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University of the Future (UotF): Redesign Business Model for Local University in Malaysia through Humanising Education and 4IR

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Abstract: ***This paper describes a process to redesign business model on local university in Malaysia. This redesign purpose is to build thelocal university of the future (UotF) model in Malaysia. Recently this new (UotF) design is one of the new business model process which is going to be in Malaysia. This (UotF) business model is highly in demand in higher education environment and thedevelopment process is concurrently with the information technology revolutionespecially on the concept of smart digital campus strategy.Besides this paper also providesmethodology approach towards redesign the university business model for the UotF. Additionally it provides some explanation on the concept of Fourth Industrial Revolution (4IR), Business Model Canvas (BMC)and Value Proposition Canvas (VPC) to one of the local universities in Malaysia that can be related through the humanizing education in future.***

Keywords: university digital, university of the future, humanising education, energy university, business model canvas (BMC), business model generation, value proposition canvas, and strategy canvas

1. Introduction

University is the highest place of education area before people can moveforward on their career path. Generally all universities in Malaysia are using the same business design since the last 20 to 30 years. University becomes a placeof learning, education and research transition where people will gain as much benefit as they can such as knowledge area, skill sets of talent and build up their self-motivation before them entering into the employment era.Nowadays, as people live in the era of information technology revolution, universities in Malaysia need to have a huge changes especially on the business model design of education.

The tradition of the education process is not suitable anymore in the future because people use a medium of technology in their life. People live with technology in today's world. Malaysia is looking to havea university for people not only for local but for all human kind around the world. Hence, the Ministry of Higher Education (MOHE) had voiced out the suggestions and ideasto reform the education business model as a result to become the University of the Future. [18]Universities in Malaysia have to bind together with a new information technology structurewith collaboration with few agencies like government, education industry companies, technology industry companies and etc. It will create one huge phenomena call the University of The Future (UotF) to local and outside Malaysia.

Digital university is one of the mediums to promote universities in Malaysia become as the UotF. Digital universityhas been introduced on the early of 2005 where the idea came when the usage of internet and technology been utilized to people in all entire areas in the world. The new university digital concept can be highly demand in future since it will replace the tradition university model.[9]As a result digital university can been known as a smart campus. UotF has been describes as a new approach or design of learning environment where it will be using the online or electronic method of education. Thus this paper will be focusing more on the research excellence method towards the approach of the UotF.

2. Problem Statement

Higher education is facing a future that is challenging but also presents more opportunities for innovative organisations than ever before. [14]Rather than being standalone academic institutions, universities will need to become ever more integrated into the economy, with real commercial awareness and relationship management capability, in order to thrive.The higher education environment is changing and universities need to respond to new student demands and business interests. The current local university will need to be a completely different organisation to what exists today. [18]

According to the statistic mentioned by Pricewaterhouse Coopers (PWC) there were four main factors that university faced and it need to be change to lead UoTF aspire.

First the specialist resources around the local university was wasted up to 40% of an academics time and it was swallowed up by some administrative duties.

Second the key stages of student journey such as attraction, apply on study and keep focus do not take full advantage of the digital technology.

Third too many conflicting systems data interruption that course to data accessing and unable to provide data that student needs.

Fourth reductions in funding and increasing student expectations on return in investment (ROI) that create difficulties to the local university. [14]

3. Methodology

This paper provides few method on the local university in future. Some of the literature review by others towards the concept of Uotf based on the era of information technology approach. Besides it also shows the design of Business Model Canvas (BMC) and also the Value Proposition Canvas (VPC) for one of the local university in Malaysia.

Today we can always see that a university publish smart strategy documents which describe its business model but then fails to fully integrate this into how it operates, into the decisions it takes on its portfolio and how it creates the customer experience for its students and partners. This means that the strategy does not define the university's brand or the outcomes sought by its stakeholders. A university must translate its strategy plan into a robust operating model that defines how its capabilities are organised to make its strategy happen and then manage the change required.

This higher education business model simplifies the method of the business model and defines how it is implemented into the operations model in a proper way.Obviously the starting point for an institution will be a key factor in determining their business model and their overall response as well as their priorities for change and or improvement. However, while the current business models are not going away, they will need to be changed with the new emerging business models that take advantage of opportunities being created in the global economy.The most important part to re-design into a new business model of education is lies from this two main functions as per diagram below: [15]

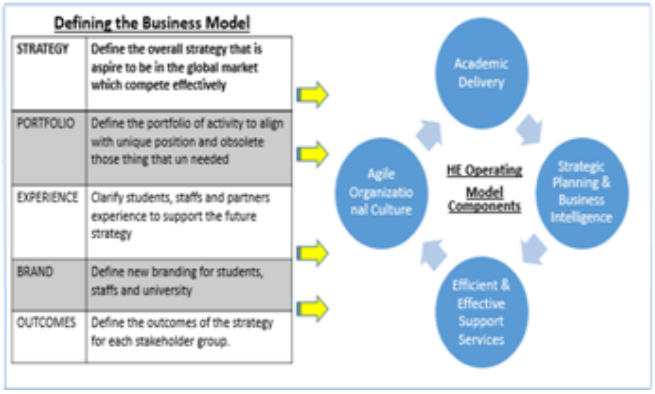

Diagram 1: New business model of education

4. Literature Review

Higher education in Malaysia is rapidly grows with the rise of human population. A lot of private local universities and colleges are building up especially in the huge area such as Kuala Lumpur, Selangor, Johor, Perak, Penang and other states in Malaysia. Based on the observation many higher education in Malaysia are using the same method in term of the education business process. Many of the universities are using classroom for learning process, research lab room, centre of library as per tradition practise. Hence to archive a target to become (Uotf) some of the local universities are slightly move to change their tradition concept. Most of the universities had stated their future target role as the roadmap to reach the (Uotf).

One of the universities is planning to target on their research performance. They want to expose on the research quality to become more excellence and efficient in future. One of the strategies is to develop separately 5 different research ecosystem such as Institute of Power Engineering (IPE), Institute Energy Policy and Research (IEPRe), Institute of Sustainable Energy (ISE), Institute of Energy Infrastructure (IEI) and Institute of Informatics and Computing in Energy (IICE). Below are some briefly details on these five institutes.

Table 1: Five different researchecosystem arealocal university in Malaysia

Research Institutes	Description
Institute of Power Engineering (IPE)	Power and energy services convergence research cluster emphasizes the multidisciplinary aspects of electrical, information and communication technology, and electronics engineering knowledge towards developing a seamless and intelligent power and energy system.
Institute Energy Policy & Research (IEPRe)	Delivery of research and consultancy efforts to the electricity supply industry, in the area of Energy Economics, which would enable government and industry players make informed decisions on the industry and create an environment of growth and sustainability
Institute of Sustainable Energy (ISE)	ISE is a one stop center for Research and Development in Renewable Energy. ISE provides a sustainable platform in national renewable energy development.
Institute of Energy Infrastructure (IEI)	Vision to be a globally known research center in development and advancement of sustainable infrastructure in energy sector. IEI has set their mission to discover, develop, and deliver innovative solutions in order to provide a better sustainable infrastructure in energy sector.
Institute of Informatics & Computing in Energy (IICE)	IICE aims at providing frontier research and development in using ICT to address energy challenges. Smart, clean, intelligent and sustainable are the key words of expected results of the R&D. Multi-disciplinary in IICE converge the R&D in ICT to eventually provide recognized solutions for energy sector.

1) Megatrends

As the world enters the fourth industrial revolution, the education needs of the future workforce are drastically changing. But the structure of higher education has remained static for decades.[2] By incorporating future-focused thinking into their strategic plans and adopting trends that can provide the greatest impact. Leaders of higher-education institutions can head fully prepared into a changing world of work and learning.[11]

There will have more than two dozen megatrends and five of it which focused on particularly relevant for the local university in Malaysia. By focusing on these five megatrends, university leaders can pivot their strategic planning and not only accommodate the students of the future but ensure their institutions' lasting growth.[11]

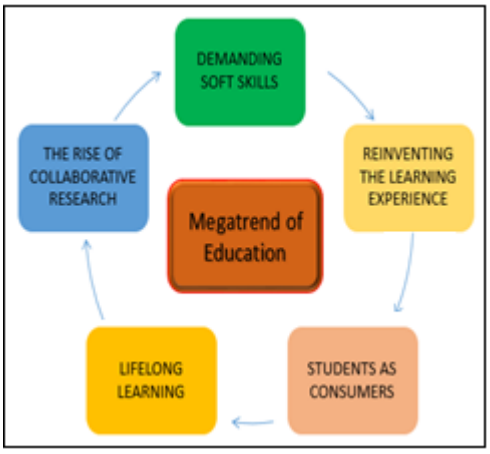

Diagram 2: Five megatrends process of education

a) Demanding Soft Skills

Part of the evolution of higher education must be a response to the consistent demand for soft-skills training within the curriculum. Teamwork, decision making, communication, and the ability to plan, organize, and prioritize work are at the top of the list of soft skills sought by employers. Soft skills can be embedded in the curriculum or taught in standalone courses, while online platforms such as Massive Open Online Cource (MOCC) era is already incorporating soft-skills content into their offerings, with hundreds of courses on topics such as communication skills and problem solving.[11]

b) Reinventing The Learning Experience

Universities increasingly want to be able to transition between structured and unstructured learning modes. A trend that redefines professors' roles and can lead to better learning outcomes. There is a growing demand for a "*deep learning*" to approach that encourages students to have a more complex engagement with materials. There also can be called for "*blended learning*" which combines in-person and digital modalities most often by using classroom time for discussion and practice and providing students with lectures in video streaming format that they can watch online anytime and anywhere.Furthermore, the mobility is changing the rules of the education roles, increasing value for all stakeholders. Students seek international experiences, employers want workers with international exposure and educational institutions can further reach to their global.[11]

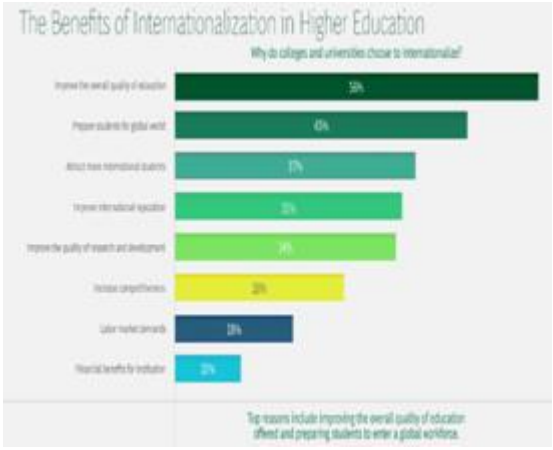

Diagram 3: Statistic on International higher education benefits

c) Students As Consumers

Nowadays students often seen themselves as consumers within the context of their education. They want to define the experience they have as well as the education certificate that they had earned. An autonomy that will allow them to identify where they can best use their talents, skills and interests on their career involvement. As an example, many students want the flexibility to design their own major and make greater use of electives. Universities will have to adjust and grow in order to meet the new needs and demands of students.[11]

d) Lifelong Learning

Research shows that 74% of adults are lifelong learners. Education technology can play a large role in accommodating a wide range of lifelong learners. There are those who may have deferred entry into university want an additional degree, want to refresh their skills through continued education or hope to pursue personal growth in a particular subject later in life. Whatever the reason, lifelong learning is becoming the norm and universities must introduce programs for non-traditional audiences.[11]

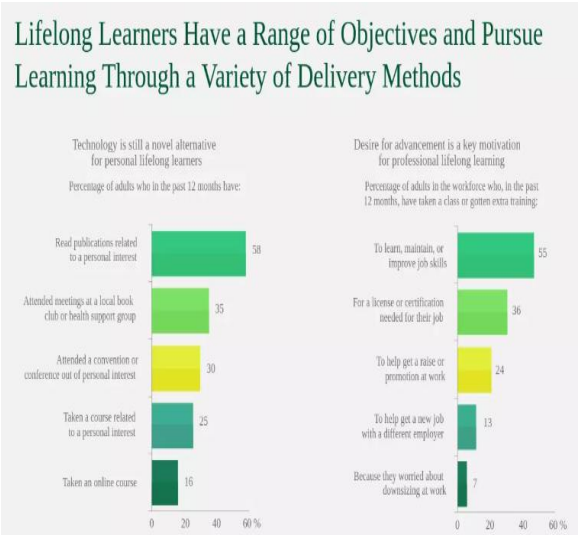

Diagram 4: Statistic on lifelong learners

e) The Rise of Collaborative Research

One of the university assets is the performance quality of research. The reputation on that university might be stands

from how the research quality is build and how the research can be apply into today's circumstances. Based on the observation in one of the local universities in Malaysia, it is going to plan to have good quality performance research in energy solution based which mean that this local university has some program planning to reach their future goal which been called as the best energy solution research in Malaysia and one of the best university in the world.[11]This university focusing on research excellence and it has been divided into three main portion – Focused Research, Talent Research and EduHub Synergy. Table below is the overview explanationfor those three main portion:-[3]

TYPE	INITIATIVES	OUTCOME
Focused Research	1. Align research focus and niche areas toward future target 2. Establish green intelligent campus 3. Partner with high profile institutions 4. Gain global university reputation	1. Improve ranking & global reputation • Top 200 in QS Asian ranking • Top 151-200 in QS World
Talent Research	1. Career path & contract design 2. Support for faculty 3. Appraisal & performance management 4. Rewards & consequences	1. Teaching pathway • Inspiring educators 2. Research pathway • Accomplished researchers
EduHub Research	1. Facilities & equipment sharing 2. Faculty & manpower 3. Marketing	1. Supporting university aspiration of domestic dominance & Regional champion.

Table 2: Three research type towards UotF given by one of local university

2) Fourth Industrial Revolution (4IR)

The Fourth Industrial Revolution (4IR) is the fourth industrial revolution era since the initial industrial revolution of the 18th century. It is marked by the emerging of technology including robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, internet of things and 5th wireless technology. For this paper it will briefly elaborate on the education revolution industry. Nowadays most of the industries want to make an enhancement towards digitalizing concept. Humanizing education also is one of the education revolution process.[2]

3) Humanising Education (HE)

The Malaysian government, under the MOHE, is responsible for developing better higher education ecosystems for Public and Private Higher Education, Polytechnic institutions and Community Colleges. Established on 27 March 2007, MOHE's vision is to make Malaysia a hub of Excellence in Higher Education by 2020.

MOHE has ten objectives of which one is to produce competent graduates that meet the needs of national and international employers. MOHE intended to achieve a 75% employment rate for students in their respective fields within six months of graduation, and for which blueprints were published. [9]

The initial blueprint proposed the National Higher Education Plan (NHEAP) for 2007 to 2010 (KPTM, 2007). This constitutes the first series of short-term action plans for each phase of higher education transformation. Phase 1 placed the foundation for implementing the basics necessary to complete long-term plans. The next blueprint was NHESP 2011–2015 (KPTM, 2007), comprising the following four phases. [20]

Flow Chart 1: Education Revolution Phases

Phase 1: Laying the Foundation

The first blueprint (2007-2010) represented initiatives to assist all the higher educational institutions as a human capital with first class attitudes. They had planned five pillar as the foundation for future education development. These were governance, leadership, academic environment, leadership and research and development (R&D).

Phase 2: Strengthen and Enhance

Phase 2 was designed as a result of discussions and negotiations between members of Critical Agenda Plan (CAP) project team. This action plan was to link closely on the achievements of the CAP implementation in Phase 1. CAP criteria included APEX University, MyBrain15, academic performance audit, lifelong learning and graduate training scheme.

Phase 3: Strengthen and Enhance & Phase 4: Glory and Sustainability

This 2 phases are still in progress on the project implementation. The blueprint for these two phases still in the introduce stage for approval by the MOHE.

4) Business Model Canvas (BMC)

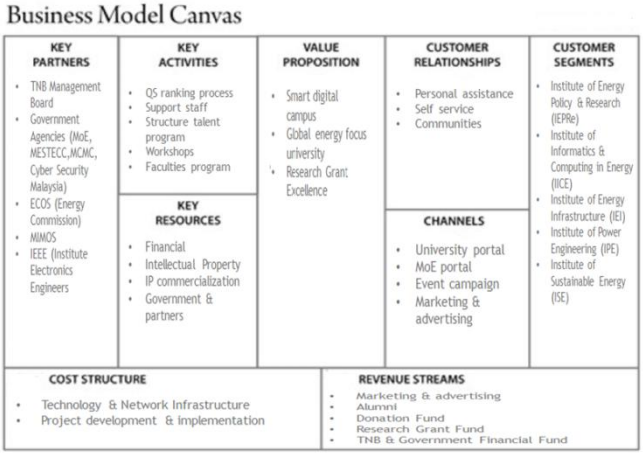

Diagram 5: BMC model on one of local university which focus on energy university

BMC diagram above explains on the new business model design for particular university to achieve their future 2025

target which is they want to be known as the first energy focus university in Malaysia. BMC has divided into 9 parts as per namely below:[13]

1) Customer Segments
2) Value Proposition
3) Customer Relationships
4) Channels
5) Key Activities
6) Key Resources
7) Key Partners
8) Cost Structure
9) Revenue Streams

This BMC design is more on the energy focus university and also will be align with the concept of the university in the future whereby they will be using all automate mechanism in term of research capability. They aimtarget is to create five types of institutions known as (IEPRe, IICE, IEI, IPE and ISE). All these five institution will be the customer segments of this BMC. All of these five institutionsalso will be the future value proposition towards the university to inspire them as the smart digital campus in Malaysia, become the first energy focus local university and indirectly to improve the quality of the research grants standing.[3]

The customer relationship area is the important part to make sure both customer segments and value proposition can be keep in touch continuously. The relationship can be across by having some additional help from personal assistance information, collaboration with self-service partners and also fully support from local communities. As part of that they will be a channels which also can help to deliver the information of the customer segment needs. Some of the channels are using the university webpage portal, decorate any events or campaign for marketing and promote purpose, advertise activities and also some support from partnership web based portal.[3]

Key activities, key partners and key resources are part of BMC model design to support and collaborate with value proposition area. Based on the BMC of this university they had decided to put few of semi government agencies like MoE, MESTECC, Cyber Security, Energy Commission, and MIMOS as key partner of group members to help to achieve the university target. Besides the fully support from management board and government also give some extra input as stakeholders. In key activities university choose five major points such as process of QS ranking activities, supporting ideas from they own university staffs, deliver talent program activities and also join up some of the programs which created by all faculties in the university. Key resources can be some injection of financial, intellectual property and commercialization as well as government and partner support availability.[3]

Cost structure for this BMC design can be describe into two main tasks which are the cost for all implementation on the technology and network infrastructure. The last portion of BMC is the revenue stream segment. This segment focus more on how to get extra income of financial to support the aspire target of the university. Some of them are perform activities in marketing and advertising, financial from the university alumni, donation fund from any partners or company and research grant fund.

5) Value Proposition Canvas (VPC)

The Value Proposition Canvas (VPC) is a tool which can help ensure that a product or service is positioned around what the customer values and needs.The Value Proposition Canvas was initially developed to ensure that there is a fit between the product and market environment. It was designed for the relationship between two parts of the Business Model Canvas (BMC); customer segments and value propositions. [21]

For this paper, there will be five different VPC based on the BMC highlighted above. All the five VPC structure are describe in detail diagram below:

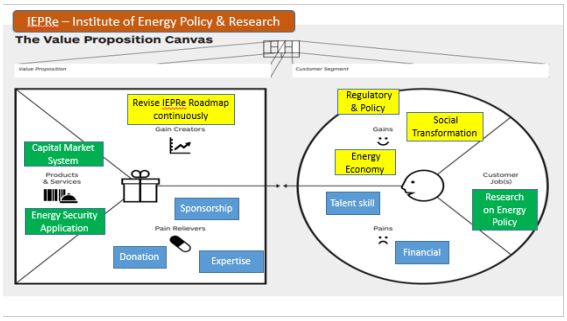

Diagram 6: VPC design for Institute of Energy Policy & Research

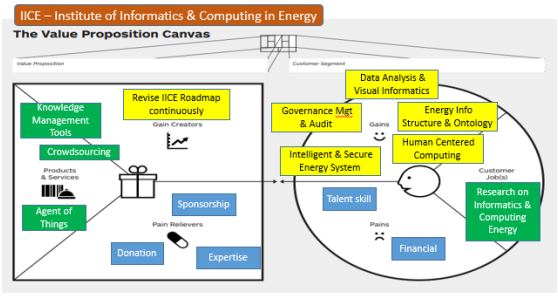

Diagram 7: VPC design for Institute of Informatics & Computing in Energy

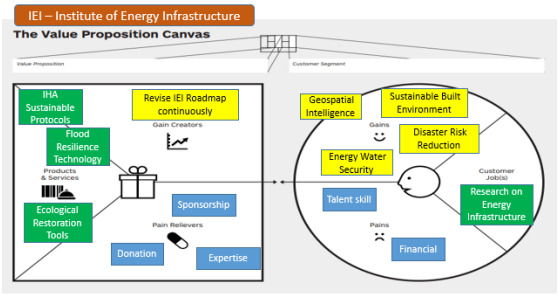

Diagram 8: VPC design for Institute of Energy Infrastructure

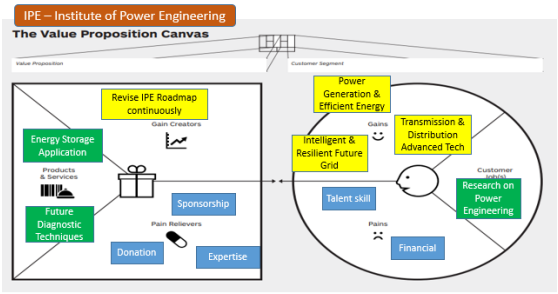

Diagram 8: VPC design for Institute of Power Engineering

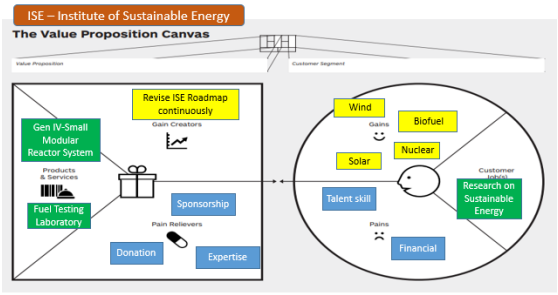

Diagram 9: VPC design for Instituteof Sustainable Energy

5. Conclusion

As a conclusion information technology is like some corporate functions within universities, has traditionally operated as a decentralised concern, with individual faculties procuring and deploying specific IT solutions to meet their needs which in the university environment are often more diverse and specific that other industry sectors. New digital technology also brings additional challenges as university stakeholders now expect to work in much more joined up and accessible ways which means a need for new products, new solutions, and in some cases, new infrastructure.[3]

On the other hand students find themselves at the forefront of technology. If universities do not become more flexible and responsive to the changing dynamic and environment between university and student, and lecturers, academics and operations, they risk not only lower applicants and lower student numbers but also risk losing important research and educational standings.

In the future IT will need to operate in a much more integrated and user friendly way.A decentralised model may not be sustainable. This is accentuated when considered alongside the need to manage more effectively the life-cycle of the student from prospect to alumni. There are three key areas that will be the focus to build up the university of the future (UoTF):-

1) The growing value of IT

IT departments on the university can often to be overwhelmed with the daily delivery in term of IT services and maintenance of complex, disjointed systems. Standardising, optimising and integrating systems more efficiently means that valuable technical resources can be used to undertake activities that add real value to the university. For example developing innovative solutions that enhance a university's strategy.A stronger relationship between IT and partners will contribute to this. It will allow IT to become better understand the needs to implement the university of the future with most strategically

2) The adoption of institution wide architecture

Organic and decentralised growth has often led to system sprawl, a lack of defined ownership, inefficient integration, and random model of methodologies and poor data management structure. University must be considered a strategic asset across the entire institution with common standards and principles in place and solution reuse broadly promoted.By maintaining a centralised inclusive overview IT can analyse systems and map these to the university business function which means opportunities for simplification and rationalisation can be identified and frees up expert resources for more innovative solution development.

3) Controlling change while fostering innovation

Controlling change through governance is critical but should not be its defining characteristic. Too much governance stifles innovation and causes non-compliance will course for too little threatens the integrity of the university and also the IT operating environment.The real opportunity lies in using a new operating model to define the right governance structure and by adapting a more flexible approach to controls. Some teams could be given the authority to make local decisions, meaning faster project delivery and quicker outputs.

This would mean that traditional solution development methodologies of the university would sit alongside more flexible and fast-paced development cycles where requirements and design are validated in almost real time and solution build can be quicker.These new ways of working must be backed by the appropriate level of sponsorship preferably at the executive level which is essential to making sure governance works.

The relationship between IT departments and the university needs to be improved and IT needs to be seen as aninternal strategic partner so that the benefits of working more closely together can be realised. By aligning IT to the operations and business of the university and by taking an institution-wide view of IT will result a better working partnership can be created and subsequently better innovation, control and efficiency realised towards the University of the Future.[16]

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