

Law as Digital Transformation Infrastructure to Achieve a Golden Indonesia 2045

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Abstract. All countries, including Indonesia, are experiencing digital transformation. Apart from policies, the main aspects that drive digital transformation are strengthening digital infrastructure, increasing human resources, and regulations as transformation infrastructure. Artificial intelligence as an element of digital transformation has positive and negative impacts, so it requires comprehensive regulation to increase its benefits and minimize its disadvantages. Apart from that, so that digital transformation is directed according to its objectives, the Vision of Golden Indonesia 2045 can be achieved. Using a qualitative approach with descriptive methods, the author researches the government policies and regulations related to the digital technology development. The result of research show that the government has issued digital policies in various essential sectors and, technological developments have converged, but regulations are still partial, namely regarding media and information, communication, information, electronic transactions, and personal data protection. Until the present, the government has not developed comprehensive digital regulations.

Keywords: Law, Digital Transformation, Golden Indonesia 2045

1 Introduction

Indonesia must take advantage of the demographic bonus in 2025–2035 to realize the Golden Indonesia Vision 2045. This step is needed to reflect the success of South Korea and Japan in utilizing the demographic bonus. Efforts to maximize the demographic bonus need to be followed by developing the manufacturing sector and massively increasing the skills of Indonesia's human resources by taking advantage of technological opportunities. For this reason, the government is accelerating digital transformation in various essential sectors. However, the development of artificial intelligence (AI) technology, which is an important element in digital transformation, apart from having positive impacts, also has negative impacts, such as loss of jobs due to automation, misinformation (hoaxes), and disinformation, which is caused by the increasingly widespread creation of technology. AI content that is difficult to distinguish from human content that is very difficult to verify, AI development that violates ethics, copyright, and data theft.

For this reason, the government as a regulator is required to anticipate the AI technology development through the formation of comprehensive AI regulations that are able to respond, direct the development and use of AI in Indonesia based on ethics, and are beneficial for society and the country. The law must function not only to maintain order, justice, and certainty but also to provide benefits such as technology that is capable of change, filtering out all bad influences coming from abroad and within the country, increasing productivity, and improving the welfare of society.

2 Materials and Method

This research uses a qualitative approach with a descriptive method. This method is expected to answer research questions related to law as digital transformation infrastructure; Opportunities and challenges in achieving a Golden Indonesia 2045. And ensuring that existing digital regulations and policies can strengthen digital transformation so that the Vision of Golden Indonesia 2045 can be achieved. The secondary research was conducted based on data from Central Bureau of Statistics 2023, Mc. Kensey and Company 2023, IMD Global Competitiveness Index 2023, BAPPENAS Ministry, Journals, and other related literature. Furthermore, the secondary data were collected according to the writing topic, combined, compared, analysed using qualitative data analysis, and then concluded.

3 Results and Discussion

3.1 Golden Indonesia 2045

Indonesia's second president, Soeharto, first launched a Golden Indonesia in 1996, with the vision and mission of raising the status of the Indonesian nation to become a developed and prosperous country by 2045. Golden Indonesia at that time had four main pillars, namely superior human resources, mature democracy, government. goodness, and social justice. Meanwhile, in the era of President Joko Widodo, there are three main things that serve as a reference for achieving a Golden Indonesia 2045, namely the stability of the nation and state, which must be maintained; continuity and continuity of leadership; and human resources, which must be maintained. This is a great strength of the Indonesian nation.

Indonesia is predicted to become the country with the fifth largest income in the world in 2045, strong leadership, and influence in the international world, with poverty approaching 0 percent and economic inequality decreasing. Therefore, the demographic bonus peaks in 2025–2035, and international trust is an opportunity that the government can exploit optimally. Based on data from the Central Statistics Agency in the August 2023 National Labor Force Survey, the working-age population in August 2023 was 212.59 million people, the labor force reached 147.71 million people, and the unemployed were 7.86 million people. The majority of Indonesian workers work in the informal sector, namely 59.11%, while the remaining 40.89% work in the formal sector. The high

rate of growth of the productive age population during the demographic bonus period has direct implications for the development of the workforce and employment opportunities.

If the number of job seekers is not proportional to the number of existing jobs, this could cause the number of unemployed to increase and become uncontrolled during the demographic bonus period. For this reason, the government has prepared a strategy, preparing superior Indonesian human resources, creating jobs through developing the green economic sector, and downstreaming as a window of opportunity to increase productivity and achieve progress.

Apart from that, the government has also laid the foundation for achieving Golden Indonesia 2045, namely: first, infrastructure and connectivity development that will increase Indonesia's competitiveness. Referring to the IMD Global Competitiveness Index 2023, which calculates competitiveness, Indonesia managed to rise from forty-fourth to thirty-fourth place out of sixty-four countries in global competitiveness. Second, the development of villages, outskirts, and outermost areas so that there is economic equality in each region. Third, consistent structural reform, especially synchronization and simplification of laws and regulations, legal certainty, prevention of corruption, and ease of business licensing in Indonesia. For this reason, the government is accelerating digital transformation so that national potential is more optimal as well as responding to global dynamics. Furthermore, the Ministry of National Development Planning (BAPPENAS) together with various stakeholders have prepared the 2025–2045 RPJPN and formulated eight development agendas and seventeen development directions, which are measured through forty-five main development indicators.

According to Hulme, development involves humans in the process of accumulation, both economically, environmentally, socially, and politically. Through innovation, people can progressively improve the quality of themselves and their environment, so they can invest in a better life. People can more easily obtain more sophisticated equipment, have easier access to work facilities, and benefit from wider participation in politics and decision-making processes. (Edward and Hulme, 1992). Meanwhile, according to Wirawan, development is carried out by the government, private sector, and society simultaneously, consistently, and continuously, based on a policy that is created. [1]

Public policy is the embodiment of collective action through legitimate government authority to encourage, inhibit, prohibit, or regulate the actions of individuals and community institutions. The implementation of public policy is the implementation of development. In its implementation, the government has a priority scale. Because it is impossible for the government to be able to solve all the problems that arise in this country, public policies can also change over time due to events that attract attention and have an impact on society, such as terror, natural or non-natural disasters, falling currency values, and global conditions. Central and regional government policies must be stated in laws and regulations so that the implementation of development is directed according to its objectives and is binding on both the government, the community, and private institutions. However, as we know, the process of forming new laws takes a long time, so legal developments always lag behind technological, developments.

Apart from regulations, the implementation of development also faces technical obstacles, such as conflicting goals for implementing development by each ministry. And, the Indonesian economy also has medium- to long-term challenges to achieve the Vision of Golden Indonesia 2045, ranging from stability to productivity. One of the biggest challenges is the very low productivity of the Indonesian workforce compared to other ASEAN countries, which has the potential to cause Indonesia's economic growth to decline. If Indonesia's economic growth is only five percent, then Indonesia cannot be categorized as a high-income country. Therefore, the government implemented an industrialization policy to increase the productivity of Indonesian workers. It is expected that Indonesia will be able to accelerate economic growth by at least six percent in the next 10 years. And, according to BAPPENAS Deputy for Economic Affairs, Amalia Adininggar Widyasanti, there are five indicators that guarantee the achievement of Golden Indonesia 2045. First, gross national income (GNI) per capita, so that Indonesia is able to achieve the highest income; second, reducing the poverty rate, which can approach zero percent; third, Indonesia could become a global war leader; and fourth, superior and competitive quality of human resources. Indonesia will use the human resources index, not the human development index, because it can measure human quality as the nation's capital. Fifth, ensure that Indonesia moves towards inclusive and sustainable development[2].

3.2 Indonesia's Digital Transformation

The digital transformation is a comprehensive change in business activities that focuses on utilizing digital technology to achieve significant improvements in various aspects, from operations to the creation of new business models, as well as changes in the way companies interact with customers and markets. The goal of this transformation is to use technology to significantly improve a company's performance or reach, creating new ways of doing business and not just improving existing processes.[3] Digital transformation not only includes the use of technology in industry and business to speed up processes, reduce costs, and adopt new, more innovative businesses, but is also a driver of change in all aspects of human life, such as the way we live, work, communicate, and interact with the world around us.

Apart from policies, the main aspects of encouraging digital transformation are strengthening digital infrastructure, increasing human resources, and enforcing regulations on technological convergence. Therefore, President Joko Widodo has established a policy for accelerating Indonesia's digital transformation in Presidential Regulation of the Republic of Indonesia Number 82 of 2023 concerning the acceleration of digital transformation and the integration of national digital services. This is realized through the priority implementation of an electronic-based government system that prioritizes integration and interoperability. Furthermore, the Ministry of Communication and Information launched Digital Indonesia Vision 2045 which contains the orchestration of government, private and community interests into an integrated national plan that includes medium and long term milestones until 2045, so that Indonesia is able to utilize its potential through targeted efforts, namely:

controlling the use of digital technology, equal distribution of digital access in all corners of Indonesia, and creating a digital space that is comfortable and safe for all Indonesian people, including customary law communities, which aims to increase the ability of all Indonesian people to utilize digital technology productively so as to obtain added value and income.

The government has also set priorities for nine services, namely population administration, education, health, police, social assistance, and immigration, integrated with what is called INA Digital as part of realizing e-government efficiency. INA Digital will be managed by PERURI with the aim of facilitating public access and increasing interoperability between ministries and institutions.

Digital transformation has a positive impact, namely the rapid development of the digital economy[4]. In 2022, the value of Indonesia's digital economy will reach IDR. 1.408 trillion, or 8 percent of gross domestic product (GDP). The digital economy is projected to continue to grow, reaching Rp. 3.14 trillion in 2027, or an increase of 128 percent. The continuously increasing digital economy will be a source of economic growth for Indonesia in 2045 and will lead Indonesia to become a major player in the Southeast Asian market. [5]

The rapid development of the digital economy must be balanced with a strong and adaptive digital infrastructure. However, based on data from the Telecommunications and Information Access Agency, it turns out that 4G signal services have not been distributed evenly, in fact there are still 12,548 villages and sub-districts in Indonesia that do not have 4G signal services[6]. Apart from that, digital literacy and digital finance are also inadequate. And, based on the digital status survey on 2022, Indonesia received a score of 3.54 points, or the medium category. Indonesia also still lacks digital talent. According to a study conducted by Kearney, a global management consulting company, Indonesia accounts for 40 percent of the digital economy in Southeast Asia, but most of the Indonesian population is still not equipped with basic information technology skills. [7] Likewise, the results of research conducted by the World Bank and McKinsey in 2023 show that Indonesia needs nine million digital talents by 2030. The average need for digital talent reaches 600,000 people per year, but only around 1100,000–200,000 people have digital talent in Indonesia. per year. This means that there is a gap of 4400,000–500,000 digital talents per year. [8] In addition, based on the Future of Work 2023 report from the World Economic Forum (WEF), Future of Jobs 2023 notes the professions that are being removed and the new professions that are coming. The details, around 23 percent, will have a significant impact on multi-sectors, one of which is the technology segment. Jobs such as analysts, data scientists, AI machine learning specialists, and cyber security experts are expected to grow by an average of 30 percent in 2027, while record-keeping and administration jobs will decrease by around twenty-seven million in 2027.

To overcome the digital talent gap, the government is revitalizing education, such as by changing the curriculum. And, in parallel, through various educational programs, training in collaboration with educational institutions and e-commerce platforms. The Ministry of Communication and Information also established the Digital Talent Scholarship platform, which

aims to encourage digital skills development and bridge the digital skills gap in Indonesia, with a focus on developing talents that can contribute to the country's digital economy. [9]

Apart from the challenges mentioned above, cyber security is also a challenge in digital transformation. During the 2020–2023 period, cyber security threats continued to increase by 231 percent. Even though there is a Personal Data Protection Law, to date there are no implementing regulations. Apart from challenges, several factors such as geotechnology, national digital conditions, Indonesia's position globally, the development and use of artificial intelligence (AI) technology, and facing the aging era of Indonesia's population after the demographic bonus era must receive the government's full attention to find the best solution. Digital transformation has penetrated all essential sectors, such as economic, political, social, and cultural, while regulations that support technology such as media and information, communication, information, electronic transactions, and personal data protection are still partial. Even though the technology has converged.

3.3 Law as Transformation Infrastructure

Indonesia, which will realize the Vision of Golden Indonesia 2045 through digital transformation in various essential sectors, is required to be responsive in anticipating multi-faceted technological developments. Technology, on the one hand, makes things easier for humans, but on the other hand, it makes things difficult for humans. Technology not only helps humans solve various problems but also exposes them to various new problems. On the one hand, technology creates good, but on the other hand, it also creates evil.

The core problem in dealing with technology is that the creators of technology have power that cannot be controlled because there are no regulations regarding the development and use of capable technology. Susskind said "how important it is to regulate and regulate digital technology to minimize the negative impacts it causes." [10] The slow process of forming laws regulating digital technology, overlapping existing regulations, and the complexity of the bureaucracy and legislative process will mean that laws will increasingly lag behind technological developments. In fact, digital technology regulations are needed to increase its positive impact while reducing its negative impact, not to hinder or kill digital innovation.

Law can be interpreted as all principles and norms that guarantee order, certainty, and justice, as well as an infrastructure for changing society and implementing development. Law as a digital transformation infrastructure, functions as the main support for the implementation of a process, including the process of economic, social, cultural, and individual behavioral change. Laws not only function as a basis for certainty and order but must also be an accelerator and provider of direction for Indonesia's digital transformation. [11] Technology that continues to develop is one of the non-legal elements that must be considered in the formation and enforcement of laws.

There are three approach models that were practiced by the United Kingdom (UK), the United States of America (USA), China, and the European Union (EU) in forming digital technology regulations. First, a light touch approach, as is done in the UK. The UK is using technology to increase investment and make the UK an AI superpower; therefore, the UK did not create new regulations and regulatory bodies. The United States also implemented a similar approach to the

United Kingdom. However, President Joe Biden is also seeking public opinion on how digital technology is regulated. The light-touch approach has provided the greatest freedom for technological development. The state only regulates technology if it is proven to have a negative impact. This model approach tends to be deregulatory in nature, so regulation is often established too late when negative excesses are already rampant and detrimental.

Second, a middle-way approach like that of the European Union, namely maintaining balance by providing measurable freedom for technological development. It's like letting go of the head while still holding the tail. If the head has the potential to butt heads here and there, the tail will be pulled. The European Union enforces digital technology regulations according to the level of risk and monitors them closely. Third, the security approach. China's aim in making technology regulations is to safeguard the basic values of socialism, curb technological development, and inhibit creativity. The development of technology is entirely in the interests of state ideology. Indonesia tends to take a medium or moderate approach to regulating digital technology. Regulations related to digital technology in Indonesia are still spread across various laws and regulations, such as the Job Creation Law and the Information and Electronic Transactions Law.[12] Personal Data Protection Law, Regulation of the Minister of Communication and Information regarding aspects of business licensing for actors using AI. Circular Letter from the Ministry of Communication and Information regarding AI ethics and Regulation of the Minister of Trade regarding business licensing, advertising, guidance, and supervision of business actors who trade via electronic systems. In fact, technology has converged, so the law should also converge. Regulations for technological convergence have not yet been formed due to sectoral egos and political factors. Indonesia, legal politics are more complicated than the legal substance. Meanwhile, to face the increasingly massive development and use of artificial intelligence (AI) technology in various sectors, regulation of AI technology is a fundamental need to ensure that AI development is guided by ethics and security. Indonesia needs a law similar to the AI Law in the European Union (EU) as a long-term strategy for comprehensive AI regulation. [13]

4 Conclusion

- The government has made policies in various essential sectors in order to achieve the Vision of Golden Indonesia 2045. Every development policy has a good aim, namely to ensure that all people receive the same facilities and support (equality) according to their individual needs (justice), eliminating poverty and obstacles to all individuals being involved and enjoying development. However, development implementation so far has never achieved the targets according to planning. This is due to the absence of coordination and a silo approach, a lack of discipline in implementation, and political bargaining due to a lack of data.
- Therefore, the government and all parties involved must improve coordination, eliminate silos, ensure implementation is in line with its objectives, and encourage the use of data and research as a basis for policy.

- Apart from that, policies must be integrated with the law, considering that their formation and enforcement are interrelated as well as preventing overlapping regulations set by the government. And, the law must also converge with technology, economy, society, and culture so that legal formation can adopt technological, economic, and socio-cultural developments so that the digital regulations formed is adaptive and comprehensive.
- Considering that technological developments have converged but regulations are still partial, it is necessary to organize Indonesia's digital regulations in an integrated manner through the omnibus law method in forming Indonesia's digital regulations, which aims to harmonize various legal norms that have been and will be regulated in laws and regulations, including regulations on artificial intelligence, which until now has not been formed by the government.

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