

Strengthening Support Services in Innovation and Commercialisation: The Malaysia's Higher Education Perspectives

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Abstract

The innovation and commercialisation of the research product has been recognised as a supply of wealth creation. Specifically, this article explores the commercialisation support services that HEIs received from industry and government with a specific focus in the Malaysian context. The article guided by these questions - What kind of support services in commercialisation have been given to HEIs? What do you perceive as the support services in Malaysia to foster innovation? Using a qualitative method, a structured interview was conducted. To analyse and interpret the data was using an approach adopted in qualitative thematic strategy. The findings provide useful insights into the significant roles of support services on the commercialisation strategy. Besides its importance, this study will contribute to commercialisation literature by adding new knowledge concerning the link between HEIs and support services. These findings are significant for HEIs; industries; research institutes; government and societies to develop and plan strategically for an effective, strategic and sustainable support services in innovation and commercialisation ecosystem.

Keywords

Innovation; Commercialisation; Support Services, Higher Education Institutions (HEIs)

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Introduction

Innovation and commercialisation is essential for socio-economic improvement in today's know-how intensive and innovation-led economy. Not surprisingly, technology, innovations and commercialisation have created successful techno-companies that have transformed industries landscape and society as a whole through new economic growth that increase jobs creation and wealth. The development of R&D in Malaysia is evolving from time to time through innovation and improvement of various aspects as well as developing human capital skills among academics in addition to the competencies and outcomes of science, technology and innovation (World Bank, 2020). Recognizing the importance of productivity to model improvement, research assets and expenditure, of course, Malaysia recognizes the need to adopt an innovation -driven improvement model to weather the dynamic global crisis and achieve its aspiration to transform into a high -income nation. To prepare for the Smart Industry 4.0, the support system for innovation and commercialization in Malaysia needs to be strengthened. Given that commercialization includes transferring information from research laboratories to market areas to innovative products and services, there is a need to focus efforts on improving the governance effectiveness of public research systems with a view to positive impact and impact in markets and society (World Bank, 2020). Hence, innovation and commercialisation implies connecting university and industry to bring new scientific inventions, knowledge, and technologies from the research lab to be successfully transferred to the market (Clayton, Feldman, & Lowe, 2018; Fini, Rasmussen et al., 2020). These two inter-related ideas of innovation and commercialisation have set the tone and direction for the nation to enhance the quality of life by emphasizing technology commercialization activities, connecting entrepreneurs, innovators, investors, social media, society, government, university and industry in strategic collaborations (Fini, Rasmussen et al., 2020; Zahra, Kaul, & BolívarRamos, 2018; Spigel, 2017). The connection and strategic collaboration between these entities is a vital driver of innovation, and productivity (de Wit-de Vries et al., 2019; Fini, Grimaldi et al., 2020). The collaboration between HEIs, industries, research institutes, governments, and societies is very important and plays an active role to foster innovation and commercialisation (MOSTI, 2018). The National Higher Education Strategic Plan Beyond 2020(NHESP) (MOHE, 2015) and the Malaysia Education Blueprint (Higher Education) 2015-2025 (MOHE, 2015) are two important country wide strategic tasks designed to influence the improvement of HEIs in Malaysia to fulfil the wishes of the nation in the age of the knowledge economy. Definitely, HEIs quest for the quality of teaching and learning, recognition of research and development, innovation and contribution to society. HEIs play a pivotal position within the innovation atmosphere, given their position within the introduction and diffusion of recent knowledge. To facilitate diffusion, the institutional environment needs to encourage knowledge sharing between innovation actors; more precisely among knowledge creators and users. Therefore, the terms of Triple Helix, Quadruple Helix and Quintuple Helix have been acknowledged in academic settings. Etzkowitz & Leydesdorff (2000) find knowledge and use in context of university-industry-government relation are on the focus on The Triple Helix meanwhile the Quadruple Helix extends of it by adding the helix of media-based and culture-based public (Carrayanis & Cambell, 2009) Consequently, the emergent Quadruple Helix Model of Stakeholder Relationships reflects a shift from the normative Triple Helix (government, university and industry) to include end users as a core stakeholder in regional innovation ecosystems (Carayannis & Campbell 2009; Leydesdorff, 2012). In this research, developing a dynamic Quintuple Helix innovation model contextualizes the Triple Helix and Quadruple Helix by further adding on the helix of the accessibility of support services in innovation and commercialisation. This new Quadruple Helix will offers an analytical model where technology-support services, market-support services, financial-support services, know how-support services and leadership-support services are being connected with the service provider from industry (public-private), universities (public-private), research institutes (public-private), governments, and societies to nurture dynamic support system in innovation and commercialisation for Smart Industry 4.0. According to the World Bank (2020), there are five factors of simplified technology transfer channels in terms of research orientation and capability, structure and more effective governance to research institutions; employment laws governing public research institutions and universities; readily available financial support as well as the firm's absorption capacity. This paper seeks to explore the challenges of commercialisation and support services that HEIs receive from industry and government with a specific focus in the Malaysian context. This paper consists of six sections. First, this paper generally introduces the concept of commercialisation in HEIs. Second, examine the challenges Malaysian

HEIs faced in the commercialisation phase. Third, explore the views of support services in commercialisation, guided by the question: "What do you perceive the support services in Malaysia to foster innovation?". This is followed by section four which discusses the finding of support services for the Malaysia's RU specifically from the perspectives of technology support-services; market-support services; finance-support services know-how support services and leadership-support services. The conclusion briefly deliberates in section five, limitation and future research deliberates the final section.

Literature Review

Challenges in Commercialisation

Although there have been many initiatives and efforts in research and development (R&D) and commercialisation activities, the charge of achievement continues to be much less encouraging. There are many methods on how HEIs help for commercialisation of the research product, however why nonetheless lack? Indeed, the ecosystem of innovation and commercialisation still needs to improve due to the dynamic challenges especially in the era of COVID-19 pandemic. Innovation and commercialisation are indeed a challenging process for HEIs. HEIs face competition and challenges in order to gain competitive advantage in both national and international settings. For example, changing government policy, ongoing student growth, stakeholder demand for quality, change in leadership, renewed institutional strategy; and financial sustainability are some of the internal factors contributing to the challenges within universities (Shah & Nair, 2016). For Malaysian HEIs, the role is changing to meet the needs of today and more critically, that of tomorrow. Thus, acknowledging the problems and challenges of Malaysian HEIs, where criticisms have been raised about the sustainability of these institutions (Wan, Sirat, & Abdul Razak, 2015). To Miller et al. (2018), challenges of academic entrepreneurship include three levels of challenges. The first level is individual challenges such as lack of resources for combining different roles and absence of entrepreneurial role model, the second level of challenges is institutional level challenges such as lack of legitimacy and incentives, lack of institutional support, and uncertainty university roles for society and the third level of challenges is regional level challenges such as policy related issues, geographical proximity and clusters presence. Unfortunately, in 2020, due to lockdown for long periods by political leaders to control the spread of the COVID-19, it had caused huge impacts worldwide. As to overcome, the pandemic outbreak is likely to require global effort, sharing resources, knowledge and global cooperation to deal with other global challenges (Donthu & Gustafsson, 2020); practicing more openness in science and technology for example, user 9 innovation (Nurhayati et al., 2021); find attractive business uses is to experiment in a wide variety of strategic ways (Chesbrough, 2020); for today and critically of tomorrow. Eleonora (2021), analyse the commercialisation challenges in university context (see Table 1) and show that most of challenges are not having enough financing resources; lack of trust from the clients and being an unknown brand; management and bureaucracy problems; scalability issues that are problems to replicate the product at a large scale; not having enough market knowledge that might affect the product-market-fit (product or service that does not satisfy the market demand) and the best timing for launching the product; difficult access to talents; communication problems; and geography problems (the place where the start-up is born can be a limitation for its growth. Despite that, there are still few studies aiming to explore science commercialisation in the light of the COVID-19 crisis and its impacts on new ventures. The commercialization path is crucial for both the regional economies and national competitiveness and its knowledge and understanding become almost mandatory for any organization that wishes to ensure any competitive advantage in the market in the next years after COVID-19 (Eleonora, 2021).

Table 1.
Challenges in Commercialisation

Challenges	Quotes	How to overcome the challenges
Not enough financing resources	"Without private investment it is very complicated, because we are developing a technology and we need a lot of funds just for development." (male, start-up founder, tracking devices industry)	Convince and support the clients; Working the brand visibility
Lack of trust from the clients and being an unknown brand	"It is difficult to create a brand and make it visible in the first years. It is always a great effort to have an opportunity." (male, start-up founder, cleaning outsourcing industry) "Our clients [...] do not like to trust in [...] a small start-up as they do not know if in a year we will be here. So, there is all the prior work of credibility and commitment to get their trust, that is fundamental in this area." (male, start-up founder, information technology consulting industry)	
Management problems and bureaucracy	"Therefore, the difficulty was [...] management in general." (male, start-up founder, financial service industry) "Many requests began to appear, bureaucracy, fiscal, financial, accounting, so it was a hindrance in the beginning." (male, start-up founder, electrical system industry)	Coaching and Training
Scalability problems	"We have a challenge in terms of technological research that has to do with putting technologies that are not being used on a large scale." (male, start-up founder, information technology consulting industry)	Create and improve the technology
Not enough market knowledge	"We focused a lot on the technological part, as engineers do. We built the technology and we did not care so much about the market. What happened was that we built the technology and when we came to the market and were doing the tests, we still had to change a lot to adapt to the need [of the market]." (male, start-up founder, tracking devices industry) "One of the main difficulties is that we often know the need will exist, but we are sooner than [the actual need and] the customers have difficult to absorb [this new solution]." (male, start-up founder, IOT solution industry)	
Difficult access to talents	"It is difficult for us [...] to have a good recruitment process, [...] to be able to choose people well." (male, start-up founder, information technology consulting industry)	Flexibility, agility and adaptability; Trial and error method; Help from Networking; Know your strength and weakness
Communication problems	"The biggest problem is communication. Problems to communicate with customers [...] It is a huge difficulty to be able to adapt and transmit what we want to these different cultures and even internal communication [is complicated]." (male, start-up founder, information technology consulting industry)	
Geography problems	"It is not the same as being a Start-up in Portugal or being a start-up in Silicon Valley, because first, they have more mature markets, they are more developed, they have much more purchasing power, more investment and therefore geography is an essential aspect." (male, start-up founder, transportation and mobility solution industry)	

Source: Eleonora (2021)

However, in reality today, the process of creating, developing and sustaining structured techno-companies are complex and challenging, which can include many competencies needed such as R&D contracts, suppliers, customers, and competitors to turn scientific output into marketable products or services in order to gain a competitive advantage (Mascarenhas et al., 2018; Fini, Rasmussen et al., 2020; Cenamor, 2021). In this sense, techno-companies have to gain profit by creating new values and accomplish competitive advantage through innovation and commercialisation capabilities while providing new product and service development through R&D, investment and quality improvement (Kim et al., 2020). The linkages and network between these players are weak and fragmented (Khin et al., 2017). For example, there are gaps that exist at implementation level such as financial, community, intellectual capital, market accessibility, leadership, culture, governance, policy, physical infrastructure, R&D, international networking, innovation support and knowledge (MOSTI, 2018). Siegel and Guerrero (2021), have identified three new areas of micro and macro research on how COVID-19 affects the commercialization of science. The first thing to pay special attention to is the performance, quantity and quality of research bases) and performance, social networks, and strategic management of innovation, commercialization of research as well as the relationship between universities and industry. The

second point of concern is innovation and the entrepreneurial ecosystem which have important public policy implications as there is substantial public investment in property-based institutions and high-tech economic development initiatives. The third thing to pay attention to is the scientific workforce, such as role conflict, identity, work-life balance, 'winning', organizational justice and leadership. This is important to understand micro and macro, especially those involved in commercialization efforts to assist and determine how to better manage the scientific workforce and the process of commercialization of research in challenging conditions. Thus, the innovation and commercialisation support system still needs to be enhanced due to the dynamic issues and challenges (MITI, 2018; MOSTI 2018; Khin et al., 2017). Malaysia continues to rely heavily on technology transfer from abroad to boost its competitive advantage in export markets. For example, R&D output have been slightly behind in terms of industry acceptance of public R&D output compared to innovative countries; less than 5% of publicly funded R&D projects have been commercialised; less than 3% of the publicly funded R&D is industry funded; only 38% of manufacturing companies are innovative (Pilal, 2014). In addition, technopreneurs face operational and strategic challenges such as achieving monetary sustainability; finding and retaining management groups with the proper mentality and skill sets; and strive to achieve the right "deal flow" (Khin et al., 2017). Prior literature indicates that industry players require support services such as technology services, market services, finance services, training and skill development programs (Heydebreck & Klofsten, 2000). Therefore, the accessibility of the support services system is crucial as it facilitates and accelerates its operation and commercialisation process to transform Malaysian innovation landscape not only the needs of society today, but critically, of tomorrow.

Commercialisation Support Services

The commercialisation environment has been nicely comprehended because of its significance to the development of industry and manufacturing sector that fuels the increase of factories and companies, which, in turn, creates employment and wealth. A commercialisation atmosphere is a mixture of diverse social, political, economic and cultural, technology, marketplace and community factors inside a place that guide the development and growth of innovative start-ups, assist and evokes nascent technopreneurs to require on the beginning and funding risky ventures (Mason & Brown, 2014). The essential concept of commercialisation environment is to create and surroundings conducive to assisting innovation, forming new success ventures, and producing the corresponding sustainable employment growth inside a selected geographic region (Brekke, 2015; Jacson et al., 2018). Ecosystems constitute extra of a conceptual umbrella encompassing a whole lot of exclusive views at the geography of entrepreneurship instead of a coherent principle approximately the emergence of a sustainable group of technology entrepreneurs (Spigel, 2017). Analysis of the literature highlights the fact that very little research has focused on how companies can raise awareness. High-tech firms referred to as technopreneurs according to Heydebreck and Klofsten (2000), these services can help high-tech firms deal with technology-related challenges and skilled human capital. Heydebreck and Klofsten (2000), explain that providing technopreneurs with the knowledge they need to be able to fit the firm's needs. Financial services, market, technology and knowledge services or soft support services of assistance for innovation through the expertise of its antecedents. The support services can be best understood from the perspectives of technology support-services; market-support services; finance-support services know-how support services and leadership-support services as stated below.

Technology-Support Service

Technology support services provided by government-funded incubators, new technology developed in educational institutions, imported technology know-how, locally available talent pool. The use of technology in the right way would provide a firm with various alternatives, possibilities, and opportunities in a mission to form alliances, making deals and discerning motives (Hsieh, 2010). It is important for a firm to create the right framework, have the flexibility and willingness to think creatively to gain advantage as the first movers (Bridge, 2012; McRae, 2010). Innovation is necessary as new ideas, novelty, experiments and inventive processes lead to new products, services or technological processes, in addition to the search for creative, unusual or new problem solutions (Certo et al., 2009; Madhousi et al. 2011). According to Mazidah (2014), many SMEs neglect the significant role of innovation and technology to their business

performance. Abdullah et al. (2009), claimed that only a small portion of SMEs took the challenge to embed technology in their business operation even though the Malaysian government has implemented many initiatives to promote the use of technology. Realizing the importance of technology has a strong relationship with innovation, it is very important to have an understanding of technology-related services.

Market-Support Service

Market-support service refers to the support services that provide entrepreneurs with the support of finding a place in the market, as well as ways to market entrepreneurs' products. In addition, it consists of certain business associations, alumni associations and online social sites consisting of Facebook, LinkedIn, friends, community-markers and distributors (Sujianto, 2021). Also, in Malaysia a lot of agencies that provide the support for entrepreneurs such as SMECorp Malaysia, Majlis Amanah Rakyat (MaRa), Center for Entrepreneur Development and Research (CEDAR), Institut Keusahawanan Negara (INSKEN), and Perbadanan Usahawan nasional Berhad (PUNB) (11th Malaysia Plan 2015). According to Kee et al. (2010), building and developing the right networks is the most critical key success factor.

Financial-Support Service

Financial support services include assistance with European Community programs, intermediation with financiers and direct assistance in financing new innovative projects (Heydebreck et al., 2000). Financial assets should construct and strengthen the technology base, acquire formal IPRs in a way that limits the risk of expropriation, find and access suitable partners. An observation by Svensson (2007), indicates that patents in the first phases are characterized by high costs and a lack of income thus requiring considerable amounts of funding. Financial assistance comes from local family, banks, Venture Capitalists, friends, relatives, in-laws, educational institutions, angel buyers, and small buyers from the capital market, foreign monetary institutions, government agencies and supplier credit rating.

Know-How Supported Service

Know-how is anticipated to consult the understanding and attempt out something new on the way to attain the goal; consolidation of lessons discovered via practice (Elzinga, 2021). Know-how support service is regarding the expertise includes access to education and knowledge, talent pool, empowerment of human capital, community participation, mentoring, coaching and moral support. Reward and collaboration are the two factors to foster knowledge creation process and by knowledge creation process, it will enhance the R&D project (Xue et al., 2018; Yee et al., 2020). Also, knowledge collaboration allows the two companies to use their individual strengths to overcome the weakness of each company (Yee et al., 2020).

Leadership-Support Services

Leadership is understood to mean the actions and decisions of the actors who have been assigned key roles in a higher education system. Within individual HEIs, those actors consist of especially the individuals of governing boards, the members of vice-chancellors, executive group, and the members of academic senates (Wan et al., 2020). These actors are involved with what is described by Gallagher (2001, p. 49) as leadership, that is in "seeing opportunities and setting strategic directions, and investing in and drawing on people's capabilities to develop organizational purposes and values." Leadership-support service includes governance, policy coordination, regulatory, transparency, public services delivery, procurement, and political environment.

Methodology

The objective of this research is to explore how commercialisation support services (technology-support services, market-support services, financial-support services, know-how-support services and leadership-support services) are accessible to foster innovation. In order to gain holistic image that will be rich in understanding, a qualitative approach that is supported words instead of

numbers was pursued (Miles & Huberman, 1994), whereas to obtain an in-depth investigation and rich description a case study approach was pursued (Darke, Shanks, & Broadbent 1998). Case study is defined by Yin (1994, p13), as "a case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident". Merriam (2001, p. 21), "a qualitative case study is an intensive, holistic description and analysis of a single instance, phenomenon or social unit". Qualitative case studies are commonly conducted due to the fact researchers have an interest in exploring, interpreting and gaining deeper understanding of a case, instead of testing a hypothesis by specializing in one such phenomenon. Case studies focus on holistic descriptions and explanations, where the variables of the phenomena studied cannot be separated from their context (Merriam, 2001; Ramdan et al., 2020). In this case, the support services were not generalized or understood based on the results of a survey, but researched and understood in the natural environment of the innovation ecosystem. This case study technique appears to be suitable considering the fact that this paper is an exploratory study of those ambitions to increase a higher knowledge of the quintuple helix support services. We chose this population, research university outputs. One of the reasons is that HEIs spend lots of grant money on research projects but only few percentages of outputs are commercialized (Zakaria & Arnold, 2012). So, this study will uncover the support services that will help them generate economic return for the invested effort in research projects. Therefore, this research targeted one RU in Malaysia due to the recognition of excellent status in innovation and commercialisation. Structured interviews were administered during work hours. We took a qualitative approach with structured interviews. The structured interviews were conducted in January 2020. We operationalized our enquiry by asking broad questions about the support services in Malaysia. The consent of the interviewees was obtained for the recording of the interview. All questions were open ended. The interview lasted an hour on average. Use an open interview schedule such as the following questions: What kind of support services in commercialisation have been given to HEIs? What do you perceive as the support services in Malaysia to foster innovation? The support services include: a) Technology, b) Market, c) Financial, d) Know-how and e) Leadership Each recorded interview transcribed verbatim in English. At the beginning of the interview process, we coded data related to different themes, then used different methods to identify key themes (Glaser & Strauss, 1967). Through non-stop methods, we discover the sub-theme under each main theme, such as trends or descriptors, and the nature of the theme underlying the study. By non-stop methods, we discover the sub-themes under each main theme as properties or descriptors making explicit the underlying theme properties. The data are provided thematically and the connection among findings and literature is included into thematic discussions (Glaser & Strauss, 1967).

Data Analysis

To analyse and use the data, we used qualitative thematic strategies (Boyatzis, 1998). Data are presented thematically and the relationship between findings and literature is integrated into thematic discussions (Glaser & Strauss, 1967).

Results and Discussion

The results of the interviews are presented below based on five themes of support services namely technology, market, financial, know-how and leadership. First theme is considering the challenges; we find that all respondents faced the same challenges in terms of business development strategy such as teamwork management/operation management/client management and up scaling the product into market segments. Moreover, they face challenges on lack of strategy formulation and implementation to make the research become a product, lack experience in setting up the facilities and to develop their own technology and to innovate and differentiate to others. The five themes are shown, such as (1) Technology-Support Services, (2) Market-Support Services (3) Financial-Support Services, (4) Know-How-Support Services and (5) Leadership-Support Services. The result is indicated below:

Theme 1: Technology-Support Services

"In terms of support, we have an organization called ITMA, Innovation and Technology Manager

Association. Currently its president is UPM. I am from AJK only. It has a lot of potential in it. We also have Malaysian Bioeconomy Development Corporation Sdn Bhd. We also have CREST Sdn Bhd, a government-owned company ... commercials do not just talk about technology because innovation can be product, technology and know-how. Therefore, the importance of technology in commercialization is depending again by project. There are technological projects, some more than expertise."

Theme 2: Market-Support Services

"The government needs to look at policies and policies. Universities need to understand the needs of the industry and understand the needs of the local community. Industry, don't think he needs R&D because that's what determines his profitability at the end.... Researcher does market research. What makes it an innovation centre? Moreover, so far, we've been using software called Frost and Sullivan. Frost and Sullivan gave him market reports, so what happened was that we did market analysis first, so this market report is market analysis. We want to see the current trend. Market reports if sub to outsourced companies, a market report can reach prices up to 30 thousand. Make money. Seriously make money. Even back in my career we had some software that we used to do market reports and it wasn't really that late. It is like us doing literature reviews. So, the word market research is the centre of innovation. In any case, SMEs are the only university that generates market reports for researchers. Other universities do not, so industry and government need to join forces to create an IP Repository marketplace. This means that there is one ministry that holds a single database where all the IP Universities are located. Ready with description is not just a list. So when the industry has access to it, they can shop. To this day it is no longer in Malaysia ... So in order to promote this innovation what I suggest is that at the start of 2017 all public universities have sent representatives to discuss with MyIPO about building an IPR market place. It's where it helps promote intellectual property from universities to industry"

Theme 3: Financial-Support Services

"Preferred mechanism is to have financial support first. Only when financial support is available can a person start R&D with his student fund.... So, what is the difference, innovation funds are for prototype production or for scale up. While lab to market funds are more than promotion. He means he already has the product; he wants to do market validation. Okay promotion and market validation. However, for the external ones I mentioned earlier from MTDC, PlatCOM Ventures is all. How they help, all these people as far as I know in SMEs are funders. Not just for pre-commercialization but for commercialization itself. Okay. We know there are many funds from the science ministry and so on. But they are the ones who support so much that their first step, their training step, helps them. Because in the ministry there is no step in the training. It is just a supportive step that can continue to sell. So far, we are the first university to receive tax number, number tax exemption when the industry offers R&D funding, so he gets the tax exemption based on the money he makes. Then in terms of grant there is a need, a seed fund is the same, a soft loan is the same. So, there is a need for this because the university has very limited resources in terms of money for commercialization".

Theme 4: Know-How-Support Services

"The meaning of this know-how is internal expertise, for example, if I have a copyright based on chemical classification. Then the classification of chemicals is a necessity for the industry meaning that its staff must know. However, we want the industry to make sure its staff is aware that through DOSH, the Department of Safety Hazard issued a company license renewal order that can only be approved when 1/4 of its lab staff has a chemical classification certificate. So, when they do that they send it to their staff for training and eventually get a DOSH certificate in collaboration with SMEs. What does he protect? Copy write chemical classification module. So close to that is when we see no technology but know-how. Is it technology? No technology. But expertise. So important or not? Depends on project". "The guidelines are issued by SIRIM which is a standard set of guidelines on how to make technology transfer. Its title is guidelines for technology transfer. Okay. Because in it he has "the do and the don't." I mean the rules and regulation, the policy is not, in one guideline there can be no policy. He has the do's and the don'ts and the method is based on the project basis. Can be personal, desire to be famous, desire to be rich, desire to be

very rich ... so we have the Intellectual Property Policy with the commercialization of intellectual property."

Theme 5: Leadership-Support Services

"This leadership must be on the research track, the entrepreneurial track, and the legal track. It means they understand the results of research, entrepreneurship, legal and financial. To support innovation, leadership research in innovation on publishing, consulting, intellectual property (IP) innovation, legislation and regulation and policy. Financial is about financial governance. Financial governance means that there is a budget, some in terms of accountability. Integrity is in the legal aspect. These leadership characters are essential in guiding an innovation; there is competency and knowledge about research. That's why I believe that any university's innovation centre must be guided by academics. So, in this case managerial and technical competencies that we see must be related to these 4 things. Research, innovation, legal and financial"... This university is actually in my opinion; it has a very clear platform. Now any university must have at least one innovation centre in cooperation with the research management centre. Why a research management centre? Because in the English Research Management Centre (RMC) we usually call CCI do not be surprised if you use that term. When a research management centre he manages and when he manages the funds, he has to make sure there is output. In addition, that output, all kinds of output and one of them is intellectual property. Okay. because the output can be human capital, student, it can also be output, okay, expertise, and well that means that people are not experts, so are experts. But along with the big innovation centre is IP. Therefore, it can't really be the centre of research management saying he works in Silo. He really needs an innovation centre. In addition, the centre of innovation is the safest way to avoid unwanted legal issues with a special purpose vehicle. Not only for the promotion but also for the endorsement of the job and not only for the academic staff it should be available to the executives. Social science is okay. That is all I can suggest ... So, yes I believe it helps to clear the guidelines. In all areas of innovation-incubation-university. The driving line must be clear. The second is to ensure that the researcher understands the need to protect intellectual property, when protected, there should be a feeling of market driven rather than market push because we think that is what universities should be more like."

Conclusion

The fact that needs to be recognised is that universities in Malaysia need to have their own mold to become a learning institution that is relevant to the National Education Philosophy as its starting point and guiding principle. While there have been drastic changes to the key role of universities, the Malaysian HEI system must clearly have the right structure, efficient governance and no exception in relevant leadership if they are to be relevant and actively participate in reshaping life through education. The governance system of HEIs plays an important role in the education of world citizens who receive and contribute to the creation and dissemination of relevant knowledge for the community, society at large. This and many more are the way forward for the future. This study will contribute to commercialisation literature by adding new knowledge concerning the link between innovation, commercialisation and accessibility of support services. Practically, the findings of this study will be valuable to HEIs because the success of technopreneurs will, in turn, encourage and promote innovation by means of R&D&C (Research, Development & Commercialization) among Malaysian HEIs. Global Innovation Index (2009-2010) reported that Malaysia is ranked 28th, way below other Asian countries such as Singapore, China, Korea, and Taiwan. These situations have prompted the Malaysian government to shift policies to promote new forms of research communication and collaboration between universities and industries (Lu & Etzkowitz, 2008). Thus, this study impacts on the ecosystem of innovation and commercialisation in providing the importance of support services to strengthen the role of HEIs-industry-community relation to drive the economy towards a high-income nation.

Limitations and Future Research

These findings are subject to the usual limitations arising from the field survey method. The interview used in this study has not been triangulated with data from other sources. From the

perspectives of HEIs, the findings give rise to several questions for practice. Within a bundle of support services, which particular support services are more critical to achieving sustained commercialisation? Can a separate bundle of support services be managed to improve innovation outcomes? Thus, further research could address such questions, and provide greater insights into the issue of managing support services systems in the university especially in terms of innovation, technology transfer and commercialisation. Moreover, future research could also seek to refine the instrument constructed in this study and further test its validity

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