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THE ROLE OF INFORMATION TECHNOLOGY IN BOOSTING ECONOMIC GROWTH IN BORDER TERRITORIES

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Abstract

Border territories have strategic values in supporting the success of national development. One effort to improve the economy of border region communities is through empowering micro, small and medium businesses so as to encourage economic growth. Information technology introduces new opportunities and problems that are distinct from traditional approaches, changing the way business is conducted. One of the primary pillars supporting the modern civilization's progress is information technology, which has to be able to benefit the larger community. Border regions are increasingly being the focus of development efforts across all domains in the context of fair development. The research was carried out using the literature study method. This research discusses the definition of information technology and border areas, the relationship between information technology and economic growth, the concept of economic growth in border areas, the concept of the use of information technology to encourage economic growth, the relationship between economic growth in border areas and the use of information technology, and research implications for policy development.

Keywords: Information technology, economic growth, border territories.

INTRODUCTION

As resource frontiers, border regions between nations are becoming more and more important, as is the attention they receive regarding their effects on economic growth. The use of resources in the two adjacent regions

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and their physical proximity are the causes of this economic opportunity (Jakubowski, 2018). In addition, as the two nations' conditions shift toward cooperation, there are more opportunities for people and businesses to relocate in search of economic opportunities because there is a large market for accommodating the diverse resources that both regions own (Vasylivna, D. N., 2019). This increases the potential for movement with this goal in mind.

In the context of economic growth in land border areas between countries, Kozma, G., & MOLNÁR, E. (2016) provide several examples of land border areas between countries such as Poland-Germany and China-Vietnam. In the German-Polish border region, the phenomenon of democratic and political conflict that occurred in the region has caused the proliferation of informal sector activities in the economy in the Polish border region. This caused economic growth on the Polish side, because the high prices of goods in Germany made German citizens interested in shopping. However, on the other hand, Germany seizes opportunities for cooperation in developing the manufacturing industry with employment opportunities from Poland, although in this context institutions and policies are needed for its development. Another focus in economic growth at the border apart from economic complementarity is market potential. Sohn, C. (2014) argues that the growth of market potential in integrated border regions has a positive impact on increasing regional income and increasing employment, which leads to economic growth in border regions.

Generally speaking, border areas are critical locations with potentially manageable resources, which makes border area development management crucial. Aside from that, border zones play a crucial and strategic function since they demarcate a nation's sovereignty with other nations. Although borders can often be seen as a nation's front yard, they can also lead to complicated issues like growth gaps with nearby nations. Disparities or gaps in a region's growth and development are one of the issues with Indonesia's development. One could classify border areas as impoverished areas. In actuality, a nation's borders serve as its homepage, hence they must be properly controlled and ordered. of actuality, though, border regions of Indonesia are neglected and left behind (Gao, X., & Long, C. X., 2014).

Inequality refers to the relative living standards of an entire society. Regional disparities are caused by differences in several factors. These differences cause the level of development in various regions to vary, which in turn gives rise to unequal development in various regions. Several factors causing regional disparities according to Taubenbock et al (2023) include: 1) geographical conditions, an area that has a fairly large area coverage will have differences in topography, differences in climate, differences in rainfall, differences in natural resources and so on. 2) History, the level of development of a society really depends on what they have done in the past. 3) Political conditions, political conditions greatly influence the development process of a region. Unstable political conditions give rise to uncertainty in various fields which in turn will have an impact on investors' doubts about investing capital and so on. 4) Government policies, appropriate policies in development planning will result in balanced regional development. However, so far in development the government has emphasized regional centers, which in turn has had an impact on disparities between regions. 5) Administration which includes services and bureaucracy. Administration which includes inefficient services and bureaucracy such as poor service and complicated bureaucracy can create gaps because it influences investors to invest in an area. 6) Social conditions, disadvantaged communities generally do not have institutions and behavior conducive to regional development. Society has traditional beliefs and social values that can hinder development. In contrast to people who live in more developed areas, they will be more open or flexible to changes or developments. 7) Economic conditions.

In the context of equitable development, border areas are currently becoming a focus of development in all fields. Information gaps can potentially cause societal and state conflicts. Therefore, providing fast and correct access to information to the public is important. One of the ways this need can be met is through the development of information technology infrastructure (Nguyen et al, 2020).

Information technology infrastructure development must be carried out not only in the form of physical investment (technological aspect) but also includes human resource development (community empowerment aspect). Therefore, assessing the availability and impact of the use of information technology is an important thing that must be measured in an effort to assess the usefulness of the available infrastructure. Information technology has the potential to stimulate economic growth, according to numerous research. A nation's economic growth is directly correlated with the level of information technology development in that nation. Fast economic growth is often correlated with rapid advancements in information technology in a given country (Zhang et al, 2017).

RESEARCH METHOD

This paper was written using a literature review methodology. The act of gathering, evaluating, and assembling data from dependable sources that is pertinent to the subject under discussion is known as a literature review. In this instance, statistics and information about the role of technology in promoting economic growth in border regions are gathered through a survey of the literature.

Initially, the author searches for trustworthy sources pertaining to the role of technology in promoting economic growth in border regions, including scholarly journals, reference books, and websites. Regarding the relationship between information technology and economic growth, the sources that were chosen are reliable and authoritative. Following the gathering of pertinent sources, facts and information are methodically examined in these sources.

RESULT AND DISCUSSION

Definition of Information Technology and Border Territories

We anticipate technology to act as an interpreter and facilitator. Information technology was first limited to data processing. Data processing is now the only use of information technology due to its rapid development. As a result, practically every organizational activity is now impacted by the use and automation of information technology due to its continued development. Information technology is a system of hardware and software that combines computerization and communication technology. It is used to gather, process, compile, store, and alter data in many ways to provide high-quality information that is accurate and relevant. In addition to being quick and efficient, information technology may generate strategic data that can be utilized for decision-making in corporate, government, and personal contexts (Hubanova et al., 2021).

The territory of a country, especially its border areas, will always be interesting, because the territorial aspect of a country concerns sovereignty and real sovereign rights and jurisdiction of a country over its country's territory. Starting from this view, it is natural that a country must have clear boundaries as a sovereign country and has sovereign rights over its territory. National border areas are considered a nation's "front yard" in addition to being the boundaries of its authority over its territory, making them subjects of rising interest for researchers. Because of this, the nation's border regions play a crucial strategic role in setting government policies for both internal and foreign affairs. Realizing this, the description and analysis surrounding the issue of state border areas from an international law perspective will be more focused on several important aspects, including the conception of state borders, state sovereignty over its territory, the determination of state borders based on legal concepts. international, and state territorial management theory (Dekkers, 2019).

A border area is a section of the State Territory that lies inside the borders that separate Indonesia from other nations. When it comes to land-based State Territory Boundaries, the sub-district contains the Border Area. When looking at a country from a geographical, legal, and political perspective, its borders hold a significant place. Regional boundaries delineate the geographical territory of a nation, encompassing its land, sea, and airspace (Adisa et al., 2017).

Legally, state territorial boundaries determine the scope of the application of a country's national laws, while politically, state territorial boundaries are the end of the reach of a state's highest power over the territory and everything within that territory. Indonesia's territory, which consists of islands, has quite long borders with neighboring countries, both by land, sea and air, or what are called state territorial boundaries, which are the boundaries of a country's sovereignty based on international law. The part of the State's territory that is located on the inside along the border between Indonesia and other countries is called the Border Area. Functionally, border areas have strategic value in various dimensions: state sovereignty, defense, security and economy.

The role of technology and information plays a role in the economic development and social resilience of societies. Similarly, the presence of technology and information is very much needed in the border region or the foremost region of Indonesia. According to Freddy, the role of technology and information plays an important role in the economic growth of a nation. There is an anomaly in the development of the media toward well-being, especially in the border region. For the development of border areas, infrastructure alone is not enough. It also requires content management in it. One of them, the need for the role of broadcasting media in the border region is that of content based on 3E+1N or education, empowerment, enlightenment that is overall for the formation of a central opinion in national principles and economic development.

The Link between Information Technology and Economic Growth

A key indication of a nation's development, particularly in the economic sphere, is its rate of economic growth. The degree to which the government's actions in different economic sectors generate added value or public revenue over a given time period will be demonstrated by economic growth. According to Nordhaus (2021), positive growth signifies a rise in economic performance, whereas negative growth denotes a fall in economic performance.

Currently, diverse economic growth patterns are very common in various countries. Various opinions have been expressed to analyze the factors causing differences in economic growth. Toader et al (2018) explain three main components that can influence economic growth, namely:

1. The accumulation of capital goods, which includes all new investments made in real estate, machinery, and human resources.
2. Population growth will result in a higher labor force participation rate.
3. Technological progress can occur due to the discovery of new ways or improvements to old ways of handling a job.

The accumulation of capital goods is crucial for economic growth since it allows for the production of certain items from a variety of industries. Economic growth can be made more efficient by capital goods. The quantity of capital goods will dictate how many items are produced; the more capital goods that are produced, the more is generated in the economy. Furthermore, an expanding working population contributes to the growth of a nation's economy. Increased employment opportunities can help boost a nation's GDP in proportion to the size of its workers (Saidi et al, 2017).

As new technology is unquestionably more efficient than old technology, technological advancement is defined by investments in new technology that have the potential to strengthen an economy. England became the first industrialized nation in history when it was able to create a comparatively big amount of goods with little resources during the industrial revolution of the 18th and 19th centuries. Aside from that, technology may produce high-quality items with significant economic value and generate new capital assets.

As previously said, technical advancement is a major factor that distinguishes the rate of economic growth between nations. Information technology is one area of technology that is currently developing quickly. Information technology is the use of hardware and software for data processing and distribution. The use of information technology as the primary tool for many activities in the life sector has led to significant changes in the management and operational structure of businesses, as well as in the fields of education, healthcare, transportation, and research. There is no denying that one of the main factors causing globalization and the swift expansion of the global economy is the advancement of information technology (Bahrini & Qaffas, 2019).

Concept of Economic Growth in Border Territories

The change in the border paradigm from the concept of security to the concept of prosperity has an impact on economic growth in the border area. The interactions that occur result in the development of activities and economic activities of communities at the border. The following section explains the concepts of economic growth. Regarding the perspective of economic growth in border areas, theoretically economic growth has an impact on economic integrity effects which are followed by spatial or land use changes (Lavrinenki et al, 2017). This condition occurs provided that there is an appropriate climate between the economic model, spatial impacts, and policies to support this. Traditional location models and new models of economic geography identify that external trade can change spatial patterns of land use in border regions.

According to Basboga (2020), there are a number of factors that affect regional development, such as the community's nature (culture, beliefs, social and lifestyle aspects), availability of general elements (road network, clean water, etc.), and the physical form (land use and spatial structure). Regional functions (economic, trade, and industrial functions) are also influenced by population activities. The formation of border areas is influenced by a number of variables. It is impossible to divorce the border's economic growth from its commercial potential. When examining the location model and taking into account the marketing areas within a region, border areas may be perceived as having less potential for market development. These issues are predicated on a number of barriers that frequently exist in border regions (tariffs, rules, and other barriers), which may prevent economic growth from occurring as effectively as it could because of a reduction in the marketing coverage areas (Sulistiani & Suardi, 2024).

The border regions of a country play a crucial strategic role in promoting domestic economic growth. In an attempt to foster growth across the board, from 1999 to 2004, attention was paid to border regions, eastern Indonesia, and other impoverished areas. The guiding concepts of these initiatives have been regional autonomy and decentralization. Furthermore, the primary focus of development policy has changed from being inward-looking to being more outward-looking. This border area can be used as a point of entry for business and economic ventures with neighboring countries. This has an effect on the economic growth of border regions.

Concept of Utilizing Information Technology to Encourage Economic Growth

The rapid absorption of information technology has changed the world into a society that is always related to information technology. It is clear that society, business and government now have better access to information and knowledge. Both in terms of scale, scope and speed. In addition, the wealth of information and knowledge is continuously growing rapidly, this has never happened before (Firmansyah et al, 2021).

Regarding the beneficial effects of information technology on economic growth, we can emphasize three key points:

1. Encourage innovation and absorption of technology
2. Increase the efficiency of resource allocation
3. Reduce production costs.

In terms of encouraging increased innovation and technology absorption, many studies have proven that research and development activities are the main engine for long-term economic growth. Hodrab et al (2016) present a simple leader follower model to test how innovation and imitation technology affect the rate of economic growth. According to this concept, innovation drives the economic growth of the leader country, while imitation of innovations made in the leader country's economy drives the economic growth of the follower country. This model can be interpreted as a new way to express how information technology penetration can increase economic growth in both leader and follower countries.

According to research by Jia et al (2024), information technology in leading countries can increase growth by:

1. Information technology can reduce learning and communication costs associated with innovation activities, which will reduce research and development costs.
2. Enlarging the role of the workforce by making knowledge more accessible to many people and facilitating their learning. Information technology can indirectly increase the average level of knowledge of the workforce.
3. Information technology improves the quality of governance by using online applications, public-private partnerships and learning processes from

around the world, so that ICT can increase the productivity of workers and the country in aggregate.

Due to the process of technological adaptation by follower countries to technological innovation in the leader country, the higher the level of economic growth in the leader country, the more indirect impact it will have on economic growth in the follower country. With the participation of the population as a workforce, countries with larger populations will benefit from increased economic growth.

In terms of resource allocation efficiency, Information technology can provide the business sector with more efficient and effective tools for market research, communication with customers and suppliers. By deepening the penetration of information technology, the average company's business performance will increase, and as a result it will have a positive impact on economic growth.

The Relationship between Economic Growth in Border Territories and the Use of Information Technology

Economic growth is an indicator of the success of government performance in improving the economic development of each country (Han & Kim, 2019). Economic growth has always been a major concern in both developed and developing countries, because the level of economic growth reflects the success and quality of economic performance and economic development in that country. It is possible to gauge a nation's economic growth by seeing how its national income has developed. Due to the fact that different causes affect different countries' economies, each one has a unique pattern of economic growth. Technological advancement is one factor that affects economic growth. Information technology is one area of technology that is currently developing quickly. Information technology is the use of hardware and software for data processing and distribution. Information technology has grown to be a vital tool for many facets of life, and it has played a significant role in bringing about fundamental changes to companies, education, transportation, health care, and research, among other areas. For the economic sector, information technology has an influence on increasing economic growth. Numerous research elucidate the beneficial role that information technology plays in economic expansion and assert that information technology significantly influences economic growth. The International Telecommunication Union (ITU), which states that every 1% rise in teledensity will enhance a country's economic growth by 3%, further emphasizes the significance of telecommunications for a nation's economy. Because information and communication technology, particularly in island nations like Indonesia, tends to be more efficient in supporting the production and distribution of goods and services, it has a favorable impact on economic operations. Being an archipelagic nation, Indonesia relies heavily on information and communication technology for information sharing and exchange (Pepper et al, 2016).

One effort to improve the economy of border region communities is through empowering micro, small and medium enterprises. Information technology introduces new opportunities and problems that are distinct from traditional approaches, changing the way business is conducted. One of the primary pillars supporting the modern civilization's progress is information technology, which has to be able to benefit society as a whole. Information technology encompasses communication technologies as well as computers (hardware-software) utilized for information processing and archiving. The issue that subsequently surfaced was the persistently widening information technology divide, particularly in border regions (Chen, 2022).

Therefore, it is critical and urgent to open up information access for communities living in remote areas; to provide public information service centers or information access networks to rural areas; to supply the community with the information it needs to improve its economy, knowledge, and standard of living; to enable social groups to foster creativity and exhibit their products; and to provide tenants with a space where they can transform innovative ideas into competitive, superior, and marketable information technology products.

Research Implications for Policy Development

The study's findings support a number of economic ideas, including the notion that technical advancements have an impact on economic growth. Research conducted by Qamri, G. M., Sheng, B., Adeel-Farooq, R. M., & Alam, G. M. (2022) states that information technology and economic business actors and economic development have a positive reciprocal relationship. Meanwhile, research conducted by Qingxin, L., & Zhongxiu, Z. (2020) states that although in general the use of information technology has a positive effect on economic growth, specifically the relationship really depends on the type of activity or subsector in the creative economy.

The implication of the findings in this research is that information technology can encourage economic growth in border territories.

CONCLUSION

Border territories have strategic values in supporting the success of national development. One effort to improve the economy of border region communities is through empowering micro, small and medium businesses so as to encourage economic growth. Information technology introduces new opportunities and problems that are distinct from traditional approaches, changing the way business is conducted. One of the primary pillars supporting the modern civilization's progress is information technology, which has to be able to benefit the larger community. Border regions are increasingly being the focus of development efforts across all domains in the context of fair development.

Information gaps can potentially cause societal and state conflicts. Therefore, providing fast and correct access to information to the public is important. This need can be met one way through the development of information technology infrastructure. The sense of community responsibility must be a benchmark for success in advancing border areas, and success in advancing the region must be supported by technology and information that is able to increase prosperity both financially and with a sense of pride in being a citizen of the Indonesian nation and state.

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