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## Information Technology Advancements for A Digital Economy

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### ABSTRACT

The development of digital technology is inevitable, and in its progression, it significantly contributes to the business world, particularly the digital economy. The aim of this research is to explore and analyze the contribution of digital technology to the digital economy. Data sources were obtained through literature reviews and qualified informant interviews. The collected data were processed using the qualitative software, Atlas.ti and subsequently interpreted. The results indicate that in the era of modernization and the fourth industrial revolution, the use of the internet is highly meaningful and positively contributes to digital business. Digital business refers to various startups and companies transitioning from conventional to computerized approaches, thereby encompassing all businesses within the digital economy.

**Keywords:** Information Technology, Digital Business, Digital Economy, Computerization, Internet

**Field:** Information Technology, Digital Economy, Computer Science

### INTRODUCTION

In the era of globalization, technological advancements have addressed human needs in fulfilling their lives. The development of technology in life begins with simple processes in daily life and extends to the level of individual and social satisfaction. Over time, technological progress has continued, starting from the agricultural technology era, industrial technology era, information technology era, to the communication and information technology era. This development has various impacts on societal, national, and global life, with individuals showing interest in utilizing and benefiting from each of these advancements (Damari, 2019).

The demand for efficiency and effectiveness based on convenience has become the key driver for humans to shift their thinking paradigms from conventional to modern. The current modernization era is referred to as the cyber era, where the power of internet technology becomes crucial to human life. Similarly, human behavior in economic transactions involves the perception of digitalization. Digitalization is inseparable from the progress of the internet; hence economic transactions are also referred as digital economic transactions. In digital business, actual business is conducted, value is created and exchanged, transactions occur, and one-to-one relationships mature using the internet as the exchange medium (Hartman & Sibonis, 2000). Its presence is marked by the increasing development of businesses or trade transactions utilizing digital media for communication, collaboration, and economic activities between companies or individuals, such as E-Business and E-Commerce.

Regarding this technological development, several European countries have embraced the concept of "Industry 4.0." This concept of digital transformation utilizes new digital technologies as models for activities and transactions, giving rise to industries in the fields of the internet and other information technologies. In its progression, Japan has already entered the era of Industry 5.0. The wave of digital system transformation is a common element driving every activity to utilize digital media as its primary means, making digital transformation a cornerstone of industry policies in several countries (Bahri et al., 2023).

According to the We Are Social report (Digital 2021), the number of internet users in Indonesia was only 72.7 million people in 2015. Within six years, this number skyrocketed by 178.68% to 202.6 million people. This indicates not only an increase in internet users but also an increasing adaptability of the population to electronic-based payments. This is reflected in the circulation of electronic money amounting to 558.96 million in November 2021 (Anshary et al., 2023). Furthermore, the value of electronic money transactions also experienced a growth of 94.65%, from Rp 16.08 trillion to Rp 31.3 trillion in November 2021. This means that throughout the year, the

value of electronic money transactions has grown from Rp 20.75 trillion in January 2021, showing a 0.5% increase by November 2021 (Setiawan, 2018).

The wave of the digital economy, which brings inclusive opportunities, poses a challenge for industries to continue generating new innovations. This challenge extends not only to industries but also to startup players who must compete through collaboration and synergy. To create a competitive advantage, old systems and processes must be rethought, and new technologies must be implemented to ensure that businesses remain competitive and responsive to market demands.

## LITERATURE REVIEW

The discussion in this journal examines the process of development of information technology, particularly digital technology, which has undergone rapid changes and advancements worldwide. These changes have led to transformations in global society as people increasingly shift towards and utilize digital technology in various personal and social activities. Several crucial points related to information technology and digital technology are also discussed to provide a description of the significance of this technology and its impacts on global society.

### Digital Technology

Digital Technology is an invention in information technology that prioritizes activities carried out in a computerized and digital manner compared to human labor. This working concept tends to be more focused on automated and sophisticated operating systems with computerized systems; formats that can be read by computers based on digital technology. Digital technology is essentially a very fast calculating system that processes all forms of information entered as numerical values. The development of this technology subsequently brings changes to the quality, efficiency, and capacity of the data created and transmitted, such as image formats becoming clearer due to better quality, increased efficiency in capacity, and faster delivery processes.

Digital technology uses bit and byte systems to store and process data. In digital systems, a large number of microscopic electrical switches are employed, each having only two states or values (Binary 0 and 1) represented by discrete numbers. This system has resulted in various significant developments in fields such as communication, information transformation, data processing, data security, and handling increasingly complex activities.

Rapidly evolving communication has seen the discovery of advanced data communication networks, ranging from HSDPA, 2G, 3G, 4G, and now entering the realm of high technology with 5G. The speed of development in network technology feels incredibly short and surpasses the speed of hardware development, requiring information technology consumers to continually keep up with these advancements to enjoy them. While still enjoying 4G networks, faster and higher-capacity networks are already emerging.

Digital technology will continue to evolve. In the future, the development of this technology will be influenced by three factors: digital transition, network convergence, and digital infrastructure. Network convergence refers to the efficiency and effectiveness of communication networks that can be used for various purposes such as telephone, video, and communication both at home and in companies. The increasing need for network convergence will drive technology to change and meet those needs.

### Digital Business

One form of digital business is digital marketing. Digital marketing or internet marketing involves the use of data and electronic applications for the planning and implementation of concepts, distribution, promotion, and pricing to create exchanges that satisfy the goals of individuals and organizations (Untari & Fajarima, 2018). Internet marketing is an effort by marketers to promote their products and services and build relationships with customers through internet media. This marketing form is essentially a part of direct marketing. Meanwhile, the definition provided by Boone and Kurtz (Boone et al., 2019) about what e-marketing is, as presented by Corley, J. K., Jourdan, Z., & Ingram, 2013, is not significantly different (Corley et al., 2013): "e-marketing is one component of e-commerce with special importance to marketers, involving the strategic processes of creating, distributing, promoting, and pricing goods and services to the internet market segment or through other digital tools."

### E-Commerce

E-commerce refers to the exchange of goods or services among businesses, households, and individuals through electronic transactions conducted over the Internet or other computer networks (Taranenko et al., 2021). Thus, it can be concluded that E-Commerce is the process of buying and selling services or products between two

parties through the internet (Commerce-net) and similar electronic business mechanisms with a focus on individual-based business transactions using the internet as a medium for the exchange of goods and services between institutions or individuals and institutions (Ratama et al., 2022).

### Digital Economy

The prevailing trend of the current era highlights the emergence of numerous marketplaces such as Tokopedia, Bukalapak, Shopee, and others. Observing the growth of these marketplaces, many people are inclined to venture into businesses, ranging from food, clothing, household items, to becoming resellers. With the increasing number of new entrepreneurs, this indirectly contributes to boosting national economic growth and reducing the relatively high unemployment rate. Furthermore, marketplaces assist us in meeting our shopping needs, which can sometimes be time-consuming. Starting a business on a marketplace is easy for sellers as it does not require a physical store; it can be initiated from home using a smartphone. Marketplaces also contribute to the development of delivery services such as JNE, SiCepat, J&T, and others. Before the advent of marketplaces, the utilization of courier services was relatively low. However, since the introduction of marketplaces, the use of courier services has increased rapidly (Wicaksana, 2020).

### METHODOLOGY

This study aims to analyze perceptions of digital business development in economic transactions using a qualitative approach and an interpretative method through the utilization of the Atlas.ti software. The qualitative approach was chosen because it allows researchers to gain in-depth insights into how perceptions of economic transactions are implemented through the digital business network in a holistic manner.

To enhance the researcher's position, the selection of informants involved 5 individuals meeting the criteria of consistent academic engagement in teaching and practicing in the field of digital business studies. Data collection was conducted through structured interviews and processed using the Atlas.ti software, followed by analysis using a descriptive approach.

### RESULTS AND DISCUSSION

The information gathered from three informants and processed with Atlas.ti version 9 software allows us to describe the demographic characteristics of the informants as follows:

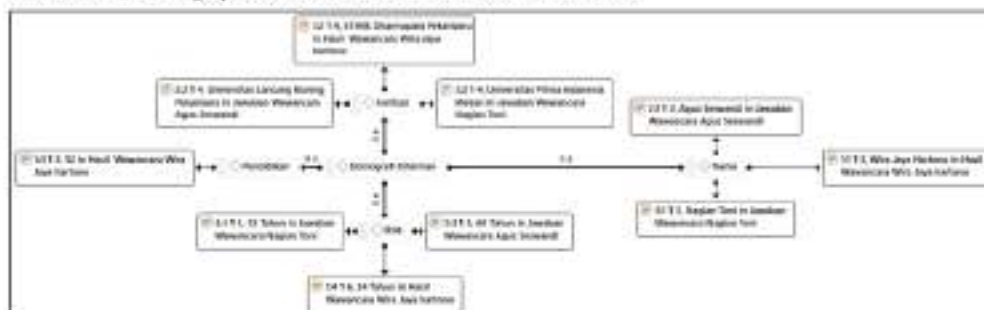


Figure 1

Four characteristics were inquired from the informants, namely, name, age, education, and institution. Of particular interest is the age characteristic, which exhibits significant graduation: 34 (WJH), 52 (NT), and 62 (AS). Meanwhile, in terms of educational attainment, only informant WJH holds a master's degree (S2), while the other informants have attained a doctoral degree (S3). The interview results obtained and processed are depicted in the Figure 2.





Figure 2

Four structured questions were posed to each informant, and the answers obtained from the three informants resulted in 10 codes: rapid progress of IT, highly influential, internet becomes a priority, impact of globalization, enhancer of economic activities, efficiency and effectiveness, implementation of IT in digital business, economic sector, adaptation to technology, and sophistication of the internet.

For the code "rapid progress of IT" (*"kemajuan IT yang pesat"*), there was one response (AS); for the code "highly influential" (*"sangat berpengaruh"*), there was one response from the informant (WJH); for the code "internet becomes a priority" (*"internet menjadi prioritas"*), there was one response from (WJH); for the code "impact of globalization" (*"dampak globalisasi"*), there were three responses (AS, NT, WJH); for the code "enhancer of economic activities" (*"penguat aktivitas ekonomi"*), there was one response (WJH); for the code "efficiency and effectiveness" (*"efisien dan efektif"*), there was one response (AS); for the code "implementation of IT in digital business" (*"implementasi IT pada bisnis digital"*), there was one response (WJH); for the code "economic sector" (*"sektor ekonomi"*), there were two responses, both from the same informant. This implies that the informant's affirmation to the question was more emphatic regarding the meaning of the "economic sector." Furthermore, for the code "adaptation to technology" (*"adaptasi terhadap teknologi"*), there were six responses from (AS, NT, WJH). This means that all informants affirmed the existence of "adaptation to technology" in response to the questions. Lastly, for the code "sophistication of the internet" (*"internet menjadi prioritas"*), there were three responses (AS, NT, WJH). This implies that the informants unanimously provided the same answer to the posed question. The results of informant responses are illustrated in Figure 3.

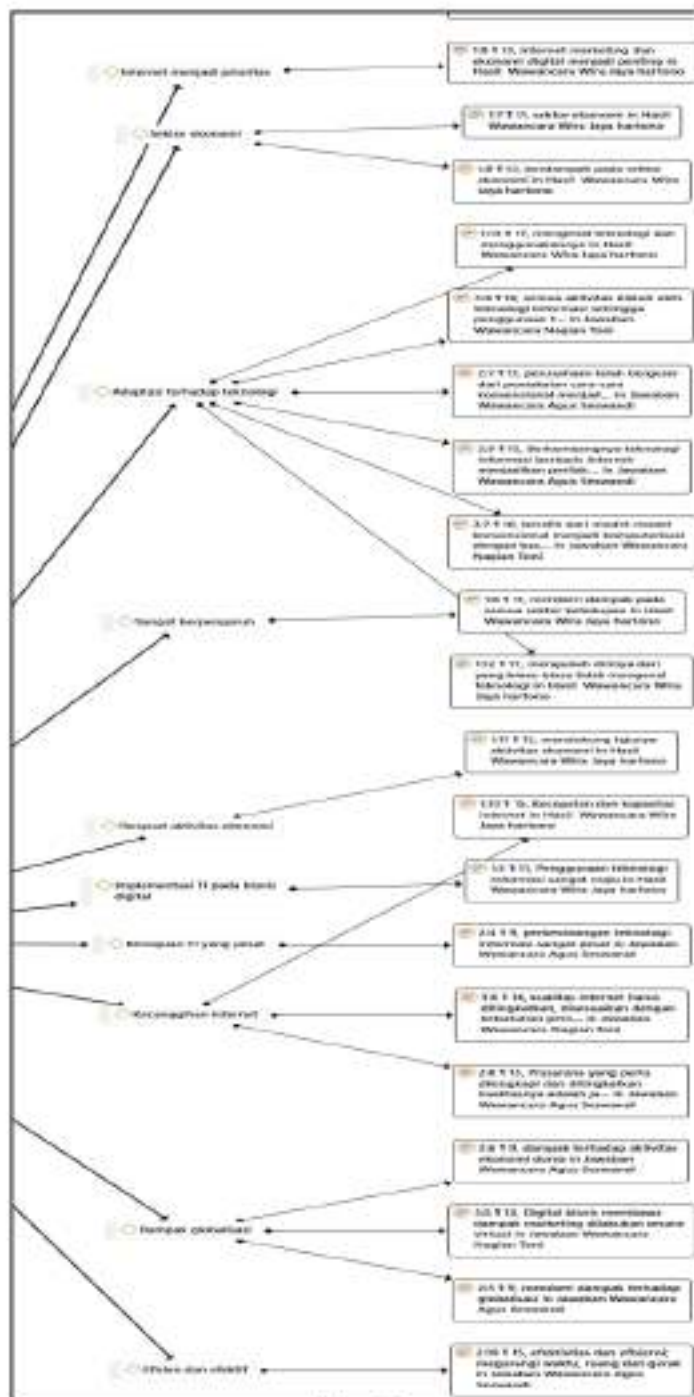


Figure 3

Adaptation to technology can be interpreted as adjusting to the current technological developments. (Widya Astuti et al., 2023) research states that the development of cyber technology is inevitable due to globalization as a significant factor influencing the advancement of information technology. This study is relevant

to the informant responses for code 1:13.17; familiarizing with technology and using it; code 3:4.10; all activities are accompanied by information technology; 2:7.11; companies have shifted from conventional methods; 2:9.15; the growth of internet-based information technology; 3:7.16; transitioning from conventional models to computerization; 1:12.7; transforming from being ordinary and unfamiliar with technology. The five response axes for this code imply that the development of information technology must be followed and has been intensively utilized.

To reinforce the statement above, this aligns with (Tresnawati & Prasetyo, 2022) research, where digital marketing is also utilized in micro, small, and medium enterprises as well as in the culinary business. It also corresponds to informant responses for code 1:5.11; mentioning the highly advanced use of information in the digital business field. Furthermore, for code 1:7.11; economic sector, and 1:8.13; impacting the economic sector; informants clearly explain that information technology is indeed implemented in the economic sector. This means that information technology serves as a supporting tool for digital business in the economic field, corroborated by (Handayani, 2022) research on E-Commerce as a supporter of the digital economy. Similarly, regarding digital economic activities, the advancement of information technology is utilized by market participants to conduct business activities, such as in marketplaces (Ratama et al., 2022; Wicaksana, 2020). The expressions above align with the informant responses for code 1:11.15; supporting the pace of economic activities.

## CONCLUSION

The development of information technology worldwide is progressing rapidly, with various new tools and technologies continually discovered, enhancing the effectiveness and efficiency of human activities. The digital era has led all aspects of human life to adopt this technology to replace human intervention in their activities. The shift from manual activities to information systems, also known as this transformation process, continues from era to era, so that eventually, all activities around humans will be inseparable from this information technology. All activities, from waking up to going back to sleep, have been replaced by digital activities. In the future, humans will only need to enjoy all the results of these digital creations without the need to laboriously think about them.

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