

# Indonesian legal framework to support innovation sustainability

**Bambang Pratama**

Business Law Department, Faculty of Humanities, Universitas Bina Nusantara,  
Jakarta Barat 11480, Indonesia

E-mail: [bptama@binus.ac.id](mailto:bptama@binus.ac.id)

**Abstract.** The successful economy in a country can be measured by the number of commercializing intellectual property rights (IPR). To pursue IPR growth, triple helix component becomes a backbone to weave academia, business and government to collaborate with each other. Generally, collaborations move from their common interest, but within triple helix the collaboration can be run structurally and sustain. Depart from the arguments; the question arises: How is the condition of Indonesia Innovation System? Through legal approach, this paper will explain current legal condition and legal structure of the Indonesian innovation system. The reason to review the law is to relate with the government's target to create 1000 digital start-ups alike as in Silicon Valley level size. Therefore, legal framework review becomes useful to explain the condition of the law as a supporting system. In this sense, the legal prescription can be generated to confirm Indonesian laws, whether supported the national innovation system or conversely. Within law perspective, Indonesian government categorizes the innovative industry as a creative industry. However, there is still no resolute concept to follow. Therefore, some of law adjustment is needed to support the government's plan to pursue commercialized innovation.

## 1. Introduction

Smart city is a comprehensive commitment to innovation in technology, management and policy. But many literatures only address in the technological aspect and neglecting policy and managerial side of innovation [1]. To discuss smart city concept, the advantages for the needs of residents from all ages in bridging the digital divide to be connected to everything their city has to offer [2] must be achieved. In which, to design the concept of smart city, comprehensive aspect that relate interaction from human to their needs must be considered as influenced factors. In terms of human interaction in general, the law is a powerful tool to control its relation. This paper will argue that policy can be a powerful tool to connect and to create innovation, which can be viewed as a whole system. Depart on three key points from concept of smart city; innovation, management, and policy, this paper will describe the concepts doctrinally from legal perspective and place it into the legal system.

Legal framework becomes powerful tools for innovation to support national innovation system. In this case, innovation can be utilized to optimize public services or private services. Nowadays, Information and communication shifted from private to public serviced in order to optimize services. In law perspective, they are some of law regime that mingled, which are: administrative law for good governance, information law, telecommunication law, and technology law. To simplified the concept,



information and communication technology law, the name this convergence law concept is cyber law. In this position, administrative law remains unchanged, even the neighboring laws are mingled. If the concept of innovation is being used to predict the outcome, then intellectual property law must be used as a foundation, because pedestal right of innovation like patent, copyright, etc. is regulated inside intellectual property law regime.

The smart city concept was formed upon the concept of innovation, in which utilizing of technology, that generated by innovation on the upstream side. In other words, conceptually we can justify smart city by its national innovation system, commonly known as triple helix [3]. The strength of innovation can be observed by its national innovation, which certainly must be tight with regulation to enforced the actors. Etzkowits & Leydesdorff (2000) argue that the triple helix is a braided collaboration of innovation actors, namely: academician, business, and government to create innovation. But, Wilson III added civil society as a new component, which he adjusts for U.S. condition, and he named it with quad helix as national innovation system to compete in today's hyper competition [4].

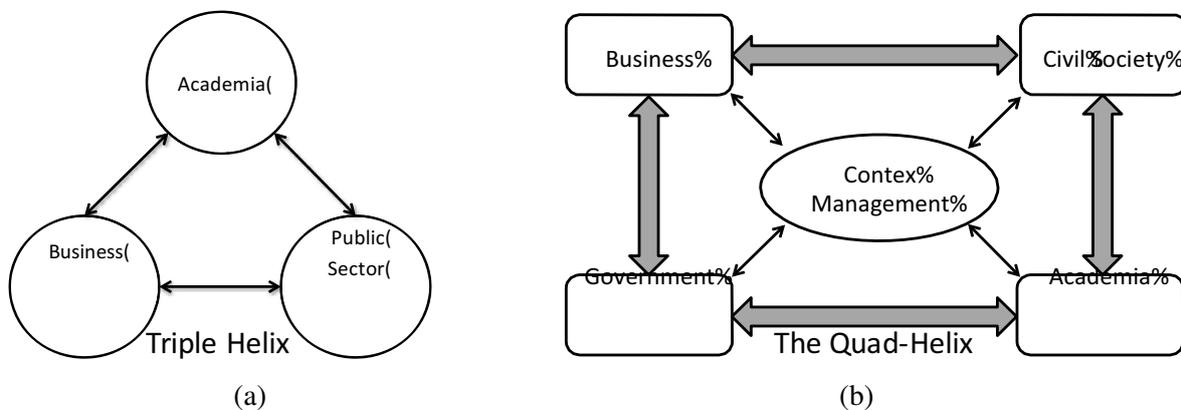


Figure 1. Dynamic innovation system at (a) triple helix and at (b) quad helix

Based on Etzkowitz & Leydesdorff, to applied national innovation system, the adjustment from national circumstances become a necessity, Wilson's also mutually agree with this argument. In spite of national condition, they are a common principle to design successful national innovation, one of the example also comes from Europe in 2004 that European Union (EU) experienced. At that time, EU invited former Dutch Prime Minister, Wim Kok to evaluate EU policy to foster innovation. Kok's said: "one of the most disappointing of the Lisbon process to date is that the importance of R&D remains so little understood and that so little progress has been made" [5]. According to the condition, he proposed the policy to focus on three areas, which are: innovation in the friendly market, trebling the share of the structural funds, and greater resource mobility. Kok's recommendation later applied to all member of EU countries.

Depart from the component of the triple helix, each component may have the sectoral law, and each component of law must have a connection to each other in order to achieve national innovation. Today's, Indonesian regulation related to innovation, the regulation connection is still divergent. In the meantime, Indonesian president already made a statement to enforce digital startup by creating e-commerce blueprint to aim and promoting small medium enterprise, e-commerce, and startup company [6]. To show the government determination to empower digital market in Indonesia, the government proposed Jack Ma, world's biggest e-commerce platform, Alibaba, to become an adviser to develop e-commerce [7]. Unfortunately, the strategy only addressed in economy and technology perspective. Unfortunately, legal perspective is abandoned to guard government goals. Thus, the legal instrument will potentially become barriers to support innovation system.

According to the background, this paper will discuss a legal approach to evaluate innovation system in Indonesia, and the method is commonly known as a doctrinal method. They are several reasons to

use a doctrinal method, namely: examined regulation related to research object, especially related to the technology and intellectual property law, and providing legal prescription as a result of the research. To strengthen the arguments, this paper also describes experiences from another country. Even though, this paper is not used comparative legal research method, because the comparison object is not apple-to-apple.

**2. Creative Economy, Creative Industry, and Innovation System**

Today’s economic power in technology driven from creative economy [8], the terms were introduced by John Howkins in 2001, he said: patent and copyrights is the currency of the information age [9]. Howkins believed key success is to respond information and communication technology. The Howkins effect later generated other new creativity concepts [10], such as the creative class [11], the creative city [12], creative industry [13]. Policy formulation on the creative economy formed knowledge-based economy or national innovation system. They are two mainstream on national innovation system, which is: triple helix or European approach, and quad helix or U.S. approach. Quad helix is a development concept from triple helix that evolved civil society for innovation, the adjustment concept becomes strong because U.S to enforce their innovation system. By optimizing potential creativity from the immigrants [14], U.S innovation system becomes the most powerful system in the world. Innovation system also runs well from upstream to downstream, at the business industry. Regarding industry classification in the U.S. Corrado, Hulten & Sichel (CHS) divided three major fields, which is computerized information (includes software), innovative property (scientific and non-scientific), economy competencies (brand equity and firm-specific intangibles) [15].

Creative economy development in U.S relies on the strength of research and collaboration. This condition quite different from European environment is very strong on capital-intensive post world war II, in which their investment more address to build infrastructure, building and other equipment [16]. Consequently, U.S economy far more dynamic and pragmatic than Europe to develop science in order to produce intangible assets [17]. U.S. approach also come under the characteristic industry in the 21st century, which is based on science and idea to trigger creativity [18] to create economic value.

Correspond to a normative definition, type of industry above known as ‘creative industry. Indonesian first regulation on the industry is the law number 5/1984. At that time, a creative industry still unpopular. Later, in 2008 the president ratifies decree number 28/2008 regarding national industry. Within the decree, the government classified the type of creative industry. But, then again, the government still does not define creative industry definition. One year later, in 2009 governments ratify presidential instruction number 6/2009 regarding the creative economy. To enhance creative economic development, the government also ratify presidential decree number 6/2015, but on the next six month, the government revised the decree with decree number 72/2015. According to legal history, frequent regulation revision showed that government is not have a robust concept on creative economy development.

Most of interesting part of the history of regulation, the government still does not have resolute definition about creative industry. Unfortunately, definition ambiguity on creative industry still remain until now. According to the British government, the creative economy: which includes the contribution of those who are in the creative occupation outside the creative industries as well as all those employed in the creative industry. The British government also define the creative industry, a subset of the creative economy which includes only those working in the creative industries themselves (and who may either be in creative occupations or in other roles e.g. finance) [19].

**Table 1.** Regulation related national innovation system

<b>Triple Helix Component</b>	<b>Common Regulation</b>
Academician	1. Regulation on Teacher and Lecturer 2. Regulation on Research and Applied Science and Technology 3. Regulation on Intellectual Property

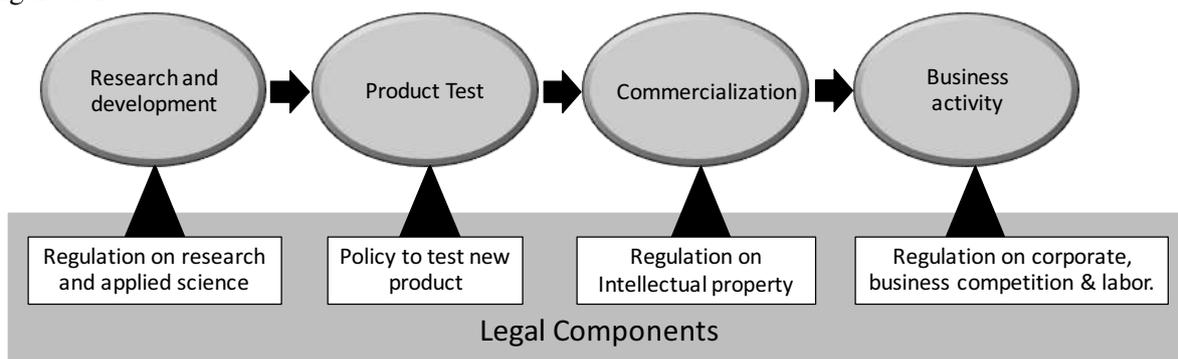
Business	<ol style="list-style-type: none"> <li>1. Regulation on Corporation</li> <li>2. Regulation on Antitrust</li> <li>3. Regulation on Bankruptcy</li> <li>4. Regulation on Trade and Commerce</li> <li>5. Regulation on Capital Market</li> <li>6. Regulation on Creative Industry</li> <li>7. Regulation in Information and Electronic Transaction</li> </ol>
Government	<ol style="list-style-type: none"> <li>1. Regulation on Good Governance</li> <li>2. Regulation on Public Information Disclosure</li> </ol>

From regulation mapped above, unfortunately, they are no direct connection on each regulation. Meanwhile, the President Joko Widodo has programs to create 1000 digital start-up company to improve Indonesian economy with 7 focuses, which are: logistic, finance, consumer protection, ICT infrastructure, taxation, education and human resources, and cyber security [20]. Government program objectives were designed to flourish digital startup in Indonesia. Digital startup company that utilizing information and communication technology can open labor widely, and the cost is lower than creating manufacture factory. In terms of legal perspective, if the government wants to create strong national innovation system like U.S, then the regulation related to the component of triplex helix must carefully weave. Without regulation connection, national innovation system certainly will not be run.

### 3. Innovation System Towards Innovation Sustainability

#### 3.1 Formulating innovation legal framework

The law regarding innovation system in Indonesia still not related to each other, for example, the law number 18/2002 regarding research system, and the development of applied science and technology also not relate to the law of intellectual property rights (IPR) regime, whereas this legal regime is very important for commercialization. Although IPR law is one example law on the downstream line of innovation. To describe holistically view on the process and development innovation can be shown on figure below.



**Figure 2.** Legal framework in innovation system

They are four main stages innovation process, and each process must run constantly sustain to produce marketable innovation. Correspond to the legal system, each stage of innovation process has a sectoral regulation that's needed to enhance mutually, so the flow of the process goes well. The latest development on law and regulation paradigm is to help the product test of innovation. In product test stages, the government is making a lean regulation to the business and start up's company to test their product, before they launch it to the market. On product testing, the regulator creating a small environment, make some assessment, and guidance to the business and start up's company to comply

when their innovation product ready to launch. This model is mostly known as the regulatory sandbox and the government used the models to regulate financial technology (Fintech) business models. The reason to used regulatory sandbox, because of government concern to control the leverage of Fintech business to the monetary. On the other hand, the government cannot prohibit and detain innovation business model, otherwise, they need to control it, within their system. So, the government can maintain the balanced.

### 3.2 Supporting components for innovation system

Commonly, today's industry activity depends on information technology. High potential in ICT market is urging European Union (EU) to reconceptualize their digital market as one market. EU digital market was based on three pillars, namely:

- Better acces for consumer and business to online goods and services across europe – this requires the rapid removal of key diffrences between the online and offline worlds to break down barriers to cross-border online activity.
- Creating the right conditions for digital networks and services to flourish – this requires high-speed, secure and trustworthy infrastructures and content services, supported by the right regulatory conditions for innovation, investment, fair competition and a level playing field.
- Maximizing the growth potential of our European digital economy – this requires investment in ICT infrastructures and technologies such as cloud computing and big data and research and innovation to boost industrial competitiveness as well as better public services, inclusiveness, and skills [21].

Optimization of ICT can drive a country to earn digital country predicate, with this reasons, The Economist collaborated with IBM to create the measurement index on how digital is your country with the criteria below.

**Table 2.** Ranking criteria for digital economy

Category	Weight
Connectivity and technology infrastructure	20%
Business Environment	15%
Social and cultural environment	15%
Legal environment	10%
Government policy and vision	15%
Consumer and business adoption	25%

From the survey, Sweden is the most digital country followed with Denmark, U.S, Finland, and Netherlands. In ASEAN country, Singapore is on the 8<sup>th</sup> position, and Malaysia in on 36 [22]. In 2017, International Management Development (IMD) conducted research on world digital competitiveness. Top 5 ranking position in 2017, the most competitive country is Singapore, Sweden, U.S, Finland, and Denmark [23]. In relation to the law, The Economist and IMD ranking also examine legal framework of each country to support digital economy. Indonesia ranking position from IMD index is in 59 below Columbia country. Legal field that IMD examine is related to the corporate law, private law, labor law, technology law, scientific research law, and intellectual property rights law. In this matter, the legal framework to support innovation system become an essential part to support digital economy and readiness to achieved sustainability.

Digital economy importance is inevitable nowadays, that is why the most important things to do is to shape the digital economy that supported by regulation. Responding to the digital phenomenon, EU press release, categorized 5 assessment, namely: connectivity, digital skill, online activities, integration of digital technology, and digital public services [24]. If the Europe parameter correspond to Indonesian legal fields, then the results can be shown with the table below.

**Table 3.** Eropcan Union digital indicator compared with Indonesian laws

<b>EU Indicators</b>	<b>Indonesian Law</b>
Connectivity	Regulation on information and electronic transaction (ITE Law)
Online Activities	
Integraton of Digital Technology	<ol style="list-style-type: none"> <li>1. Regulation on television;</li> <li>2. Regulation on telecommunication;</li> <li>3. Regulation on broadcasting;</li> <li>4. Press regulation;</li> <li>5. Regulation in information and electronic transaction (ITE Law).</li> </ol>
Digital Skill	<ol style="list-style-type: none"> <li>1. Regulation on research and applied science;</li> <li>2. Regulation on labor.</li> </ol>
Digital Public Services	Regulation on public information disclosure

If a table of regulation above compared with regulation on triple helix component in the previous discussion. The shortfall on Indonesian law lies on the systematic interwoven to strengthen mutually. By the existence, the regulation already exists, and generally, there is no legal vacuum correspond to the area of the innovation and digital economy. Beside, interwoven problems, the purposes of regulation must be defined clearly not only as tools of punishment but as tools of engineering to guide society to be creative and innovative. Creativity and Innovation become important in the digital era, because of global pressure, and this encouragement also requires connectivity cross country. Freeman & Louçã (2001) observed: the digital phenomenon is very much influenced by Schumpeter doctrine about entrepreneurship on creative destruction. The economy is like an organism that always mutates through innovation and business model [25], that is why economy always moves forward to drive various change in society, by this condition, the society needs the law to guide them. With the argument above, in private perspective, creative and innovative entrepreneurs become a rarity and the position of the law can be justified as a structural barrier, and in terms of public perspective; public service and the smart city also scarce in Indonesia.

### 3.3 Innovative industry for commercialization

Another factor that need to design in creating regulation of innovation system is to commercialize the innovation. Most of the industry mapping created from economic analysis, but according to the World Intellectual Property Organization (WIPO), industry mapping related to the intellectual property rights also can be created from the concept of law, especially with copyright law. WIPO copyrights industry mapping guidance divided from artistic work, literary work, science, and computer. Then, the concept copyrights law correspond the existing industry. Later, WIPO categories major field of the industry, namely: core industries, interdependent industries, partial industries, non-dedicated supports industries [26]. The details of WIPO guidance can be shown in the table below.

**Table 4.** Specific industry according to WIPO guidance

Category	Industry	Sub-group
Core Industries	Press & Literature	<ul style="list-style-type: none"> <li>• Authors, writers, translator;</li> <li>• New spapers;</li> </ul>
	Music, Theater, Opera	<ul style="list-style-type: none"> <li>• News agencies;</li> <li>• Magazines;</li> <li>• Book publishing;</li> <li>• Cards and maps, directories and other published m</li> <li>• Pre-press, printing and post-press of books, newspapers, advertising materials;</li> <li>• Press and literature retail &amp; wholesale (bookstore, etc.);</li> <li>• Libraries.</li> <li>• Com posers, arrangers, choreographers, directors, others;</li> <li>• Printing and publication of music;</li> <li>• Production of recorded music;</li> <li>• Recorded music wholesale and retail (sales and rental);</li> <li>• Artistic and literary creation and interpretation;</li> <li>• Staging and related agencies (reservation, tickets, etc.).</li> </ul>
	Motion Picture & Video	<ul style="list-style-type: none"> <li>• Writers, directors, actors, etc.;</li> <li>• Motion picture and video production and distribution;</li> <li>• Motion picture exhibition.</li> </ul>
	Radio & Television	<ul style="list-style-type: none"> <li>• National radio and television broadcasting companies;</li> <li>• Other radion and television broadcasters;</li> <li>• Independent producers;</li> <li>• Cable TV (systems and channels);</li> <li>• Allied services.</li> </ul>
	Photography	<ul style="list-style-type: none"> <li>• Studios and commercial protography;</li> <li>• Photographic agencies and libraries.</li> </ul>
	Software & Databases	<ul style="list-style-type: none"> <li>• Programming, development and design, manufacturing;</li> <li>• Wholesale and retail prepackaged;</li> <li>• Software (business programs, video games, educational etc.);</li> </ul>
	Visual & Graphic Arts	<ul style="list-style-type: none"> <li>• Database processing and publishing</li> <li>• Artist;</li> <li>• Art galleries, wholesale and retail;</li> <li>• Picture fram ing and other allied services;</li> <li>• Graphic design.</li> </ul>
	Advertising	Agencies, buying services.
<b>Copyright Collecting Societies none</b>		
Interdependen Industries	Television, equipment, radios, video-recorders, CDs, DVDs cassette players, electronic equipment and other similar equipment Com puters and equipment Musical instruments Photography and movie Recording m aterial Paper	<ul style="list-style-type: none"> <li>• Manufacturing;</li> <li>• Wholesale and retail (sales and rental)</li> </ul>
Partial Industries	Apparel, textiles and footwear, Jewelry and coins, Other handicrafts, Furniture, House goods, china and glass, Wall covering and carpets, Toys and games, Architecture, engineering and surveying, Interior design, m u s e u m s	
Non-Dedicated Support Industries	General wholesale and retail, General transportation, Telepony and Internet	

WIPO industry mapping is a broad classification on the industry spectrum regarding copyrights law. Actually, WIPO guidance can be applied in Indonesia to determine creative industry. In spite of economy perspective to determine a classification of the creative industry, there are also legal tools to create industry mapping. As long as this research conducted, WIPO guidance was not used to map the creative industry in Indonesia, within this case there are no legal framework guide it. Even though robust legal framework can be useful to enforce creative industry and enhancing digital economy to promote national innovation system. If the government paradigm of innovation still relies on technological aspect and without regulation response, then the innovation system always be discussions discourse like a poet of engineering, whom never touch the machine, but exquisite to tell the story about the machine.

#### 4. Conclusion

The legal framework is one of the most important components to create sustainable innovation, that is why the existences need to be considered seriously. Although innovations is a product of creativity from the collaboration of academician and business, without government regulation, innovation cannot commercialize optimally. The barrier can lies on stages of innovation process from research and development to commercialization in business activity. The laws must direct and guards the innovation process, and through legal frameworks, the actors inside innovation system can tightly involve. Unfortunately, in Indonesia, the existence of the law related to innovation system is not intertwining as

a supporting system. The urgency to solve legal problems in innovation system become highly important to create a digital economy and creative industry. By strengthening legal framework in innovation system, global challenge on the needs of innovation in a broader sense to create better human life in the public sector and private sector can be anticipated structurally.

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