

Reinventing Higher Education Institution toward 4.0 industry era: Modelling Entrepreneurial University in Indonesia

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Abstract:

Today, challenges and complexity of organizations in the Industrial Revolution 4.0 era are even greater. So is higher education institutions. Wissema (2009) explained that transformation of tertiary institutions began to shift from Humboldt University or second-generation universities to third generation universities. This is related to the knowledge-based economy perspective where knowledge becomes a resource that can provide value to the organization. The conception of Entrepreneurial University is also in line with various phenomena happened today. This study aims to develop a model of entrepreneurship-oriented universities in Indonesia. The research method used is the study of literature. The results of this study, there are 5 dimensions that become the initial model of the university can be referred as Entrepreneurial University, namely: Strategy and Governance, HR Capability, TriDharma College, Enabling and Driver Factors, and Network.

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I. INTRODUCTION

In this era of technological disruption, the challenges for governments in increasing national competitiveness and innovation are becoming increasingly complex and dynamic. The era of digitalization makes the demands of society on the performance of organizations even greater. In the last twenty years, the global environment has experienced changes that are relevant to the changing role of universities and research institutes as drivers of knowledge-based economy. The definition of knowledge-based economy can be explained how knowledge becomes the main source of excellence or competitiveness and economic growth of a nation (Etkowitz, 2004; Sporn, 2001). Powell and Snellman's (2004) explanation related to knowledge-based economy can be interpreted as a process of production and service based on intensive scientific activities in creating both technical and

scientific excellence where the key component of a knowledge-based economy is a greater dependence on intellectual ability than physical input or natural resources.

The development of knowledge-based economy, positioning knowledge as the main source of excellence or competitiveness and economic growth of the nation and the role of university into a central institution that becomes the driver that initiates the economic growth of a country in the future directly (Mohrman, Ma, Baker, 2008; Etzkowitz,

2004; Huggins, John, and Upton, 2008; OECD, 2009). Knowledge that was created by a university becomes one of the intangible resources for organizations that will encourage sustainable excellence (Grant, 2005).

It is a necessity, that university as a center of knowledge often created various innovations and are

considered to be agents that change the civilization of a country (Philpott, et al, 2011; Fayolle and Redford, 2014). University is considered as an engine of development, as an agent that plays a role in the process of building a nation (OECD, 2009).

Wissema (2009) explains that currently the phenomenon of the transition of higher education institutions is going toward the third generation or also called 3GU (Third-Generation University). In his book, explained that there are 3 (three) phases in the development of the university (see figure 1) Starting with the first generation university or also called The Medieval University; namely universities originating from Latin schools with famous great philosophers such as Plato, Aristotle. The university itself had not been necessarily built in this era. According to Wissema (2009), the establishment of a university was initiated because there was the granting of church authority to people who were eager to teach and young people who were eager to learn, where the term "studium" or school came up. Furthermore, according to Wissema (2009), the term "studiumgenerale" which means "a group of schools" is the forerunner to the formation of a university, which literally means "totality" or "overall" which combines various schools group/ associations.

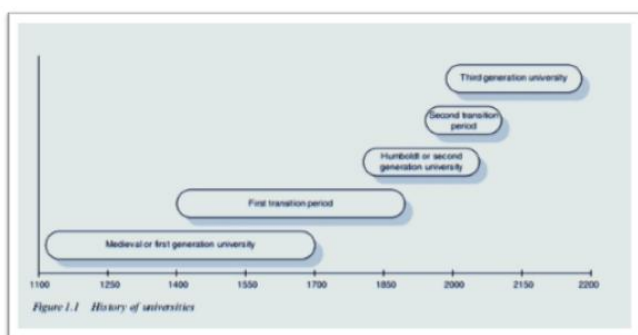


Figure 1 History of University Transition Development

Source: Wissema (2009), p. 4

Thereafter, the second generation of universities is called Humboldt University, where the university functions are not only to produce useful knowledge

that can be used directly, but also to show how this knowledge had been discovered, to stimulate scientific ideas in the minds of students, to encourage them to take into account legal fundamentals science into all of their mind (Wissema, 2009). Hereafter, Wissema (2009) further explained the third generation of universities (3GU) which has the following characteristics:

1. Knowledge exploitation is the goal of the third university as a university which is recognized as the birthplace of new entrepreneurial activities besides traditional tasks such as research and education.

2. 3GU operates in an internationally competitive market. They actively compete to get the best academics, students and research contracts from industry.

3. 3GU is a network university that collaborates with industry, private research institutions, financiers, consulting services, and other universities through their pool of knowledge.

4. Research is largely interdisciplinary in that 3GU embraces the concepts of "consilience" and creativity as the driving force of the equally important rational scientific method.

5. 3GU is a multicultural organization with a variety of staff and students.

6. 3GU is "cosmopolitan", where universities operate in international settings and use English for all subjects.

7. 3GU is independent and becomes less dependent on government regulations.

Indonesia still has homework in the context of utilizing the results of research and innovation. The portrait of Indonesia's competitiveness in 2018 is reflected in the global competitiveness index (Global Competitiveness Index) released by the World Economic Forum (WEF), where Indonesia has increased from rank 47 in 2017 to rank 45 in 2018. Indonesia still has homework because many pillars of competitiveness are below the average number of East Asia and the Pacific.

The innovation indicator number is the lowest (37.1) compared to other indicators. From the katadata.co.id website, it can be seen that the

Indonesian government still needs to focus on utilizing the results of research and innovation so that the value of the nation's competitiveness index can be improved. The data is strengthened by the 2018 Global Innovation Index ranking released by Cornell University, INSEAD and the World Intellectual Property Organization (WIPO), where Indonesia ranks 85th in 2018. Compared to ASEAN countries, Indonesia is still left behind, and only ahead of Cambodia in 7th place out of 8 ASEAN countries which are rated as 29.8 (see Figure 2).



Figure 2 ASEAN Global Innovation Index of 2018

Source: WIPO (2018), data processed by the author (2019)

Innovation is not only an activity to develop result of a research and creativity, but innovation is also expected to produce products that benefit the community at large. Innovation results from research not only stop at the prototype stage, but also are expected to create products that are highly competitive and increase commercial value (commercialization process value) (Ristekdikti, 2018). This phenomenon has become a focus for improvement that must be carried out by the government at this time, especially in universities which are crucial to be able to encourage economic growth and increase national competitiveness.

Some scholars, were trying to find a form of higher education institution that suits the current conditions. Etkowitz (1998), Klofsten and Jones-Evans (2000), Delanty (2000) and Coyle, Gibb, Haskin (2013), concluded that entrepreneurial-

oriented universities (entrepreneurial universities), are considered as forms of universities that can answer challenges and present and future phenomena. The University not only creates graduates and inventions that are qualified from laboratory results, but how these knowledge resources can contribute directly to a country's economic growth. According to Klofsten and Jones-Evans (2000) and Delanty (2000), universities are expected to play an active role by having various entrepreneurial units that are directly related to the community (business to customers) and with other business practitioners (business to business).

In the Indonesian context, research conducted by Sakapurnama, Huseini and Soeling (2019), states that there are no clear indicators of entrepreneurial-oriented universities in Indonesia. For this reason, this study aims to develop an initial model of entrepreneurial universities in Indonesia as a form of university transformation strategy to address challenges in the era of the industrial revolution 4.0. Furthermore, Pannen, Wirakartakusumah and Subhan (in Chang, Molly, Hoe, 2019) also argued that the transformation of higher education institutions in Indonesia was crucial to respond to the nation's challenges. For this reason, changes in governance and financial independence are critical aspects in supporting the university's autonomy process.

II. RESEARCH METHOD

This research uses a post-positivism approach with the method of library study, there are; data collection techniques through the study of literature from a number of books, scientific journals / articles, documents, financial reports, valid news from online or conventional media, which are related to research problems. Researchers will also use secondary data in the form of financial statements, as well as annual reports of business units from each university which are the locus of research that can be used as quantitative analysis material.

III. RESULTS AND DISCUSSION

From various literature studies, Sakapurnama, Huseini and Soeling (2019) have adapted various definitions related to the conception of Entrepreneurial University described in the following table.

Table 1 - Definitions of Entrepreneurial University

Year	Author	Definition
1983	Etzkowitz	University that is seeking new funding such as from patent, research funded by contract, as well as building partnership with private company.
1995	Chrisman, Hynes and Fraser	An entrepreneurship-oriented university that involves the creation of new business by its professors, technicians, or students.
1995	Dill	Formal measures undertaken by university through technology transfer to utilize research into a commercial business.
1998	Clark	Attempts to innovate in how to run a business, create shift of substantial organizational characters, and become a university that is an important actor in their own terms.
1998	Ropke	It means three things: the university itself, members of university - faculty, and university's interaction with its environment.
1999	Subotsky	A university that is featured with a closer partnership between university and business sector, through wider faculty's responsibility to access external funding source and managerial ethics in institutional governance, leadership, and planning.
2002	Kirby	A university that has the capacity to innovate, identify, and create opportunity, work in team, take risk, and respond to challenges.
2003	Etkowitz	A university that functions as the natural incubator that provides supporting structure for its lecturers and students to start a new business intellectually, commercially, and combination of both.
2003	Williams	No more than a service vendor to the knowledge industry.
2003	Jacob, M, Lundqvist and Hellsmark,	It is based on commercialization (higher education course, consultation and coaching services) and commodification (patent right, licensing, or start-up owned by students).
2006	Guerrero-Cano, Kirby, and Urbano	Entrepreneurial University is defined as a university that has the ability to innovate, identify and create opportunity, work in a team, take risk, and respond to challenges (Kirby, 2002a), and naturally, attempts to create major changes in the organization's characteristics so as to achieve a more promising posture for its future (Clark, 1998). In other words, it is a natural incubator that provides supporting structure for its lecturers and students to start a new business intellectually, commercially, and combination of both (Etzkowitz, 2003).

Source: Sakapurnama, HuseinidanSoeling (2019)

Some concepts were also used to support the synthesis of thinking in developing the initial Entrepreneurial University model that can be applied to PTNBH (State Universities with legal entity) in Indonesia, including the Entrepreneurial University model from Etzkowitz (2008), the Entrepreneurial University model from OECD (2009) and the

Entrepreneurial University model from Gibbs (2012).

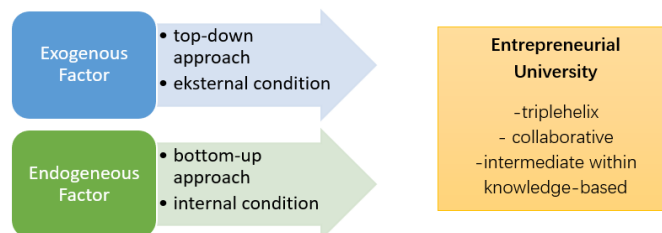


Figure 4 University Entrepreneurial Model
Source: Etzkowitz, et al (2008), Image processed by researchers (2018)

Hereafter, OECD (2009) also developed a framework for universities that will transform towards an entrepreneurial oriented university.

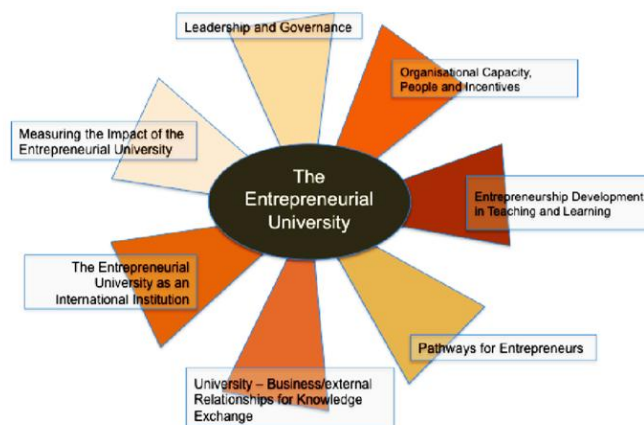


Figure 3 Model Entrepreneurial University OECD version
Sumber: OECD (2009)

OECD (2009) developed a framework to become a campus that focuses on entrepreneurial activities, there are 7 (seven) dimensions that characterize Entrepreneurial Universities. Another model of Entrepreneurial University was also developed by Gibbs, Haskins, Hannon and Robertson (2012) who systematically explained how the characteristics of universities put forward the entrepreneurial paradigm. In general, Gibbs et al. (2012) emphasizes organizational development and human resources (HR)

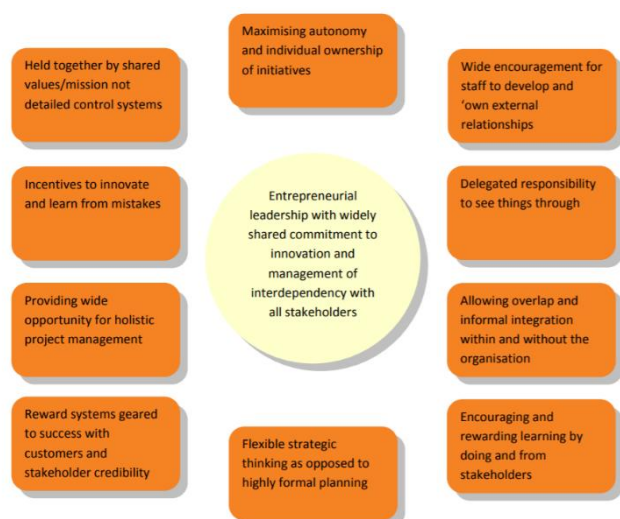


Figure 4 University Model Framework as an Entrepreneurial Organization

Source: Gibbs et al. (2012), p. 19

Based on the analysis and synthesis of various available literature studies, it can be concluded that an entrepreneurial-oriented university is a university that seeks to optimize resources and governance that has an entrepreneurial spirit, builds entrepreneurial and innovative character and culture through lectures and research activities for all of its academic community (lecturers, students, and staff), in creating opportunities and new efforts to answer challenges at the international level (Wissema, 2009, Etzkowitz, 2008, OECD, 2009, Gibbs, 2012, Guererro, et al, 2018).

From various literature studies that form the theoretical framework of research, it can be explained that in order to answer the social reality that occurs and formulated in this research question, researchers identify the concept of entrepreneurial university (Etzkowitz, 2008; Gibbs, 2012, Guerrero, et al., 2006, OECD, 2009) as the main theoretical framework in this study. In addition, various OECD Entrepreneurial University models (2009), Etzkowitz Entrepreneurial University models (2008) and Entrepreneurial University models (Gibbs, 2012)

Then, exogenous or external factors in this case is how industry perceptions of university research and innovation results are feasible to be commercialized

and government regulations / policies related to matters that support the downstreaming process originating from universities. This concept is also reinforced by Oey-Gardiner et al. (2017), that in the current era of disruption, researchers on campus must lead from monodisciplinary research towards multidisciplinary and even interdisciplinary. The explanation emphasizes that researchers must have an inclusive, open-minded or open mental model to collaborate with various fields of scientific disciplines.

In the context of state universities in Indonesia, there are 3 classifications as follows; state autonomous universities with legal entity (PTNBH), public universities (PTN-BLU) and work units state universities of the Ministry of Research, Technology and Higher Education. This initial Entrepreneurial University model was intended for PTNBH where the characteristics of this PTN had autonomy and independent financial management in accordance with the mandate of Law No. 12 of 2012 concerning Higher Education. From the results of the synthesis of literature, researchers have compiled an initial Entrepreneurial University model for PTNBH in Indonesia which has dimensions of Strategy and Governance, HR Capability, University TriDharma, Enabling and Driver Factors, and Network (see figure 5).

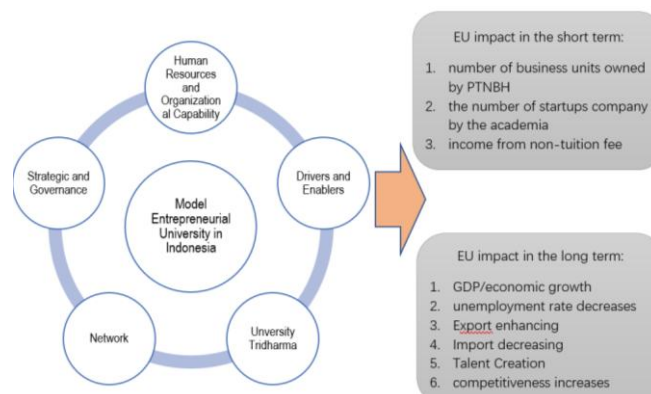


Figure 5. Entrepreneurial University Model Framework at State-Otonomous HEI's (PTNBH)

Source: researchers processed data (2019)

It is expected that the entrepreneurial university model will provide 2 outcomes, in the short term, it

is an increase in the number of startups created by the university academic community, the number of business units managed as a subsidiary of the university (incorporate university) and an increase in the amount of income from students' non-tuition fees. While for the long term, in accordance with the conception of knowledge-based economy, that the campus can also contribute to the country's economic growth, innovative products from university researchers can be commercialized so that it gives the impact to the growth of new national industries that can open jobs opportunity, become import product substitutes and form a potential HR that has an entrepreneurial mindset. The model framework above, can be explained in detail as follows:

Table 1. Model of Entrepreneurial University in PTNBH

Dimension	Indicator
Governance and Strategy	<ol style="list-style-type: none"> 1. PTNBHs Strategic Plan 2. PTNBHs Vision, Mission and Targets 3. Institutional Commitment 4. Organizational structure 5. Measured performance targets 6. The role of Board of Trustees in encouraging Entrepreneurial University
HR and Organizational Capacity	<ol style="list-style-type: none"> 1. Commitment of University Leaders 2. Lecturer Profile and Competency (agile, entrepreneurship, adaptive) 3. Support innovation incentives and rewards 4. PTNBH budget support for the development of Entrep University (Business Incubator, Teaching Industry)
Higher Education Tridharma	<ol style="list-style-type: none"> 1. Entrepreneurship oriented curriculum 2. The amount of commercialized research 3. Community service oriented teaching industry
Drivers and Enablers	<ol style="list-style-type: none"> 1. Entrepreneurial oriented culture 2. open innovation mindset 3. PTNBH policy support related to the collaborative process of the university and industry 4. Amount / quantity of cooperation with industry / government / other stakeholders 5. Quality spectrum of university and industry collaboration (continuum partnership)
Network	<ol style="list-style-type: none"> 1. Government regulations and policies related to PTNBH 2. Taxation policy towards PTNBH 3. Industry / investor support 4. Alumni Support

Source: processed by researchers (2019)

It also needs to be informed that the development of this model is a preliminary model that there is possibility of adjustments in the future, in accordance with the regulatory framework and the existing context in Indonesia.

IV. CONCLUSION

Facing the challenges of the global environment, the transformation of university strategies into important aspects can be a discourse among college scholars.

This study proposes an initial model of establishing an entrepreneurial-oriented university for PTNBH in Indonesia. The results of the synthesis of various concepts used are Strategy and Governance, HR Capability, Higher Education Tri-Dharma, Enabling and Driver Factors, and Network.

V. REFERENCES

- [1] Chang, Da Wan., Molly, N.N, Lee., Hoe, YeongLoke. 2019. The Governance and Management of Universities in Asia, Global Influences and Local Responses, Routledge, Taylor and Francis Group, New York
- [2] Delanty, G., 2000. The Governance of Universities. What is the Role of the University in the Knowledge Society?, Canadian Journal of Sociology, 27 (2), p.185-198, [online]: <https://www.questia.com/library/journal/1G1-89435958/the-governance-of-universities-what-is-the-role-of>
- [3] Etzkowitz, H. 2003, Research groups as 'quasi-firms': the invention of the entrepreneurial university, Research Policy Volume 32, Issue 1, January 2003, Pages 109-121, [online]: <https://www.sciencedirect.com/science/article/pii/S0048733302000094>
- [4] Etzkowitz, H. 2004. The evolution of Entrepreneurial University, International Journal of Technology and Globalisation, 1 (1), p. 64-77
- [5] Etzkowitz, dkk. 2008. Pathways To The Entrepreneurial University: Towards A Global Convergence, Science and Public Policy, 35(9), November 2008, pages 681-695
- [6] Fayolle, Alain., Redford, Dana T. 2014. Handbook on the Entrepreneurial University, Edward Elgar Publishing Limited, Cheltenham, UK
- [7] Gibbs, A Allan., Haskins, Gay. 2013, The University of The Future an Entrepreneurial Stakeholder Learning Organisation?, Handbook of Research in Entrepreneurial Education Volume 4 –Entrepreneurial University Handbook, Edward Elgar, http://ncee.org.uk/wpcontent/uploads/2014/06/ARTICLE_FINAL_FINAL_FINAL_BOOK_VERSION_UNIVERSITY_OF_THE_FUTURE.pdf

- [8] Grant, R.M., 2005. Toward a Knowledge Based Theory of The Firm, Strategic Management Journal, Winter Special Issue 17, pp. 109-122.
- [9] Guerrero, M., Urbano, D., Cunningham, J. A., &Gajón, E. 2018. Determinants of graduates' start-ups creation across a multi-campus entrepreneurial university: The case of monterrey institute of technology and higher education. Journal of Small Business Management, 56(1), 150-178. doi:10.1111/jsbm.12366
- [10] Huggins R., Jones, M., Upton, S., 2008. Universities As Drivers of Knowledge-Based Regional Development: a Triple Analyses of Wales, International Journal of Innovation and Regional Development, 1 (1), pp 24-47.
- [11] Powell, Walter, W., Snellman, Kaisa., 2004. The Knowledge Economy, Annual Review Sociology, 30, pp. 199-220
- [12] Kirby, D.A., 2006. Creating Entrepreneurial University in the UK : Applying Theory to Practice. Journal of Technology Transfer, 31, p.599-603.
- [13] Lyall, C. Katherine., Sell, R, Kathleen., 2010. The De Facto Privatization of American Public Higher Education, Change : The Magazine of Higher Learning, Volume 38, Issue 1, [online]: <http://www.tandfonline.com/doi/abs/10.3200/CHNG.38.1.6-13?journalCode=vchn20>
- [14] Mohrman, M., Ma, W., Baker, D., 2008. The Research University in Transition: The Emerging Global Market, Higher Education Policy, 21, pp.5-27
- [15] OECD. 2009. Universities, Innovation and Entrepreneurship Criteria And Examples Of Good Practice
- [16] Oey-Gardiner, Mayling., Imam Rahayu, Susanto., Abdullah, Muhammad Amin., Effendi, Sofian., Darma, Yudi., Dartanto, Yudi., Aruan, Cyti Daniela., 2017. ERA DISRUPSI PeluangdanTantanganPendidikanTinggi Indonesia, AkademiIlmuPengetahuan Indonesia, Jakarta
- [17] Philpott, Kevin., Lawrence, Dooley., Caroline, O'Reilly., Gary, Lupton. 2011. The Entrepreneurial University: Examining The Underlying Academic Tensions, Technovation, Volume 31, Issue 4, April 2011, Pages 161-170, [online]: https://ac.els-cdn.com/S0166497210001331/1-s2.0-S0166497210001331-main.pdf?_tid=5039c37e-08d3-11e8-9b73-00000aab0f27&acdnat=1517656611_ca4cfe3950041ae57ea720e12147c7aa
- [18] Sakapurnama, Eko.,Huseini, Martani, Soeling, PD., 2019. The Challenges In Higher Education Institutions In Indonesia: Are We Entrepreneurial University Yet?.,Hasanuddin Economics and Business Review, Vol 2, No 3 (2019), [online]: <http://pasca.unhas.ac.id/ojs/index.php/hebr/article/view/1680>
- [19] Sporn, B. 2001. Building Adaptive Universities, Emerging Organizational Forms Based on Experiences European and US Universities, Tertiary Education and Management, 7(2), pp 121-134
- [20] Wissema, Johan G. 2009. Towards The Third Generation University, Managing University in Transition. Cheltenham (G.B.): E. Elgar.