

EXPLORING OPEN INNOVATION AS A BUSINESS MODEL FOR ENHANCING ASEAN ECONOMY

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ABSTRACT

Intellectual Property (IP) plays an important role in contributing to the achievement of national and regional socio-economic development goals which contribute to the region's competitiveness and productivity. While open innovation paradigm is a business model which has been increasingly adopted globally in recent decade. Hence this article aims to explore the concept of open innovation as a business model and to analyse the intellectual property systems and intellectual property laws in Malaysia. We conclude that open innovation business model will certainly provide more effective and comprehensive business regulation for ASEAN countries which contribute to the enhancement of regional economic development. Comprehensive intellectual property system and intellectual property law in ASEAN countries will accelerate the effectiveness of open innovation business model.

Keywords: Intellectual property; Open innovation; Business model; Malaysia; ASEAN economy.

1. INTRODUCTION

In line with global development of the world economy, ASEAN countries need to increase their efforts towards improving productivity. With the establishment of the ASEAN Economic Community (AEC) in 2003, emphasis will be on leveraging the region's competitiveness and productivity. Intellectual Property (IP) plays an important role in contributing to the achievement of national and regional socio-economic development goals. Protecting intellectual property rights (IPR) is critical for ASEAN Member States to move higher up in the technology ladder, in encouraging transfer of technology, and in stimulating innovation and creativity through effective use of intellectual property and creativity.

Improving productivity in ASEAN economy requires transforming business strategy and regulatory procedures. Recently, growing attention is given to open innovation, first introduced by Hendry Chesbrough in 2003. Open innovation is a business model which encourages companies to acquire outside sources to improve product lines. In open innovation, there is an important flow of external knowledge into the organization which turns into projects in co-operation with external partners. At the same time company release innovation develop internally which does not fit or benefit the company since it is not applicable within their business model or because the company

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has no capacity or experience to develop the invention but could effectively use by other companies. Innovation develop internally can be either sold as technology or industrial property to other organizations. Thus, by practicing open innovation business model, company's boundaries become permeable that allows combining the company resources with the external co-operators. Consequently, some products reach the market by using exclusively internal resources from the initial idea up to the commercialization of the final product and there are also products resulting from incorporating external knowledge at different stages of their development.

Thus, this article explores the concept of open innovation and its significance to the ASEAN economy in order to facilitate productivity growth through innovation. This article also analyses intellectual property systems and intellectual property rights and its' important to open innovation practices.

2. LITERATURE REVIEW

Literatures on open innovation are mainly found in business or research organization. (Lee et al., 2010). Most of the literature often quoted is by Von Hippel (1988; 2005) and Chesbrough (2003, 2006), in business studies, economics or organization. Dahlander and Gann (2010) had review 150 literatures on open innovation and found that most of the literature is in business and organizations. Literature on open innovation found in many areas of business, economics and organizational studies. Open innovation literature in law mainly focusing on copyrights and patent in two fields namely open source software as well as biotechnology projects. Open innovation usually associated with the development of free open source code in the computer software industry. A study conducted by Lee et al., (2010), found that laws regulating open innovation are intellectual property law and contract law on how the parties can make contracts through innovation.

In ASEAN countries it is hardly found literature on open innovation. In Malaysia, according to Muzamil and Kaur (2014) no studies have been made in the practice of open innovation even though it is most likely that the open innovation has been practice in Malaysia, based on the facts that there are big firms that work closely with their suppliers and customers to improve productivity and new products. Muzamil and Kaur (2014) in their studies have elaborated open innovation in detail. However, the studies focusing only on the issue of whether the management support or stifle open innovation in Malaysia. While De Jong et al (2005; 2008) had emphasis on the impact of open innovation in the development process of new products and focus on the management of effective innovation which requires transparency in many respects, including the ambiguity, openness to new ideas and commercialization.

2.1. *Concept of Open Innovation*

The concept of open innovation become increasingly popular after it was introduced by Henry Chesbrough in 2003 in his book "The New Imperative for Creating and Profiting from Technology" Open Innovation implies an innovation ecosystem where ideas and knowledge flow across the boundaries of a company (Hall, 2010). The reasons why open innovation was introduced is because the organization is no longer able to keep ideas and technology (Chesbrough, 2006; Chesbrough & Bogers, 2014). Proctor and Gamble, IBM, LG Electronics, Kraft Foods, Reckitt Benckiser,

Unilever and Kimberly-Clark Apple, Philips, Xerox, Siemens are among the world's largest patent holder had successfully embraced open innovation.

Open innovation is an old phenomenon, but the use and implementation has started to grow over the past decade (Granstrand & Holgersson, 2014). In 1980s and 1990s, innovation used internally in a closed and centralized manner by the companies. However, since the late 1990s, due to rising costs of R & D and short life cycle of innovation, the division of the innovation from R&D into business units have improved and external sources are more willing to provide similar capabilities at a lower cost (Baldia, 2013). The term 'open innovation' reflect the current trend in which an organization allows the outflow and inflow of knowledge across organizational boundaries to enhance innovation. Open innovation is different from the approach of 'closed innovation' which depends only on internal resources to generate, develop, manufacture, market, distribute and support innovation (Mortara et al., 2009). Open innovation paradigm makes research and development (R&D) as an open system where valuable ideas can come from inside or outside of an organization and the market can also occur from within or outside an organization. Open innovation is a set of practices for identifying sources and cooperation at different levels, depending on the context of the sector in which they operate, and institutional context in which it is located- (Herstad et al., 2010).

In open innovation, use of technology and ideas from outside of the business should be enhanced and at the same time, they also need to allow ideas that they do not use, to be used and exploited by parties and other organizations.(Chesbrough, 2006). There are two or more modes of open innovation in which knowledge is acquired, developed and commercialized by the involvement of external partners, for example through technology cooperation and innovation, alliances and networks- (Granstrand & Holgersson, 2004).

Thus, practising open innovation will require companies to value the environment outside the company including suppliers, universities, manufacturers of products and support services and other organizations to identify and take advantage of new opportunities in innovation. Practicing open innovation will enable a company or organization to develop and expand their business not only with their internal ideas, resources, technologies, and in-house expertise, but also from outside. In recent developments, open innovation also involves the exchange of intellectual property rights between the companies (King & Lakhani, 2013).

2.2. *Defining Open Innovation*

Open innovation is a paradigm that assumes that an organization can and should use external ideas as well as internal ideas, and internal routes and external routes heading to the market to advance their technology- (Chesbrough, 2003). Definition of open innovation was emphasized on business models as mentioned by Chesbrough that: "...We define open innovation as a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization's business model." (Chesbrough & Bogers, 2014).

Definition of open innovation is growing and becoming more practical, where open innovation is not just the exchange of ideas, but also exchange of resources, technology and intellectual property. According to (Van de Vrande et al, 2009) meaning of "openness" in the context of open innovation

generally means allowing or enabling the ideas without restrictions or obstacles. Priority should be given to the main element which includes broad networking among the parties involved in open innovation including industries, universities, research organizations, public entities and consumers or society and also the involvement of users. Terms of open innovation has also been broadly defined as a process by which an organization get ideas and expertise from outside the company whereby a company should not only depending on the their research and development but may also gain benefit with the involvement of individuals from outside to make more innovation and also for the purpose of developing the technology and business.

Innovation is "open" when all information related to innovation is something good for the public. While according to Chesbrough, in open innovation, ideas can come from anywhere and ideas must be commercialized through a business model. Von Hippel (1988; 2005) stated that innovation is "open" in terms of all the information related to innovation is good for the use and benefit of the public. People are the source of innovation and consumers benefit directly from the partnership, and do not need a business model.

2.3. *Open Innovation as A Business Model*

A business model is a framework for creating economic, social, or other forms of value (Hassan et al, 2016) "It refers to the core architecture of a firm, specifically how it deploys all relevant resources to create differentiated value for customers" (Tapscott, 2001). The open innovation paradigm is a business model incorporating both closed and open strategies of production into the innovation process- (Saebi & Foss, 2015; Lambert & Davidson, 2013; Von Hippel, 1988; Gawer & Henderson, 2007; West, 2006). The closed innovation model is where an organization generates innovative ideas themselves and then they developed the idea based on the concentration and internal controls (Dahlander & Gann, 2010). Traditionally, the innovation process is controlled through the research and development or R&D department where R&D becomes strategic asset that give competition to other organizations (Van de Vrande et al., 2009). This situation leads to great difficulty to other competitors to enter the market. Maximizing innovation and foster the development of business is not only through improvization of products, services and processes but also through radical innovation. These processes, where technology is explored, developed and commercialized internally, known as closed innovation model (Chesbrough, 2003).

There are many factors leading to the deterioration of the innovations covered so as to encourage the transition from close innovation to open innovation which include increasing the mobility of engineers and scientists trained, improvement of capital, disseminating knowledge which extends throughout the world, enhancing the quality of research in universities and also increase competition in product market (Chesbrough, 2003). In addition, the shift from closed innovation to open innovation is driven by significant changes in the competitive environment such as an increase in dynamic, globalized market and business activities, and rapid technological advancements (Bianchi et al., 2011).

Other factors that contribute to the shift from closed innovation to open innovation includes: (i) the increase of the complexity and the convergence of technology, (ii) higher costs and risks of innovation, (iii) the decrease of the risk of misappropriation of intellectual property to the protection standards of intellectual property strengthened globally, (iv) facilitate cross-border

linkages due to advances in information and communication technology, (v) improved access to foreign markets through trade liberalization, and (vi) the supply of skilled labor at reasonable cost. (Baldia, 2013)

2.4. *Intellectual Property Rights and Open Innovation*

Intellectual property rights and open innovation complement each other. Open innovation is an innovation strategy or approach used to enhance innovation and is not on the same level with the intellectual property system (Bently & Sherman, 2002). In fact, the intellectual property system is the basic premise of open innovation. Open innovation can be deemed to offer new ways and methods to utilize intellectual property. After the concept of open innovation introduced in 2003, small and medium sized companies SMEs had applied the business concept of open innovation in developing their business network. Now open innovation is growing and becoming more practical, where open innovation is not just the exchange of ideas, but also exchange of intellectual property (Colston & Middleton, 2005). In the implementation of open innovation, intellectual property rights have begun to be used as merchandise, which can be exchanged and traded. (Henkel et al., 2014).

The reason why intellectual property rights is prime important in the open innovation business model is mostly because intellectual property rights is an effective way to protect the exchange of knowledge when many parties are involved in open innovation such as suppliers, customers, competitors, and companies start up, as there will be more complex networking which involve the exchange of knowledge with various parties (Arora & Merges, 2004). Therefore, in open innovation, intellectual property rights will be used by the collaborating parties to protect the exchange of knowledge between them- (Henttonen et al., 2016).

3. DISCUSSION AND RECOMMENDATION

Intellectual Property (IP) plays an important role in contributing to the achievement of national and regional socio-economic development goals which contribute to increasing the region's competitiveness and productivity. The AEC fundamental freedoms are becoming a point of increased focus for international business. Thus, measures must be taken to lead in creating a networked, competitive, innovative, and highly integrated and contestable ASEAN. The AEC 2025 is envisioned to foster robust productivity growth through innovation, technology and human resource development, and intensified regional research and development that is designed for commercial application to increase ASEAN's competitive edge.

The AEC vision as stated in Asean Economic Community Blueprint 2025 as mention above is hardly achieved without the practicing of open innovation business model as a tool or mechanism to increase ASEAN competitiveness and productivity which is now globally practice and adopted not only by multinational companies but also SMEs especially in European countries and US.

3.1. *Why ASEAN Countries Should Embrace Open Innovation*

In line with the Asean Economic Community Blueprint 2025 which aims to increase the region's competitiveness and productivity, ASEAN countries should consider open innovation as a business model. Through open innovation, companies would be able to gain benefits from early involvement in new technology or business opportunities. The financial commitment can also be delayed and reduced. However, these benefits are not obtained automatically. Innovative organizations need to learn new skills and routines to fully develop 'real choice' (real option) and the potential of open innovation practices (Vanhaverbeke et al., 2014). When the flow of knowledge from outside is brought into an organization, it will involve the ideas and technologies that are useful, with reduction in time and cost required to develop new technologies and new product. The risk can also be reduced. While the flow of ideas and technology from the inside to the outside lead to increased profits through licensing or technology transfer and at the same time lead to the existence of entrepreneurial ventures (Monsef & Ismail, 2012).

The use of internal and external knowledge will be able to accelerate internal innovation and expand the market for innovation (Chesbrough, 2006). In addition, open innovation will foster competition and rapid technological development. With the involvement of various participants, either big or small organizations to share in the process of technological in open innovation, societies may benefit from the same approach to a variety of technologies. The values are generally the best idea? to increase the diversity of ideas received. In addition, open innovation can also improve the ability of innovation by shortening product cycles and technology, enhancing technology integration, control rising costs and find new ways to respond to the complex competitive scenario. (Mortara et al, 2009).

Furthermore, the need to implement and adopt an open innovation can accelerate innovation in the sector of small and medium industries (SMI) at the international level so as to develop and integrate global innovation network. Open innovation also provides a source of vast knowledge and capacity throughout the world. The best idea will generally increase with the diversity of ideas that are accepted and thus will produce the best technology. (King & Lakhani, 2013)

3.2. *How ASEAN Countries Can Ensure Success in Open Innovation*

To ensure the success in practicing open innovation as business model, companies in ASEAN countries should have possess four main characteristics of open innovation those are networking, collaboration, intellectual property management, research and development (R&D) (Chesbrough, 2003). Under the open innovation model, adding value and value capture would enable participation from other parties as the inventor of the technology, parts and components suppliers, and customers make up the "value chain" and establish relationships between them. Networking can be used to deal with the changing environment in which the technology will allow the company to fill the need for specialized knowledge immediately. (Dittrich & Duysters, 2007). In addition, networking is a source of new business partners to commercialize new products, ideas or prototypes. Partners in associated network including customers, competitors, suppliers, consultants, engineers, industry associations, universities and public research organizations, government and non-profit intermediary organizations (De Jong et al., 2005).

Secondly is collaboration. The collaboration will involve partners, competitors, universities and consumers. Collaborations in R&D between companies that are not competitive are popular examples to obtain and utilize technological capabilities. In addition, companies also tend to merge with competitors to share the costs and risks of university R & D. For larger companies, development of knowledge in many countries has led to the establishment of various forms of cooperation with partners abroad to gain knowledge outside the centers of excellence around the world (De Backer, et al., 2008).

Thirdly is entrepreneurship (Hassan, 2016a). Through networking and cooperation in open innovation, companies can choose alternative entrepreneurial strategy to commercialize their internal knowledge, and also benefit from external knowledge (Hassan, 2016b). Among corporate entrepreneurial activity is corporate venture, entrepreneurial, and spin off- (Chesbrough, 2003). Corporate venture is investing in a new business or an existing one which is usually done by large companies, whom invest in new or small companies. Corporate venture will bring innovation that has not been used or abandoned. The company can create programs for corporate venture investing in new companies and other businesses to find high potential opportunities (Chesbrough, 2006). Entrepreneurship can be promoted by investing in ideas and initiatives of workers, creating autonomous teams dedicated to innovation budget, or stimulate external relations employees to increase exploration opportunities- (Van Dijk & Van de Ende, 2002).

Fourthly is the management of intellectual property. In open innovation, intellectual property plays a very important role (Chesbrough, 2003). Intellectual property is managed proactively which includes selling and buying of the intellectual property to create a market for the technology. Thus, proactive management of intellectual property is an essential element in open innovation (Chesbrough, 2006). Intellectual property management under open innovation encourage firms to use licensing and transfer of their rights or may also open to the public to promote the introduction of foreign technology and/or external use of patents and other intellectual property which has not been used. An organization or firm should choose to release their intellectual property if it can strengthen and benefit their business- (De Jong et al., 2008).

Fifthly, is the research and development (R & D) in order to obtain a competitive advantage in the market. Internal research and development (R & D under the open innovation paradigm does not mean that R & D is absolute for , † it can be a source of better performance and is capable to increase absorption capacity for better benefits from external sources (De Jong et al., 2008). R & D is important for it can be a good resource and is required to develop new products, bringing them to market, and make a profit. In addition, R & D is necessary to obtain and maintain the necessary absorptive capacity to utilize external resources-(Cohen & Lenvinthal, 1990). In addition, other important elements of R & D are knowledge, access to finance and access to information.

3.3. *Policies and Laws Relating to Open Innovation*

Having being presented for more than ten years, a lot of discussions and debates on open innovation have been done at the organization level, however for policy makers that is the government's role in the world of open innovation, it is still uncharted (De Jong et al., 2008). The concept of open innovation was initially developed as a business driven phenomenon, which also has good implication for research and innovation policy (R&I). In order to foster open innovation,

framework condition are very important elements (Euris Partners, 2012). Further, as open innovation requires encouragement of the development of knowledge exchange, the policy should ensure transparency in the development of innovation intermediaries and knowledge markets (Euris Partners, 2012).

One of the important elements in open innovation policies is, it must be adjusted and parallel with the behaviour of innovating enterprises and/or the external conditions which motivate enterprises to practice open innovations which includes networking (Chesbrough, 2006), collaboration, corporate entrepreneurship, intellectual property management and research and development (R&D) (De Jong et al., 2008). Mainly there are seven (7) policy areas which are most relevant for open innovation those are research and technology development (RTD), interaction, entrepreneurship, science, education, labour markets and competition policy.

3.3.1. *National Intellectual Property Policy (NIPP)*

In Malaysia, intellectual property is the main contributory factors to ensure the success in practicing open innovation business model. Important measures should be taken to strengthen National Intellectual Property Policy (NIPP) in order to improve the efficiency and effectiveness of open innovation. NIPP was officially announced in July 2007 with the aim to develop intellectual property as a new engine growth for the economic prosperity. Rational of NIPP as stated in paragraph 2.1 and 2.2 of NIPP is as a principal guide in enacting laws and regulations relating to IP and in implementing all IP related activities of the government agencies, research institutions, and institutions of higher learning, non-governmental organisations and the private sector with an aim to promote harnessing of IP for socio-economic and technological development. Main objectives of NIPP is to promote commercial exploitation of IP as the key value is creating activity essential to the development of an IP industry with the aim to develop a vibrant IP industry that is crucial to sustain Malaysia's economic growth as stated in Paragraph 3.3. Further, in paragraph 3.6 stated that NIPP will ensure that Malaysian IP interest is safeguarded at the international level by monitoring the developments in IP in the international arena and actively participating in international forums that address the enhancement of IP protection, new emerging issues and new challenges brought about by rapid technological progress.

In Part 4 of NIPP, mentioning on the aims of NIPP,- Paragraph 4.1 emphasizes on the enhancement of economic, social and cultural prosperity by harnessing IP as a new economic growth through expanding Malaysia's capacity to increase the generation of IP, to effectively protect and enforce, to properly manage and to maximise the commercial exploitation of IP. Whereas paragraph 4.2 aims to strengthen the long-term competitiveness of the nation, by developing the IP industry into a mature and highly developed industry.

Rational, objectives and aims of the NIPP as discussed above support open innovation practices as it promote main elements of open innovation that are networking, collaboration, entrepreneurship, intellectual property management and R & D (Chesbrough, 2003).

Apart from that, strategies as mentioned in part 5 of NIPP are also in line with open innovation concept. Paragraph 5.2 (v) states on the acquirement of foreign IP in selected priority areas as well as encourage IP-intensive foreign ventures to bring their IP into Malaysia.

Furthermore, paragraph 5.2 (vi) has emphasis on fostering cooperation and smart partnership between the government and the private sectors and between research institutions and industries. Another strategy under NIPP is to promote distribution of research and development results which also support open innovation practices. **Whereas paragraph 5.3** (vi) promote suitable valuation methods, contractual and licensing rules to facilitate commercial exploitation of IP and (vii) promote release of IP rights not exploited by the Government or large companies to SMIs and individuals for commercial exploitation through licensing or assignment. Whereas paragraph 5.4 mentioned on the development of management capabilities by reviewing existing laws and regulations as well as business practices to better manage and exploit IP within both the public and private sectors.

Even though NIPP support open innovation, few paragraph in NIPP need to be improved. Main objectives of NIPP as stated in paragraph 3.4 is to develop the ability of intellectual property management in public and private sector covering the entire chain of intellectual property activities from creation to protection, exploitation, valuation, licensing, acquisition, enforcement and dispute settlement. There are 5 strategies that have been outlined in paragraphs 5.4 that is the development of the ability to manage intellectual property. Improvement should be made to paragraph 5.4 by adding a sixth strategy by inserting open innovation as new strategy for intellectual property management and a method to maximize the use of intellectual property.

Improvements should also be made in the National Intellectual Property Policy in paragraph 5.5 of the Intellectual Property Transactions Infrastructure Development. There are five key strategies outlined under paragraph 5.5 for the development of infrastructure of intellectual property transactions. Improvements must be made by adding a sixth strategy that is encouraging private and public sectors including higher education institutions and other public institutions that perform commercial transactions and intellectual property to apply the concept of open innovation.

3.3.2. Intellectual Property Commercialization Policy for Research and Development Project which is funded by the Government of Malaysia

Apart from NIPP, there is also Intellectual Property Commercialization Policy which was launched on June 22, 2009 as part of government efforts to encourage commercialization activities in the country which support open innovation. The policy was outlined in detail relating to intellectual property ownership and distribution of royalty for any research and development (R&D) products successfully commercialized. In addition, these policies also affect the method of commercialization, technology acquisition, research cooperation agreements and other types of incentives to inventors.

Intellectual Property Commercialization Policy formulation is the beginning of the Ninth Malaysia Plan (RMK9), where the government has set out to strengthen the National Innovation System and intensify efforts in commercialization of R & D projects funded by the public sector. In line with this, the Innovation & Commercialization Division was established in December 2007 to help the Government to achieve these goals through programs of innovation and commercialization.

3.3.3. *Science, Technology and Innovation Policy*

Another important policy which support open innovation is science, technology and innovation policy. As economic entered the era of open innovation, innovation policy need to change accordingly to remain effective (Vanhaverbeke et al., 2014). Science, Technology and Innovation Policy has been approved in 2013. Malaysia has achieved much progress in science, technology and industry (Hassan et al, 2016). In this context, innovation has become a global effort involving multiple institutions and disciplines. Changing global landscape is a challenge not only to the government but also to industries, universities, research institutions, and science and technology and innovation ecosystem (STI) in total. There are six main strategies within the DSTIN framework interrelated with each other. The first strategy is to develop the core areas of research and scientific and social development, and commercialization (R&D&C). Second strategy is to continue to develop, nurture and polish the talent. Third, to stimulate and invigorate the industry, forth is to transform the governance of STI, fifth, to encourage and promote awareness of STI and the last strategy is to strengthen international strategic alliances. In order to transform the governance, it needs to be improved to ensure effective implementation of policies and strategies through transparency and better accountability in research, development and commercialization (R&D&C). In this case, the government plays an important role in influencing and leading the development of STI environment through the provision of incentives and regulatory measures which are implemented to strengthen the structure of the agenda. In addition to STI, STI national framework should be strengthened in an effort to reinvigorate the implementation of policies and also to grant autonomy to research institutions and universities to address the development of increasingly complex innovations.

In sum, government policies as discussed above have significant impact on open innovation. The policies support enterprises in assessing and improving networking skills by fostering knowledge development and competences. The policies also aim to create an interactive environment by fostering partnership and encouraging collaboration between partners. The policies also emphasized on the management of intellectual property in Malaysia. Further, it also encourages and facilitates innovation intermediaries to bring various actors together to exchange knowledge and to create relationships. Hence, most of the guidelines derived from open innovation theory are already developed and implemented in the current policies in Malaysia.

3.3.4. *Intellectual Property Laws*

Apart from policies, intellectual property law is also an important area to be discussed as it contributes to implementation of open innovation. Intellectual property is the basic premise to open innovation. Intellectual property is the result of human intellectual creativity associated with commercial reputation and good name of the owner, and is beneficial to humans as other properties (Nakayama, 2010). Under intellectual property law, the owner of the properties has certain exclusive rights for the intellectual property of their creations. Intellectual property law creates property rights in a broader, wide and diverse range of elements including computer programs, novels, painting, films, pharmaceuticals and television broadcast. Under open innovation paradigm, the most significant laws to discuss are patent law and also copyright law (Lee et al., 2010).

A patent is an exclusive right granted to an invention (Vallat, 2009) whether a product or a process for producing, or in general, a new way of doing something, or a new technical solution to a problem. To obtain a patent, the technical information about the invention must be disclosed to the public in a patent application. Patents are a form of intellectual property protection whereby it prevents exploitation of the invention by others without the permission of the patent holder (WIPO). Patent is an exclusive right granted by a country to the creators of the invention in the field of technology. Patent protection granted under the Patents Act 1983 and the Patents Regulations 1986. Section 36 of Patent Act provides that subject and without prejudice to the other provisions of this Part, the owner of a patent shall have the following exclusive rights in relation to the patent (*a*) to exploit the patented invention (*b*) to assign or transmit the patent (*c*) to conclude license contracts. Under the patent law, other than the owner of the patent and without the agreement of the latter in relation to a product or a process falling within the scope of protection of the patent, one is liable for infringement as provided in section 58.

Patent protection is for 20 years from the filing date as mentioned in section 31(1). Whereas the certificate for utility innovation protection is 10 years from the filing date and can be extended to five years and the next five years depending on usage. A patent owner has the right to exploit the invention, to assign or license the contract signed. In accordance with the TRIPS Agreement, the Patents Act 1983 allow compulsory licenses and the importation of the patented product that has been marketed in countries outside the (parallel imports). The Government reserves the right to prohibit the granting of patents on grounds of morality or public order. Patents Act 1983 was amended in 2003 to include a provision to allow importation under the scope of compulsory license.

For the Copyright Act 1987, it provides protection for copyright works (Khaw, 1991). The Act sets out the works eligible for copyright protection including computer programs, the scope of protection, and the manner in which it is given protection as mentioned in section 7, 9 and 10. There is no registration system for copyrighted works. Period of copyright protection for literary, music and art is long life of the author and 50 years after his death. For works of sound recordings, broadcasts and films, the protection is for 50 years after the works are first published or disclosed. The Act also provides protection to the rights of the performer in a performance made directly for 50 years starting from the next calendar year after it was first presented in section 17. Section 13 of Copyright Act 1987 provides that copyright in a literary, musical or artistic work, a film, or a sound recording or a derivative work shall be the exclusive right to control in Malaysia (*a*) the reproduction in any material form; (*aa*) the communication to the public; (*b*) the performance, showing or playing to the public; (*e*) the distribution of copies to the public by sale or other transfer of ownership; and (*f*) the commercial rental to the public, of the whole work or a substantial part thereof, either in its original or derivative form. A person who commits or causes others to perform without a license from the copyright owner of one or more of the prohibited acts is guilty of copyright infringement under section 36 (Tay, 2013).

Unlike Patent Act 1983, Copyright Act 1987 does not include provision for compulsory license. Compulsory license gives opportunity to the general public to benefit the work of the author. Compulsory licensing has been practiced in the United States and the United Kingdom which gives a positive impact on the dissemination and sharing of knowledge among the general public. In the United States, the provisions of compulsory licensing is provided under 17 U.S. Code § 115 and

in the United Kingdom is under Section 141 CDPA. As such, Copyrights Act 1987 should be amended to include a provision to allow importation under the scope of compulsory license.

Thus, intellectual property law i.e patent law and copyright law provides protections which are essential to ensure that ideas and knowledge are protected in the process of exchange of knowledge among various parties involved and engaged in open innovation. Without intellectual property right, protection parties may not willing to collaborate as there are high risks of their ideas and knowledge being taken away or used by other parties.

3.3.5. Policies Supporting Open Innovation in Europe and UK

Good policies are important to promote open innovation practices and are also a key role in the innovation ecosystem and promoting innovation. European countries are the most active countries in developing policies that support open innovation. EU's Open Innovation Strategy and Policy Group (OISPG) aims to support policies for open innovation and sustainable Europe in close collaboration with the European Commission. OISPG is the driver of the open innovation whereby it catalyses modern innovation adoption and creation of open innovation ecosystems (OISPG).

In Europe, a charter for open innovation policy has been proposed which consists of five main elements. First, is education and human resource development. Secondly, open innovation financing or financing chain. Third, using a balanced approach in which intellectual property by reducing transaction costs on intellectual property, accelerate growth of intellectual property and rebalance the university intellectual property policies. Fourth, promoting cooperation and competition by promoting start up companies and emphasis on innovation networks. Fifth, expanding open government through increased broadcasting of government data, the use of open innovation process in government procurement and the commercialization of technology in the private sector which is financed by the government (Chesbrough & Bogers, 2014).

United Kingdom is considering of building a more supportive system for open innovation activities. The policy agenda designed to generate infrastructures that support open innovation practices. There are three important elements in building supportive system for open innovation that are intellectual property regime, financing investment in open innovation and also building markets for open innovation. Furthermore, countries' framework conditions such as product and labour markets, IP systems and competition policies, government research and innovation policies; and science and technology policy are extremely important policy which support open innovation. (OECD, 2008).

4. CONCLUSION

In the face of future challenges in global economy, thus it is extremely important for ASEAN countries to ensure that National intellectual property regimes should achieve full technical and procedural convergence, and intellectual property offices should have adopted modern business models and practices that enable provision of efficient and effective "world class" services to clients at the national and regional levels. Open innovation as the most increasingly adopted business model in the recent decade will certainly provide maximum impact on economic growth

of ASEAN economy. Existing policies supporting open innovation as discussed in part 3 such as national intellectual property policy; science, technology and innovation policy. Intellectual property commercialization policy for research and development project which is funded by the Government of Malaysia has covered most of policy areas for open innovation such as research and technology development (RTD), interaction, entrepreneurship and science. The existing policies should be enhanced to ensure the success of open innovation practices in ASEAN countries. As such, implementing open innovation as business model will certainly provide more effective and comprehensive business regulation for ASEAN countries which will contribute to the enhancement of regional economic development. Comprehensive intellectual property system and intellectual property law in ASEAN countries will accelerate the effectiveness of open innovation business model.

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