

JAMJurnal Aplikasi Manajemen
Journal of Applied Management
Volume 22 Issue 1
March 2024

22 | 1 | 2024

Received May '23
Revised July '23
August '23
September '23
Accepted March '24**INDEXED IN**DOAJ - Directory of Open
Access Journals
SINTA - Science and Technology
Index
Dimensions
Google Scholar
ResearchGate
Garuda
IPI - Indonesian Publication
Index
Indonesian ONEsearch**CORRESPONDING AUTHOR**Andri Irawan
Universitas Yapis Papua,
Indonesia**EMAIL**

airawanpopz@gmail.com

OPEN ACCESSe ISSN 2302-6332
p ISSN 1693-5241

Copyright (c) 2024 Jurnal Aplikasi Manajemen

**DIGITAL INEQUALITY AND DIGITAL
ENTREPRENEURSHIP IN INDONESIA****Andri Irawan****Yendra****Entis Sutisna****Laode Marihi**

Universitas Yapis Papua, Indonesia

Mardatillah

STIE Madani Balikpapan, Indonesia

Djoko Soelistya

Universitas Muhammadiyah Gresik, Indonesia

Abstract: In the era of disruption, myriads of digital entrepreneur in Indonesia still faces significant problems due to the demographical disadvantage and the lack of government policies that can overcome the problem faced. This series of problems has resulted to the existence of digital inequality. This study aimed to explain the digital inequality in Indonesia that has an impact on the inequality of opportunities and challenges for digital entrepreneurs. Qualitative approach to case studies in Indonesia. Informants were taken from 3 regions in Indonesia as well as government representatives responsible for the development of information and communication technology. Data was collected through in-depth interviews online and data was processed with the help of NVivo12. The study was conducted for 6 months. The results of this research will certainly have implications for the development of technology research, digitalization and communication as well as business. If the problem of digital inequality is resolved, digital business development in Indonesia will be more competitive. However, the biggest implication can certainly be a recommendation for information and communication technology development policies in Indonesia, such as the policy of building base transceiver station (BTS) in areas where there is no internet connectivity.

Keywords: Digital Inequality, Digital Entrepreneurship, Information and Communication Technology

CITATIONIrawan, A., Yendra, Sutisna, E., Mardhatillah, Soesilo, D., and Marihi, L. 2024. Digital Inequality and Digital Entrepreneurship in Indonesia. Jurnal Aplikasi Manajemen, Volume 22, Issue 1, Pages 193–204. Malang: Universitas Brawijaya. DOI: <http://dx.doi.org/10.21776/ub.jam.2024.022.01.15>.

INTRODUCTION

A marked era of disruption, the industrial revolution in digital information technology, has forced people to adapt to the digital environment to meet their needs and activities, such as business, education, and even religious activities (Safarudin et al., 2022). Current technological advances continue to create opportunities for business and industry in Indonesia. Apart from creating opportunities, technological advances also challenge entrepreneurs to enter a new world, namely digital business. Indonesia, as one of the major countries in Asia that has a potential geographic location in global business, is, of course, the prima donna for developed countries that currently dominate the world economy, such as America, China, Russia, and others (Pratiwi et al., 2023). As a potential, Indonesia should not become a consuming country or a target for imports from big countries. Demographic and geographic bonuses must be the main capital to build the nation's economy and make Indonesia a producing or exporting country. This is possible because Indonesia has a lot of natural resources and quality human resources that can compete with the human resources of other developed countries. Digitalization will undoubtedly be unstoppable.

Humans will continue to be forced to adapt and depend on technology. Next, what about entrepreneurship? Will they fully transform into digital entrepreneurs? Can entrepreneurs in Indonesia take advantage of these opportunities and face these challenges? This study has researched the existing condition of digital entrepreneurs in Indonesia. In addition, this study has also examined the results of other research related to our research object where opportunities have been found to develop other research results, such as uncovering digital infrastructure inequalities in Indonesia from a geographical perspective and cultural inequalities and digital skills for entrepreneurs in Indonesia. The faster and more rapid development of digitalization because of globalization and modernization has caused every country to compete with each other and not be left behind by one another. This development also changes the social culture of entrepreneurs (Pamuji et al., 2022). Entrepreneurs are starting to use information systems and technology to facilitate their activities, such as using digital wallets for easy payments, online transporta-

tion for easy access to travel, and payments that can only be made at home. Digital developments also encourage people to develop digital products, as evidenced by the rapid development of e-commerce (Sewpersadh, 2023). However, are all the facilities accessible worldwide, especially in Indonesia? The answer is no. This is what causes a new problem, namely digital inequality. This paper has explained the issues that occur so that in-depth research is needed to resolve digital inequality in Indonesia, which impacts the existence of entrepreneurs, including infrastructure, human resources, and the need for information.

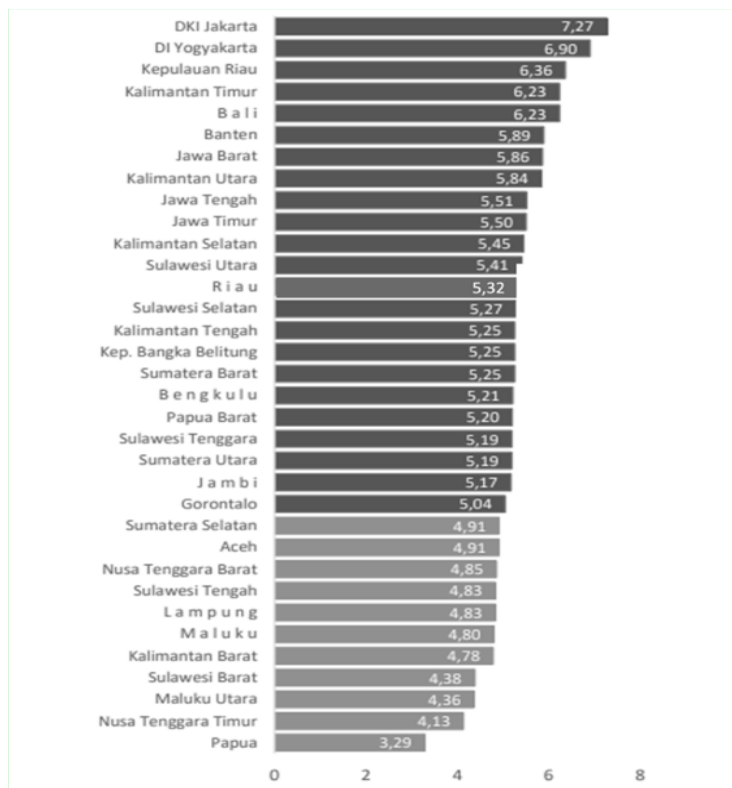
In Indonesia, one measure of the development and inequality of information technology is the Information and Communication Technology Development Index, which uses 11 indicators with three sub-indices. The Technology, Information, and Communication Development Index has an index of 0 to 10; the higher the index value, the more it reflects the rapid development of ICT in an area. From the picture above, it can be seen that there are still 21 provinces in Indonesia whose development of technology, information, and communication is below the national level. Papua Province has Indonesia's lowest technology, information, and communication development. DKI Jakarta is a province with the highest technology, information, and communication development in Indonesia. It can also indicate inequality in the use of technology, information, and communication in Indonesia. Development is still centered in the Java region, with the eastern region of Indonesia paying more serious attention to developing technology, information, and communication. With rapid digital development and to reduce digital inequality in Indonesia, the government needs to pay attention to and encourage financial inclusion for the resilience of digital infrastructure in Indonesia. Investment expansion is also able to encourage digital development in Indonesia. The internet, an essential part of digital development, also needs to be expanded in Indonesia. The value of internet penetration in Indonesia is still far behind that of Asian countries.

Furthermore, by looking at these conditions, regions with a high index of development of technology, information, and communication will be at the level of opportunity, and regions with a low index of development of technology, information,

and communication will undoubtedly be at the level of challenge. Even though the digital ecosystem in Indonesia is growing with the increasing number of online selling and shopping platforms such as Tokopedia, transportation and courier service platforms such as Gojek, Grab, and Maxim and companies that provide digital technology to manage finances and personnel matters, it seems that there are still many Indonesian entrepreneurs who have not engage and contribute to the digital economy in Indonesia. The Internet economic activity indicator figure for Indonesia's Gross Merchandise Volume (GMV) per capita is relatively small among ASEAN countries, even though Indonesia's total GMV is the highest in ASEAN. In 2020, Indonesia's GMV per capita was US\$162 million (Rp 2.32 trillion).

However, digitization through the development of information and communication technology can minimize the obstacles to entrepreneurship by making entrepreneurship efforts faster, more affordable, and easier, and even creating many opportunities for collaboration to make a business more effective. The digital world offers vast

new resources for entrepreneurs to tap into, from open data collection and exponentially growing content, code, and services to the online contributions of users and communities around the world. The digital world is also providing new ways to combine these resources. For example, small businesses can leverage large advertising networks, Artificial Intelligence-based chatbots, global freelancers, or language translation with just a few clicks or lines of code. However, if the imbalance in information and communication technology infrastructure is not resolved, many entrepreneurs in Indonesia will not be able to take advantage of this digitalization of business. They will continue to be left behind, especially in areas with low technology, information, and communication development index. They will face higher challenges than entrepreneurs in areas with a high index. Financing the development of digital infrastructure is, of course, very important to support equitable use of digital technology because one of the factors that determines digital inequality is the lack of financing for the application and use of digital technology.

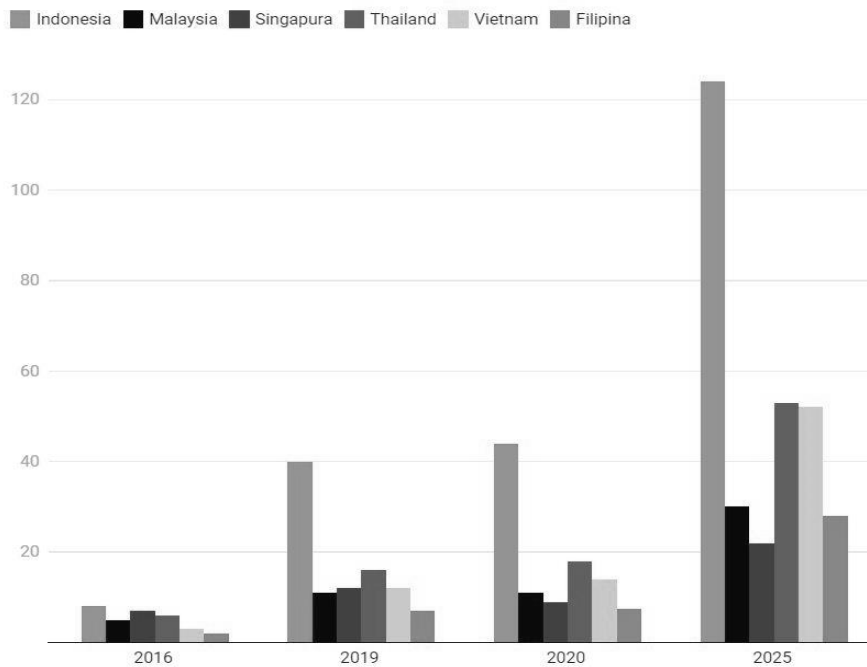


Source: Badan Pusat Statistik (2021)

Figure 1. Information and Communication Technology Development Index 2021

Total GMV Negara-Negara ASEAN-6

In billions of dollars



Source: Faqih et al. (2022)

Figure 2. Total GMV of ASEAN Countries -6

Twelve digital entrepreneurs were selected in this research precisely in Indonesia who were considered capable of representing digital entrepreneurs spread throughout Indonesia, starting from the western, central and eastern regions with pre-determined categories such as the time they started the business, their current living conditions, such as geographical conditions and ease of contacting them. All of these things are necessary because the interviews are conducted online. Apart from that, informants from the Ministry of Information and Communication were also present to ensure that the government has policies to support digital entrepreneurship and explain the government's efforts to encourage the development of digital entrepreneurial businesses in Indonesia. However, the government's main focus as a policy maker must understand that the underlying cause of digital inequality is the country's level of economic development, which involves social conditions and technological and other infrastructure (Evenko and Revenko, 2022). Digital transformation in the Industry 4.0 and Society 5.0 era has fundamentally revolutionized business management, including

micro, small, and medium enterprises (MSMEs). Thus, a fundamental transformation is needed in managing MSMEs by utilizing technological advances, changes in consumer communication patterns, and the potential of digital technology to gain a competitive advantage amid global competition. Therefore, a comprehensive understanding of the concepts, strategies, and applications of entrepreneurial management in the digital era is essential for achieving MSME goals and sustainable business optimization in global competition. It is the world of digital entrepreneurship, entrepreneurship that is affected or benefited from digital transformation in business and society. The basic principles of entrepreneurship still apply and can be applied in this digital entrepreneurship world, such as giving birth to an entrepreneurial paradigm, finding good opportunities, understanding customers, complying with legal requirements, and raising capital. The fundamental shift in digital entrepreneurship lies in trying to actively participate in business activities and connect with digitally savvy people. The concept of entrepreneurship continues to be analyzed and developed by experts.

This development has led to the fact that entrepreneurship has many branches of knowledge, from its establishment to how it is implemented from start to finish. Not only that, concept development also extends to the entrepreneur's stakeholders themselves. The development of this entrepreneurial concept is constantly updated from time to time. It is in accordance with what was said by Zimmerman (1996), which explains that entrepreneurship is the result of a scientific discipline. With good and adequate scientific discipline, of course, you can carry out the entrepreneurial process properly and according to the guidance of experts in that field. Apart from that, as a result of scientific disciplines, entrepreneurship is also an art of management where digital entrepreneurs are able to carry out business innovations by relying on their managerial abilities.

The novelty of this study is that it has uncovered facts that have never been revealed about the problem of the digital divide in Indonesia, which has become a silent war between digital entrepreneurs who are indirectly buried by government policies that do not touch the context of problems in development programs so far. Thus, this study will be useful for the development of management and entrepreneurship theory, so that this research plays an important role both theoretically and practically. The Technology, Information, and Communication Development Index has an index of 0 to 10. The higher the index value, the more rapid ICT development in a region. From the picture above, it can be seen that there are still 21 provinces in Indonesia whose technology, information, and communication are development. The aim of this study is for digital entrepreneurs to develop more innovative strategies, and it is a critique of government policies through empirical facts revealed, such as information technology infrastructure development policies in provinces still lagging.

LITERATURE REVIEW

Digital Inequality

The development of information and communication technology has had a huge impact on human civilization. However, the development of ICT in Indonesia has not been evenly distributed, resulting in a digital gap in some regions. In addition, Indonesia is an archipelago with more than 13,000 islands, with some of the topography of the

region in the form of mountains and valleys so that rural locations are spread out, which makes the development of communication and information facilities quite difficult and requires financial support which is not cheap. As a result, ICT infrastructure is only concentrated in mainland and urban areas, and even then, the majority are on the islands of Java and Sumatra.

However, Indonesia, as an archipelagic country, has a diverse social and cultural society as well as different geographical conditions between regions, which certainly has an impact on the current digital inequality (Medlin et al., 2007). In addition, very high inequality can lead to various other social problems. Poor people will find it more difficult to obtain credit to start their businesses, making it difficult to escape poverty. As a result, the poor are increasingly marginalized, i.e., the poor will get poorer, and the rich will get richer (Dewi et al., 2022).

The island of Sumatra, the island of Nusa Tenggara, and the island of Papua fall into the category of high inequality according to the existing condition of digital inequality in each region in Indonesia (Panggarti et al., 2022). Meanwhile, Java Island and Kalimantan Island are in the category of very high inequality, Sulawesi Island is in the category of close to equal inequality, and Maluku Island is in the very even category. In addition, socio-economic and socio-demographic factors will undoubtedly influence an individual's ability to benefit from internet use (Vallušová et al., 2022).

Today's digital infrastructure continues to develop and become a new structured and socio-technical regulatory force influenced by geopolitics and global markets (Kuhn et al., 2023). Digital inequality will significantly affect each region's economic, social, and cultural equity because ICT has now entered various elements of life, such as education, health, economy, infrastructure, and social life (Islam and Inan, 2021). When the covid pandemic hit Indonesia, the situation was full of uncertainty. Humans are forced to work or virtually go to school. Some people who have adapted to ICT will find adjusting to the current situation very easy and even enthusiastic. However, for some people who are far away and not familiar with technology, of course, this situation becomes a threat to their existence. On the other hand, socio-economic status influences thinking about digital me-

dia, the skills and practices of using it, and the quality of the benefits derived from using it (Sütlüoğlu and Gökalp, 2022).

The debate about digital inequality with all the factors that affect it continues in the world of scientists or ordinary people with low educational status. The debate occurs not only on the scientific spectrum but extends to social status, income, and also education and skills, which can be indicators of someone being able to adapt to the current use of ICT, where income is an essential variable in the process of e-inclusion and digital inequality and must be considered by the public manager (Santos et al., 2022a).

Entering the Industrial Revolution 4.0 and also the era of Society 5.0, competition between developed countries continues to increase, marked by the large number of ICT-based products being exported to developing countries. However, this situation will undoubtedly widen the gap between poor, developing countries and rich countries. Rich countries will continue to be producers, while poor countries will continue to be consumers (Santos et al., 2022b). In addition, the challenges are physical or infrastructure problems and cultural and mental ones (Hirano and Granda, n.d.).

Digital Entrepreneurship

Digital entrepreneurship, or in other words, Digital Entrepreneur is a term that describes how entrepreneurship will change as businesses and society continue to be transformed by digital technology. Advances in technology have created many opportunities for entrepreneurs to develop and expand their business operations. Therefore, the internet has driven the emergence of digital entrepreneurship as a growing form among many entrepreneurs (Sobaih and Elshaer, 2022). Digital entrepreneurship highlights changes in entrepreneurial practice, theory, and education. Digital entrepreneurship includes everything new in the digital world, such as new ways to do sales, services, and business management. On a practical level, digital entrepreneurship opens up new possibilities for anyone considering becoming an entrepreneur. Some opportunities are more technical, but others are within reach for anyone learning basic digital entrepreneurship skills. These basic skills include finding new customers online, prototyping new business ideas, and improving data-driven business

ideas.

In today's digital era, entrepreneurs need to plan business development carefully. The fulfillment of any business vision must be systematized into smart goals translated into an obvious strategy to implement (Bejinaru, 2021). Factors that hinder the development of digital entrepreneurship apart from supporting infrastructure for internet networks are also caused by the ability of human resources to carry out work related to ICT and social media users because digital entrepreneurs are, however very dependent on social media and internet access (Muzanenhamo and Rankhumise, 2022).

Besides, increasing digital skills is a prerequisite, and government policies should encourage entrepreneurs to adopt, integrate, and exploit digital technologies in their businesses to become economically viable, socially responsible, and environmentally friendly (Herman, 2022). The nature of digital entrepreneurship is indeed complicated to describe. This is of course, due to the uniqueness vision and character they have. For this reason, digital entrepreneurs will depend on business strategies and managing their resources, such as human resources or other material resources (Garrigos-Simon et al., 2021). The development of research on digital entrepreneurship where single case studies and current conceptualizations have been replaced by longitudinal studies even though currently digital entrepreneurship research often focuses on theoretical aspects compared to empirical aspects (Long et al., 2022).

METHOD

This study uses a qualitative approach with case study techniques. In-depth interviews were conducted with 12 digital entrepreneurs from western, central, and eastern Indonesia. This study also conducted interviews with government representatives in charge of information and communication technology development in Indonesia regarding aspects of the government policy. Interviews were conducted online via Zoom Cloud Meeting and Voice Call. The study was conducted for six months and the data was processed with the help of the NVivo 12 plus qualitative data analysis tool.

This research began with collecting data using interview techniques and categorizing the phenomenon. The questions asked during the interview were about (1) what the obstacles or challenges

faced by digital entrepreneurs are. (2) what opportunities do they have? and (3) how do they develop survival strategies? The next stage is to perform data reduction, which aims to select, simplify, abstract, and transform raw data that emerges from written records in the field. The next stage is to present data to systematically compile the data obtained from interviews, field notes, and other materials so that it is easily understood and informed. The last stage is to draw conclusions and verify them to determine and present research findings.

RESULTS

Characteristics of Informants

The informants who were the instruments in this research were 12 entrepreneurs who had run their businesses using ICT, such as having implemented digital marketing strategies chatbots, had an online shop in e-commerce, and had been running businesses using ICT for at least two years. Their ages range from 27 to 45 years, with an average education of a bachelor's degree, and are dominated by male entrepreneurs. This study does not focus on gender research that differentiates female and male entrepreneurs. However, our research is more directed at how entrepreneurs who become informants capture opportunities and challenges in conditions of high digital inequality in Indonesia. Our informants divided the two areas, namely the west and the center and east. The central and eastern regions have almost the same characteristics. The informants researchers chose are those who run graphic design businesses, architectural services, and web consultants.

Challenges for Digital Entrepreneurs in The Central and Eastern Regions of Indonesia

Indonesia, a vast archipelagic country, is a factor that significantly influences the uneven development of information and communication technology infrastructure in each region. The gap is highest in the eastern part of Indonesia, namely Papua, and also in parts of western Indonesia, such as Kalimantan. Furthermore, this study also conducted in-depth interviews with informants from the central and eastern regions of Indonesia to understand what challenges and opportunities they faced and how they survived so far in running their businesses.

The obstacles they face are inadequate ICT

infrastructure, especially in remote areas with blank internet access, so promotions and customer service are still significantly hampered. Infrastructure is a supporting facility in accessing or using an ICT. The infrastructure in question can be electricity, internet, and hardware such as computers, laptops, and smartphones as a medium for communication between producers and consumers.

Question: "What obstacles do you often encounter in running your business?"

Answer: "Yes, we have indeed been running our business a lot of obstacles that interfere with carrying out our business activities. We in eastern Indonesia have not experienced internet speed like in western Indonesia, such as Bandung, Jakarta, or other big cities. In fact, there are still many areas that have not been reached by internet access (blank spot) due to the lack of technological infrastructure in the area.

Question: "Besides technological problems, what other obstacles are obstacles in running your business?"

Answer: "In addition to the lack of technological infrastructure, those of us in central Indonesia or those in eastern Indonesia are also constrained by the large number of people who are technologically illiterate or lack understanding in using technological facilities so that they still find it difficult to adapt. In fact, many of our people are still not fluent in reading or writing, and this is because, in addition to the lack of facilities and infrastructure, it is exacerbated by the lack of knowledge obtained in schools related to the importance of information technology today.

In addition, they are also constrained by the fact that there are still many people who do not understand and have the ability to use ICT, making it difficult for entrepreneurs to disseminate information and business services. This situation is caused by many factors, including limited internet and hardware networks, people's income that is lacking to have ICT facilities. There are still

many people who live on the poverty line and have low education so that many cannot read and write. However, digital education and training for the community certainly need to be supported by their economic capabilities.

Furthermore, many people in central and eastern Indonesia still have problems understanding the content and information available on the internet, which generally consists of various national languages worldwide. Due to language barriers, rural communities tend to experience difficulties in understanding content or information on the internet. Rural communities in Indonesia will find it easier to understand information if they speak Indonesian. This happens because the education level of rural people is relatively low, and they cannot understand information on the internet, which is generally in a foreign language.

Apart from that, the next challenge is access to information, which should be a facility given to a person or the public to obtain the required public information. Access to information can be said to be a bridge that connects sources of information so that the information needed by each individual can be fulfilled. Entrepreneurs who are in the central and eastern regions really feel that information from the outside world is very slow for them. Sometimes, they even feel they are the last people on this planet to find all the required business development information.

Opportunities for Digital Entrepreneurs in The Central and Eastern Regions of Indonesia

However, besides the challenges and threats they face, it doesn't mean they don't have opportunities to run their digital businesses. Entrepreneurs, with all their limitations, are able to create new business opportunities from the solutions they create, such as very few competitors and doing business that depends on ICT, especially in eastern Indonesia, very few are interested because, besides requiring large capital, they are also required to have the required skills.

In addition, they also often become consultants and experts in the ICT field needed by the government and become digital village assistants in areas deemed necessary to cultivate digitalization. Apart from being a humanitarian and Indonesia project, this opportunity has also indirectly built digital infrastructure and culture for the com-

munity, which can be utilized for business development. However, with their various challenges in eastern Indonesia, they still show their existence.

Challenges for Digital Entrepreneurs in Western Indonesia

The existing condition of entrepreneurs in the western region of Indonesia is generally in developed areas or big cities with a very low population, and in general, most of them know the use of ICT. In addition, the level of education and the economy in the Western region tends to be more advanced, so digital culture, one of today's civilizations, has mostly spread to remote villages and suburbs.

The challenges of the lack of ICT infrastructure in the western region are very different from those in the central and eastern regions. In general, the western region of Indonesia develops ICT infrastructure faster than the east and central regions. This is because heavy areas are supported by faster and more complete distribution and transportation channels due to their favorable geographical location with the entry points for exports and imports of goods from producing countries. Geographical location and the digital culture of society have impacted the creation of many digital businesses by young entrepreneurs today.

Question: "What obstacles do you often encounter in running your business?"

Answer: "In running a digital business, there is more and more business competition, more and more creative, especially young people in this digital era. Their creative development is very fast. It is very difficult for us to be at their level of creativity, so we have to look for business strategies that might be out of their business zone, in the sense that we are looking for other consumers, such as those in eastern Indonesia."

However, with the support of adequate resources, digital entrepreneurs in the Western region do not mean they do not have challenges. However, they face challenges not in technical and material aspects but rather in competition with the same digital business competitors who keep popping up with the innovations offered. This situation has

forced them to continue to develop innovative strategies to be able to survive and face challenges from creative innovators who continue to emerge as a result of education and training, which is very easy for them to get through short courses and independent learning through media such as YouTube or other platforms.

Fast internet access and many choices give them have many options and faster access to information on digital business developments so that they can improve their skills in aspects of marketing analysis, Indonesia analysis, data analysis, and also digital business management, which are very important for running their business. This inequality occurs not only in the aspect of infrastructure. However, inequality also occurs in aspects of entrepreneurial challenges in the western, eastern, and central regions, which can lead to larger multi-dimensional gaps in the development of digital entrepreneurs in Indonesia.

Opportunities for Digital Entrepreneurs in The Western Region of Indonesia

The development of digitalization in business and entrepreneurship in Indonesia is in line with the development of ICT, which continues to run and presents various innovations and sophistication in various services such as artificial intelligence embedded in ICT devices for businesses, for example, QR Codes and others. Furthermore, in the midst of a digital business creativity and innovation war in the western part of Indonesia, opportunities for digital entrepreneurs continue to emerge. Digital startups are in line with the Indonesian government's policy to popularize digital business with the 1000 Startup Digital National Movement (GN1000SD) program, which continues to create new businesses in the digital world such as in the agricultural, fisheries, health services, architectural services, transportation services, and others.

Interestingly, opportunities for digital entrepreneurs in Western Indonesia lead to business expansion in Eastern Indonesia. However, they have seen the existing condition of eastern Indonesia, which is constrained by limited ICT infrastructure and human resources. The advantage of access to information, as well as the power of innovation, is that they have created new forces that threaten the existence of digital entrepreneurs in western Indonesia and warned novice entrepreneurs in eastern

Indonesia. In addition, the ability to innovate and access abundant resources makes them more confident in expanding their business. Human capital combined with their ICT capital makes them more resilient in the current conditions of uncertainty than digital entrepreneurs in eastern Indonesia.

DISCUSSION

ICT, which runs very fast, also provides opportunities for interaction between technology users. Indirectly, all processes that used to be done manually are now starting to be shifted towards digital methods (Liu and Sukmariningsih, 2021). However, Technology has entered into every aspect of human life. Some of the areas affected are the fields of economics, architecture, design, education, and health. Digital technology is an alternative strategy that triggers entrepreneurship development in Indonesia.

Research conducted by the United Nations Conference on Trade and Development (UNCTAD) shows that developed countries still have the largest internet users. In addition, many factors influence the occurrence of the digital divide. One of them is infrastructure, low-quality human resources, lack of Indonesian language content, and lack of internet utilization. In addition, cultural differences and community behavior patterns are other factors in the acceptance and use of technology. Another thing that affects the digital divide is the facilities and capabilities of human resources. The geographical condition of Indonesia is also one of the obstacles to creating digital equity.

The digital inequality that occurs also has an impact on the challenges and opportunities for entrepreneurs in running their businesses and entering the digital market. Researchers the fact that the digital divide has threatened the existence of entrepreneurs in eastern Indonesia through marketing attacks and entrepreneurial expansion from the western region, which is supported by advances in ICT infrastructure and digital innovation. A huge difference occurs in the challenges and opportunities these entrepreneurs face. The challenges entrepreneurs face in the Western region are greater in business competition, type of business, technological innovation, and demographic bonuses, which greatly determine the quality of digital human resources in Indonesia.

Meanwhile, the challenges digital entrepre-

neurs face in eastern Indonesia are more complex. Apart from facing challenges such as a lack of ICT infrastructure, they also have to face a society that is still "digitally illiterate" and internet access that is not evenly distributed and stable. In addition, they are sometimes faced with conditions of rejection from the community due to security disturbances. This refusal is due more to political reasons (as in Papua Island) and customs where people feel afraid of a shift in culture and social life that, so far, they have also been under the power of their customary institutions.

However, compared to the impact, the challenges caused by this digital inequality are very different. This condition is unfair for digital entrepreneurs in the eastern region and will result in unfair gaps in business competition. The different patterns of challenges faced are very sharp and have an impact on the deeper gap between the quality of digital entrepreneurs in the western, central, and eastern regions of Indonesia.

In addition to challenges, this inequality also has an impact on the different patterns of opportunities between them. The weaknesses or challenges entrepreneurs face in the central and eastern regions are opportunities for entrepreneurs in the western region to expand and invade their businesses due to weak access to innovative information and knowledge from entrepreneurs in the central and eastern regions of Indonesia.

However, the power of information and innovation is an essential capital for running a digital-based business. Meanwhile, information and innovation without infrastructure support will certainly not be useful. This inequality is the issue that often becomes a problem among digital entrepreneurs. There is no other choice for them to survive, which will eventually return to the laws of nature, namely, those who are strong will reign, and those who are weak will perish.

The characteristics of a digital entrepreneur are, of course, very diverse and must be possessed by people who will start their business, such as likes to accept new challenges, responsive to opportunities, high cognitive abilities, innovation, social interaction, and also digital business management (Sufyan et al., 2023). The ability of digital entrepreneurs, with all their advantages, will certainly have an impact on the human development index (Njimanted et al., 2023). However, digital

entrepreneurship involves entrepreneurial agency and digital technology and influences the conceptualization of artifacts and their modus operandi by applying a broader architectural treasury setting. This implies that the use of digital technology in the entrepreneurial world has an effect beyond the use of digital technology, which has only been seen as a means to an end (Ulhøi, 2021).

Finally, this study can convey interesting facts from the results of our research where digital inequality has caused inequality in many factors other than entrepreneurship, such as education, social, culture, economy, and others. This digital inequality has opened our logical thinking to what is happening now when a lot of research in the field of digital inequality has focused more on theoretical aspects and government policies. At the same time, there are still many buried and dark factors that are not raised on the empirical or theoretical surface.

However, digital inequality has resulted in silent conflict and cyber conflict in Indonesia's digital business and creative economy. Researchers also found that a digital economy capitalist system has begun to form in Indonesia, marked by the emergence of digital inequality, which entrepreneurs with stronger capital strength and many supporting resources utilize. Furthermore, to prevent digital business capitalism for entrepreneurs in Indonesia, the government must create an ICT infrastructure development policy focusing more on equal distribution of internet and information access, such as internet speed, providers, and other supporting devices. In addition, digital literacy must continue to be given to people in areas where their digital culture and knowledge are still low in order to create a digital society and the digitalization of society in Indonesia evenly. The partnership pattern policy must also be applied to large digital business investors so that entrepreneurs still trying to grow have the same opportunity to develop their businesses.

IMPLICATIONS

This study provides implications for developing research and theory in the digital economy, information, and communication technology. This research also provides implications for digital entrepreneurship and the Indonesian government as a policy maker for ICT development.

RECOMMENDATIONS

Further research should be conducted, and the researchers are recommended to use quantitative methods and a larger number of respondents so that digital inequality and challenges and opportunities for digital entrepreneurs in Indonesia can be statistically measured. However, this article has limitations, such as the number of informants, the research area, and the short research time.

CONCLUSIONS

The novelty of this study revealed never-before-seen truths about the issue of the digital divide in Indonesia, which has become a silent battle between digital entrepreneurs, indirectly buried by government policies that do not touch the context of development program issues. hitherto. This study aims for digital entrepreneurs to develop more innovative strategies and critique government policies through the empirical data revealed. It will be able to contribute to the development of management theory and entrepreneurship, so this study plays a vital role theoretically and practically. The technology, information, and communication development index has an index of 0 to 10. The higher the value of the index, the faster the development in the region. From the picture above, Indonesia still has 21 provinces with developed technology, information, and communication. However, there are still areas that do not have advanced infrastructure. The results of this research are very important in influencing government policy in technological development.

REFERENCES

- Badan Pusat Statistik. 2021. *Statistik Indonesia 2021 Statistical Yearbook of Indonesia 2021*. [Online]. Retrieved March 21, 2022, from: <https://www.bps.go.id/id/publication/2021/02/26/938316574c78772f27e9b477/statistik-indonesia-2021.html>.
- Bejinaru, R. 2021. Key Issues of Transition to Digital Entrepreneurship. *Proceedings of the International Conference on Business Excellence*, 15(1), pp. 91–101. DOI: <https://doi.org/10.2478/picbe-2021-0009>.
- Dewi, D. M., Setiadi, Y., Ikhwanuddin, M., and Fadhilah, L. A. 2022. Kontribusi Teknologi Informasi dan Komunikasi terhadap Kelompok Ketimpangan Pendapatan Daerah. *Jurnal Ekonomi Dan Pembangunan Indonesia*, 22(2), pp. 221–242. DOI: <https://doi.org/10.21002/jepi.2022.13>.
- Faqih, A., Satyadharna, J. F., and Diningrat, R. A. 2022. *Riset SMERU: Prospek Ekonomi Digital Indonesia Terganjil Ketimpangan Keterampilan Digital, Apa yang Bisa Dilakukan Pemerintah?*. [Online]. Retrieved March 21, 2022, from: <https://smeru.or.id/en/node/2863>.
- Garrigos-Simon, F. J., Alizadeh-Moghadam, S. S., Abdi, L., Pourmirali, Z., and Abdi, B. 2021. Digital Entrepreneurship Dimensions and Strategies: Crowdsourcing and Digital Financing. *Management and Business Research Quarterly*, 18, pp. 1–15. DOI: <https://doi.org/10.32038/mbrq.2021.18.01>.
- Herman, E. 2022. The Interplay between Digital Entrepreneurship and Sustainable Development in the Context of the EU Digital Economy: A Multivariate Analysis. *Mathematics*, 10(10). DOI: <https://doi.org/10.3390/math10101682>.
- Hirano, A., and Granda, V. (n.d.). *Limits of International Human Rights Law and Hong Kong View Project Digital Divide and Artificial Intelligence in the Pacific Region View Project Digital Divide as an Inequality Factor*. A Study for the Digital Future in the Pacific Region. <https://women-in-tech.org/context/>.
- Islam, M. N. and Inan, T. T. 2021. Exploring the Fundamental Factors of Digital Inequality in Bangladesh. *SAGE Open*, 11(2). DOI: <https://doi.org/10.1177/21582440211021407>.
- Kuhn, C., Khoo, S. M., Czerniewicz, L., Lilley, W., Bute, S., Crean, A., Abegglen, S., Burns, T., Sinfield, S., Jandrić, P., Knox, J., and MacKenzie, A. 2023. *Understanding Digital Inequality: A Theoretical Kaleidoscope*. Post Digital Science and Education. DOI: <https://doi.org/10.1007/s42438-023-00395-8>.
- Liu, E. and Sukmariningsih, R. M. 2022. Membangun Model Basis Penggunaan Teknologi Digital bagi UMKM dalam Masa Pandemi Covid-19. *Jurnal Ius Constituendum*, 6.
- Long, D., Xie, Y., Wei, Y., and Zheng, J. 2022. Where Does Digital Entrepreneurship Go? A Review Based on a Scientific Knowledge Map. *In Mobile Information Systems*, Vol. 2022. Hindawi Limited. DOI: <https://doi.org/10.1155/2022/1021407>.

- g/10.1155/2022/5842009.
- Medlin, B. D., Schneberger, S., and Hunsinger, D. S. 2007. Perceived Technical Information Technology Skill Demands Versus Advertised Skill Demands: an Empirical Study. *Journal of Information Technology Management*, XVIII(3), pp. 14–23.
- Muzanenhamo, A. and Rankhumise, E. 2022. Literature Review on Digital Entrepreneurship in South Africa: A Human Capital Perspective. *Entrepreneurship and Sustainability Issues*, 10(2), pp. 464–472. DOI: [https://doi.org/10.9770/jesi.2022.10.2\(29\)](https://doi.org/10.9770/jesi.2022.10.2(29)).
- Njimanted, G. F., Forbe, H. N., and Fozoh, I. A. 2023. Overcoming the Underdevelopment Challenge in Africa through Digital Technological Progress and Entrepreneurship Development. *Journal of the Cameroon Academy of Sciences*, 18(3), pp. 635-651. DOI: <https://doi.org/10.4314/jcas.v18i3.6>.
- Pamuji, E., Ida, R., and Mustain. 2022. Print Media Innovation in the Digital Era: Disruptive Challenges or Opportunities?. *Jurnal Studi Komunikasi (Indonesian Journal of Communications Studies)*, 6(3), pp. 785–804. DOI: <https://doi.org/10.25139/jsk.v6i3.5311>.
- Panggarti, U., Dwi Purnomo, S., Retnowati, D., and Adhitya, B. 2022. *Studi Komparatif Ketimpangan Antar Pulau di Indonesia*. DOI: <https://doi.org/10.29264/jfor.v24i2.10988>.
- Pratiwi, D., Oktavera, R., Metekohy, S., Akbar, T., Anita, T. L., and Prihanto, J. N. 2023. *Manajemen Kewirausahaan di Era Digital: Konsep, Strategi dan Aplikasi*.
- Revenko, L. S. and Revenko, N. S. 2022. Digital Divide and Digital Inequality in Global Food Systems. *Vestnik RUDN. International Relations*, 22(2), pp. 372–384. DOI: <https://doi.org/10.22363/2313-0660-2022-22-2-372-384>.
- Safaruddin, Hasan, K., Rais, R., and Gazali. 2022. The Role of Technology in Educational Media in the Disruptive Era. *Article in International Journal of Artificial Intelligence Research*, 6(1), pp. 2579–7298. DOI: <https://doi.org/10.29099/ijair.v6i1.2.679>.
- Santos, I. C. dos, Leão, N. C. de A., Silva, E. E. da, and Silveira, G. B. 2022. Determinants of E-Inclusion and Digital Inequality in the Use of Urban Mobility Applications in Mobility. *Research, Society and Development*, 11(13), e184111335243. DOI: <https://doi.org/10.33448/rsd-v11i13.35243>.
- Santos, G., Magalhães, M. D., Carvalho, S., Pinto, R. J., Félix, M. J., and Rosak-Szyrocka, J. 2022. Digital Transformation and Global Inequality. *International Journal for Quality Research*, 16(4), pp. 1297–1314. DOI: <https://doi.org/10.24874/IJQR16.04-22>.
- Sewpersadh, N. S. 2023. Disruptive Business Value Models in the Digital Era. In *Journal of Innovation and Entrepreneurship*, Vol. 12, Issue 1. Springer Science and Business Media Deutschland GmbH. DOI: <https://doi.org/10.1186/s13731-022-00252-1>.
- Sobaih, A. E. E. and Elshaer, I. A. 2022. Personal Traits and Digital Entrepreneurship: A Mediation Model Using SmartPLS Data Analysis. *Mathematics*, 10(21). DOI: <https://doi.org/10.3390/math10213926>.
- Sufyan, M., Degbey, W. Y., Glavee-Geo, R., and Zoogah, D. B. 2023. Transnational Digital Entrepreneurship and Enterprise Effectiveness: A Micro-Foundational Perspective. *Journal of Business Research*, 160. DOI: <https://doi.org/10.1016/j.jbusres.2023.113802>.
- Sütlüoğlu, T. and Gökalp, E. 2022. From Social to Digital Inequalities: The Use of New Media by the Poor in Eskişehir, Turkey. *Connectist: Istanbul University Journal of Communication Sciences*, 0(63), pp. 151–178. DOI: <https://doi.org/10.26650/connectist2022-1130969>.
- Ulhøi, J. P. 2021. A Digital Perspective on Entrepreneurship. *Journal of Innovation Management*, 9(3), pp. 71–89. DOI: https://doi.org/10.24840/2183-0606_009.003_0005.
- Vallušová, A., Kuráková, I., and Lacová, Ž. 2022. Digital Inequality and Usage Gap in the V4 Region. *E a M: Ekonomie a Management*, 25(4), pp. 164–179. DOI: <https://doi.org/10.15240/tul/001/2022-4-011>.
- Zimmerer, Thomas W. 1996. *Entrepreneurship and the New Venture Formation*. Prentice Hall International, Inc.