Print ISSN: 2288-4637 / Online ISSN 2288-4645 doi:10.13106/jafeb.2021.vol8.no3.0351

## Digital Entrepreneurship in Indonesia: A Human Capital Perspective

Muafi MUAFI<sup>1</sup>, Wirman SYAFRI<sup>2</sup>, Hadi PRABOWO<sup>3</sup>, Sofyan Ashari NUR<sup>4</sup>

Received: November 20, 2020 Revised: January 25, 2021 Accepted: February 03, 2021

#### **Abstract**

Digital technology has become a new economic and social force, reshaping traditional business models, strategies, structures, and processes. This is a challenge for human capital to develop continuously in this dynamic era; one of the solutions is digital entrepreneurship. Digital entrepreneurship focuses on creating new ventures and transforming existing businesses by developing novel digital technologies or novel usage. Further, digital technology has also enabled the growth of the sharing economy, linking owners and users, and disrupting the previous dualism of businesses and customers. This paper provides a novel contribution regarding the emerging concept of Digital Entrepreneurship. Based on a qualitative literature review and interview with university staff, lecturers, and students in four large public and private universities in West Java and DIY Province, an interpretative framework for Digital Entrepreneurship has been proposed, which comprises of the following components: motivation (the rationale for the adoption of digital technology for academic entrepreneurship), stakeholders (the stakeholders involved through digital technology to achieve the academic entrepreneurship goal), process (the processes of academic entrepreneurship supported by digital technologies), and business form (the emerging forms of digital academic entrepreneurship). This research also shows several alternative government policies to improve digital entrepreneurship in the academic environment.

Keywords: Digital Entrepreneurship, Academic Entrepreneurship, Human Capital

JEL Classification Code: L26, L32, O32

#### 1. Introduction

Over time, the world underwent various changes. The biggest changes are caused by technological development, especially digital technology (Cavallo et al., 2019; Steininger, 2019; Fachrunnisa et al., 2020). Changes triggered by technology have started decades ago, both changes in the way of life of the society, economy, and industrial arrangement around the world (Steininger, 2019; Elia et al., 2020). The increasingly rapid development

of digital technology is supported by the condition of the community that is required to reduce direct social interaction due to the Covid-19 pandemic in almost all parts of the world. This causes more social interactions to occur in cyberspace or virtually than in the real world. This condition makes distance and time no longer an important issue in interacting or conveying messages to the community. Surely, this becomes a great opportunity in the business world. Many things that are impossible to do in the real world can be possible in cyberspace through digital communication, such as communicating with several people from various regions simultaneously and sending messages to hundreds, or even millions of people in just seconds.

The current conditions are in line with the 4.0 industrial revolution which raises a new trend, namely digital transformation (Fachrunnisa et al., 2020; Vial, 2019). In realizing digital transformation, several supporting factors are needed to be developed, namely leadership agility, strategic flexibility (Fachrunnisa et al., 2020), and entrepreneurship (Steininger, 2019; Ghezzi & Cavallo, 2020; Cavallo et al., 2019). Therefore, digital technology must be utilized, especially, for the millennial generation, since this generation is the most valuable human resource asset for a country (Siegel & Wright, 2015; Rippa & Secundo, 2019).

<sup>&</sup>lt;sup>1</sup>First Author and Corresponding Author. Professor, Department of Management, Faculty of Business and Economics, Universitas Islam Indonesia, Indonesia [Postal Address: Jl. SWK Ringroad Utara Condong Catur, Yogyakarta, 55283, Indonesia] Email: muafi@uii.ac.id

<sup>&</sup>lt;sup>2</sup>Professor of Management, Institut Pemerintahan Dalam Negeri, Jatinangor, Indonesia

<sup>&</sup>lt;sup>3</sup>Professor of Management, Institut Pemerintahan Dalam Negeri, Jatinangor, Indonesia

<sup>&</sup>lt;sup>4</sup>Magister of Management, Universitas Islam Indonesia, Indonesia

<sup>©</sup> Copyright: The Author(s)

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (https://creativecommons.org/licenses/by-nc/4.0/) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

Digital technology can be widely utilized, especially in the economic sector in digital entrepreneurship. The main obstacles in entrepreneurship, especially for beginners, are related to space and time, limited capital, lack of networks, and limited mobility in marketing. Some of these problems can be solved with digital entrepreneurship (Elia et al., 2020; Martinez et al., 2018). Digital entrepreneurship can create entrepreneurial opportunities at a much more affordable cost and a wider market (Elia et al., 2020; Martinez et al., 2018). From the consumer side, technology-based entrepreneurship is also a trend in today's world (Richter et al., 2015; Cavallo et al., 2019). Consumers always like convenience, speed, low price, and good quality. This can be achieved and realized with digital technology. Therefore, many offline businesses are starting to switch to online businesses. The transition from an offline business to an online business is evidence that online businesses have good prospects in the future (Nambisan et al., 2019; Geissinger et al., 2018; Richter et al., 2015).

One of the opportunities created by advances in digital technology in the business world is the ease of starting a digital-based business, which is currently known as a startup. Start-up is a new company that can be established by anyone without a large amount of capital, and it is currently becoming a trend among academics. Many students are trying to set up start-ups, some of which are successful and able to penetrate the global market, although some of them also experience failure (Geissinger et al., 2018; Richter et al., 2017). Therefore, it is very necessary to develop a concept in producing entrepreneurs from academic circles, especially students. This opportunity can be created through digital entrepreneurship. Previous studies related to digital entrepreneurship includes only a broad discussion and has not yet focused on academics. This study provides a new perspective in producing young entrepreneurs, especially from the field of academics, through facilities and supporting instruments at the university.

## 2. Literature Review

### 2.1. Digital Technologies

Digital technology has become an economic and social force, which has reshaped the traditional business models, strategies, structures, and processes. Digital technology is a powerful tool in influencing the growth of new digital-based businesses by creating the ability to scale the business rapidly (Steininger, 2019; Cavallo et al., 2019; Richter et al., 2017). Therefore, digital technology must be used as best as possible, especially in creating business opportunities.

Technological readiness is a significant aspect of maintaining a business since the market condition certainly demands entrepreneurs to optimize the use of technology (Moldabekova et al., 2021). A dynamic market requires the

company to work more flexibly and more quickly, therefore, technology is a single solution in handling a dynamic market (Sijabat et al., 2021). Similarly, in an effort to improve human resources, technology also contributes a great impact, especially with the current Covid-19 pandemic (Steininger, 2019).

Digital technology has several forms of output that can be utilized, such as artificial intelligence, crowd-funding platforms, digital 3D printing, social media platforms, big data, cloud, and smartphones that are capable of generating entrepreneurial opportunities with new methods, namely digital (Ghezzi & Cavallo, 2020; Cavallo et al., 2019). Digital technology enables the creation of new entrepreneurial outcomes such as mobile applications or digital platforms as digital data stores (e.g. App Store and Google PlayStore), and they are inherently different from other entrepreneurial outcomes in terms of production speed and diffusion (Cavallo et al., 2019). In addition, digital technology also supports the creation of new contexts with various objectives and dynamic interaction methods to carry out business processes and innovation. The diffusion of digital technology has created new avenues for the development of entrepreneurial projects by leveraging collaboration and integration (Elia et al., 2020). Several previous studies have also acknowledged the important role of digital technology in shaping entrepreneurship (Cavallo et al., 2019; Zaheer et al., 2019). Digital technology has been identified as a supporter and facilitator in the establishment process of a start-up. Digital technology brings up the industrial revolution 4.0 (Elia et al., 2020).

The industrial revolution 4.0 requires the advancement of the entrepreneurial research agenda related to digital technology (Dy, 2019). From the development of research on digital-based entrepreneurship, one of the interesting discussions is about digital-based entrepreneurship in academics. Academic environments such as universities have complete facilities and supporting instruments in developing digital-based entrepreneurship. The university has qualified human resources, regulations that support student innovation and creativity, as well as large enough funds, thus it must be used as best as possible in developing digital-based entrepreneurship (McAdam et al., 2019).

### 2.2. Digital Entrepreneurship

Digital technology has had a significant impact on economic growth. The positive impact of digital technology on economic growth is triggered by the combination of digital technology and entrepreneurial orientation (Zarrouk et al., 2020; Sariwulan et al., 2020) which creates new concepts called digital entrepreneurship. Elia et al. (2020) discussed a new concept of digital entrepreneurship that is introduced to refer to the creation of new ventures and the transformation of existing businesses by developing digital technology. Digital-based entrepreneurship includes

studies that explore the process of entrepreneurship through the digital transformation of business processes (Steininger, 2019; Cavallo et al., 2019). The growth of digital entrepreneurship can also lead to the invention of new methods and technologies (Nadia & Youssef, 2019; Ghezzi & Cavallo, 2020). The implementation of digital entrepreneurship has been carried out in all parts of the world. This development shows that public trust in digitalbased businesses is quite high, with a market share that is getting wider and keeps growing. Digital entrepreneurship can complement traditional business models (Elia et al., 2020). Yin et al (2019) found that digital entrepreneurship is widely used by MSMEs in improving their performance. The foundation of digital entrepreneurship can be applied in concepts such as Internet-based business models and digital platforms (Elia et al., 2020; Richter et al., 2015). Elia et al. (2020) identified six research streams related to digital entrepreneurship, namely digital business models, digital entrepreneurship processes, platform strategies, digital ecosystems, entrepreneurship education, and social digital entrepreneurship.

Digital-based entrepreneurship development can be triggered and supported through external funding from both the private sector and the government (Dy, 2019). Digital entrepreneurship facilitates the exchange, transfer, and acquisition of knowledge, while also initiating new ways of doing business (Geissinger et al., 2018). Since web-based platforms enable peer-to-peer transactions. A peer-to-peer service is a decentralized platform whereby two individuals interact directly with each other, without intermediation by a third party. Instead, the buyer and the seller transact directly with each other via this service. The peer-to-peer platform may provide services such as search, screening, rating, payment processing, or escrow. (Geissinger et al., 2018). Digital-based business through social media platforms provides opportunities to form consumer attachment to company brands (Bahcecik et al., 2019). Digital businesses use technology to create new value in business models, customer experiences, and the internal capabilities that support their core operations. The term includes both digital-only brands and traditional players that are transforming their businesses with digital technologies (Elia et al., 2020). In a digital-based business, a digital brand positioning is required. Brand Positioning concerns how well a company differentiates itself from its competitors and where it sits in a particular market. When referring to being digital, this is all about how it uses its online presence, targets its audience, and becomes noticeable. (Bahcecik et al., 2019). Discussions in several previous studies provide a conceptualization of Digital Entrepreneurship. The environment and current developments are very supportive of the application of digital entrepreneurship (Dong, 2019; Ghezzi & Cavallo, 2020). Digital entrepreneurship is a big agenda in this

century and is the main driver of the creation of a new industrial order, namely industry 4.0. Industry 4.0 is making it easier for companies to collaborate and share data among customers, manufacturers, suppliers, and other parties in the supply chain. It improves productivity and competitiveness, enables the transition to a digital economy, and provides opportunities to achieve economic growth and sustainability (Kraus et al., 2018). Therefore, science and human resources as the main resources for the development of digital entrepreneurship must be fostered and managed as well as possible, so that digital entrepreneurship can be realized with optimal benefits (Ngoasong, 2018).

## 2.3. Academic Digital Entrepreneurship

The development of digital technology is a challenge for human resources to continue to develop in this dynamic era; one of the solutions is digital entrepreneurship. Digital-based entrepreneurship, which focuses on creating new business and transforming existing businesses by developing new digital technology or new uses, is seen as an important pillar for improving human resources in many countries (Cavallo et al., 2019; Ghezzi & Cavallo, 2020). The increasing demand in digital-based businesses is the first stage in the new business growth process, which will lead to higher sales and the need to recruit new employees. Therefore, a new digital-based business with high sales or employee growth can realistically be considered as a company that has managed to survive in this dynamic era by utilizing digital technology. Steininger (2019) highlights that information and communication technology (ICT) plays four major roles in digital entrepreneurial operations: as a facilitator, making the operations of start-ups easier; as a mediator for new ventures' operations; as an outcome of entrepreneurial operations; and as the ubiquity of digital technology as a business model.

The use of digital technology in entrepreneurship is very suitable to be applied in an academic environment (Cavallo et al., 2019). In this case, many university graduates have high potential but are not optimally utilized. This occurs because the motivation to be an entrepreneur for students and undergraduate students is still very small. With the simplicity of digital entrepreneurship, the breadth of the area and market share, as well as supports from institutions and government, digital entrepreneurship is an opportunity that can increase students' and scholars' motivation to become an entrepreneur. Digital entrepreneurship for academics will provide greater job opportunities so that it will reduce the unemployment rate (Sahut et al., 2019; Steininger, 2019). The application of digital entrepreneurship is very broad and can be adopted in every branch of science and become a business (Bowen et al., 2019). In the field of entrepreneurship, the main attention has been paid to

business financing as a factor that can trigger the growth and development of entrepreneurship (Martinez et al., 2018; Cavallo et al., 2019). With this support, academics can create new businesses and even recruit employees in the form of a registered company that has a legal basis (Dy, 2019). However, new ventures are often seen as a source that drives creative destruction, because they introduce new products or services that threaten existing companies (Hsieh & Wu, 2019). Digital platforms provide many opportunities for both existing businesses and those who are entrepreneurs. Indeed, many Internet platforms target new ventures (Hsieh & Wu, 2019; Ghezzi & Cavallo, 2020).

#### 3. Research Methods

This study uses a qualitative method with an interview as the data collecting technique. The samples in this study are academics in four large universities in Yogyakarta and West Java, namely two public universities in Yogyakarta and West Java, and two private universities in Yogyakarta and West Java. Academics that are interviewed in this study include policymakers in digital entrepreneurship in university, students who already owned digital businesses, and lecturers. The questions used in the interview consist of four main points regarding digital academic entrepreneurship, namely motivation, stakeholders, process and business form, as well as sustainability. The detail of the question points are as follows (Rippa & Secundo, 2018):

Motivation (The value and motivation generated by digital technologies for academic entrepreneurship)

- Value adopted from digital technology development
- The role of the university in developing the technologybased student entrepreneurial potential.
- The role of digital technology in knowledge transfer and information transfer in the university
- The development of social value in digital academic entrepreneurship

Stakeholders (The stakeholders involved in digital academic entrepreneurship)

- Source of fund of digital academic entrepreneurship
- Stakeholder contribution to digital academic entrepreneurship
- Supports for the development of digital academic entrepreneurship, both from internal and external stakeholders such as industry, non-governmental organizations (NGOs), government institutions, investment funds, and technology transfer offices (TTOs)

Process (The processes for digital academic entrepreneurship)

• The role of technology in increasing the awareness of digital academic entrepreneurship

- The role of social networks (LinkedIn, Facebook, Twitter, Google+) in developing digital academic entrepreneurship
- The role of digitalization in developing digital academic entrepreneurship
- The role of technology evolution in developing digital academic entrepreneurship

Business Form (The emerging digital academic entrepreneurship)

- · Challenges of digital academic entrepreneurship
- Activities of digital academic entrepreneurship
- Forms of digital academic entrepreneurship that already successful
- Research supporting digital academic entrepreneurship

This study uses 3 main data sources/informants (R). namely the interview results with the stakeholders. The first stakeholder is policymakers and facilitators of students' entrepreneurship, namely the manager of IBISTEK (Student Business and Technology Incubation) (Code P-1). The second data source is obtained from lecturers, as educators, who are considered to understand the entrepreneurial potential of students (Code P-2). The third data source is students who have digital-based businesses (Code P-3). Triangulation is carried out on these three data sources to increase the validity and reliability of the research data (Eisenhardt, 1989; Yin, 2009). Two participants are chosen from each university so that the total number is eight participants. The participants are from four large public and private universities in DIY and West Java Province. To examine the validity and reliability of the instruments of this study, the researchers conducted data source triangulation. With data source triangulation, the researchers seek the truth for certain information through several informants. The main purpose of using data source triangulation is to improve the credibility and reliability of the data. Therefore, the information obtained from each informant will be able to confirm the final results.

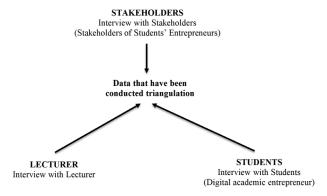


Figure 1: Data Source Triangulation

#### 4. Result and Discussion

## 4.1. Digital Technologies and Academic Entrepreneurship

Academics have a great opportunity to create a business, as entrepreneurship is one of the main educations for students and even become a compulsory subject. This will certainly create a great entrepreneurial environment for students. In addition, universities also provide a student incubator program in entrepreneurship to foster and find entrepreneurs from academics. It is also proven that in the learning process of entrepreneurship, there are many interesting business ideas from students that are still in the form of assignments and proposals. Figure 2 shows that the current conditions at the university illustrate that the academic environment at the university has been able to create good entrepreneurial motivation that includes high funding opportunities, digital commercialization, or the enthusiasm to market products with digital platforms that are starting to emerge for student entrepreneurs, as well as the abundance of business ideas that have not had the opportunity to be realized. It can also be concluded that all parties from universities ranging from policymakers, lecturers, students, and entrepreneurs have a role in developing entrepreneurship in universities.

Over time, the business atmosphere has also begun to change. With the presence of digital technology, business competition becomes increasingly fierce. Entrepreneurs who were initially full of competitive desires, now are starting to become coopetitive (the act of cooperation between competing companies; businesses that engage in both competition and cooperation are said to be in coopetition), which is also known as shareconomy (Richter et al., 2015; Steininger, 2019). Shareconomy has three dimensions, namely sharing of digital content, sharing of physical goods, and participation in commercial, cultural, and social projects (Richter et al., 2015). With the change of this business atmosphere, the spirit of entrepreneurship began to appear again among young people, with a term known as digital entrepreneurship.

Among the various types of entrepreneurship, digital entrepreneurship is in great demand by the millennial generation, including students. This adds more colors to entrepreneurship in universities and encourages the emergence of digital start-ups on campus. Digital entrepreneurship currently has quite a large funding opportunity and high innovation value. It is indeed in line with the concept of industry 4.0 and will create digitalization in various industrial sectors that will encourage economic development.

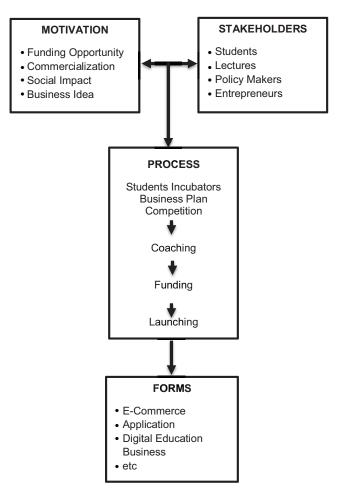


Figure 2: Digital Academic Entrepreneurship Framework

Digital entrepreneurship in the academic entrepreneurship environment has been discussed in various literature. In forming digital academic entrepreneurship, universities have several stages starting from student business incubation and the procurement of a business plan that aims to filter student businesses. After the best student businesses are selected, there will be guidance in various things ranging from entrepreneurial theory, entrepreneurial strategy, product marketing, and meeting with entrepreneurship practitioners to share experiences. After the business concept is mature and feasible to start, the next stage is to seek funding. Universities have a role in helping academics to seek funding; starting from submitting funding offers to the government and investors, until becoming the part of the investor themselves. After the funding is obtained, the business is ready to be launched. The next stage that needs to be done by universities is to supervise the business for a few months before it can operate independently.

Various types of digital entrepreneurship have been carried out by academics such as e-commerce, business applications, digital education business, and others. Each stage of digital academic entrepreneurship has been well conceptualized in the university environment. Collaboration with successful foreign entrepreneurs is also an important stage that has been taken. However, the obstacles of the implementation are that entrepreneurs still lack the experience and mentality to remain consistent and persistent in maintaining their business.

# **4.2.** Conditions and Implementations of Digital Academic Entrepreneurship

Table 1 describes the conditions and implementation of the digital academic entrepreneurship concept in Figure 2.

The results of the analysis show conditions in which there are still gaps in the implementation of digital academic entrepreneurship. Motivation and stakeholders have played a good role, but the stage of process and business sustainability is still low. This shows that there are two possible problems, namely the business actors (student entrepreneurs), or the improper system and coaching which causes a low level of implementation in the process and business sustainability.

At the motivation stage, it was found that the existing motivation is good; on average, students have sufficient motivation and a great opportunity to start a business. They have good motivation from external parties with many funding opportunities, a high spirit for commercialization, high social impact, and many business ideas. Likewise, at the stakeholder stage, there are many programs held by stakeholders to build digital academic entrepreneurship. However, the condition still has imperfections due to low students' mentality and complicated administration requirements.

The obstacles that arise at the stakeholder stage are administration and low student mentality. Regarding administration, it is true that the business screening process requires the student to complete various terms and conditions which sometimes results in good business ideas and concepts. However, it may cause a good business plan that is not in accordance with the requirements to become inferior to the common business concepts that meet the requirement. This is indeed an obstacle, but it is not a big one.

The next obstacle is the mentality. Two mental factors prevent students from becoming entrepreneurs, namely lack of courage to start or a pessimistic attitude, as well as the absence of long-term goals in doing business. Both of these are major obstacles in forming digital academic entrepreneurship. Establishing a business certainly requires a high optimistic nature, persistence, consistency, and discipline at work. Another aspect that is also important is clear long-term goals. Digital entrepreneurship is not a short-term business, and it requires a long-term maturity plan. Therefore, digital entrepreneurship players need to prepare a business blueprint in the long term for the business to survive and able to achieve targeted results.

Table 1: Framework Implementations and Conditions

		T
Digital Academic Entrepreneurship	Implementation	Condition
MOTIVATION	<b>***</b>	Good Motivation from external with many funding opportunities, high spirit for commercialization, high social impact, and many business ideas
STAKEHOLDERS	<b>**</b> **	There are many programs held by stakeholders to build digital academic entrepreneurship but still low in student's mentality and complicated administration requirements.
PROCESS	<b>***</b>	Good systems in building digital academic entrepreneurship but low experience, knowledge, skill, and curiosity
BUSINESS FORMS SUSTAINABILITY	<b>√</b> √	Still Low Sustainability, many businesses failed or stag, but many businesses have good performance and sustainability.

Very Good Implementation: ✓ ✓ ✓ ✓ ✓ ✓ Good Implementation: ✓ ✓ ✓ ✓ Enough Implementation: ✓ ✓ ✓ ✓ Low Implementation: ✓ ✓ ✓ Very Low Implementation: ✓

The next stage that needs to be done is the process. New processes of digital academic entrepreneurship comprise virtual learning, social media environments, 3D virtual labs, fab labs and spaces, and digital accelerators. Entrepreneurship education equips student-entrepreneurs with all of the skills they require to launch spinoffs and start-ups (Elia et al., 2017; Ghezzi & Cavallo, 2020). Entrepreneurship education includes innovation supported by digital technologies to engage students. Social media technologies for developing creativity and presentation skills training, teamwork, and gamification features to improve the student learning experience, as well as research activities to

support effective community outreach are implemented within entrepreneurship courses (Rippa & Secundo, 2018).

In this stage, universities have good systems in building digital academic entrepreneurship, but they also still have low experience, knowledge, skill, and curiosity. Some of these deficiencies are the effect of the lack of mental and mature planning in entrepreneurship. It also has an impact on the last stage, namely the low level of business continuity. This problem needs further attention. Universities have to form an entrepreneurial mentality in students, teach how to compile a business blueprint in the long term, and form an innovative business that will be able to sell well in the market and have high sustainability.

The results of this study are also supported by the interview with the participant as follows:

"As a university, we are currently required to innovate in the entrepreneurial learning process. This is useful for encouraging students to come up with interesting business ideas...usually, when we coach them, we also ask the students to practice directly in producing product prototypes and service systems that will be offered to the community...we ask them for a presentation, and when it is declared worthy, we ask the students to try the market test. They usually have high confidence to offer it..." (Code 1-R2).

"...We usually collaborate with companies or industries that already have collaboration with our university, and provide funding assistance for workshops or training activities that we provide to our partners, such as CSR funding projects from several industries. We also involve students as partners when they already have a digital business, as they have a lot of start-up businesses, especially those involved in education and courses..." (Code 1-R1)

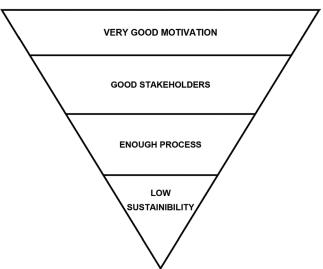


Figure 3: Digital Academic Entrepreneurship Condition

"When there are research and community service projects, as a lecturer, I always invite my students who are interested to be involved in research project activities to teach them about the spirit of never giving up, able to solve problems when there are urgent problems, and able to accompany my research partners when they need business assistance, especially from the digital aspect. I think this is important for them to have more motivation when they graduate from university and ready to enter the world of digital business..." (Code 2-R1).

"I really like and have a lot of interests when I am invited to join my lecturer's projects, especially for research and community service projects. This really helps me to participate in contributing innovative ideas and I will always associate it with digitalization, especially the application of digital systems for providing services to the community. This is very important to support my competence as a student. I will be smarter to read and seize business opportunities, and able to apply my knowledge..." (Code 3-R1).

The attention from stakeholders towards entrepreneurship for academics, especially students, is certainly expected to give birth to new entrepreneurs with a variety of works and innovations. Another opportunity created to spur academics to entrepreneurship is more entrepreneurial competitions and business funding for start-ups. This condition is one of the answers to the main problem of entrepreneurship that is often complained about by potential entrepreneurs, namely the absence of capital

## 5. Conclusion and Implications

The current technological developments have had many positive impacts on the country's economy. One form of positive impact is the emergence of opportunities in developing digital academic entrepreneurship. This study resulted in the finding that digital academic entrepreneurship can be developed in a university environment with several factors, namely: motivation (the rationale for the adoption of digital technologies for academic entrepreneurship); stakeholders (the stakeholders involved through digital technology to achieve the academic entrepreneurship goal); process (the processes of academic entrepreneurship supported by digital technologies); and business form (the emerging forms of digital academic entrepreneurship). in its implementation, some of these factors still require improvement and support from the system or curriculum and regulations from the university.

This study has provided theoretical implication that digital academic entrepreneurship can be developed by increasing the role of motivation and stakeholders, especially those who will contribute to the process and business form of digital academic entrepreneurship.

The managerial implication provided in this study is that several things must be developed by universities in implementing and developing digital academic entrepreneurship. The first factor is motivation. In its implementation, the motivation that grows in students in digital academic entrepreneurship has been very good. Therefore, the next thing that needs to be done by universities is to maintain these motivations by continuing to motivate students in lectures and other agendas outside the campus such as seminars, workshops, student clubs, study groups, and others.

The second factor is a stakeholder. The implementation of the functions of stakeholders is generally good, but several things need to be improved, namely the low mentality of students and complicated administrative requirements. Therefore, universities should further stimulate and develop student mentality and simplify the administrative requirements for students who wish to submit entrepreneurship proposals.

The third factor is the process. The implementation of the formation of digital academic entrepreneurship is still weak because although universities already have a good system, the implementation of student business ideas is still bad due to a lack of experience, knowledge, skills, and curiosity. Therefore, universities need to provide more intense assistance and conduct regular entrepreneurial training and practice.

Furthermore, the fourth factor is sustainability. The implementation of this factor is still very weak because many student businesses do not last long. Therefore, universities should think further about student business development, especially after the business is launched. Universities should form a team of experts in student business supervision so that business steps that are taken can be more focused and well-controlled.

#### References

- Bahcecik, Y. S., Akay, S. S., & Akdemir, A. (2019). A review of digital brand positioning strategies of Internet entrepreneurship in the context of virtual organizations: Facebook, Instagram, and Youtube Samples. *Procedia Computer Science*, 158(63), 513–522. https://doi.org/10.1016/j.procs.2019.09.083
- Bowen, R., & Morris, W. (2019). The digital divide: Implications for agribusiness and entrepreneurship: Lessons from Wales. *Journal of Rural Studies*, 72(7), 75–84. https://doi.org/10.1016/j.jrurstud.2019.10.031
- Cavallo, A., Ghezzi, A., Dell'Era, C., & Pellizzoni, E. (2019). Fostering digital entrepreneurship from startup to scaleup: The role of venture capital funds and angel groups. *Technological Forecasting and Social Change*, 145(2), 24–35. https://doi. org/10.1016/j.techfore.2019.04.022
- Dong, J. Q. (2019). Moving a mountain with a teaspoon: Toward a theory of digital entrepreneurship in the regulatory environment. *Technological Forecasting and Social Change*, *146*(45), 923–930. https://doi.org/10.1016/j.techfore.2018.07.050

- Dy, A. M. (2019). Leveling the playing field? Towards a critical social perspective on digital entrepreneurship. *Futures*, 9, 102438. https://doi.org/10.1016/j.futures.2019.102438
- Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14(4), 532–550. https://doi.org/10.2307/258557
- Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological Forecasting and Social Change*, 150(6), 119791. https://doi.org/10.1016/j.techfore.2019.119791
- Fachrunnisa, O., Adhiatma, A., Ab Majid, M. N., & Lukman, N. (2020). Towards SMEs' digital transformation: The role of agile leadership and strategic flexibility. *Journal of Small Business Strategy*, 30(3), 65–85. https://libjournals.mtsu.edu/index.php/jsbs/article/view/1610
- Fossen, F. M., & Sorgner, A. (2019). Digitalization of work and entry into entrepreneurship. *Journal of Business Research*. *104*, 1–16. https://doi.org/10.1016/j.jbusres.2019.09.019
- Geissinger, A., Laurell, C., Sandström, C., Eriksson, K., & Nykvist, R. (2019). Digital entrepreneurship and field conditions for institutional change: Investigating the enabling role of cities. *Technological Forecasting and Social Change*, 146(41), 877–886. https://doi.org/10.1016/j.techfore.2018.06.019
- Ghezzi, A., & Cavallo, A. (2020). Agile business model innovation in digital entrepreneurship: Lean startup approaches. *Journal* of *Business Research*, 110, 519–537. https://doi.org/10.1016/j. jbusres.2018.06.013
- Hsieh, Y. J., & Wu, Y. J. (2019). Entrepreneurship through the platform strategy in the digital era: Insights and research opportunities. *Computers in Human Behavior*, 95(33), 315–323. https://doi.org/10.1016/j.chb.2018.03.033
- Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J. (2018). Digital entrepreneurship: a research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*, 25(2), 353–375.
- Martinez, A., Martin, L., & Marlow, S. (2018). Emancipation through digital entrepreneurship? A critical realist analysis. *Organization*, 25(5), 585–608. https://doi.org/10.1177/1350508418777891
- McAdam, M., Crowley, C., & Harrison, R. T. (2019). To boldly go where no man has gone before: Institutional voids and the development of women's digital entrepreneurship. *Technological Forecasting and Social Change*, 146(44), 912–922.
- Moldabekova, A., Philipp, R., Satyabaldin, A. A., & Prause, G. (2021). Technological readiness and innovation as drivers for logistics 4.0. *Journal of Asian Finance, Economics, and Business*, 8(1), 145–156. https://doi.org/10.13106/jafeb.2021.vol8.no1.145
- Nadia, A., & Youssef, J. (2019). The typology of digital entrepreneurship in Morocco. *Indian Journal of Science and Technology*, 12(31), 1–6. https://doi.org/10.17485/ijst/2019/ v12i31/147274

- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges, and key themes. *Research Policy*, 48(8), 103773. https://doi.org/10.1016/j.respol.2019.03.018
- Ngoasong, M. Z. (2018). Digital entrepreneurship in a resource-scarce context. *Journal of Small Business and Enterprise Development*, 25(2), 483–500. https://doi.org/10.1108/JSBED-01-2017-0014
- Rippa, P., & Secundo, G. (2019). Digital academic entrepreneurship: The potential of digital technologies on academic entrepreneurship. *Technological Forecasting and Social Change*, 146(44), 900–911. https://doi.org/10.1016/j.techfore.2018.07.013
- Richter, C., Kraus, S., & Syrjä, P. (2015). The share-economy as a precursor for digital entrepreneurship business models. *International Journal of Entrepreneurship and Small Business*, 25(1), 18–35. https://doi.org/10.1504/IJESB.2015.068773
- Richter, C., Kraus, S., Brem, A., Durst, S., & Giselbrecht, C. (2017). Digital entrepreneurship: Innovative business models for the sharing economy. *Creativity and Innovation Management*, 26(3), 300–310. https://doi.org/10.1111/caim.12227
- Sahut, J. M., Iandoli, L., & Teulon, F. (2019). The age of digital entrepreneurship. *Small Business Economics*, 8(11), 1–11. https://doi.org/10.1007/s11187-019-00260-8
- Sariwulan, T., Suparno, D., Ahman, E., & Suwatno, M. (2020). Entrepreneurial performance: The role of literacy and skills. *Journal of Asian Finance, Economics, and Business*, 7(11), 269–280. https://doi.org/10.13106/jafeb.2020.vol7.no11.269
- Siegel, D. S., & Wright, M. (2015). Academic entrepreneurship: Time for a rethink? *British Journal of Management*, 26(4), 582–595. https://doi.org/10.1111/1467-8551.12116

- Sijabat, E., Nimran, U., Utami, H., & Prasetya, A. (2021). The effects of dynamic capabilities, entrepreneurial creativity, and ambidextrous innovation on firm's competitiveness. *Journal of Asian Finance, Economics, and Business*, 8(1), 711–721.
- Steininger, D. M. (2019). Linking information systems and entrepreneurship: A review and agenda for IT-associated and digital entrepreneurship research. *Information Systems Journal*, 29(2), 363–407. https://doi.org/10.1111/isj.12206
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003
- Yin, Z., Gong, X., Guo, P., & Wu, T. (2019). What drives entrepreneurship in the digital economy? Evidence from China. *Economic Modelling*, 82, 66–73. https://doi.org/10.1016/j. econmod.2019.09.026
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). London, United Kingdom: Sage Publications, Inc.
- Zaheer, H., Breyer, Y., & Dumay, J. (2019). Digital entrepreneurship: An interdisciplinary structured literature review and research agenda. *Technological Forecasting* and Social Change, 148, 119735. https://doi.org/10.1016/j. techfore.2019.119735
- Zarrouk, H., Sherif, M., Galloway, L., & El Ghak, T. (2020). Entrepreneurial orientation, access to financial resources, and SMEs' business performance: The case of the United Arab Emirates. *Journal of Asian Finance, Economics, and Business*, 7(12), 465–474. https://doi.org/10.13106/jafeb.2020.vol7. no12.465