PECIPTA: A READY PLATFORM FOR RESEARCH COMMERCIALISATION EXCELLENCE IN MALAYSIA

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ABSTRACT

This article explores the impact made by PECIPTA (The International Conference and Exposition on Inventions by Institutions of Higher Learning) on both researchers and industry players in Malaysia; and on the nation’s development of research commercialization. Jointly organized by the Ministry of Higher Education and a local public university, PECIPTA which is held every two years in Malaysia serves as a platform that creates collaborations between university researchers and industry players to commercialize research products. Based on interviews conducted with Malaysian researchers and industry players, this study finds that PECIPTA is a much-welcomed avenue for the growth of research and development and commercialization. As a government-endorsed event, PECIPTA’s potential to turn this nation into a research-savvy platform for both Malaysians and the world to capitalize on, is indisputable. As a reputable meeting point for some of the best minds in the nation, PECIPTA serves as a pillar of support for the government’s initiatives towards spearheading research and development within the region.

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INTRODUCTION

PECIPTA (The International Conference and Exposition on Inventions by Institutions of Higher Learning) is held every two years in Malaysia and serves as an avenue for researchers from local universities to showcase their research products with a view of promoting their research expertise and exploring the marketability of their inventions on the industry level. PECIPTA, while it is an acronym, also means “to create” in Malay. PECIPTA is also seen as a platform for researchers to reach out to industry players who possess the capacity and means to undertake the commercialization and marketability of these research products. First held in 2001, PECIPTA, which is jointly organized by the Ministry of Higher Education and a chosen local public university every two years, is intended to encourage the growth of Malaysia’s research and development portfolio by foregrounding research products that are needs-oriented and can serve to benefit the society at large to a great extent (http://mrem.bernama.com/viewsm.php?idm=14062).

The first PECIPTA saw Universiti Kebangsaan Malaysia (UKM) as its event host, followed by Universiti Putra Malaysia (2003), Universiti Teknologi Malaysia (2005), Universiti Sains Malaysia (2007), Universiti Malaya (2009) and Universiti Utara Malaysia (2013). This year’s PECIPTA event host is Universiti Pendidikan Sultan Idris. Although originally focused on exhibiting inventions created within the country, PECIPTA was “internationalized in 2007 by opening its participation to institutions of higher learning from outside the country” (http://pecipta09.um.edu.my/aboutus_preamble.htm). PECIPTA’s achievement, thus far, has been its single-minded focus on projecting the need for university researchers to formulate research strategies and products that are “oriented towards fulfilling achievable and useful goals” (http://mrem.bernama.com/viewsm.php?idm=14062). The tendency of researchers to be driven by their idealistic visions which results in them developing research products that are intensely complex in its projection of theory and knowledge, but are often impractical in application for the real world is one of the key areas in research that the people behind PECIPTA strive to challenge.
In this article, we will be looking at how PECIPTA serves as a platform that creates a link between the research expertise offered by local universities and industry players who are capable of identifying and shaping research inventions that possess the potential to serve the needs of the social and commercial world. This paper is based on interviews conducted with randomly-picked researchers from local universities, and industry players; with the intention of locating from their experience and perception, the impact that they believe PECIPTA has made in the transferability of research expertise and findings onto the real world through the activity of commercialization. This paper will also discuss, among others, the need for researchers to collaborate with industry players at the early stages of their research processes in order to ensure that the eventual process of commercialization takes place smoothly.

METHODOLOGY

The information used in this paper was secured through qualitative research interviews conducted with university researchers and industry players in Malaysia. The interviews were used as a follow-up to questionnaires sent via e-mail to researchers and industry players with the intention to collate their responses on PECIPTA as a platform for the development of research commercialization. Requests made to researchers and industry players were well responded to. Interviews took place on a face-to-face basis; via email and telephone. Two different sets of questions were prepared for the researchers and industry players respectively. Researchers were first asked on the procedures and processes involved in developing their research products; from the time the idea was conceived right up to the completion stage. They were also asked to relate their experiences as researchers; on factors that affect their research performance; on their awareness of the ideas of research commercialization, patenting and intellectual property; and their opinions on how the local research scenario has evolved over the years. This was followed by questions on their experiences of participating at PECIPTA and if they found it to be effective in enhancing their career as a researcher or academician. They were also asked if their research products were successfully commercialized as a result of them being exhibited at PECIPTA, and of the collaborations they established at the exposition. Issues of research funding were also probed upon. Questions posed to industry players were on their area of business specialization; of their experiences collaborating with university researchers and of the factors that they consider when contracting the service of local university researchers. Also enquired on was about their impressions of PECIPTA as a platform that connects them with university researchers; and if they think PECIPTA has achieved its objective in promoting the researchers to the industries.

PROFILE OF RESPONDENTS

Researchers who were interviewed are from local universities specializing in the fields of engineering, social sciences, education, veterinary science, fisheries, multimedia technology etc. Almost all those interviewed had won gold, silver or bronze awards at PECIPTA level, with some having won more than once; and had participated at least on two occasions or more. Equal number of female and male respondents were selected for this survey, ranging from the ages between thirty and sixty five. More than 80% of researchers who participated in this survey are Associate Professors and Professors; with the remaining 20% serving as Senior Lecturers at local universities. Where industry players are concerned, they are mostly those from medium size private corporations with business specialization in agriculture, fisheries, cosmetics, pharmaceuticals, engineering, biochemical and education. Those interviewed were mostly research & development or marketing managers and have attended PECIPTA at least once.

RESEARCH SCENARIO AT MALAYSIAN UNIVERSITIES

Research forms the core of universities in Malaysia; a practice which is fully backed by the government which aspires to promote the nation as an avenue of research excellence through the reinforcement of research criteria in local institutions of higher learning. Through the government’s initiative, public universities in Malaysia began progressively attaining the status of Research University (RU) in 2006, a move which is believed to be capable of generating greater prosperity to the nation by positioning it as a knowledge-based economic country (Ramli, Nasibah, Zainol & Zinatul, 2013). The move to grant local public universities the RU status has resulted in increased research activities and outputs and has proven to be an effective step to raise the position of local universities to be at par with well-known international universities.

Apart from funding of the research universities by the government in the form of grants and annual financial support, its endorsement and joint organization of expositions such as PECIPTA provides university level
research the necessary boost it requires through its efforts to create an avenue for university level inventions to receive validation and recognition from the relevant parties. The collaborative prospects with industry players that expositions such as PECIPTA provide, reduce the challenges faced by researchers in getting their inventions reach end users; for the direct contact between industry players and researchers at PECIPTA creates a faster working relationship between the two parties in cases where potential for commercialization is identified in the exhibited inventions. Expositions such as PECIPTA also encourages a better awareness of the concept of Intellectual Property (IP) among researchers, and this especially applies to those who are new to research and are unfamiliar with the importance of creating a research product which ideally should possess potential commercialization value. Since PECIPTA is positioned as an outlet for researchers to find commercialization partners among industry players, researchers who participate in it are encouraged to do so with the end result at the back of their minds, which is to get their inventions patented and marketed through industry players. However, in spite of the increased presence of awareness of IP and commercialization among most Malaysian university researchers, there exists among some an indifference towards commercialization and IP of research outputs. Such a sentiment is largely driven by the basic difference in mission between researchers in universities and industry players. For many decades, a conflict of interest is believed to exist between the educational and commercial sector where research is concerned. In fact, it was, and is a known and accepted fact that research conducted at universities are carried out with the noble motive to educate and instill knowledge in students with the hope that they will in turn serve the public good. In the past, industry players, instead, were often seen as being focused solely on identifying and promoting inventions which can be converted into commercially viable products and services. This phenomenon is best described by the observation below:

“Historically university scientists were convinced to be focused mainly on basic, pure research; they were intellectuals engaged in pursuits that are disconnected from the practical concerns of everyday life. Academic elitism was associated with an ethical norm of unbiased honest opinion to ensure and to contribute to a wide and free dissemination of knowledge based on the best of knowledge. This tenor still exists but is obviously changing. On the opposite, an industrial employee testifying on the material of interest to industry is assumed to be providing his company’s viewpoint to achieve commercial advantage over competitors. This is considered smart and ethical for the industrial scientist. Thus university and industry operate in different ethical or value systems” (Reingand & Osten, 2010).

The conflict of interest between the two was seen as being very critical in the past, so much so that Harvard President Derek Bok wrote in 1981: “I have concluded that Harvard should not take a step [in owning shares of a private company that licenses Harvard-owned products], even on a limited, experimental basis, unless we are assured that we can proceed without the risk of compromising the quality of our education and research” (Rubin, Bukofzer & Helms, 2003). Such a sentiment, however, has over the years become a thing of the past, and the present research scenario sees a greater orientation towards fostering a working relationship between university researchers and industry players. In fact, ensuring commercial success of research inventions has come to be seen as being crucial for the prestigious image of universities, and Malaysia’s local universities too are aggressively moving toward such a research culture.

And so, although the research motive of university researchers and industry players appear on the surface to be contradicting each other, a fact which often results in university level researchers questioning the level of social responsibility among industry players, the former must come to terms with the fact that inventions which lack usability potential often remain irrelevant and unrecognized in the context of the real world. The need, therefore, for researchers to be well aware of the concept of IP from the beginning of their research undertaking, is highly crucial in order for them to create for a relevant purpose; instead of creating for want of recognition and breakthroughs. In view of such a need, the role PECIPTA plays in pressing for a research culture that promotes commercialization is inevitably crucial, for “despite the importance of commercialization to universities as well as to local economic development, there is little systematic understanding of institutional practices in the commercialization process of university technologies” (Kamariah, Wan Zaidi & Izaidin, 2011).

THE GROWING AWARENESS OF INTELLECTUAL PROPERTY IN MALAYSIA

As indicated in the above passage, while the awareness of IP does exist among researchers at university level, its role as an important component of the nation’s economy has yet to sink in among local researchers. In cases where such awareness exists, the grievances are that the necessary amount of support is rarely provided by the universities in question to ensure that the patenting of their research outputs move on to the next process of being commercialised; a fact which is evident from the interviews conducted for the purpose of writing this paper. According to most of the interviewees, considerations and steps have been taken to ensure that their
research outputs are successfully patented. Ideally, the IP situation in a developed country should be as advocated by WIPO (World Intellectual Property Organisation) which states the following.

Universities and other public research organizations are increasingly protecting their inventions – from genetic inventions to software – helping raise additional funding for research and spurring new start-ups. The rise in university patenting has occurred against a broader policy framework aimed at fostering a greater interaction between public research and industry in order to increase the social and private returns from public support to R&D (http://www.wipo.int/sme/en/documents/academic_patenting.html).

However, the complaint made by the interviewees is that the process reaches a bottleneck thereafter as they are of the opinion that the practice of protecting their inventions often lack continuous support from their respective universities. The grievances expressed by the interviewees are mirrored in the following observation made on the discrepancies faced in patenting and commercializing research products at the university level.

Encouraging universities to commercialize research results by granting them title to IP can be useful but it is not sufficient to get researchers to become inventors. The key is that institutions and individual researchers have incentives to disclose, protect and exploit their inventions. Incentives can be “sticks” such as legal or administrative requirements for researchers to disclose inventions. Such regulations are often lacking in many countries, even in those where institutions can claim patents. Incentives can also be “carrots” such as royalty sharing agreements or equity participation in academic start-ups. Recognition of patent activity in the evaluation and recruitment of faculty can also provide incentives for young researchers. (http://www.wipo.int/sme/en/documents/academic_patenting.html).

Further probe into the interviewees’ grievances over lack of continuous support from the university reveals that the bottleneck is most often than not, caused by the lack of funding to continue with the commercialisation process. In the context of Malaysian institutions, the lack of funding appears to be more apparent among public universities as compared to private universities. As one of the interviewees from a Malaysian public university aptly puts it, “regardless of how big our dreams are in wanting to see our inventions serve the benefit of Malaysians, we are forced to come to terms with the reality that it will remain just a dream due to lack of funding to further see it through”. The wide contrast between the public and private universities in issues of funding could be a result of the complexity of the bodies that are behind the running of the two entities. According to Kamariah, Wan Zaidi & Izaidin, “in order to increase the effectiveness of the commercialization processes, it is important to understand who are involved in the decision making and the criteria used, to transform the ideas from the laboratory into commercially viable products” (2011). This resonates the interviewees’ observations that the process involved in getting a research product through from the stage of completion to commercialization is time consuming and too exhaustive. The multiple channels involved in decision making where commercialization is concerned often demoralize university level researchers who are also expected to juggle between their lecturing, administrative duties while ensuring that they meet the criteria imposed by the university to boost their publications, a fact which play a deciding factor in their career progression.

According to the observations made by the interviewees, the lack of monetary gain from their research efforts do not serve as a hindrance to their passion and commitment towards research; but instead, the type of incentives they really seek is the smooth processing of the transfer of their technology to the stage of commercialization. They are of the opinion that the lack of centralization at university level when it comes to providing support for the commercialization of their inventions might result in lesser researchers attempting to develop research products with the aim of serving the greater good of the society at large. Instead, the red tape that is often involved in the research process might see a trend of researchers resorting to breakthrough research for the sake of winning awards and gaining recognition alone. According to WIPO, “given the diversity of research institutions and traditions, it is important that incentives are set at the institution level, but national guidelines can help bring about coherence and the sharing of good practices” (http://www.wipo.int/sme/en/documents/academic_patenting.html). Such a form of centralization at the university level may contribute to the reduction of red tape when it comes to securing the necessary funding to carry an invention through to the stage of commercialization.

According to a study conducted by Ahmad & Farley (2013), “funding reforms introduced in the RU in Malaysia have enabled the universities to enhance their quality of education and research”. However when the proportion of government funding is reduced, as it happens depending on the performance of individual universities, the
need to seek alternate sources for funding becomes necessary in order to ensure that commercialization process is successfully carried through. Since commercialization is ideally aimed at eventually contributing to the country’s revenue, and since it takes new and innovative products which are commercialized to achieve such a contribution to Malaysia’s economy (Ahmad & Farley, 2013) research funding for universities must be given the importance it duly deserves. According to Jowkar, Abdolrasoul, Didegah, Fereshteh, & Gazni (2011), “the need for financial support from public and private sector will help RU to carry out their daily operations’ functions”…and “the level amount of funds obtained by RU will definitely affect their ability as to whether they have enough sources of funds to hire their academic and non-academic staffs and to acquire advanced technology equipment and infrastructures to conduct research”. They further their argument by stating that “research funds will have direct impact in producing high quality research outputs (Jowkar, Abdolrasoul, Didegah, Fereshteh, & Gazni, 2011).

Given the above observations, it can be deduced that the role PECIPTA plays in creating an avenue for university level researchers to have direct access to the capacity of industry players, is crucial to initiate the possibility of collaborations that could result in successful research commercialization. However, PECIPTA can only claim credit for paving the path towards fostering a research culture that is motivated towards commercialization. The actual execution of the process remains the responsibility of individual universities which must seek to enhance funding possibilities for its researchers.

PECIPTA’S IMPACT ON RESEARCHERS AND INDUSTRY PLAYERS

Among those interviewed, all find PECIPTA to be an excellent avenue to showcase their research expertise and outputs. According to them, PECIPTA, since its introduction to the research fraternity in 2001, has contributed in more ways than one to motivate researchers into spearheading research that provides practical solutions to the community. Idealistic and visionary research projects have come to be seen as less befitting for leading research universities, and this could be a result of the input provided by industry players who play an important role in the successful running of PECIPTA as a research exposition. What PECIPTA has created is a fresh new attitude towards research, which has resulted in traditional research practices being shelved to embrace new approaches that would better serve the society at large. What used to be award-focused research has now become people-friendly research, and one of the key factors that had contributed to such a shift is the realization obtained from networking with industry players at expositions such as PECIPTA. Through this paper, we would like to argue that PECIPTA has helped create a cross-culture in research by developing among researchers the commitment to develop inventions that not only bring recognition to the university; but also help incorporate the facilitation of the nation’s economic growth. Through spearheading this new research culture, PECIPTA has created an avenue for more enhancements of the professional relationship that it has helped foster between researchers and industry players. It is now up to the government to further foster this relationship which had been initiated through expositions such as PECIPTA by developing strategic long-term plans to prolong these professional affiliations until they crystallize into solid economically beneficial projects.

In a report titled, *Encouraging a British Invention Revolution: Sir Andrew Witty’s Review of Universities and Growth*, the writer recommended that the key to further improve the engagement between universities and industry players lies it is willingness to “identify and undertake arrow projects” which can be described as being “long-term strategic projects targeted specifically at local industries where an existing potential for international growth exists” (http://theconversation.com/commercialising-university-research-a-good-but-costly-move-30453). In the report’s Foreword, Witty states, “Universities generating cutting edge research and resulting insights may be likened to the tip of an arrow, with the arrowhead behind it representing the economic activity enabled by research-led innovation” (Witty, 2013 : 2). The role universities can play in directly impacting the nation’s economic growth is further described by Witty in the following statement in which he identifies the strength found in universities.

Effectiv e economic engagement is central to many universities, and is enabled and catalyzed by excellent research and teaching, and vice-versa. It takes a wide range of forms. Much of the UK’s comparative economic advantage in the twenty-first century could be derived from our universities, including from world class research in fields relevant to the Industrial Strategy sectors and technologies (2013 : 6)

Using PECIPTA’s popularity among researchers and industry players as a benchmark, further interventions should be made to locate areas in which PECIPTA can be capitalized on for the benefit of the nation’s growth and development. Based on the interviews conducted, it has been noted that researchers view PECIPTA as an ideal platform to interact with industry players, for it allows them the luxury of networking with multiple
industry players at a single avenue; thus providing them the intellectual freedom to make their sales pitch to parties that they deem suitable to market their inventions. In contrast to making cold calls to industry players with the aim of promoting their inventions, PECIPTA provides them with the edge of having the potential funding partners come to them instead and enquire about their products.

However, it was also noted through the interviews that some university level researchers welcome PECIPTA every two years for the simple fact that they see it as an avenue to win awards that would help boost their career prospects and enhance the name of their universities. To these researchers, the feasibility of PECIPTA as a platform for research commercialization appears rather superficial for they claim that industry players are rarely interested in commercializing inventions that benefit the society but which are less lucrative in terms on revenue generation. While we are of the opinion that the mindset of such researchers needs revamping in order for inventions with revenue-rich potential do require serious consideration. This is where small and medium enterprises (SME) can play effective roles towards boosting research commercialization.

At this juncture, the points raised by Sir Andrew Witty in his report with regard to the important role played by SMEs, appear relevant in comparison. “The future growth of the UK economy will in large part come from fast growing SMEs. The fastest growing SMEs, generating half of all new jobs, are those that are driven by innovation. In fact our national innovation performance depends in part on SMEs” (2013 : 8). Also, industry players too should adopt a more nationalistic approach when it comes to seeking new innovations that they can include to their product line-up by not being bound by revenue-rich business principles. As part of their contribution to the society and the nation, such industry players should also, occasionally if they must, support university researchers by working hand-in-hand with them regardless of the size and revenue potential of the invention in question. It could be a form of corporate responsibility on their part, through which they could embrace the opportunity to help and foster knowledge and research expertise and support local researchers, both financially and morally.

Based on interviews conducted with industry players, the observations made appear to resonate the point raised above with regard to the marketability of inventions developed by university researchers. Industry players are of the opinion that some of the research products that are produced locally lack in quality and market potential. It is also their observation that university researchers do not always equip themselves with market-savvy knowledge before they embark on a research project and are often merely driven by a desire to create ‘breakthrough research’ which possess little market value and are only good on paper, or for winning awards. This observation calls for the need for university researchers to create a communication network with industry players even before they embark on a research project, if their motive is indeed to produce a commercially viable product. Technical knowledge alone may no longer be sufficient to undertake a research project at university level. Factors such as pricing strategy, product quality, marketing strategy must be well-integrated into a research product for it to be considered by an industry player.

Traditional approaches to research need to be done away with if universities aspire to play more aggressive roles in uplifting the nation’s economic status. What would be even practical is a move to incorporate sessions with industry players between lectures for graduate students on a more regular basis, instead of making that occasional visit to industry sites or resorting to a one-off internship program for undergraduates. Learning at the university level should be interspersed with market-savvy knowledge of the real world, for only then would the nation produce graduates and researchers who are able to effectively contribute towards economic growth in the long run. An example of how the gap between universities and industry players can be narrowed is demonstrated in the following passage,

The University of Huddersfield works proactively to foster collaborative R&D activities, and commercialization and enterprise from its student and staff base. The University has recently opened its new 3M Buckley Innovation Centre (3M BIC) which focuses on co-location of businesses alongside the university to foster collaborative R&D activities. The philosophy for the center is one of open innovation practice and delivers a one-stop-shop for rapid access to markets, finance, technology and skills for industry. The 3M BIC showcases centers of excellence from within the university and houses bespoke equipment dedicated for industrial use with flexible access mechanisms. The sectors supported through the center are advanced manufacturing and design, energy, IT and healthcare. In addition the university has established The Duke of York Centre for Young Entrepreneurs to enable student and graduate start-up companies to be incubated and mentored alongside existing companies” (Witty, 2013 : 33).
In this context, private universities in Malaysia appear to be aware of the need for industry practices to be incorporated in their research initiatives. Interviews with researchers from private universities clearly demonstrated that they faced lesser challenges where research funding was concerned. They noted that their universities were supportive of their research and were prepared to fund them; a fact which could have been made possible by the lesser complex make-up of a private university as compared to a government-based public university. Apart from the university’s own funding, researchers from private universities also noted that they could secure partners among industry players with less hassle as compared to public universities. The factors which could have motivated such a contrasting situation could be many. For one, the support researchers receive from their private universities could have engendered inventions of superior quality as a result of enhanced resources. Or, the fact that the faculty expertise in private universities are known to include experts from the industry could have contributed to the formulating of research projects which are market savvy and possess greater commercial value. The other possibility could be solid networking established between the two parties from an early stage of learning and research which could have made the transfer of technology more feasible. It is important to note at this juncture that researchers from the public universities could make an effort to narrow the gap between themselves and the industry players by adopting some of the practices employed by their private counterparts.

CONCLUSION - THE FUTURE OF PECIPTA

Based on our interviews, it is apparent that PECIPTA is seen, both by researchers and industry players, as an excellent meeting point of some of the greatest minds in the country. All those interviewed are of the opinion that PECIPTA should continue in order for more research collaborations between universities and industries to be initiated. From the feedback received, it is apparent that in order for PECIPTA to effectively serve its purpose in the future, the nation’s universities and industry players must first develop trust in one another’s capacities and capabilities and learn to be committed towards boosting each other’s strength where research and innovation is concerned. Only through the improved professional relationship between the two parties, PECIPTA can continue providing its support to bring the best out of these two entities. The government too should look into the feasibility of encouraging research efforts among private colleges, which at present appear to have made very little contribution to the growth and development of research and innovation in the country. PECIPTA presently offers nine clusters; Agriculture, Aquaculture & Environment; Art, Design & Creativity; Biotechnology, Life Science & Pure Science; Disaster Management; Education and Human Development; Entrepreneurship & Industrial Management; Health, Wellness and Wellbeing; Information Communication Technology & Multimedia; Manufacturing Technologies; on which participation is based, and it is hoped that as the field of knowledge expands in line with the world’s social and technological advancements, PECIPTA will, in the years to come, offer more specialized clusters in order to open the feasibility of research to a wider circle. Regardless of ranks, PECIPTA brings forth a platform where these great minds can collaborate to build a better Malaysia through research excellence and is undeniably a boon to the research fraternity in Malaysia. The fact that the government plays an important role in ensuring that an avenue such as PECIPTA is made available to university level researchers in Malaysia speaks volumes for the former’s commitment to turn this nation into a research savvy platform for both Malaysians and the world to capitalize on, and for world-class researchers to leave their imprints upon.

REFERENCES


