How to exploit university patents for technology commercialisation and innovation in Viet Nam?

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Abstract

The demand for leverage of university patents for technology commercialisation and innovation is higher and higher in Vietnam under the context of Industrial Revolution 4.0. However, the rate of patents that are commercialised is quite low due to many reasons. This article will study the definition of commercial exploitation of university patent, legal forms of commercial exploitation of university patent, historical review of university patent commercialisation phases, the Vietnamese legal rules for university patent commercialisation forms and their practice, which helps to recommend and amend the existing rules.

Introduction

Law on Intellectual Property (IP) of Vietnam in 2005, amended in 2022 (Law on IP, 2005), considers a patent as one of the most crucial intellectual property rights (IPRs). Patent is one specific intellectual asset; it is one kind of intangible asset, which plays a vital role in the innovation and economic development of a country. Patents not only promote research and innovation but also attract investment capital and technology transfer.

The "Theory of Innovation" was created by J.A. Schumpeter in 1934; it is understood as a new product or a new way of doing things applied in practice using intellectual assets (Croitoru, Alin and Schumpeter, J.A., 2008). This term"innovation" has only been developed in the last 60 years. In the recent literature, the definition of "Innovation" has emerged as part of an effort to find new ways to coordinate and solve global and local problems in every country, as mentioned in the Sustainable Development Goals of the United Nations (Henry Chesbrough, 2003, and Chesbrough Henry, Vanhaverbeke Wim and West Joel, 2008).

Under the international integration context, with the improvement and development of laws on the protection and enforcement of IPRs according to the World Trade Organization's standards, the Vietnamese Government has been focused on the commercial exploitation of patents. In detail, laws on IP, on technology transfer, on commerce, on investment, on enterprise and secure transactions have regulations such as the promotion of patent owners to exploit their patents; the enhancement of university patent transfer to enterprises; the stimulation of organisations and individuals to contribute capital, mortgage of patent rights for doing business, setting up start-ups, spin-offs, etc. Moreover, the Vietnamese Government has been revising its legal rules on IPRs to satisfy commitments in international trade conventions and treaties such as Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) (CPTPP, 2019), EU–Vietnam Free Trade Agreement (EVFTA) (EVFTA, 2020), Regional Comprehensive Economic Partnership (RCEP) (RCEP, 2022), etc. In addition, Vietnam's new IP Strategy to 2030 was issued in 2019. Recently, in the context of the Industrial Revolution 4.0 in Vietnam, for the first time, the Resolution 57-NQ/TW (Resolution 57-NQ/TW, 2024), science and technology, along with innovation and digital transformation, are placed at the top of important breakthroughs with unprecedented goals and drastic solutions. Under this Resolution, the Vietnamese Government is developing policies for breakthroughs in the development of science, technology, innovation, and national digital transformation, in which scommercialisation of patents in general and that of university patents in particular are pilot policies.

However, the commercial exploitation of patents for technology commercialisation and innovation is rather new; patents are still stipulated in legal rules with the protection of IPRs (static position), not with the commercial exploitation (dynamic position). Vietnam's legal rules have many limitations and shortcomings in detailing the commercial exploitation of university patents. In fact, Vietnam needs to modify the relevant laws.

This paper focuses on the definition of commercial exploitation of university patents, legal forms, and the importance of university patent commercialisation, historical review of university patent commercialisation phases, current Vietnamese legal rules for university patent commercialisation forms and their practice, which helps to recommend and amend the relevant legal rules.

The methodology of this paper is the literature review - the research of available publications to analyse the management and commercialisation of university patents as well as the technology commercialisation phases and the policy review - the research of laws and policies (doctrinal research review) relating to the leverage forms of university patent for technology commercialisation and innovations in Vietnam. The author uses both doctrinal research and statistical survey methods to show the current situation of legal rules on university patent commercial exploitation and its practice in Vietnam.

Literature review

The commercial exploitation of patents was propagated with the technology commercialisation wave from developed countries to developing countries since the 1970s. The following publications are worth a look: *Licensing and exploitation of patents* (Holloway. H, 1968); *Licensing as a means of penetrating foreign markets (*Zenoff David B, 1970); *Breveté et licencié-Leurs rapports juridiques dans le contrat de licence* (Jean-Jacques Burst, 1970); *Emerging restriction on the transfer of technology* (John C. Green, 1971); *Brevets et sous-développement-La protection des inventions dans le Tiers-monde* (Martine Hiance and Yves Plasseraud, 1972); *Patent and Know-how Licensing in Japan and the United States* (Teruo Doi and Warren L. Shattuck, 1977); *Le Brevet Américain – Protéger et Valoriser l'Innovation aux États-Unis* (André Bouju, 1988); *Legal Aspects of the Transfer of Technology to Developing Countries* (Michael Blackeney, 1989); *Patents and Development* (Dr. Patricia Kameri-Mbote, 1994); *A concise guide to European Patents: Law and Practice* (Gerald Paterson M.A., 1995); *Droit des Brevets d'Invention et protection du savoir-faire* (Mireille Buydens, 1999); *Industrial Property Rights Standard Textbook-Patents* (Japan Institute for Invention and Innovation, 2003); *Patents and the Transfer of Technology to Developing Countries* (John Barton, 2003), etc.

During the past decades, many publications about the commercial exploitation of patents mentioned the leverage of patents to promote innovation. The following publications should be noted: *Patent Scope and Innovation in the Software Industry* (Cohen, J. and Lemley, M., 2001); *Open Innovation: The New Imperative for Creating and Profiting from Technology* (Henry Chesbrough, 2003); *How Do Patent Laws Influence Innovation: Evidence from Nineteenth Century World Fairs* (Moser, P, 2003); *How Does Patent Protection Help Developing Countries?* (Ali M. Imam, 2006); *Brevet, innovation et intérêt général-Le Brevet: pourquoi et pourquoi faire?* (Larcier, 2007); *Open Innovation: A Research Agenda* (Chesbrough Henry, Vanhaverbeke Wim and West Joel, 2008), etc.

Regarding the commercial exploitation of university patents for technology commercialisation and innovation, some publications could be noted: *Intellectual Property Management of National University Corporations Shift to Institutional Ownership and its New Challenges* (Shimoda, R., 2005) explores the transfer of IP ownership in Japan, from individual researchers to university corporations. It highlights the challenges: motivating researchers, resolving conflicts of interest, sharing revenues, facilitating start-ups, international considerations. *Management of Intellectual Property Rights in academia: The Estonian and Swedish perspectives* (Kelli, A., Mets, T., & Jonsson, L., 2014) compares the management of IPRs arising from academic research in Sweden and Estonia. The key findings indicate that both countries face challenges in balancing the principles of open science and IPR commercialisation. *The changing landscape of intellectual property management as a revenue-generating asset for US research universities* (Cummings, B., 2013) discusses how the U.S. research universities have increasingly focused on IP management and technology transfer as a way to generate revenue from research discoveries and inventions. Thanks to the Bayh-Dole Act, many universities set up technology transfer offices (TTOs) to exploit and license patents to companies.

In brief, there are no systematic and comprehensive publications relating to the legal rules on the university patent commercial exploitation forms and their practice in Vietnam.

Findings and discussions

Overview of university patents' commercial exploitation

Definition of a university patent's commercial exploitation

Patent commercial exploitation is not a new term. The patent is the certificate that is delivered by the patent office to the owner of patent when the invention satisfies the patentability. When granting patent, the IPRs to the invention arise accordingly.

Commerce is a broad and increasingly developed concept with a comprehensive denotation. According to the provisions of Clause 1, Article 3 of the Commercial Law No. 36/2005/QH11 (Commercial Law, 2005), commercial activities are activities for profit-making purposes.

In brief, "commercial exploitation" of a patent can be understood as the transformation of a patent into goods for circulation on the market, thereby bringing profits to the patent owner. Commercial exploitation of a patent has two basic unchanging characteristics: (1) the actual exploitation of the value of the patent; and (2) for profit purposes.

Legal forms of a university patent's commercial exploitation

The following are the ways a university patent can be commercially exploited:

- self-commercialisation;

- assignment and licensing of a patent;

- mortgage/collateral of a patent;

- contribution of patent as capital, cooperation in business with intellectual property rights to the patent.

The importance of a university patent's commercial exploitation

The commercial exploitation of a patent not only benefits individuals and organisations directly related to that patent but also contributes to promoting the development of the whole society.

The investment in creativity, innovation, and technology development is becoming a state trend. Many studies in the world show that patents used in industries in the European region in the period 2008 - 2010 generated EUR 1.7 trillion, accounting for 14% of the GDP of the European Union. For American industries, in 2010, patents brought in $763 billion, accounting for 5.3% of GDP. Patents are one of the abundant resources for the economic and social development of each country in the fierce competition on a global scale (Nguyen Huu Can, 2017).

The creation and management of patents in universities are essential to fostering innovation, accelerating economic expansion, and improving society at large. Universities can benefit from the outcomes of their research by licensing patents to business partners through effective IP management, which makes it easier for academics to transfer technology and information from the educational environment to the marketplace. Universities can also encourage students and researchers to explore new ideas, take chances, and pursue creative undertakings by encouraging a culture of innovation and entrepreneurship, knowing that their intellectual contributions will be acknowledged and valued.

Historical review of university patents' commercial exploitation

The legal framework to promote the commercial exploitation of university patents for technology commercialisation and innovation in the world is divided into four phases which started in 1980.

Phase 1: Initial policy formulation stage related to university patent commercialisation (1980-2003)

The Bayh-Dole Act of 1980 of the American Government is considered the world's pioneering national policy that directly addresses university patent commercialisation. This Act laid the foundation for systematic efforts to transfer technology from universities to the private sector (Slaughter & Rhoades, 1996). The university patent commercialisation can occur at any stage of the innovation process and can be carried out in various forms, including technology licensing or the establishment of a spin-off to self-commercialisation (Norman et al., 1997). In 2003, the Organization of Economic Cooperation and Development (OECD) emphasised the U.S. Bayh-Dole Act of 1980 as a key factor promoting the formation of TTOs at American universities (OECD, 2003) to commercialise research results by granting U.S. universities unconditional ownership of inventions created from federal research funds.

Phase 2: Stage of developing successful university patent commercialisation models (2004-2009)

During this period, the governments of many countries around the world have identified the promotion of patent commercialisation as a priority in their economic policies. Magnus Karlsson described in detail the process of commercialising patents in the USA, a country considered to have a large number of TTOs and that achieved many successes in commercialising patents (Karlsson, 2004). He also analysed the case of the Stanford University TTO and some other TTOs. He also pointed out the successful model in transferring patents in the field of medicine, typically the National Business Incubation Association.

In 2008, Anna S. Nilsson, Henrik Fridén, and Sylvia Schwaag Serger conducted a study on models of commercialising patents in the life sciences at medical universities in the USA, Japan, and China (Nilsson et al., 2008). Another study of Einar Rasmussen analysed the Canadian Government's solutions to support patent commercialisation activities at universities (Rasmussen, 2008). Several important studies showed university patent commercialisation policies in Korea: Kanghwa Choi and Soo W. Kim presented a comprehensive approach describing the interactive relationship between technological innovation, enterprise capacity innovation, R&D, and patent commercialisation (Choi & Kim, 2008). Young Roak Kim also presented the status of Korea's patent commercialisation policy at that time, with about 40 laws related to technology commercialisation. The Korean Government had also approved a series of programmes related to patent commercialisation (Kim, 2008). Thanks to the laws and programmes, Korea has had significant achievements in transferring patent into production and has become one of the most developed economies in the world with significant contributions from TTOs in Korean universities.

Phase 3: Stage of forming a policy system to promote university patent commercialisation in some countries (2009-2013)

In 2010, Erik Baark assessed an important component of China's reforms in the science and technology sector over the past two decades, which is the exploitation of technologies created in research institutes for commercialisation;he analysed various concepts and measures to guide technology commercialisation policies, as well as different approaches in light of "market-pull" innovation and public choice theories (Baark, 2010). In addition, Weiping Wu pointed out that there are important institutional platforms to build linkages between universities and the industrial sector (Wu, 2010).

Chandran Govindaraju published a study on R&D result commercialisation and the challenges for developing countries, focusing on the case of Malaysia, in Tech Monitor. Universiti Putra Malaysia, Universiti Sains Malaysia and several other S&T organisations have had some successful commercialisation of university patents. However, the rate of patent commercialisation from public research programs in Malaysia is still low, with the main reasons being the lack of seed capital and venture capital for commercialisation, weak linkages between universities, research institutes and businesses, as well as limited capacity of enterprises to absorb new knowledge and technology (Govindaraju, 2010).

Phase 4: Stage of developing national policies towards designing technical tools to promote patent commercialisation (since 2013)

This period witnessed a significant increase in research focusing on patent commercialisation, driven by many different strategies, trends, and technical tools. In 2013, OECD shed light on the main trends and strategies in commercialising research results from public research organisations. The main topics covered included diverse channels for transferring knowledge and commercialising scientific inventions, establishing benchmarking for operational efficiency in this field, specific public policy tools to encourage the process of knowledge transfer and commercialisation, as well as financial mechanisms to support the formation and development of spin-offs originating from public research results (OECD, 2013).

In 2015, Farhan Jamil, Kamariah Ismail and Nasir Mahmood focused on the role of university incubators and technology parks as important tools in the commercialisation process (Jamil et al., 2015).

In summary, the above-mentioned phases provided valuable insights into the roadmaps and tools (legal system, programs and support funds) to strongly promote the commercial exploitation of university patents that Vietnam can learn from.

Current status of the Vietnamese laws on university patent commercial exploitation and its practice

The existing legal rules on university patent exploitation forms in Vietnam

The current legal rules on university patent exploitation forms in Vietnam is divided into several relevant laws including Civil Code, Law on IP, Law on Enterprise and their sub-laws.

The self-exploitation of owner

Law on IP does not have specific and detailed provisions allowing the owner to commercialise a patent directly. The right to self-commercialise a patent arises from the owner's right to use the patent.

In essence, a patent is an asset in general and an intangible asset in particular. According to Article 158 of the Civil Code No. 91/2015/QH13 (Civil Code, 2015), "*ownership rights include the owner's right to possess, use and dispose of the property following the law.*" In addition, according to Article 190 of the Civil Code 2015, the owner is entitled to use the property at his/her will but must not cause damage or affect the national interests, ethnic groups, public interests, rights, and legitimate interests of others. Futhermore, the Article 124 of the Law on IP also clarifies that the use of a patent is the performance of the following acts: *"a) Producing the protected product; b) Applying the protected process; c) Leveraging the protected product or the product manufactured according to the protected process; d) Circulating, advertising, offering, storing for circulation the products specified at Point c of this Clause; dd) Importing products specified at Point c of this clause"*.

In brief, the university as patent owner has the right to use the patent at its will without depending on other subjects with protected objects themselves. However, there are still some limitations as follows: Lack of regulations on the export of protected products; the use of the term "protected product" (understood as a protected patent or a product containing a protected patent) is ambiguous. While these are two completely separate objects from each other, the scope is also different.

Transfer of patent rights

The patent owner has a fully legal basis to exploit the patent by himself but in reality, the owner rarely has enough economic, financial, physical, and human resources to do it. To overcome this situation, the patent owner often exercises the right to dispose (assignment) or the right to allow others to use (conveyance) his patent through a contract.

First, the transfer of patent ownership is stipulated in Clause 1, Article 138 of the Law on IP. In essence, the assignment of a patent is considered to be the "outright sale" of the patent. However, Vietnamese law has relatively evident provisions on the transfer of patent ownership:

Conditions restricting the transfer of patent ownership: According to Clause 1, Article 138 of the Law on IP, patent owners may only transfer their rights within the scope of protection (temporal or territorial).

Contract for transfer of patent ownership: According to Clause 2, Article 138 of the Law on IP, the patent transfer *"must be done in the form of a written contract..."*. Besides, a contract for patent assignment must comply with the general provisions on the validity of an ordinary civil transaction as prescribed in Clause 1, Article 117 of the 2015 Civil Code. Otherwise, the parties will face many risks and damages.

Contents of contract for patent transfer: according to Article 140 of the Law on IP, the contents must have *"1. Full name and address of the assignor and assignee; 2. Grounds for transfer; 3. Transfer price; 4. Rights and obligations of the assignor and the assignee"*. The lack of detailed and specific provisions related to the content has led to many difficulties and limitations in patent commercialisation in Vietnam.

Registration of a contract to transfer patent ownership: According to the provisions of Clause 9 Article 2 of the Law on IP, *"...the assignment contract shall only take effect when it has been registered at a state management agency in charge of industrial property rights"*. This regulation aims to protect Vietnamese patent owners in contractual relations with enterprises and organisations of industrialised countries, to limit the situation where the patent transferor in the developed countries imposes unfavorable conditions on the patent transferee in Vietnam. However, these rules also have certain shortcomings: the administrative procedures to register this contract are relatively complex and cumbersome, which are the main obstacles that make the patent transferor (usually a foreign partner) hesitate to transfer for fear of excessive time and cost spent. Therefore, the improvement of administrative procedures is essential for the innovation and technology commercialisation.

Second, licensing of patent use rights also have the following conditions:

Common forms of patent licensing: According to the provisions of Clause 1, Article 141 of the Law on IP, the transfer of the right to use a patent is the owner's permission or authorisation to another person to use their patent within a certain scope. Similar to patent assignment, patent licensing must be done in the form of a written contract according to the provisions of Clause 2, Article 141 of the Law on IP. Based on Article 143 of the Law on IP, patent licensing contracts are divided into three types: Exclusive, non-exclusive and secondary.

Provisions on patent licensing contracts: According to the provisions of Article 144 of the Law on IP, the content of a patent use contract must simultaneously satisfy the following 02 (two) conditions: Firstly, a patent use contract must not neglect to contain the required main contents. Secondly, the patent use contract must not contain/recognise provisions that unreasonably restrict the licensor's rights. In case the parties include the above provisions in the patent use contract, these terms are automatically invalid. It can be seen that the laws strictly limit the contents that the parties agree upon and are recorded in the patent use contract.

Mortgage/collateral of patent

According to the provisions of Article 17 of Decree 21/2021/ND-CP of the Government (Decree No. 21/2021/ND-CP, 2021), "*Owners of property rights arising from intellectual property rights, information technology, scientific and technological activities may use property rights … to secure the performance of obligations"*. Thus, patent rights can be used to mortgage/collateral at banks to raise capital. However, in practice, this approach to loans is not popular and is also very difficult to implement for the following reasons:

Firstly, it is difficult to assess the value of a patent. Currently, there are three (03) approaches (cost, income and market) to value an intangible asset according to the provisions of valuation standard No. 13, issued together with Circular No. 06/2014/TT -BTC (Circular No. 06/2014/TT –BTC, 2014). However, there is no equivalent patent in the market. The instability in the price of patents will affect the valuation when mortgaged, and may pose a risk to the mortgagee (Hoang Lan Phuong, 2021).

Secondly, the handling of industrial property rights to patent when obligations are violated faces many difficulties. According to the provisions of Clause 1, Article 303 of the Civil Code 2015, the disposal of the mortgaged property shall be agreed upon by the parties to the mortgage to choose one of the following methods: auction of the property; the secured party sells the property by itself. Moreover, the seizure of security assets requires corresponding knowledge at scientific and technical level.

Thirdly, it is not feasible in some cases to guarantee the value of patents at the time of disposal of the collateral.

As can be seen from the above analysis, this valuation still faces many difficulties.

Contributing capital by industrial property rights to patents

According to the provisions of Article 34 of the Law on Enterprise No. 59/2020/QH14 (Law on Enterprise, 2020): "*1. Assets contributed as capital are Vietnam Dong, freely convertible foreign currency, gold, land use rights, intellectual property rights, technology, technical know-how and other assets valuable in Vietnamese Dong…"*. Thus, the contribution of capital as a patent to establish a company is completely legal and permissible.

Similarly, the valuation of a patent must comply with the general regulations on the valuation of intangible assets. However, the Law on Enterprise also sets forth the principles that individuals and businesses must comply with in Article 36. Pursuant to the provisions of Article 36, the valuation of industrial property rights to a patent for capital contribution must satisfy the following conditions: they must be valued in Vietnam Dong. In case of capital contribution to establish an enterprise, the industrial property rights to the contributed patent shall be valued according to the consensus principle or by a valuation organisation. The value of assets contributed as capital must be approved by more than 50% of the members and founding shareholders. In the case of capital contribution by patent to increase charter capital, the Members' Council, for limited liability companies and partnerships, or the Board of Directors, for joint-stock companies, , shall agree on a valuation agreement or the value appraised by a valuation organisation.

Thus, it can be seen that the valuation of a patent as capital contribution is carried out on the principle of self-negotiation and self-consensus between owners.

Practice

Overall, thanks to the relevant legal rules and policies of the Vietnamese Government, the awareness of patent importance is rising as can be seen from the higher number of patent filing and certificates. There are also many patents which are transferred from universities to enterprises for technology commercialisation and innovation to help enhance the competitiveness and brand of these enterprises. It could be noted that there is no official report about the number of university patents' commercial exploitation via the above legal forms. However, the study on the number of patent filings, patent certificates and registered patent transfer contracts could reveal partly the current situation of university patent commercial exploitation in Vietnam.

In fact, the number of patents granted and filing is still limited in comparison to the potential (Table 1). In addition, the number of applications and protection certificates for patent is seldom compared to other types of industrial property objects such as trademarks or industrial designs.

From Table 2, it is seen that patents have not developed yet strongly in Vietnam, also that the university patent commercial exploitation is still limited. In addition, patent owners still face many difficulties in commercialising their patents. In detail, many university patents are incomplete, requiring a long investment process to be commercialised. University patent owner does not exploit their patents effectively. Moreover, not all owners or creators have the resources to ensure this process. For example, recently, some scientists from the Faculty of Mechanics, Ho Chi Minh University of Technology manufactured a rice-paper device successfully. This project was funded by the Government budget. This device price is 470 million VND, which is much lower than an imported device. However, a food company bought it for manufacturing. After testing for a short duration, the number of successfully produced rice paper was found to be small, compared to the number of broken rice paper (*Le Duc Hien,* 2021).

Table 1. Number of patent filings and patents granted in Vietnam by the Vietnamese entitites in the period 2021-2024 (NOIP, 2025).

Year	Registration number			Certificate number		
	Patent	Industrial design	Trademark	Patent	Industrial design	Trademark
2021	1066	2055	44638	153	1196	25379
2022	895	1998	47754	153	1077	29444
2023	991	2012	50739	315	1144	25188
2024	1226	2046	51363	308	1189	38250

Table 2. Number of ownership transfer contracts and use rights transfer contracts for patent solution registered at NOIP for the period 2021-2024 (NOIP, 2025).

Time	Registered Contracts of Patent ownership transfer	Registered Contract of Patent use right transfer
2021	71 (98)	8 (14)
2022	135 (155)	12 (14)
2023	96 (144)	16 (22)
2024	92 (147)	8 (8)

It can be seen that the total number of ownership transfer contracts and patent/utility solution licensing contracts during recent years are not many, not commensurate with the potential of the patent as well as the mode of commercialisation. In fact, businesses, individuals and organisations have not been proactive or even active in the transfer of industrial property rights to inventions, thereby creating many negative consequences in innovation and economic development activities.

In recent years, several universities in Vietnam are aware of the importance of their technology transfer office in managing and exploiting university patents. Vietnam National University, Hanoi set up the Center for Knowledge Transfer and Startup Support (CSK) according the Decision No. 269/QĐ-ĐHQGHN dated 24/01/2017. This Center is a legal entity according to the model of TTO under Park for High Technology and Innovation according to the Decision No. 202/QĐ-ĐHQGHN dated 13/01/2025. The Center has implemented the Program of VNU-Techgate since 2021 to incubate, support transfer and commercialisation of university patents. Initial results are good: 15 patent filings and 03 transferred patents in 2021; 13 patent fillings and 03 spin-offs in 2022, 43 patent fillings and 03 transferred patents in 2023; 30 patent fillings and 05 spinoffs in 2024. In particular, the following patents are supported for commercial exploitation: Material Nanobiochar applied in pharmaceutics and beauty; Paint for cooling; Chitosan to preserve agricultural products, etc.

Recently, the Decree No. 109/2022/ND-CP stipulating the Regulations on science and technology activities in higher education institutions has been launched to "set forth the organisation and management of scientific and technological activities in higher education institutions; research groups and strong research groups in higher education institutions; scientific, technological and innovative activities in higher education institutions; develop scientific and technological potential in higher education institutions; responsibilities of agencies, organisations and individuals for scientific and technological activities in higher education institutions." (Article 1) (Decree No. 109/2022/ND-CP, 2022). This Decree is one of the bases for building regulations on the management and development of IP and technology transfer centers in universities, including regulations such as the organisation and management of activities. science and technology in higher education institutions; research groups in university facilities; science, technology and innovation activities in higher education institutions; invest and develop scientific and technological potential; and

responsibilities of agencies, organisations and individuals for science, technology and innovation activities. The situation of limitation of university patent commercialisation could be improved.

Conclusion and recommendations

University patent commercial exploitation for technology commercialisation and innovation is very important. Vietnam is one of the fastest-growing economies in Southeast Asia. It may be that the success of Vietnam's economic development could be caused by the effective commercial exploitation of university patents for technology commercialisation and innovation. To gain this objective, the Vietnamese Government should improve and stipulate more details the legal rules on university patent commercial exploitation forms, such as self-exploitation by patent owner, transfer of patent rights, commercialisation of university patent via mortgage/collateral and contribution of patent as capital. Moreover, Vietnam should follow the phases of university patent commercialisation to have a suitable policy to develop tools for university patent commercialisation. In particular, the regulations on technology transfer offices at universities could be more detailed and improved to support the setup and activities of these units. The fact and case study of Vietnam National University, Hanoi is a good example.

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