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Intellectual Property Management Policies in Developing Countries Universities Comparing to Australian Universities

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Abstract

Apart from education and science progress, the role of universities has been changed to one of the main resources of economic growth and innovation in the past two decades. Therefore, investors and industries are eager to assist transformation of universities' outcomes to the market. Those outcomes mostly include intellectual property rights and ongoing updated strategies are needed to commercialize them. In this sense, all countries try to establish their own policies to increase their financial or political capabilities and universities as the biggest IP producers introduce different IP management policies in both developed and developing countries. Although commercialization of IPs in Australian universities is not the perfect model among developed countries, their strategies in regard to IP subject matters could be applied in many aspects for developing countries. The main purpose of this paper is comparing the suitability of different available approaches of IP commercialization conducting by Australian educational institutes for developing countries. By this comparative study, the areas which need improvement or skills which universities' business/legal advisors required would be found. This paper will use doctrinal method in investigating different perspectives of policy-makers at universities in Australia and developing countries. Next, a case study as a benchmark from Australian universities will be examined and compared with similar cases in less-developed countries. Finally, some practical resolutions for developing countries will be proposed to maximize their IP outcome.

Keywords: IP management; Developing Countries; Universities; Australia; Policies

1. Policy-makers' Perspectives in Different Countries in Regard to Commercialization of IPs

Despite recent improvement in producing IPs, particularly patents in developing nations, the emphasis is on the quantity rather than quality as a traditional approach in many of those countries.[1] Initially, it should be noted that the main effective factor in making policy in developing nations is budget management. In fact, all rewards for universities' inventors before or after commercializing their IP depend on the amount of allocated budget by the government to these kinds of activities.[2] These trends also could be one of the most significant barriers to build adequate two-way relationship between businesses and universities. Financial limitations can negatively affect universities negotiations with industries. In fact, instead of improving network with other research institutes, the traditional framework of "one university-one technology transfer office" can prevent universities to exchange their commercially valuable inventions.[3]

There are some critical views in all countries that state there is no need for universities to be involved in research or knowledge commercialization process. For example, some vice-chancellors of

1 OECD, National intellectual property system, innovation and economic development with respective on Colombia and Indonesia, 2014, 143.

2 Ibid, 171

3 Graham Richards, University intellectual property; a source of finance and impact (Harriman House, UK, 2012) 84.

universities believe that focusing on making revenues could interface education performance, training, and producing high-quality research. Based on this view, universities cannot work as R and D sectors while they are the main source of producing inventions and information.[4] This issue is one of the differences between objectives of universities and firms, particularly in less-developed countries.

There is small number of universities in middle-income countries which could benefit from screening IP progression system and they are unable to protect valuable information from the very early stages. This lack of awareness of IP could be more harmful in case of pharmaceutical inventions because these kinds of patentable subject matters are the most beneficial intangible assets globally.[5] It is because many policy-makers in less-developed countries do not see IP management as a source of income for universities.[6]

Undoubtedly, one of the essential factors of economic growth could be entered into a competitive market. In most less-developed countries, a great amount of university' funding is direct governmental funding, so there is no competition between research institutes (including universities) with each other. Hence, they are unable to attract external funds and bring their innovations into the market.[7] This policy can also have an impact on the amount of incentives from inventors at universities. For example, in Indonesia, all universities' income including IPs created by students and staff should be returned to the Ministry of Finance. This governmental organization does not provide any special incentive to universities, researchers, or inventors. Consequently, most of reputable researchers prefer to work for private sectors where they can commercialize their inventions freely.[8] On the other hand, after legislation of a law regarding technology transfer in India, royalties have been shared between inventors and academics. Furthermore, there is no limitation for academics including staff researchers and students to cooperate with private companies. As a result, both universities and entrepreneurs benefit from inventions and other kinds of IPs.[9]

In the majority of government-funded research institutes, protection of public interest conquers the commercialization purpose of IP materials. Hence, the adopted policy should comply with social demands as well as economic capabilities. For example, licensing IP subjected products from universities in developing countries would be more beneficial for all involved parties in case of non-exclusivity or preferential licenses.[10]

In Australia, Australian Research Council has been established as a grant to enhance collaborative studies between universities and private sectors. Due to this scheme, in 2017, Australia ranked 11 worldwide in terms of the amount of collaboration studies between universities and industries.[11] "Commercialization Australia" also has been established under control of the Australian governments to provide funds through different programs for different projects such as university researches. For instance, the "R and D Tax Incentive" has been considered as an encouragement for firms to invest in research projects. Similarly, in some developing countries such as Malaysia and Brazil, IP management has been considered in their national economic policies.[12]

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4 Tim Mazzarol, "Is commercialising Australia's research an insurmountable challenge?", The conversation, 4May 2014 < http://theconversation.com/is-commercialising-australias-research-an-insurmountable-challenge-26276> viewed on 17th September 2018.

5 Above n 1, 144.

6 Above n 1, 173.

7 Above n 1, 149.

8 Above n 1, 171.

9 Finston, "Technology transfer snapshots from middle-income countries: Creating socio-economic benefits through innovation'(2007) IP Handbook 1, 202.

10 Pluvia, Zuniga, *The state of patenting at research institutions in developing countries: policy approaches and practices* (WIPO, 2011) 12.

11 Van Dijk, Sandra, Climate Control News, http://www.climatecontrolnews.com.au/news/latest/report-finds-university-industry-collaboration-getting-stronger> viewed on 10th October 2018.

12 Australian Government, Commercialisation Australia < http://www.business.gov.au/grants-and-assistance/closed-programs/Commercialisationaustralia/Ourparticipants/Pages/default.aspx> viewed on 17th September 2018.

2. The IP Ownership Issue

Universities' policy in terms of ownership of IP is the other important feature which needs to be mentioned. Provisions of ownership are different from each other in both developed and developing countries. In case of less-developed nations, there are various adopted policies such as recognizing separate category for produced IPs in private research institutes with institutions of higher education funded by government. Since the contribution of universities to technology transfers and IP management is important, developing countries tend to provide an exclusive ownership to universities. Nonetheless, private or small R and Ds regulate some other mechanism such as incentivizing researchers by giving them a share of ownership to encourage them innovating.[13] This kind of differentiating cannot be found in developed countries such as Australia. In fact, in Australia, there is a single IPs' ownership rule which applies to all individuals and institutes. There are some countries which have resolved the ownership of IPs in universities by national regulation. For example, China recognized a general legal right of universities to be owner of every kind of generated IPs and commercialize it by themselves (1996, 2002).[14]

3. Case Study from Australia: The University of Queensland (UQ)

According to the government website about commercialization of IP, UniQuest from UQ is one of the best universities in Australia in case of IP management.[15] Companies which work with UQ are to translate IPs to the needs of market. There are also some other business service providers in UQ such as joint ventures and other universities' former IP sectors. There are some criteria of research agreements for UQ-associated companies, but all those different companies deliver various services using different commercializing methods and business models. For instance, UniQuest company as the main UQ partners for transferring technology, provide variety of services such as testing and advisory or international aid projects to managing IPs properly. On the other hand, JKTech, as an another UQ's partner, works specifically for mining industries' outcomes and commercializing researches in his area.[16]

There are some typical IP management and commercialization activities included in the list of IP sector's service of UQ such as identifying IPs and protecting the confidential information of IPs. However, stages of technology transfer and creation of new ventures are more important in IP managing in universities. There has been a trend in all Australian universities, particularly UQ to replace IP licensing with creation encouragement.[17] In this sense, the number of spin-off companies from universities has been increased in recent years. Cooperation of these companies with technology incubators in universities leads to bridging the gap between universities and depending on R and Ds and industries. Filling this gap is one of the most important stages of technology transfer process in universities.[18]

The other approach of UQ into foster collaborative studies with other universities or R and Ds. In June 2014, a partnership research scheme has been finalized between UQ and University of Western Australia (UWA). According to this agreement, joint workshops and knowledge or skill exchanges are encouraged between researches from both universities. Industry partners of two UQ and UWA can also contribute to this program.[19]

13 Above n 10, 27.

14 Above n 10, 31.

15 UniQuest, https://www.ipaustralia.gov.au/tools-resources/case-studies/uniquest , published on 16 January 2018.

16 The University of Queensland, IP management http://www.aibn.uq.edu.au/ip-management-and-commercialisation> at 18th September 2018.

17 Ibid.

18 Commenwealth of Australia, 'Research in the national interest: commercialising university research in Australia', July 2000 <http://www.arc.gov.au/pdf/00_03.pdf> viewed on July 2018.

19 University of Western Australia <http://www.research.uwa.edu.au/staff/funding/uwa-uq-award> at 23 August 2018.

All the activities of partners' companies with UQ (UniQuest, JKTech, and UniSeed) are managed by "*Research Partnerships Managers"* to ensure that those activities are conducting appropriately by their staff. In fact, each faculty has its specific research manager and industries can seek consultation form UQ based on their needs of different knowledge area. Since experts from universities can be representatives of universities, they have same credits as universities. This fact encourages businesses to ask UQ experts to provide them immediate resolutions for their business needs.[20]

4. Comparing Nature of Research Projects in Developing Countries and Australia

There are some fundamental differences between ranges of countries called developing or less-developed countries. In fact, they differ from each other regarding their cultural and economic situation. Their research and innovation commercialization is highly dependent on their financial capabilities.[21] For instance, the situation of patenting at universities in some of developing countries such as China, Brazil, or India is different with Middle-Eastern countries while all of them are considered as middle-income countries.[22] However, in most of those countries, lack of universities' infrastructure raises this question that whether it would be helpful if policy-makers simply copy IP management models from industrialized countries. Replacing traditional system of commercialization in those universities with modern models can be challenging.[23]

Producing knowledge is one of the main goals of universities to build strong relationship with industries or venture capitals. If developing nations simply copy such UQ models, it would not address their science and knowledge creation problem.[24] Moreover, leading universities in IP management such as UQ have partnerships with various accelerators and incubators in this field. These sorts of partnerships feed science and technology-related activities at universities and improve the possibility of successful commercialization of outcome patents or other kinds of IPs. Since most universities in developing countries are government funded institutes such UQ-UWA, collaborative scheme cannot be applicable and efficient in those countries. In case of this kind of collaboration in developing countries, the main objective of the agreement would be the high percentage of success with maximized cash fellow. However, providing a high demand product in a reasonable price for the public indicates a well-conducted IP management. Based on the experience in developed countries such as Australia, the progress would happen if there is a balance between interests of all stakeholders including universities, consumers, and governments.[25]

According to the criteria of managing research agreement in UQ, there are several options available for IP commercialization service providers which work on behalf of UQ. They have flexible authorities of negotiation to change research agreements' terms due to UQ's capacity.[26] However, there are no such organized structures with this purpose in developing countries. For example, in India as one of the fast-growing developing countries, technology transfer process has a quite long process then UQ and is mostly done by universities themselves. Despite fairly developed provisions of the second Five-Year Plan of India for incentivizing innovators and IP commercialization, there are no detailed and clear guidelines or description for IP offices of universities to modify terms and conditions of their research agreement with private sectors. Consequences of this issue will usually arise in case of ownership of IPs or pricing.[27]

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20 UniQuest http://www.uniquest.com.au/your-expertise at September 2018.

21 Above n 10, 3.

22 Above n 10, 5.

23 John Saragent and Linda Matthews, 'Latin American universities and technology commercialisation' (2014) 15(2) *Journal of Latin American business Review* 167, 172.

24 Ibid, 174.

25 Joachima Oehler, 'Using milestones in healthcare product licensing deals to ensure access in developing countries' (2007) Chapter2.7 IP Handbook, 119.

26 The University of Queensland, Research Capabilities and Partnerships, http://www.uq.edu.au/research / research-partnerships/about-commercialisation at 2014.

27 Ghosh, Maitri and Rudra Prosad Roy, ` FDI, technology imports and R&D in Indian manufacturing: revisited` (2018) India Studies in Business and Economics, Springer, Singapore, pp 127-149

Indian universities are not industries preference for consultation and there are a small number of collaborative studies between private firms and universities. As a result, possible level of IP commercialization and management is not considered as a requirement of commencing any research project. This trend has been changed in recent years, but according to statistics, there is still a huge gap between Indian and Australian universities in terms of planning for commercialization. It should be noted that there has been an improving trend in some Indian universities in the past 5 years. For instance, in Bangalore and Bombay universities, detailed guidelines have been provided for IT and science patentable research outcomes. These two universities have been established an umbrella organization named Society for Innovative and Development to accelerate innovations and technology transfers.[28]

Defining adequate university projects are vital due to their usage and benefits in future. Having a proper knowledge of IP management and commercialization can be considered as a benchmark for all research institutions. In this sense, developing nations should use successful and updated models to improve their ability of programming their research projects.[29]

6. Recommendation

As the first and most important requirement, clear legislations for legal rights of student and staff in regard to commercialization of university's inventions are needed. As mentioned before, there are a number of countries such as BRICS countries which have already adopted specific national regulations from developed countries for IP management in publicly funded institutes.

In addition, in developing countries' universities, projects should be defined to priority of the country. Therefore, the outcome of those projects will be useful in the future with the capability of being sold in at least domestic market. As it has been mentioned in one of the publications of WIPO, one of the most proper ideas for universities and research centers in developing countries is to extend their borders and ask for help from world-class universities. Moreover, academic staff and students need to evaluate carefully whether a technology worth to invest time and money before starting a project. They have to understand the basic rules of business and probable legal issues.[30] Actually, the improvement of business skills among staff and students about commercializing different kinds of IPs can lead to effective use of potential IP resources.

In the WIPO recommended model, IP management would be more effective for universities particularly in less-developed countries if they consult or cooperate with their national IP offices or relevant Ministries. At present, this model is using by 250 universities globally. The recruiting process for new inventions will be decentralized and universities can use IP offices' updated policies and adopt it as their own IP objectives.[31]

Importantly, there are few IP management infrastructures in universities in developing nations. Undoubtedly, establishing those sectors at universities and promoting collaborative researches both in national and international level can be another way to foster IP management. These types of collaborative studies can be helpful to complete research studies and establish new area of studies. Academic and theoretical views can be balanced with pragmatic considerations of private sectors.[32] In addition, facilitating online forums for all stakeholders can be an appropriate method of communal studies and marketing in case of tight budget and lack of expertise.[33]

Providing appropriate incentives for inventors at universities are the other way of increasing innovation and transferring them outside the university for economic purpose. For example, statistics

28 Ibid, 129.

29 Clarke, Thomas and John Chelliah and Elizabeth Pattinson, ` National innovation systems in the Asia Pacific: a comparative analysis` (2018) *Innovation in the Asia Pacific*, Springer, Singapore, pp 109-143

30 Hazelkorn, Ellen and Hamish Coates and C. McCormick, 'Research handbook on quality, performance and accountability in higher education` (2017) Chapter 42, pp 548-559

31 WIPO, WIPO university initiative <http://www.wipo.int/uipc/en/> at September 2018.

32 Above n 10, 14.

33 Above n 31.

indicates that rewarding students and staff with higher amount of royalties achieved more beneficial technology transfer than non-awarded ones.[34] As mentioned before, budget limitation is an obstacle for universities and even private sectors to invest on researches. Providing small amount of funds by businesses to invest on research could be an effective step to engage research institutions and university start-ups in the market. Research collaboration between developed and developing countries could address financial problem and improve productivity of universities. However, scientists of developing nations need to be sure about receiving equal share of benefits or ownership of the research outcome as well as accessing to the equal opportunities of publications as reputation criteria for universities.[35]

In terms of IP registration matters such as application fee or duration of examination, it would hard to find a discount bonus or priority for universities to be issued by their certification of IP and commence commercialization.[36] Following completion of projects, there should be an adequate protection system for universities' inventions. In fact, for most middle-income countries, it would be costly to register their patentable innovations through international registration procedures such as Patent Cooperation Treaty. Although such a bonus is not provided in Australia, as mentioned before, Australian universities can gain several funds and budget assistance from the government.[37]

Since each country has its own unique culture and prospects, all IP programs should be customized with that particular capability. For instance, in terms of licensing, each country should introduce a unique range of business and commercial rules to its market and ensure not misusing the right to license by licensors.[38] One of the relevant recommended solutions is to track the public funded researches and their outcomes by the government to balance interests of right holders and the public, particularly in case of public health related or therapeutic inventions. There is no need to engage all types of universities in this plan yet leading once should be focused by establishing basic standards of IP commercialization knowledge and encouraging others to follow them.[39]

7. Conclusion

Comparing different policies and criteria of universities', IP management assists us to realize that while universities play an important role to innovation and emerging new ideas, they need to contribute in IP commercialization indirectly yet effectively. However, the traditional and main role of universities should not be ignored in favor of making financial benefits, particularly in developing nations.

IP management and commercialization in universities are not a simple process in both developing countries and Australia. There are many stakeholders involved in this process and they have different priorities according to culture and economic differences. Therefore, providing a harmonized guideline which meets their interests is extremely difficult.

Expanding knowledge and understanding of IP among academia can enable all universities to increase the financial benefits from academic activities. Academics also should be assured to have a freedom of choice to work with universities' research centers or private R and Ds.

Copying Australian universities' business models by developing countries cannot be helpful in the absence of a combination of factors such as financial and cultural improvements. Therefore, to apply reasonable IP management systems, changes should be occurred from governments as the highest level of authority downward to universities.

34 Above n 10, 28.

35 Rachela A. Nugent and Gerard T. Keusch, 'Global health: lessons from Bayh-Dole'(2007) chapter 3.2 IP Handbook, 165.

36 Above n 1, 158.

37 Kolympiris, Christos, `The effect of academic incubators on university innovation` (2017) 11(2) *Strategic Entrepreneurship Journal*, pp. 133

38 Above n 25, 123.

39 Above n 35, 157.

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