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CREATING A SUSTAINABLE DIGITAL BUSINESS ECOSYSTEM: CHALLENGES AND OPPORTUNITIES FOR GLOBAL ECONOMIC DEVELOPMENT

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Abstract:

This research aims to analyze the challenges and opportunities in creating a sustainable digital business ecosystem to support inclusive global economic growth. The research method used includes collecting and analyzing various documents such as research reports, academic publications, government policies, and industry documents related to digital business ecosystems, sustainability, and global economic development. The results show that the integration between the concepts of digital business ecosystems and sustainability has a crucial role in creating a sustainable business environment. Key factors such as digital inclusion, sustainable innovation and multi-stakeholder partnerships were identified as important elements in achieving this goal. The implications of this research highlight the need for collaborative action between governments, companies, and non-governmental organizations in designing policies and business practices that support sustainable economic growth. Building a comprehensive, forward-thinking, and environmentally friendly digital business network is essential for long-term economic development that positively impacts society. Stakeholders can achieve long-term improvements that benefit future generations by prioritizing economic, social, and environmental sustainability. This research aims to build a durable digital business environment for the betterment of the world economy through its contribution to academic literature and business practice.

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Abstrak:

Penelitian ini bertujuan untuk menganalisis tantangan dan peluang dalam menciptakan ekosistem bisnis digital yang berkelanjutan untuk mendukung pertumbuhan ekonomi global yang inklusif. Metode penelitian yang digunakan meliputi pengumpulan dan analisis berbagai dokumen seperti laporan penelitian, publikasi akademis, kebijakan pemerintah, dan dokumen industri terkait ekosistem bisnis digital, keberlanjutan, dan pengembangan ekonomi global. Hasilnya menunjukkan bahwa integrasi antara konsep-konsep ekosistem bisnis digital dan keberlanjutan memiliki peran penting dalam menciptakan lingkungan bisnis yang berkelanjutan. Faktor kunci seperti inklusi digital, inovasi berkelanjutan, dan kemitraan multi-pihak diidentifikasi sebagai elemen penting dalam mencapai tujuan ini. Implikasi dari penelitian ini menyoroti perlunya tindakan kolaboratif antara pemerintah, perusahaan, dan organisasi non-pemerintah dalam merancang kebijakan dan praktik bisnis yang mendukung pertumbuhan ekonomi yang berkelanjutan. Membangun jaringan bisnis digital yang komprehensif, berpikiran ke depan, dan ramah lingkungan penting untuk pengembangan ekonomi jangka panjang yang berdampak positif bagi masyarakat. Para pemangku kepentingan dapat mencapai perbaikan jangka panjang yang bermanfaat bagi generasi mendatang dengan memprioritaskan keberlanjutan ekonomi, sosial, dan lingkungan. Penelitian ini bertujuan untuk



membangun lingkungan bisnis digital yang tahan lama untuk kemajuan ekonomi dunia melalui kontribusinya terhadap literatur akademis dan praktik bisnis.



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INTRODUCTION

In the ever-evolving digital era, the role of the digital business ecosystem has become increasingly important in driving inclusive and sustainable global economic growth (Allam et al. 2022). Digital business is no longer limited to the technology sector alone, but has penetrated almost all aspects of our lives, from e-commerce to digital health services (Senyo, 2019). Meanwhile, the concept of sustainability has become a key focus in efforts to achieve sustainable economic development around the world.

The integration of these two concepts, creating a sustainable digital business

ecosystem, offers a great opportunity to drive inclusive and sustainable economic growth across countries and communities (Bican & Brem, 2020). This research aims to understand the challenges and opportunities associated with creating a sustainable digital business ecosystem in the context of global economic development. By understanding this, we can identify concrete steps that stakeholders, including governments, companies, and non-governmental organizations, can take to promote sustainable and inclusive economic growth.

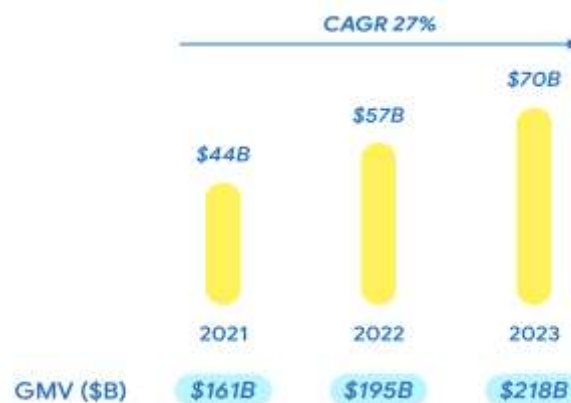


Figure 1. Digital Economic revenue 2021-2023

Source: (OECD PIAAC, 2024)

Figure 1 shows the compound annual growth rate (CAGR) of revenue in billions of dollars (USD) for 2021, 2022 and 2023. The data shows that digital economy revenue has experienced significant growth over the past three years. In 2021, revenue reached \$44 billion, which increased to \$57 billion in 2022, and then jumped to \$70 billion in 2023. The compound annual

growth rate (CAGR) of 27% reflects the consistency in this growth, showing that revenues have increased at an average rate of 27% per year over the period. This indicates a positive trend in the growth of the digital economy, driven by technology adoption, business innovation and changing consumer behavior. With such strong and consistent growth, the digital economy is



playing an increasingly important role in the global economy, providing new opportunities for companies, and changing the overall business landscape. With this kind of steady growth, it is important for stakeholders to understand and anticipate its impact on various aspects of life and business.

With the widespread adoption of digital technology, the digital business ecosystem has become the backbone of the global economy (Elia et al. 2020). Digital companies are not only creating new jobs but also transforming the way we work, shop, communicate and even get educated (George et al. 2021). For example, e-commerce platforms have facilitated access to global markets for small and medium-sized businesses around the world, while digital financial services provide access to financial services to people previously underserved by traditional financial institutions (Tao et al. 2022). Thus, the digital business ecosystem is not just about creating economic value, but also about creating social value for society at large.

While the potential offered by the digital business ecosystem is huge, it is not without its challenges. One of the main challenges is unequal access to technology. In many parts of the world, access to the internet and digital technology is still limited, creating a digital divide between developed and developing countries and within the same society (Pappas et al. 2018). Another challenge is the issue of data privacy and security. With the ever-increasing amount of data collected and processed by digital companies, the protection of privacy and data security is becoming increasingly important. In addition, the rapid growth in the use of digital technologies also has an impact on the environment, with increased energy

consumption and associated carbon emissions (Ma & Zhu, 2022). It is therefore important to take sustainability aspects into account in the development and use of digital technologies.

The concept of a digital business ecosystem refers to a complex network of entities, including companies, consumers, governments, and other organizations, that interact with each other in a digital environment to create economic value (Scaringella & Radziwon, 2018). Previous research has identified key elements of the digital business ecosystem, including digital platforms, technological innovation, business-to-business partnerships, and user interaction (Elia et al. 2020) , (Tao et al. 2022) , , (Ahmed et al. 2021) – (Cavallo et al. 2019). The study also highlights the importance of sustainability in digital business ecosystem development, including responsible business practices, social inclusion, and environmental impact. While there are significant challenges, there are also great opportunities to create a sustainable digital business ecosystem. One such opportunity is digital inclusion. By expanding access to digital technology to previously unreachable areas, we can create new opportunities for economic growth and social welfare. Continuous innovation is also key in creating a sustainable business ecosystem. Digital technology can be used to develop innovative solutions that contribute to sustainable development, such as renewable energy, sustainable transportation, and waste management. In addition, multi-sector partnerships are also needed to create a business ecosystem that supports sustainable economic growth. Through partnerships between the government, private sector, and non-governmental organizations, we can create a business ecosystem that not only supports



economic growth, but also pays attention to social and environmental impacts.

The concept of sustainability involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. In a business context, sustainability encompasses economic, social, and environmental dimensions (Neumeyer & Santos, 2018). The literature on business sustainability highlights the importance of integrating responsible business practices, transparency, and accountability in corporate decision-making.

Global economic development refers to efforts to improve economic well-being and growth around the world (Eisenmenger et al. 2020). It involves economic integration between countries, increasing access to economic opportunities, and reducing the gap between rich and poor countries. The literature on global economic development has identified various factors that influence economic growth, including investment, international trade, technological innovation, and government policies.

This research fills a significant gap in the literature by focusing on creating a sustainable digital business ecosystem for global economic development. While there have been many studies on digital business ecosystems and sustainability separately, this research broadens the scope by integrating both concepts. It offers a novel contribution by investigating the challenges and opportunities associated with creating a digital business ecosystem that takes sustainability into account, particularly in the context of inclusive global economic development. By focusing on the global implications of this endeavor, this research not only expands the understanding of each concept, but also identifies the relationships

and linkages between them. Through an in-depth analysis of the challenges and opportunities, this research has the potential to make a significant contribution to academic literature and business practice in the quest to create a sustainable digital business ecosystem for global economic development. By highlighting the importance of digital inclusion, sustainable innovation and multi-sector partnerships, this research also offers innovative solutions to the challenges faced in the context of the growing digitalization of the global economy. Therefore, this research is expected to provide valuable insights for stakeholders around the world, shape the sustainability agenda, and formulate more sustainable public policies and business practices.

RESEARCH METHOD

This research adopts a qualitative research method with an exploratory approach to explore the complexities and dynamics in the creation of a sustainable digital business ecosystem. The qualitative approach was chosen because it provides the depth and context needed to understand complex issues such as this, while the exploratory approach allows researchers to explore phenomena that have not been studied (Allan, 2020).

The data source for this research is secondary data, which includes various kinds of literature, documents, reports, and previous studies relevant to the research topic. The use of secondary data allows researchers to collect pre-existing information without having to conduct new data collection directly (Hennink, 2020), (Olson et al. 2021). The secondary data for this research will mainly consist of academic publications, government and industry reports, and other relevant sources



related to digital business ecosystems, sustainability, and global economic development. Utilizing qualitative methods, the research will delve into the existing literature to identify patterns, trends, and findings concerning sustainable digital business ecosystems. Data collection techniques will involve document studies, analyzing various reports, publications, policies, and industry documents, as well as literature reviews, systematically searching and analyzing academic journals, books, and other publications for insights into the research topic.

Data analysis in this study will involve content analysis, cross-referencing, and thematic analysis. Content analysis means examining the content of collected documents and literature to find key themes, patterns, and trends related to the digital business ecosystem, sustainability, and global economic development (Miles et al., 2021; Lester et al., 2021). Cross-referencing will compare data from various sources to identify consistencies and differences in findings, enhancing research validity. Finally, thematic analysis will identify and analyze emerging themes from the secondary data, providing deeper insights into challenges and opportunities in creating a sustainable digital business ecosystem.

FINDINGS AND DISCUSSION

Challenges in Creating a Sustainable Digital Bussiness Ecosystem

Digital Divide. The digital divide is a growing global issue that describes the substantial disparities in access to, utilization of, and benefits derived from information and communication technologies (ICTs) between industrialized and poor countries (Litvinenko, 2020). This

phenomenon results in a significant gap between groups that have adequate access and technical capabilities, and those that do not. Access challenges include not only physical accessibility to internet infrastructure, but also include the availability of devices, reliable connectivity, and the proficiency required to utilize these technologies efficiently (Bican & Brem, 2020). The impact of this phenomenon is widespread, affecting not only the technological field, but also exacerbating social, economic, and educational opportunity disparities across other areas of society. In industrialized countries, information, and communication technologies (ICTs) are often catalysts for innovation, economic expansion, and social integration (George et al. 2021). Conversely, in developing countries, limited access to and utilization of ICTs can significantly impede economic and social progress. Therefore, efforts to reduce the digital divide are critical not only to improve social inclusion and well-being, but also to foster sustainable economic growth on a global scale.

The root causes of the digital divide includes several key factors (Beliaeva et al. 2020) – (ElMassah & Mohieldin, 2020). First, limited ICT infrastructure in developing countries is one of the main factors. Developed countries have much more advanced ICT infrastructure, with high-speed internet networks that cover the entire region, whereas in developing countries, ICT infrastructure is still limited, especially in rural areas. Secondly, economic issues also play an important role. The cost of ICT devices and internet access in developed countries tends to be more affordable than in developing countries. This makes ICT less affordable for low-income people in developing



countries. Third, education and skills are also important factors. People in developed countries generally have higher levels of digital literacy, while in developing countries, many people lack the necessary knowledge and skills to use ICT effectively. Finally, differences in ICT policies between developed and developing countries also affect the digital divide. Developed countries generally have policies that are

more supportive of ICT development, such as regulations that encourage competition and investment. In developing countries, ICT policies often lag and are less effective in promoting digital growth and inclusion, it is hoped that efforts can be made to address the digital divide and ensure that all people can benefit from advances in information and communication technology in a fair and equitable manner.

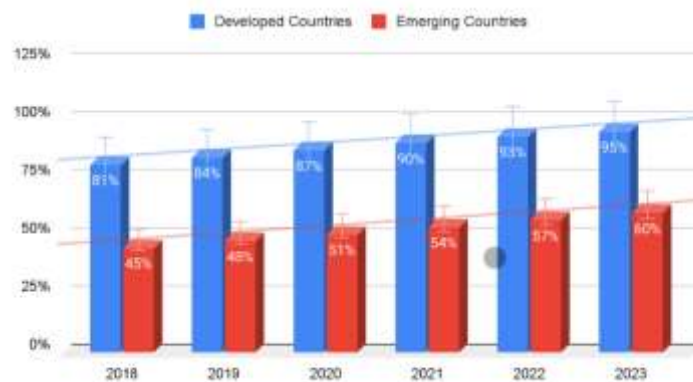


Figure 2. Comparison of Digital Economy Revenue with Compound Annual Growth Rate (CAGR) in Developed and Developing Countries

Source: (International Telecommunication Union-ITU, 2024)

Figure 2 shows the Digital Economy Revenue data with a Compound Annual Growth Rate (CAGR) of 27% and revenue in billion US dollars (USD) for 2021, 2022, and 2023. digital economy revenue has experienced steady growth over the past three years, with a CAGR of 27%, signifying an average growth of 27% per year over the period. However, it should be noted that the graph does not provide specific information on the definition of digital economy revenue and the digital economy sectors represented. In addition, according to the International Telecommunication Union (ITU), by 2023, around 2.7 billion people in the world will still not be connected to the internet [ITU Data on the World Telecommunication/ICT Sector]. This means that almost a third of

the world's population does not have access to the digital world. This gap is certainly higher in developing countries.

The impact of the digital divide on various aspects of life is significant. Economically, the digital divide is a major obstacle in promoting economic growth in developing countries. Information and Communication Technology (ICT) has become a key driver of economic growth in the digital age, but limited access to ICT in developing countries hinders optimal economic growth potential (Pradhan et al. 2020). In education, the digital divide widens the gap in access to and quality of education worldwide. Developed countries utilize ICTs to enhance education quality with extensive and interactive learning resources. However, in developing nations,

many students lack ICT access, leading to marginalization in learning and global competition. Socially, the digital divide worsens social inequality and increases social exclusion risks. Those without ICT access face challenges in accessing healthcare, digital job opportunities, and essential information. The digital divide impacts various life aspects, not just technically, but also socially and economically. Collaborative efforts among governments, NGOs, and the private sector are crucial to bridge this gap and ensure equitable benefits from the digital revolution.

Data Privacy and Security: An evaluation of the challenges in maintaining data privacy and security in the digital business ecosystem. Data privacy and security are two important aspects that are in the spotlight in today's digital business ecosystem (Klofsten et al. 2019). In an era where data is one of the most valuable assets, the challenges of maintaining data privacy and security are increasingly complex. One of the key challenges is the privacy issue, where users are often concerned about how their personal data is collected, stored, and used by companies. Misuse of personal data can lead to privacy breaches that harm users, as well as affect consumer trust in digital

businesses. On the other hand, data security challenges involve efforts to protect data from unauthorized access, hacking, and other cyberattacks. Data hacking can not only cause financial and reputational losses to companies, but can also have detrimental impacts on individual users, such as identity theft and fraud. In addition, with the development of technologies such as the Internet of Things (IoT) and artificial intelligence (AI), data privacy and security challenges are getting more complicated, due to the increasing volume and type of data being collected and the complexity of the infrastructure used to store and manage that data (Nosratabadi et al. 2019). Maintaining data privacy and security is therefore a top priority for enterprises in today's digital business ecosystem, and requires significant investment in robust security systems, compliance with data privacy regulations, and education and awareness for users about the importance of protecting their privacy online. The digital age presents great opportunities for businesses, but also brings new risks related to data privacy and security. An evaluation of some of the key challenges in maintaining data privacy and security in the digital business ecosystem can be seen in table 1 below.

Table 1. Challenges in Maintaining Data Privacy and Security in the Digital Business Ecosystem

Challenge	Impact	Solution
Cyber Attacks on the Rise	Financial loss, reputational damage, and data loss	Improving cybersecurity, investing in security technologies, implementing best practices
Data Leak	Financial loss, reputational damage and lawsuits	Prevent data leakage, implement data access control policies and procedures
Unauthorized Use of Data	Spam, fraud and online tracking	Have a clear privacy policy, use data responsibly



Non-compliance with Privacy Regulations	Large fines	Comply with privacy rules, understand applicable regulations
Lack of Awareness and Understanding	Online fraud and misuse	Increase awareness and understanding of data privacy and security

Source: Data processed by Author, 2024

In the age of digitalization, while organizations have access to significant prospects, they must also assess the new dangers associated with data privacy and security. An important obstacle in maintaining data privacy and security in the digital business ecosystem is the rise of cyberattacks (Neumeyer & Santos, 2018). Cyberattacks, including phishing, malware, and ransomware, are increasing in complexity and frequency. Hackers are increasingly targeting digital organizations because they store valuable consumer and employee data (Ukko et al. 2019). The risk of data leakage is a serious concern stemming from human error, software vulnerabilities, or cyberattacks. This can result in financial losses, reputational damage, and legal repercussions for companies involved. Misuse of data, such as for spamming or fraudulent activities, further exacerbates the issue. Non-compliance with privacy regulations like the General Data Protection Regulation (GDPR) in the European Union can lead to significant financial penalties. Moreover, a lack of awareness and understanding of privacy risks within the digital business ecosystem leaves individuals susceptible to online fraud and inadvertent disclosure of personal information. To address these challenges, businesses should adopt proactive strategies, such as strengthening their cybersecurity measures, implementing strict policies and procedures to prevent data leakage, using data responsibly through the implementation of transparent privacy policies, complying with relevant

privacy regulations in their jurisdictions, and promoting awareness and understanding of data privacy and security among their employees and customers. Safeguarding customer data and information is therefore a crucial issue that demands full attention in the digital enterprise ecosystem.

Regulation and Policy: An analysis of the role of regulation and policy in creating a sustainable digital business ecosystem. Regulations and policies play a crucial role in shaping a sustainable digital business ecosystem. Given the ever-evolving technology landscape and exponential growth of digital businesses, it is imperative to create and implement relevant regulations and supportive policies. The search results show that there are several important factors to consider when improving regulations and policies to build a durable digital business ecosystem (Parida et al. 2019), (Ahmad et al. 2021). First, ensuring consumer protection is of utmost importance. It is crucial to create strong regulations on data privacy, online consumer protection, and electronic transaction security to instill consumer confidence in online transactions. Promoting innovation and fair competition is a top priority. Regulations that support innovation can encourage the growth of startups and small and medium enterprises, while preventing market dominance by a few large companies. Considering regulatory harmonization at the global level is crucial, as regulatory variations across countries can be a major barrier to trade. It



is crucial to prioritize digital inclusion and accessibility when drafting regulations, so that everyone in society can benefit equally from the digital economy. By considering these factors in the formulation of regulations and policies, governments and

regulators can foster an environment conducive to the long-term development of the digital business ecosystem. This not only brings economic benefits, but also ensures the protection of consumer rights and promotes social inclusiveness.

Table 2. Key aspects of improving regulation and policy for a sustainable digital ecosystem

Aspects	Description
Digital Ecosystem Security	Establish a conducive regulatory framework, raise awareness about cybersecurity, and develop advanced security technologies.
Digital Economy Co-regulation	Involving various stakeholders in the regulation-making process, resulting in regulations that are adaptive and responsive to change.
Development of Digital Facilities and Infrastructure	Building equitable internet infrastructure, providing affordable digital devices, and improving people's digital literacy.
Digital Skills	Provide relevant and quality training programs, helping communities to adapt to technological changes and take advantage of opportunities.
Digital Ecosystem Development	Providing MSMEs with access to technology, funding and markets, helping them to improve their competitiveness and contribute to economic growth.
Strengthening the Creative Economy Ecosystem	Building supportive digital infrastructure, providing conducive regulations, and improving access to funding, encourages innovation and economic growth.
E-commerce Management	Building user-friendly e-commerce platforms, developing effective digital marketing strategies, and improving customer service, help creative economy players to reach a wider market and increase sales.

Source: (data processed by Author, 2024)

Table 2 outlines seven important factors to consider for building a sustainable digital business ecosystem through improved regulation and policy. The security of the digital ecosystem is of paramount importance. Implementing strict rules and fostering broad public knowledge about cybersecurity helps to create a reliable and secure atmosphere. The main challenge is finding a balance between ensuring security and promoting innovation. Co-regulation in the digital economy could lead to more comprehensive regulations, but reaching

agreement among stakeholders is difficult. Despite barriers like limited infrastructure and access, advancements in digital infrastructure can enhance digital inclusion and literacy. Developing digital skills is crucial for the workforce to meet the demands of the digital era, yet access to digital training is limited. The growth of micro, small, and medium-sized enterprises (MSMEs) will be driven by advancements in the digital ecosystem, but ensuring accessible funding remains a challenge. Creating a conducive environment for the creative economy will spur innovation and



growth in this sector. However, it is crucial to overcome the difficulties of avoiding regulations that hinder creativity and ensuring adequate access to funds. Finally, implementing e-commerce management will enable creative economy players to expand their market reach. However, they will have to face major obstacles in the form of intense competition and efficient administration of e-commerce platforms. By adopting a comprehensive strategy that emphasizes cooperation and dedication from various stakeholders, Indonesia has the potential to build an inclusive, innovative and sustainable digital business environment.

Opportunities in Creating a Sustainable Digital Business Ecosystem.

A viable and enduring digital business ecosystem can be built by capitalizing on several existing opportunities. At the outset, the development of digital infrastructure is critical, as internet networks and improved information and communication technology (ICT) have the capacity to fundamentally change the operations of companies in many industries (Kihombo et al. 2021) , (Chen et al. 2021). In addition, fostering a culture of innovation and creativity within companies is an important

element that can drive the development of better and superior products or services. Collaboration between the government, industry, associations, and companies is essential to building a profitable digital ecosystem. Artificial intelligence (AI) and data are used to improve businesses and drive sustainable ecosystem development. In addition, the development of skilled human resources is also important, as they will be the main catalysts in the digital ecosystem. Developing transformational leadership is critical to implementing a more efficient and productive corporate strategy. Significant emphasis is placed on creating products, services and e-commerce that are fit for today. In addition, advances in digital facilities and infrastructure, such as the allocation of radio frequencies for communication purposes, can also contribute to reducing the digital divide in society. Ultimately, building a comprehensive value chain ecosystem can be a solution to reduce economic disparities and facilitate a broader economic revival. Adapting to digitalization, embracing change, and fostering collaboration among stakeholders are essential steps to building a viable digital business ecosystem in this environment.

Table 3. Aspects of a Sustainable Digital Ecosystem

Field	Opportunities
Economy	Economic Growth, Productivity Improvement, Broader Market Access, MSME Empowerment
Social	Digital Inclusion, Education and Training, Public Service Quality Improvement, Community Empowerment
Environment	Efficient Energy Use, Development of Environmentally Friendly Technology, Utilization of Data for Sustainability

Source: (data processed by Author, 2024)

The table above illustrates the diverse prospects available in a sustainable digital business ecosystem, categorized into three main domains: economic, social, and

environmental. An examination of these options shows significant promise in boosting economic growth, increasing social inclusiveness, and advancing



environmental sustainability. In the economic sphere, digital ecosystems have the potential for substantial economic expansion by facilitating the establishment of new firms, providing access to global markets, driving product innovation, and improving firm efficiency (Chen et al. 2021). In addition, the digital ecosystem also offers the potential to empower MSMEs by providing access to technology, training, and online marketing. In terms of social impact, the digital ecosystem has the potential to significantly improve community inclusion by driving equitable and balanced digital infrastructure development, providing digital education, and training opportunities, and improving the quality of public services. There is also potential in enhancing people's capabilities using online information and communication platforms and e-government services. Finally, digital technologies can facilitate the improvement of energy efficiency, the development of environmentally friendly products, and the exploitation of data to promote sustainability. By implementing these measures, the digital business ecosystem has the potential to catalyze sustainable growth, resulting in widespread benefits for the economy, society and the environment. To realize this potential, it is imperative to have the cooperation and dedication of various stakeholders.

Previous research has identified several factors and strategies that have the potential to increase access and participation in the digital business ecosystem. One of them is through supportive government policies, such as the ease of licensing bureaucracy and simple and holistic services. Innovative efforts are also an important point, especially in strategies to improve business

competitiveness in the digital era, which is reflected in research on the transformation of digital education 5.0 through the integration of science and technology innovation. In addition, digital-based research methods are also recognized to make a significant contribution to research progress in various fields. Finally, public policy in the digital era is highlighted, given its significant impact on the development of the digital business ecosystem. Achieving the goal of increasing access and participation in the digital business ecosystem requires adaptation to digitalization, the ability to adapt to change, and the building of close collaboration between all parties involved. Considering the findings, strategic measures can be formulated to ensure that the digital business ecosystem can become more inclusive, innovative, and sustainable.

Previous studies on increasing access to and engagement in digital business ecosystems emphasize the strong correlation between technical progress and long-term economic development. The findings validate the substantial impact of innovation and technology in driving contemporary economic progress. Technological innovation is an established driver of economic growth, playing an important role in the advancement of more effective and contemporary production techniques. Innovation plays an important role in stimulating investment for further innovation, driving per capita economic development, and fostering a more favorable economic atmosphere for ongoing innovation. The importance of education and development in this context should not be underestimated, as continuing education and investment in research and development are essential elements for generating sustainable economic growth.



Investing in innovation, research, and development, especially technology, has proven to be crucial for creating favorable conditions for sustainable economic growth. In addition, achieving market equilibrium, which is further strengthened by entrepreneurship and innovation strategies, plays an important role in driving economic expansion, as it has the capacity to increase productivity and accelerate the pace of growth. Therefore, to increase accessibility and engagement in the digital business ecosystem, it is imperative to implement strategies including embracing digitalization, responding to change, and fostering collaboration among stakeholders. This forms an important basis for building a comprehensive, forward-thinking, and long-lasting digital business ecosystem that includes all individuals and encourages creativity and long-term sustainability.

Partnerships between the government, private sector, and non-governmental organizations (NGOs) are a vital approach in creating a sustainable business ecosystem. Through close collaboration and mutual support, such partnerships can provide significant benefits to economic and social development. One form of effective partnership is cooperation between the government and the private sector. In this case, the private sector can provide the advanced technology and infrastructure needed for infrastructure development and public services, while the government provides conducive regulations and an environment that facilitates investment. In addition, partnerships with NGOs are also very important. Through their participation, the government can develop programs that focus on social, environmental, and security development, which will have a positive

impact on society at large. Collaboration between the government, private sector, and NGOs can also result in programs related to economic development, technology, and infrastructure. This helps to create an inclusive and sustainable business ecosystem capable of reducing the digital divide, addressing poverty, and minimizing negative impacts on the environment. With solid and strategic partnerships, the government, private sector, and NGOs can jointly achieve mutually beneficial goals, bringing positive impacts to society and the surrounding environment.

Implications and Recommendations.

The findings from the study have significant implications in the context of business practice, public policy, and future research. In business practice, it is important for companies to adopt proactive strategies in managing cybersecurity, data privacy and compliance with relevant regulations. This not only helps maintain consumer trust, but also ensures business continuity in the evolving digital age. Investment in technology innovation, research and development is also a key element in creating conditions that support sustainable economic growth. Businesses can leverage these findings to develop innovative products and services that can enhance their competitiveness in the digital marketplace.

On the public policy front, the government must promote innovation, consumer protection, and fair competition in the digital business sphere. This involves implementing robust regulations on data privacy, online consumer protection, and electronic transaction security. Simplifying licensing processes and offering comprehensive services can also enhance access and participation in the digital



business realm. Government support in these areas can foster a favorable environment for digital business expansion. Future research could delve into innovative strategies, like digital education transformation 5.0, to enhance business competitiveness in the digital age. Further studies on the integration of science and technology innovation can provide new insights on how to leverage technology for sustainable business growth. In addition, further research can also focus on analyzing the role of regulation and policy in creating a sustainable digital business ecosystem. An in-depth study of the impact of public policies on the digital economy can provide guidance for policymakers in designing appropriate regulations. By applying the findings of this research in business practice, public policy, and further research, it is hoped to strengthen a sustainable digital business ecosystem and support inclusive global economic growth.

CONCLUSION

This research demonstrates the importance of combining the principles of digital business ecosystems and sustainability to build a sustainable business environment. It examines ways in which stakeholders can collaborate to build a business ecosystem that promotes economic growth while considering social and environmental impacts. The research emphasizes digital inclusiveness, sustainable innovation, and cooperation across sectors. This research emphasizes the need for cooperative efforts between governments, companies, and NGOs in formulating sustainable business policies and practices. Companies can contribute significantly to sustainable economic and social value creation by implementing responsible business practices, ensuring

transparency, and maintaining responsibility. Ultimately, it is imperative to make collaborative efforts to build a comprehensive, inventive, and long-lasting digital business network as an important step to guarantee sustainable economic expansion and benefit the broader society. By prioritizing economic, social, and environmental sustainability, stakeholders can make a good and sustainable impact by considering the needs of future generations.

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