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Universities' Involvement in Promoting Digital Entrepreneurship and Future Digital Entrepreneurship Opportunities through Digital Technologies in Indonesia

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ABSTRACT

Objectives: This study aims to identify the roles of various universities in Indonesia in providing education that helps develop digital entrepreneurship: this includes the implications, contributions, and challenges of digitalization; the identification of the impact of digital entrepreneurship on businesses within Indonesia; and an examination of the opportunities and challenges for digital entrepreneurship in Indonesian universities.

Methodology: The research adopted a qualitative data analysis methodology. This was achieved through secondary data collection, mainly through a content review of the existing literature.

Findings: The study results indicate that academics have engaged in various forms of digital entrepreneurship, including e-commerce, commercial application development, and digital education business. Each step of digital academic entrepreneurship has been conceived within the context of universities. Digital academic entrepreneurship is the use of digital technology to achieve a goal, and this model includes the following components: motivation, stakeholders, processes, and business forms.

Implications: Universities must effectively embrace and foster digital academic entrepreneurship. According to this study, there are many ways that the government may encourage digital entrepreneurship at universities. Educational institutions have to give more thought to the growth of student businesses, particularly after firms have been established. The monitoring of student businesses should be handled by a specialized team based at universities.



Limitations: The main limitation was the fact that the study was limited to secondary data sources; therefore, future research should focus on primary data. Additionally, it was limited to Indonesian universities; future research should be performed on institutions in more advanced countries. Furthermore, the study used a qualitative research method; therefore, future research should use alternative research methodologies.

Key words: digital entrepreneurship, academic entrepreneurship, digitalization, opportunities, stakeholders, business forms

Introduction

Due to the rise of digital technology as a new economic and social force, traditional business models, strategies, structures, and procedures are all being reimagined. Maintaining a high level of human capital development in this fast-paced age is complex; one possible answer to this problem is engaging in digital entrepreneurship. The primary goals of digital entrepreneurship are the launch of new enterprises and the improvement of current ones via the creation of innovative digital technology or unique applications. In addition, the expansion of the sharing economy has been made possible by digital technology, which has brought together owners and users while upending the traditional dichotomy between companies and their clients. Business and entrepreneurship are among the most significant aspects of the functioning of economies around the world and hence should be and are present in the academic reality of many universities. In addition to promoting creativity and innovation, entrepreneurs are vital for governments since they create more jobs and contribute to economic progress. In today's world, developing digital technologies is a critical aspect of fostering entrepreneurship (Rippa & Secundo, 2019). Due to the internet and technological advancements, the means of founding companies has been drastically changed. The corporate world has been transformed, leading to a new style of entrepreneurship called Digital Entrepreneurship (Elia et al., 2020).

With the growth of internet technology, pursuing a career in digital entrepreneurship has become much more straightforward. Internet technology is therefore helping to minimize the cost of launching a new company, reduce the risk, and expand the range of alternatives available to business owners (United Nations Publications, 2019).

The world has undergone several transformations throughout history. The most significant changes are brought about by technical advancement, mainly digital technology (Zsarnoczky, 2018). Technological changes have been underway for decades, affecting how people live in society and how the economy and industry are organized across the globe (Folke et al., 2021). The recent Covid-19 pandemic led to a reduction of direct social interactions, which was offset and assisted by the fast growth and utilization of digital technology. Consequently, more social interactions now occur online or electronically than in the real world. When engaging or communicating with others, circumstances, location, and time are no longer significant considerations. Without a doubt, this presents tremendous potential in the commercial sector. One may communicate with several persons in various places simultaneously and send messages to tens of thousands or even millions of recipients within seconds using digital communication methods that would otherwise be impossible. This changes the conditions for business.

The contemporary environment is consistent with the Fourth Industrial Revolution (Industrie 4.0), which has ushered in a new trend of digital transformation. Various supporting elements must be established to successfully implement digital transformation, including leadership agility, strategic flexibility, and entrepreneurialism. Because the millennial generation is a precious resource for a nation, digital technology must be used to its fullest extent, especially in education.

The technology used in the economic sector and entrepreneurship era has the potential to be widely adopted. Entrepreneurship is tough for newcomers because of time and space constraints, a lack of resources, connections, and marketing flexibility. Digital entrepreneurship can tackle some of these problems (Elia et al., 2020). Digital entrepreneurship has the potential to provide entrepreneurial possibilities at a far lower cost and in a much larger market.

Products and services offered by technology-based entrepreneurs are likewise becoming more popular among consumers in today's society. Consumers constantly seek convenience, quickness, low price, and high-quality products. With the help of digital technology, this may be accomplished and realized. As a result, many traditional firms are beginning to transition into internet enterprises. The move from a conventional offline firm to an online business is an epochal change and makes us assume that internet enterprises may have a potentially promising future.

One of the benefits of digital technology in the business industry is the ease with which a digital startup may be founded. Launching a startup firm that does not need significant funding is becoming more popular among students and academics. Many students are striving to build their firms, some of which have reached the global market, while others have failed or have yet to succeed (Richter et al., 2017). It is essential to establish a model that considers the factors affecting the success of startups in order to produce entrepreneurs from academic circles, particularly among students. For example, this possibility may be realized via digital entrepreneurship. Previous research on digital entrepreneurship has included a broad debate; however, it has been limited to academics or professionals. This research will give a fresh viewpoint on generating young entrepreneurs, particularly among students and postgraduates, by using university resources such as facilities and supporting instruments as a means of fostering entrepreneurship.

Universities have a vital role in supporting entrepreneurship, offering the appropriate entrepreneurial education, and contributing to their respective community's economic and social growth (Jena, 2020). The relevance of entrepreneurial education in the development of entrepreneurship has been well documented. However, only a tiny amount of research has been conducted on the impact of business incubators in boosting entrepreneurship, particularly for emerging markets and developing nations (Aboobaker & Renjini, 2020). There needs to be more than entrepreneurship education alone, according to both researchers and entrepreneurs, to increase students' entrepreneurial abilities and goals in the long run. The capacity of business incubators to find and highlight the latent skills of future entrepreneurs makes them unique.

Purpose of the Research

This study aims to identify the roles of various universities in Indonesia in providing education that helps develop digital entrepreneurship. This includes the implications, contributions, and challenges of digitalization.

Specific Objectives

The following specific objectives guided the study:

1. To identify the impact of digital entrepreneurship on businesses within Indonesia.
2. To examine opportunities and challenges for digital entrepreneurship.

Research Questions

The study aimed to answer the following questions:

1. Which various roles have universities in Indonesia played in providing education for digital entrepreneurship?
2. What is the impact of digital entrepreneurship on businesses within Indonesia?
3. What are the opportunities and challenges for digital entrepreneurship?

Literature Review

Concept of Digital Technology

Conventional business models and tactics are being reshaped by digital technology, which can transform both the economy and society. New digital-based businesses may grow quicker using digital technology, influencing new businesses (Katsikeas et al., 2019). As a result, digital technology must be used to the greatest extent feasible, particularly in creating commercial prospects. The term 'digital technologies' refers to any electronic equipment, system, device, or resource that can create, store, or process data (VIRLAN, 2022). Social media, online gaming, multimedia, and mobile phones are familiar to most people. Digital learning encompasses all forms of instruction that use some technological aid. Everything in the curriculum has the potential to be affected in this way.

Because the current market state requires business owners to make the most of the opportunities presented by technology, being technologically prepared is essential to running a successful company (Oakey, 2003). As a result of this, technology is necessary for dealing with a dynamic market. The company must operate more quickly and flexibly in a changing market (Miglani et al., 2020). In the same vein, technology also improves human resources, which is particularly important in light of the recent Covid-19 outbreak.

Artificial intelligence, digital 3D printing, crowd-funding platforms, social media platforms, cloud computing, big data, and smartphones are just a few of the numerous types of output derived from digital technology. In some instances, entrepreneurial possibilities may be generated by using new technologies, such as digital methods (Cavallo et al., 2019). For example, the App Store and Google PlayStore are two digital platforms that function as digital data repositories and may assist in creating new types of entrepreneurship. Because these results are faster to produce and more widely distributed, they fundamentally differ from conventional entrepreneurial outcomes (Cavallo et al., 2019). Digital technology also allows the creation of new settings for doing business and innovating. These new settings might have various objectives and dynamic interaction approaches to meet those goals. Thanks to digital

technology's expansion, it has been easier for entrepreneurs to collaborate and unite, which has created new avenues for growth (Elia et al., 2020). It has been widely acknowledged that digital technology plays an essential role in the growth of entrepreneurialism (Zaheer et al., 2019). The use of digital technology is both supportive and facilitative to the business. Digital technology enables the fourth industrial revolution (Elia et al., 2020).

The 4.0 iteration of the industrial revolution calls for accelerating the research on entrepreneurial activity connected to digital technology (Konina, 2021). Digital-based entrepreneurship in academia is one of the most exciting discussion topics that has evolved due to increased research in this area. A suitable environment for digital-based entrepreneurship may be found in academic institutions, such as universities, since they provide many resources and support tools. Due to the university's professional workforce, policies that encourage student innovation and originality, and ample financing, it is critical that these assets be leveraged to their most significant potential to stimulate digital entrepreneurship (González-Zamar, 2021).

The Concept of Entrepreneurship in the Digital Age

A significant factor driving economic growth is the widespread use of digital technologies. An entrepreneurial mindset combined with digital technology leads to new ideas known as digital entrepreneurship (Solomon & Van Klyton, 2020), which is the driving force behind digital technology's positive impact on economic growth. In their article, Elia et al. (2020) established the novel idea of 'digital entrepreneurship,' which they defined as "the creation of new initiatives as well as the transformation of current firms via the use of digital technology." Research on digital-based entrepreneurship refers to that which examines the entrepreneurship process evolving from the digital transformation of corporate operations (Akhter, 2017). The rise of digital entrepreneurship can potentially result in novel approaches and forms of technology (Denoo & Yli-Renko, 2019).

The concept of digital entrepreneurship has been put into practice in every global region. This demonstrates that consumers have a high confidence level in online firms since their market share is expanding and will continue to do so in the foreseeable future. Traditional company paradigms can be supplemented by digital entrepreneurship (Pfau & Rimpp, 2020). Small and medium-sized businesses employ digital entrepreneurship extensively to enhance their performance according to Desmiyawati et al. (2019). Concepts like digital platforms and internet-based business models might be developed on the foundation of digital entrepreneurship (Bader & Stummeyer, 2019). There are six established research streams connected to digital entrepreneurship. These streams include digital entrepreneurship processes, business models, platform strategies, entrepreneurship education, digital ecosystems, and social entrepreneurship (Elia et al., 2020).

The growth of entrepreneurship based on digital platforms may be sparked and supported via external finance from the private sector or the government. Knowledge may be more easily shared, acquired, and passed on via digital entrepreneurship, leading to the development of novel approaches to doing business (Pal, 2021). Peer-to-peer transactions are made feasible by web-based technologies. Two people can communicate with each other directly via a peer-to-peer service. P2P services have been more popular over the last several years. This service allows customers and vendors to transact with one another directly. Payment processing or escrow services might be included in the peer-to-peer platform's offerings. A consumer's emotional connection to a company's brand may be facilitated via digital commerce and social media platforms (Batat, 2019). Businesses that operate in the digital space rely on technology to generate new forms of value in their business models, the experiences they provide their customers with and the internal capabilities that underpin their primary business functions. Digital entrepreneurship refers to conventional players and digital-only firms transforming their operations thanks to digital technology (Elia et al., 2020).

Digital brand positioning is necessary for any organization that operates primarily online. The brand's positioning is how a firm can separate itself from its rivals and position itself within a particular market (Hu & Trivedi, 2020). When

discussing digital brands, what matters is how a brand uses its online presence, communicates with its audience, and stands out (Adeola et al., 2019). A notion of digital entrepreneurship may be gleaned from earlier research. The present situation and technological advancements favor the adoption of digital entrepreneurship (Ghezzi & Cavallo, 2020). Digital entrepreneurship is an important issue in the twenty-first century and is the driving force behind creating a new industrial order known as industry 4.0. Industrie 4.0 makes it easier for companies to collaborate and share data with their customers, manufacturers, and other parties engaged in the supply chain. It allows for the transition to a digital economy, increases productivity, and generates opportunities for long-term sustainability in the economy (Litvinenko, 2019). Science and human resources must be supported and handled effectively to achieve digital entrepreneurship's growth with the most significant benefits.

Academic Entrepreneurship in the Digital Space

As digital technology advances, it becomes more difficult for human resources training to keep up. One solution to this issue is the rise of digital entrepreneurship (Jena, 2020). The creation of new enterprises and the transformation of current firms via the development of new digital technologies or applications is the primary emphasis of digital entrepreneurship, which is seen as a vital component for enhancing human resources in many nations (Ghezzi & Cavallo, 2020). There is a growing need for digital-based businesses, leading to increased revenues and the need to hire more employees. As a result, a new digital-based corporation with a substantial increase in sales or staff may legitimately be regarded as a company that has managed to thrive by embracing digital technology. This is because digital technology makes organizations more efficient. Sahut et al. (2019) claim that in the operation of digital firms, information and communication technology (ICT) plays three significant functions. Entrepreneurial startups benefit from these responsibilities, which include



those of a facilitator for the operation of new enterprises, a mediator for the operation of new ventures, and the fact that digital technology is a universally applicable business model.

The application of digital technology in business is well suited for academic purposes (Cavallo et al., 2019). In this scenario, many university graduates have great potential but must be fully exploited. This is because there needs to be a higher level of enthusiasm among undergraduates for them to engage in entrepreneurial activity. Entrepreneurship in the digital era can improve the entrepreneurial drive of young people and academics because of its accessibility, the breadth of its market, and the support it receives from institutions and governments. A business opportunity that may be discovered online is digital entrepreneurship. There will be a reduction in the national unemployment rate due to academics engaging in digital entrepreneurship (Sahut et al., 2019). It is possible to use the notion of digital entrepreneurship in practically any scientific field, and it may even be used as a business model. Within entrepreneurship, the primary focus has been placed on company finance as a potential component that might stimulate the expansion and growth of entrepreneurial endeavors (Urbano et al., 2019). They need a registered company with a solid legal base to assist academics, create new businesses, and find prospective employees. On the other hand, creating new businesses might be considered a catalyst for innovation. New initiatives typically supply goods or services that compete with established businesses' offerings. Digital platforms make many available opportunities for new company ventures and those already in existence. Indeed, many internet platforms are geared toward new businesses (Hsieh & Wu, 2019). When considering academic entrepreneurship via a corporate and organizational lens, it is essential to take a universal approach. Corporate venturing, innovation, and strategic renewal should come from both within and outside the university. This should include business creation, venture capital, and strategy renewal (Sunny Li & Saeed, 2020).

Research Methodology

The research adopted a qualitative data analysis methodology. This was achieved through secondary data collection, mainly through a content review of the existing literature to analyze university involvement in promoting digital entrepreneurship and future digital entrepreneurship opportunities through digital technologies in Indonesia. Secondary data collection targeted universities in Indonesia that provide education for understanding digital entrepreneurship. The secondary data was collected from various publication databases, including Scopus, PubMed, JSTOR, Web of Science, and ScienceDirect, published within the past ten years. The publications are spread over a broad diversity to cover as much information as possible. The researcher chose the articles based on their credibility. Credibility was determined by unbiased analysis presented in those articles and up-to-date information, and it was written by expert authors in those fields. The researcher mainly focused on articles published between 2011 to 2021. Although the articles did not only refer to Indonesia, this analysis focuses on aspects of the studies that refer to the Indonesian context. The researcher conducted secondary research since it was more cost-effective than primary research (Martins et al., 2018). In addition, secondary research still enabled the researcher to answer the research questions without physically interacting with respondents during the Covid-19 pandemic. Further, “using secondary data in research has proved a valuable approach to finding suitable data for one’s needs” (Serra et al., 2018). Researchers should be cautious when choosing secondary data, verify its applicability, record any changes or alterations to the data, and determine whether the data can be securely utilized to accept or reject a set of hypotheses. This allows for faster research without sacrificing quality or becoming obscure (Martins et al., 2018). The researcher did not use any software to do the analysis.



The Results and Discussions

Since entrepreneurship is one of the primary areas of study for students and has even become a critical area of study in certain schools, academics have a fantastic opportunity to launch their own companies. Students will undoubtedly benefit from this setting to foster their entrepreneurial spirit. In addition, colleges often provide student-run business incubator programs to cultivate and identify potential entrepreneurs within their student bodies. Even when students learn about entrepreneurship, they often develop ideas for new businesses while working on coursework and proposals. Because of these circumstances, the universities has successfully fostered a culture of entrepreneurship among its students. This includes financial possibilities, digital commercialization, and a student entrepreneur's desire to use digital platforms for advertising their goods. However, many ideas for companies have yet to be brought to fruition. Students' entrepreneurial desire has been fostered by the university's academic environment, according to research by Soltanifar et al. (2020). It is also possible to conclude that all parties inside universities, including decision-makers, lecturers, students, and businesspeople, have a role in developing entrepreneurship within universities.

The environment in the corporate world has also started to shift over time. The introduction of digital technology has altered the intensity of competition in the commercial world. Coopetition, or the 'sharing economy,' refers to a business model incorporating competition and cooperation (Steininger, 2019). Entrepreneurs were driven by a strong desire to win at all costs in the past. However, they are beginning to recognize the benefits of cooperating with their rivals (Steininger, 2019). It is possible to break down the sharing economy into three categories: digital material sharing, physical product sharing, and participation in monetary, cultural, and social initiatives (Steininger, 2019). At the same time as the business environment began to change, the entrepreneurial spirit of young people began to resurface. Digital entrepreneurship is the name given to this new kind of business ownership.

The millennial generation, including students, has a strong desire for many sorts of entrepreneurship, but digital entrepreneurship is particularly popular.

This brings new dimensions to the practice of entrepreneurship at educational institutions and fosters the development of digital startups on university grounds. The potential for finance in digital entrepreneurship is now relatively substantial, and its innovative value is exceptionally high. It is consistent with the idea behind industry 4.0, and it will lead to the digitization of several different industrial sectors, which will stimulate economic growth.

Research on the issue of digital entrepreneurship within the academic entrepreneurship ecosystem has been covered extensively in the academic literature to date. Many universities offer a variety of processes, starting with the incubation of student businesses and the creation of a business plan. These stages are designed to support digital academic entrepreneurship. After the most successful student businesses are chosen, they receive instruction in various topics, including entrepreneurial theory and strategy, product marketing, and face-to-face meetings with professionals in entrepreneurship to discuss their personal experiences. When the company's idea has been developed and tested enough to launch, the second step is to look for capital. Universities have a role in assisting academics in their search for money, presenting funding proposals to the government and investors, and continuing up to the point when universities become investors. The company can begin to operate when the necessary financial backing has been secured. Before a company is able to function independently, educational institutions must exercise oversight for a few months.

Academics have engaged in various forms of digital entrepreneurship, including e-commerce, commercial application development, digital education business, and others. Each step of digital academic entrepreneurship has been thoroughly conceived within the context of universities. A crucial step that has been accomplished so far is the formation of partnerships with established businesspeople from other countries. Digital entrepreneurship, on the other hand, is hindered by the fact that entrepreneurs lack the requisite skills and mindset to maintain their firms indefinitely (Nambisan & Baron, 2013).

At the stage of the stakeholders, the administration and an attitude of low student engagement are the challenges that develop (Stathopoulou et al., 2019). According to the results obtained, a student must meet several

requirements to be considered for a business internship, which may lead to some very innovative company concepts (Stathopoulou et al., 2019). However, a well-thought-out business strategy that does not meet the market's demands may be lower than more popular concepts. This is an impediment, but it is not a very significant one.

The findings from students also suggest that mindset is the next barrier to overcome. Williams and Shepherd's (2016) research reveals that a lack of courage and a pessimistic outlook impede students from becoming entrepreneurs and contribute to the absence of long-term goals in conducting business. Challenges to building digital academic entrepreneurship stem from these two factors. A persistent, consistent work ethic, a very cheerful disposition, and job-related discipline are essential qualities for starting a firm. Having distinct long-term objectives is another component that is of equal importance. Entrepreneurship in the digital space is not a short-term commercial endeavor and necessitates the development of a long-term growth strategy. For this reason, participants in digital entrepreneurship need to construct a plan for the company's long-term development to ensure its continued viability and the ability to accomplish its goals.

The results of Webb (Webb, 2018) also reveal that the procedure is the next necessary step to be completed after this one. Digital accelerators, 3D virtual laboratories, social media platforms, and fab labs and spaces are a few innovative processes applied to digital entrepreneurship in higher education (Webb, 2018). Programs targeted toward entrepreneurship may help students gain the skills required to launch spinoffs and startups (Ghezzi & Cavallo, 2020). Education in entrepreneurship emphasizes innovation and is backed by digital technology to keep students interested. Students in entrepreneurship education programs are taught how to utilize social media and other technology and design successful community outreach programs using various methods, including group work, gamification, and research (Cook-Benjamin, 2021). However, this finding is invalid for Indonesian institutions, which still need more expertise, knowledge, abilities, and enthusiasm for building digital academic entrepreneurship. A lack of maturity and intellectual preparedness often characterizes entrepreneurial undertakings. This impacts the last stage, the low

level of continuity in the organization. Additional attention must be devoted to this issue. Universities are tasked with instilling an entrepreneurial mindset in their student body, instructing students in creating a long-term business plan, and fostering innovative businesses capable of performing well in the market and maintaining a high level of sustainability.

Conclusion and Recommendations

Recent technological advancements have resulted in several benefits and effects on the economy of Indonesia. The advent of possibilities for establishing digital academic entrepreneurship is one example of a favorable influence. This research concludes that developing digital academic entrepreneurship in a university is possible with several factors. 'The motivation of academic entrepreneurs,' stakeholders, methods, and business structures are all influenced by digital technology. While implementing this plan of developing digital academic entrepreneurship in a university, several of these aspects still need more development and assistance from a university's curriculum and rules.

The findings of this study suggest that increasing the motivation and participation of stakeholders might lead to the creation of such a venture. The implication of the research for management is that universities must effectively embrace and foster digital academic entrepreneurship by, for example, considering how motivated students are. Since the digitalisation program's launch, students have shown considerably greater interest in starting their digital academic businesses. This means that colleges must do something to keep students motivated in lectures and other activities outside of campus, such as workshops and student organizations, and study groups. This is the next thing that needs to be done.

The presence of a stakeholder is the second consideration in embracing and fostering digital academic performance. The overall performance of stakeholders is exceptional, but a few issues need to be addressed, such as the poor attitude of students and the tedious administrative procedures. For this reason,



educational institutions need to encourage students further and cultivate student attitudes while also simplifying the administrative formalities for students who seek to make ideas for new business ventures. The procedure is the third element to consider. Universities have an established mechanism for students to develop company ideas, but students need more experience, knowledge, and ability to make their ideas a reality. So why are there so many problems with digital academic entrepreneurship's implementation? Educational institutions like colleges should provide more comprehensive support and consistently schedule opportunities for training and experience in entrepreneurship.

Additionally, the fourth consideration is long-term viability. Because so many student firms fail within a short period, an understanding of the factors leading to failure is still in its infancy, meaning that it should not be a significant factor with regards to embracing and fostering digital academic performance. As a result, educational institutions must give more thought to the growth of student businesses. The monitoring of student businesses should be handled by a specialized team established at universities. This would allow for activities related to student businesses to be better organized and managed.

Limitations of the Study

The study of entrepreneurship necessitates a large amount of research. Because this study relied solely on secondary data, future research should focus on primary data. Furthermore, it was limited to Indonesian universities; therefore, further research should be conducted in more developed countries. Furthermore, the study used a qualitative research method; hence, future research should use different research methodologies.

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