Also, to find new competitors, their strengths and how they compete with other people's business models for products and services including from other industries, stakeholders and define those who may influence the organization and business models.

Next, the main trend is with factors that illustrate rules and trends that affect the social, cultural, socioeconomic and technological trends that can threaten business models or even potentially to grow and improve.

Finally, Macroeconomic power with economic infrastructure factors depicting the operational market economy infrastructure; Commodities and other resources. It highlights current prices and price trends for the resources needed for the business model. Also, Capital market depicts current capital market conditions in relation to global capital requirements and market conditions that outline the current overall situation from a macroeconomic perspective. Macroeconomic power focuses on cost structures, channels, main activities and major sources (Osterwalder, Alexander and Pigneur, Yves., 2010)

ix. Business Model Canvas

Model Model Canvas or BMC is a relatively new paradigm for business modeling. Consists of nine BMC blocks capture the big picture of the business and its logic, and are divided into four key drivers: 1. Values and strategies driven by customers focusing on Value Propositions and Segment Client Blocks. 2. Financial-driven strategies that focus on Revenue Streams and Cost Structure blocks. 3. Strategies mobilized by resources and activities that focus on Primary and Key Activities blocks. 4. Shared-driven strategies that focus on key partners and channel blocks.

x. Value Proposition Design Canvas (VPD)

In a simple word, Value proposition is why customers have to choose one other product, mentioning the unique value of the product providing more competitors.

The Canvas Business Model value proposal provides a unique mixture of products and services that deliver value to customers by generating customer-facing solutions or valuating customers. This is the point of intersection between the product made and the reason behind the encouragement of the customer to buy it. The product can have one value proposition or multiple value proposition.

This model have Pain and Gain sections which both are needed to identify the risk, related to customers and gains that examine what are the best outcomes for ones products or things customer to achieve. (Osterwalder, Alexander., et., al., 2014).

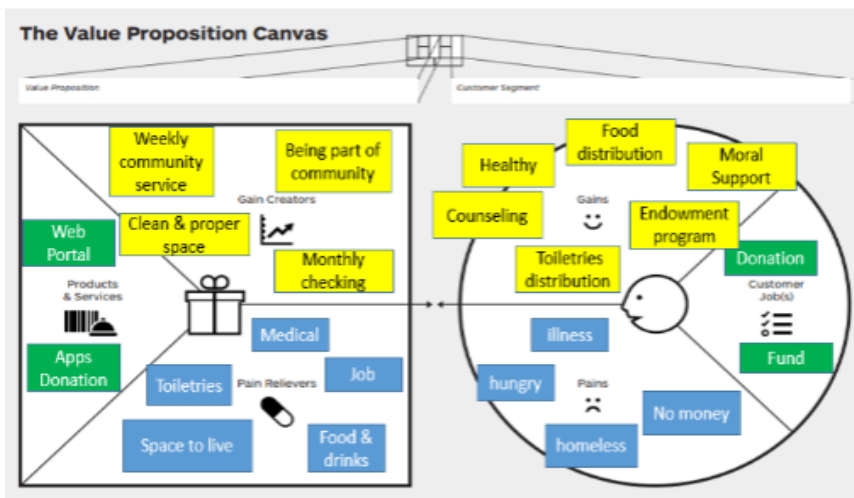


Figure 1: Example of VPD

5. DISCUSSION

i. Interview on BMC & Findings from interview

As for Business Model for respective local university, there are many strategies have been planned in continuing the stability and to stay relevant together with current and future transformation. Underlying of improving the governance, university has few objectives. It has strategy to carry out corporate social responsibility through the organization of high impacted community activities. This displays through the strengthening of marketing and communication activities which also helps to improve the quality of service delivery and to implement Green Initiative program. Next, carrying effective financial management, university has planning applying for competitive fee rates for international students which will be reviewed the international student fee rates every five years also improves the facilities to attract international students. More strategy has been planned as increasing number of executive programs in some undergraduate programs. These programs organized with a bid strategically to get funds, R & D, student activities, Knowledge Transfer Program / Chairs whether government, industry or international grants. In order to stabilize the financial, university involves in intensify real estate investment and assets more intensively in order to get more rate of return or savings competitively. By providing more service payment policies and schemes interesting for professional service to get donations in the form of funds, assets and bids. As to focus on university's specialty, expansion the scope of joint farm business, sale of agricultural produce included in the strategy planning. Encourage generating and savings activity amongst all levels of university staff and to cultivate wakaf institutions among staff and students.

In order to develop quality and competitive graduates, university has planned course sharing in relevant programs to be implemented with existing MoU / MoA partners and establish new networks with international institutions also, improves program collaboration with top global universities (top listed universities in the world universe ranking). To begin with, that all professional programs are accredited internationally and identify potential and competitive programs for accreditation. Innovation towards value creation for universities, industry and society are one of the objectives strategies in this local university as they empower research programs and research groups to conduct research.

Inviting high-impact / high-precision researchers including Nobel Laureate to support cluster agenda and research program (maximum of 2 weeks) and KPIs. Empowering Nobel laureates through the placement of university researchers in a leading research laboratory to realize the initiative of creating Laureate Nobel laureates. University ensures the sustainability of pool of research talents from outstanding students and pre-graduate students through higher scholarship offerings also, provides Industrial Support Grants to support collaborative research between university-Industry.

In standardizing the current and future transformation, University has planning of enhancing the infrastructure, information technology and services communication strategy. First, to identify infrastructure development projects by strategic priority. Private providers and new entrants will be carved out in order for university to obtain allocation to execute the project infrastructure development. This project would be implemented as the infrastructure development planning in which it could perform consistent maintenance of facilities as planned. University has planning conducting

space audits and frequency usage audits in order to provide resources and skills requirements in ICT. This strategy approach hopes university could develop new relevant systems and create changes to existing ICT systems. Over forty respondents who have responded to the interview and surveys

Key Partners <ul style="list-style-type: none"> Government Staff Industries International agencies/universities Researchers Sponsors Agencies Society 	Key Activities <ul style="list-style-type: none"> Teaching and learning , and holistic development Research ,commercialization and innovation Industry linkages and community service Management and talent development Income generation Niche area- Agricultural Excellent Development of facilities and campus sustainability Branding, image and visibility Empowering Governance Empowering food technologies Enhancing the infrastructure and technology services and communication 	Value Propositions <ul style="list-style-type: none"> Continuing programs and MoU new international infrastructure Reputation and ranking Integration with industry Offshore Campus Review of fees for programs offered (international students) Graduate Training Scheme Scholarship for qualified international Students Enhancing the RnD program and University Grant Workshop with Sponsor Agencies Enhancing the Central Equipment management System (CEM) for IT master data Enhancing Laboratory Technologies Techno Marketing Competition (Global Visibility Through web Presence) Empowering Clinic and hotel for animals/pet Empowering new system and technology and data for ICT 	Customer Relationships <ul style="list-style-type: none"> Skills Training Seminar/conference Computing and technology, learn new system technology and machine Student mobility program KPI Assessment for staff 	Customer Segments <ul style="list-style-type: none"> Faculty Staff Students Investors Researchers Industries Sponsors Agencies Society
	Key Resources <ul style="list-style-type: none"> Lecturers Management staff Support from the Alumni Government Industries and society Researchers Bodies and Individuals 		Channels <ul style="list-style-type: none"> Student portal Noble Laureatte Program Innovation Discovery Program Techno Marketing Competition Innovation eDU- PARK Showcase JINM Program (Jaringan Industry dan Masyarakat) Knowledge Transfer Program 	
Cost Structure <ul style="list-style-type: none"> Man power Teaching and research Scholarship Administration , programs 		Revenue Streams <ul style="list-style-type: none"> Fund , investment Tuition fees Research grant , programs Government 		

Figure 2 : BMC of Interviewed Local University

Validated the University of the Future Business Model

Business Model Canvas (BMC)

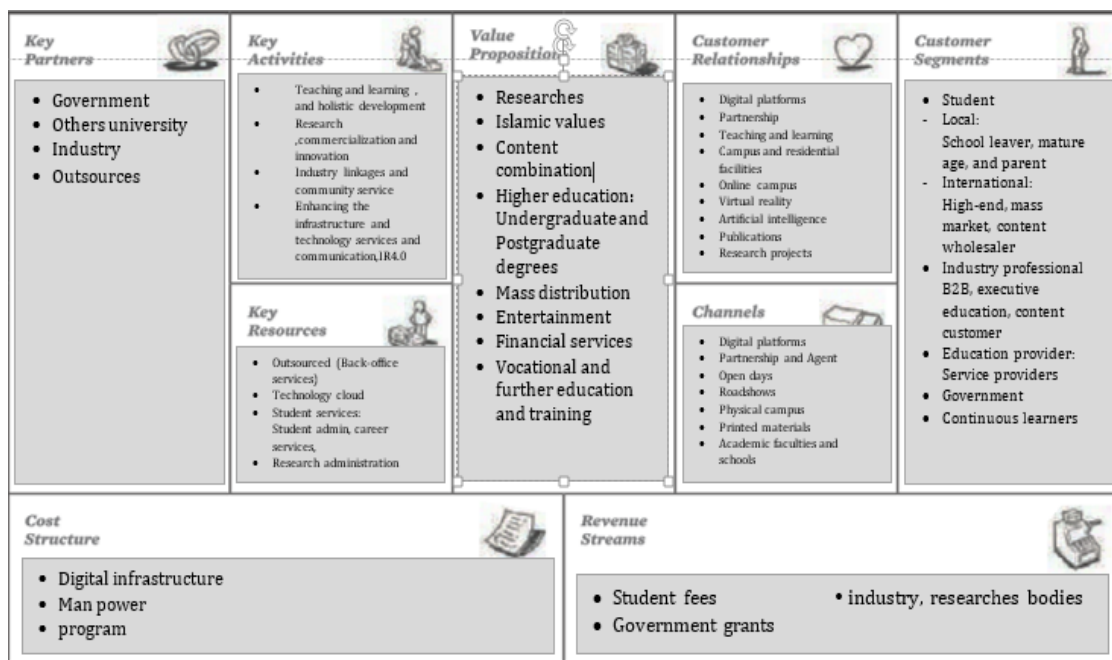


Figure 3 : The Business Model Canvas for University of the Future (UoTF)

Value Proposition Design Canvas (VPD)

NO	CUSTOMER PROFILE				VALUE MAP		
	Customers	Customer Jobs	Pains	Gains	Products & Services	Pain Relievers	Gain Creators
1	Student UG Local	-creating new experience in exciting programs	-Free from Outdated System and Technology	-Skill Practices -High Percentage of Job Placement	-Join New Challenging Programme - Best Ranked University	-Learn New System, Technology -Language Classes	-Learn New Skills -New Ideas to Generate Income - Waqaf - Industry Linkage
2	Student UG Int'l	-creating new experience in exciting programs	-Free from Outdated System and Technology -Language Issue - Debt After Graduation	- Cost - Skill Practices -High Percentage of Job Placement	-Join New Challenging Programme - Best Ranked University - Blended Learning	-Learn New System, Technology -Reduce Fees - Language Classes	-Learn New Skills -New Ideas to Generate Income - Scholarship - Waqaf - Industry Linkage
3	Student PG Local	-Cost of Research - Learning, Research Extension In And Outside University	-Outdated System and Technology	-Cost - Skill Practices -High Percentage of Job Placement	-Research Grants -Join New Challenging Programme - Best Ranked University	-Learn New System, Technology - Language Classes	-Learn New Skills -New Ideas to Generate Income - Waqaf - Industry Linkage
4	Student PG Int'l	- Learning, Research Extension In And Outside University -Cost of Research	- Language - High-Cost - Social Environment - Debt After Graduation	- Cost - Skill Practices -High Percentage of Job Placement	- Best Ranked University --Research Grants - Blended Learning	- Reduce Fees -Learn New System, Technology - Language Classes	- Waqaf - Field Works - Digital Platform - Scholarship - Industry Linkage
6	Industry	-Sharing of Technology, Research Grant	-New Research, Ideas -Wider Market Scope	-New Talents -Researchers	-High Quality of Research -Job Offered	-Market Strategy -New Technology -New Ideas	-Skilled Man Power -Increase Revenue -New Researcher
7	Government	- Research Grant, Researchers, New Programs, Sponsorship	-New Research, Ideas	-New Projects -New Researchers -New Innovation	-High Quality of Research -World Ranking Research	-New Research, Ideas	-Skilled Graduates -New Researcher

Figure 4 : VPD for each customer in UoTF

Strategy Canvas (SC):

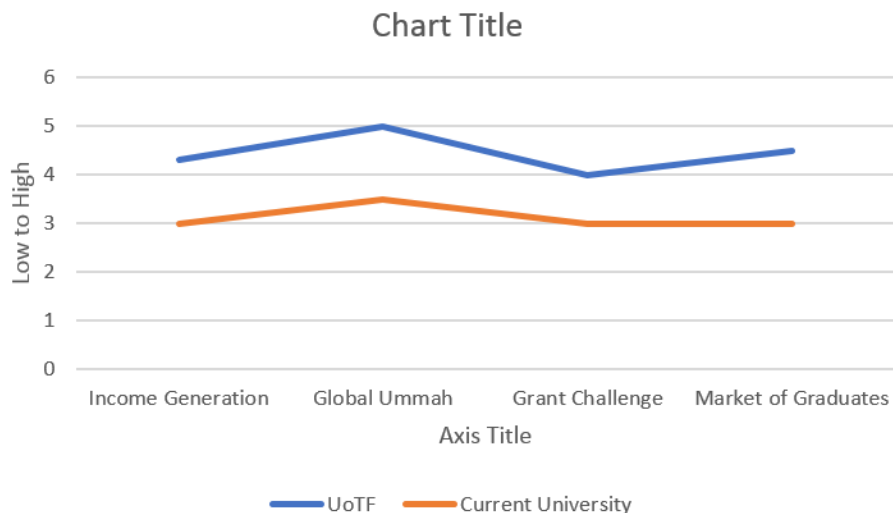


Figure 5 : Strategy Canvas for UoTF and Current university

6. CONCLUSION

In conclusion, the University of the Future is totally giving opportunity for organization to transform for a better deliverable and give positive impacts to all people involves with it. Even though this might be quite challenging and risky, however, the changes must takes place as the world is not going to wait for those who left behind in this digital era. This university gives the best values to the customers and try to sustain the quality for a long time in the future. Not to forget, the humanizing education has become one of the importance values to university.

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