

Strategy for Implementing Digital Transformation Towards the Potential of Increasing the Economic Performance of Fakfak Regency Communities (Case Study of Teluk Patipi District)

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Abstract. The aim of this research is to determine the influence of the extensive development of digitalization facilities being implemented by the Government in the Patipi Bay district to accelerate economic development. This research is descriptive in nature and employs a semi-qualitative analysis approach. Data was obtained through direct observation and interviews with deliberately selected respondents. These interviews, conducted using questionnaires, aimed to explore data related to the research variables. The research variables consist of digitalization techniques and the potential for economic activity. Observation results show that the economic performance of the Patipi Bay district's population remains relatively low. There has been no significant improvement in economic performance over the last few decades, which has impacted local community empowerment and indicators of productive activity. The research concluded that digitalization in the Patipi Bay district must be continually refined. This is a duty and responsibility of the government. The district's abundant natural resources have the potential to become a sustainable economic source for the community. Through digitalization, residents will be able to access numerous sources of information to develop their businesses.

Keywords: Digitalization, Economic Activity, Productivity, Patipi Bay, Fakfak

1. Introduction

The G-20 event in Bali has instilled a strong determination in the Indonesian government to actively participate in developing digital transformation across various aspects of national and state life. As technological progress rapidly advances towards digitalization, it is imperative for the people of Fakfak district to embrace these changes to grow and develop in line with the dynamics of modern civilization. The district's remote location should not be seen as a barrier but rather as an impetus for greater enthusiasm among its residents, as digital transformation transcends the boundaries of space and time.

Fakfak Regency is characterized by its diverse landscape, comprising mountains, lowlands, beaches, and a cluster of picturesque small islands. According to [1], the population of Fakfak Regency was 74,872 in 2017, growing to 89,253 by 2021, with a population density of only 6 people per km² [2]. Pattipi Bay District, with a population of 3,837 in 2020 spread across 13 villages, is renowned for its stunning combination of bay and mountain scenery. It also hosts a natural forest teeming with birds of paradise (*Strelitzia reginae*, *Strelitzia nicolai*, *Lophorina superba*, *Paradisaea apoda*, *Paradisaea rubra*, and *Cicinnurus republica*) and is Indonesia's largest producer of Papuan nutmeg.

These facts highlight the economic potential in tourism, marine, fisheries, and plantation sectors, which can be harnessed for community empowerment and improving welfare. The government's push to develop digital infrastructure by enhancing telecommunications and information networks nationwide presents a significant opportunity to boost the economy in Papua, particularly in the Teluk Patipi district of Fakfak Regency.

An online environmental news site, [3], reported that Fakfak Regency boasts a rich diversity of sea corals and reef fish around Ega Island, including rare and exotic species such as *Montipora capricornis* and *Favia stelligera*. The area also features hard corals like *Acroporaceae* and soft corals like *Oxycomanthus benneti* and

Dendronephthya sp. Boyan Island, facing the city of Fakfak and adjacent to Panjang Island, is a prime location for diving and snorkeling to observe the underwater beauty.

On land, the Fakfak mountain nature reserve is dominated by hills and mountains, with forests of *Araucaria cunninghamii*, *Agathis labillardieri*, and Papuan nutmeg (*Myristica argantea*). Below 1,200 meters, one finds *Norofagus*, *Casuarina montana*, and *Cinnamomum*. The unique mixture of *Agathis* and *Araucaria* blends with community forests of Papuan nutmeg plantations. The area hosts 138 bird species, including *Melampitta gigantea*, *Poecilodryas placens*, *Tansiptera nympha*, and *Sericulus aureus*. Mammals include marsupial rats, bandicoots, cuscus, tree kangaroos, forest wallabies, opossums, and hook-tailed kangaroos [4]. Research by [5] confirms that the mountainous and coastal areas of Fakfak Regency continue to support a high diversity of wildlife.

In addition to its natural tourism potential, Patipi Bay district holds religious tourism significance as a historical center for the spread of Islam. The traditional Petuanan kingdom relics of Raja Teluk Patipi in Pattipi Pasir village are well-preserved and maintained, with government support for the upkeep of this cultural heritage. Patipi Bay District is also the largest producer of Papuan nutmeg in Indonesia. The nutmeg tree has historical significance, being one of the reasons for European colonization due to the demand for spices.

The abundant Papuan nutmeg represents a significant economic potential that can be developed for the prosperity of the community. While the residents of Patipi Bay district are familiar with basic nutmeg processing techniques, they still require assistance and cooperative efforts to reach global markets. Quality standards and market access remain complex challenges.

Mastering digital business is essential for the people of Patipi Bay district to effectively promote and market their products globally. The goal of this research is to assess the impact of the government's extensive digitalization efforts in Patipi Bay district on accelerating economic development.

1.1 Digitalization

Digitalization is the process of transforming traditional systems, processes, or services into digital form using information and communication technology [6]. This includes the use of software, hardware, and network infrastructure to automate, simplify, and enhance efficiency in various aspects of life and business [7]. Examples include mobile applications for online shopping, electronic data management in public administration, or sensor technology implementation in manufacturing for automated monitoring and control. Digitalization not only improves accessibility and ease of service use but also has the potential to create significant efficiency gains and fundamentally transform how we interact with the world around us [8].

1.2 Economic Activities

Economic activities refer to all activities involving the production, distribution, and consumption of goods and services within an economic system [9]. This encompasses various activities from raw material production, manufacturing finished products, distribution through supply chains, to sales to end consumers. Economic activities also include financial transactions, investments, international trade, and financial services [10]. Additionally, economic activities encompass non-productive activities such as education, healthcare, and public services that support social and economic infrastructure. Overall, economic activities form the basis of a country's economic system, influencing economic growth, unemployment rates, income distribution, and overall societal well-being [11].

1.3 Productivity

Productivity refers to the efficiency level in producing output or results from a process or activity compared to the inputs used [12]. This includes the use of resources such as labor, capital, time, and technology to produce goods or services [13]. Productivity can be measured by comparing the amount of output produced in a certain period of time with the amount of input used to achieve that output. Increasing productivity is often a primary goal within organizations or economies because it can generate more goods or services at lower costs or in shorter times, thereby enhancing efficiency and profitability [14]. Factors influencing productivity include technological innovation, workforce skills, effective management, and investment in infrastructure. High productivity often serves as a key indicator for economic growth and a country's competitiveness in the global market [15].

2. Method

Observations were conducted on the widespread construction of cellular transmission towers throughout Fakfak Regency, with a particular focus on Patipi Bay District. The observation technique involved directly

visiting the transmitter locations and testing signal strength using several types of digital communication service providers. Additionally, observations included visits to communities in areas receiving digital services from these transmitters. The district's hilly terrain, predominantly covered by forests and tall trees, is suspected of causing disruptions to digital connectivity. The research is descriptive in nature and employs a semi-qualitative analysis approach. In addition to direct observation, data were collected through interviews with purposefully selected respondents. Interviews were conducted using questionnaires to gather data related to the research variables. The research variables include digitalization technique variables and economic activity potential variables. The research design is presented in the following figure:

Digitalization technique variables:

- Transmitter
- Landscape
- Microclimate
- Community-owned devices
- Availability of electricity

Potential economic activity variables:

- Trade
- Marine tourism
- Fisheries
- Nutmeg and durian plantations
- Forestry
- Conservation
- Micro-small scale downstreaming

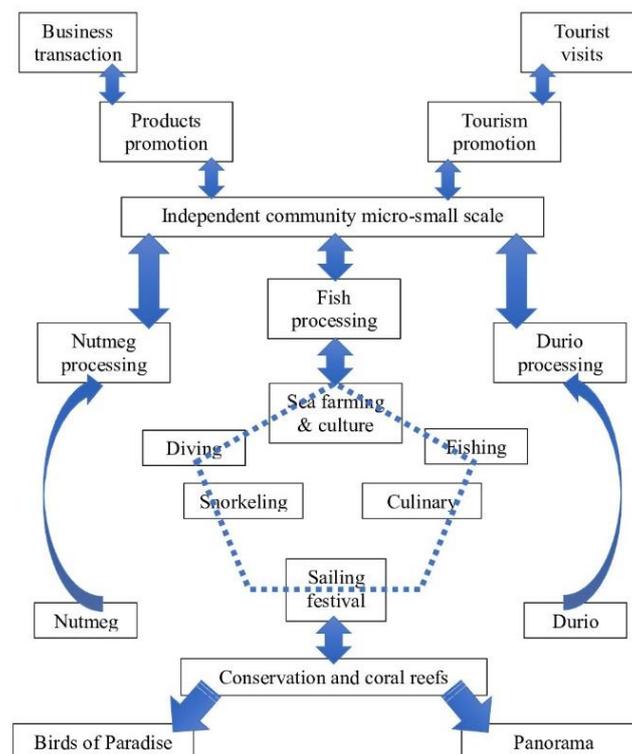


Figure 1. Research design in cause root analysis

Based on the research design scheme, it is evident that digitalization is essential for the sustainable development of natural resource exploration in Patipi Bay district. The primary issues forming the basis of data analysis involve identifying the causes of delays and various obstacles hindering community economic empowerment.

The data analysis technique employs a simple compilation approach, combining empirical observation results with in-depth interviews with respondents. Interview results are converted into quantitative data to help

researchers compile comprehensive descriptions of the research outcomes. According to [16], weighting techniques are used to convert information into numerical data under specific conditions, aiding researchers in differentiating observation results. Additionally, [17], [18], [19] emphasize the importance of applying triangulation techniques in qualitative research to ensure the validity of the information as research data. According to [20], triangulation results can be represented in the form of weighted numbers, helping researchers provide a concrete picture of their findings.

The results of weighting, triangulation, and data analysis are presented using a gap analysis approach. According to [21], [22], understanding the size of the gap allows researchers to describe the phenomena occurring. Gap values can be displayed using positive and negative notation approaches.

3. Result and Discussion

Observation results indicate that the economic performance of the people in Patipi Bay district remains relatively low. There has been no significant improvement in economic performance over the last few decades that could transform local community empowerment through high indicators of productive activity.

Transportation access from Fakfak city center to villages in Teluk Patipi district is currently quite good, with most roads being paved. Additionally, there are public transportation routes available that serve the community needs twenty-four hours a day. The availability of information technology networks has also begun to spread evenly, with almost all villages having good access to information, although occasionally hampered by climate change and micro-weather conditions. Generally, the community is familiar with digitalization and is capable of accessing various global information sources effectively.

Therefore, the beautiful natural landscape, abundant and diverse natural resources, and the socio-cultural conditions of the people should be leveraged to develop sustainable economic sources. The results of the analysis are presented in the following figure:

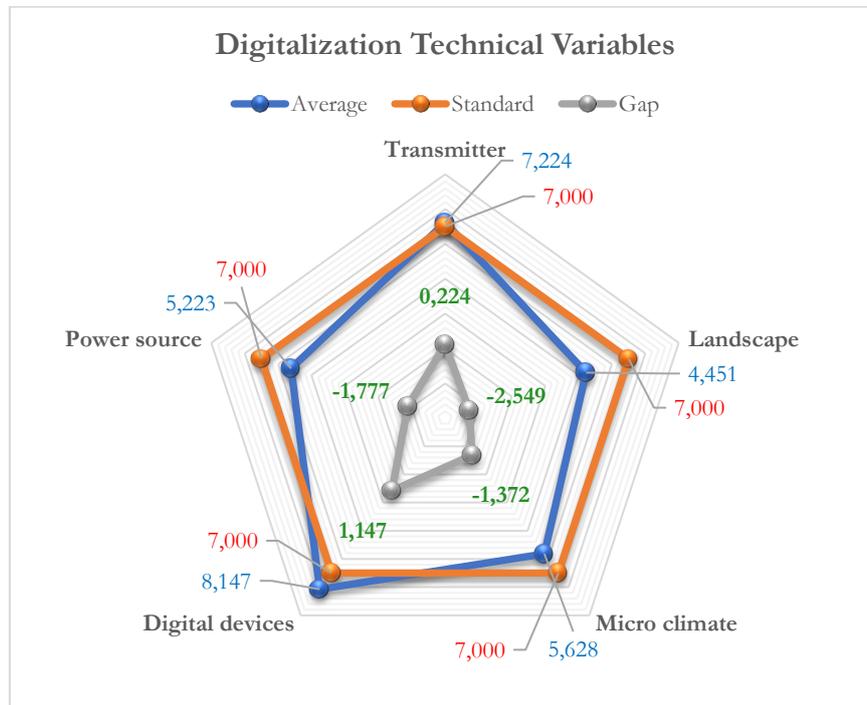


Figure 2. Digitalization techniques variable in spider web diagram

Based on Figure 2, the government's extensive efforts to uniformly distribute digitalization networks to remote areas of Indonesia have shown progress in Patipi Bay district. Positive gap values are observed for digital devices (+1.147) and transmission networks (+0.224). However, empirical evidence highlights challenges such as the natural landscape (-2.549), electricity sources (-1.777), and microclimate (-1.372) which

still hinder the penetration of digital transformation into Teluk Patipi district. In most areas of Fakfak district, optimal access to information sources, business networks, and knowledge remains limited.

The district features a stunning natural landscape with coastal contours along hills covered in dense forest vegetation and nutmeg gardens. This juxtaposition of natural beauty and wealth contrasts with the significant costs associated with procuring digitalization equipment that the government must prepare. In response, local residents have adapted by seeking strong signal spots in specific areas such as beaches, hills, bridges, and sometimes resorting to climbing trees or roofs for better reception. However, network functionality is often hindered by intermittent electricity supply issues.

Despite these challenges, they should not impede societal progress, as the government remains committed to enhancing the quality of digital transmission networks nationwide. According to [23], digitalization is a strategic effort and crucial breakthrough initiated by the government to enhance society's competitiveness in the global business arena.

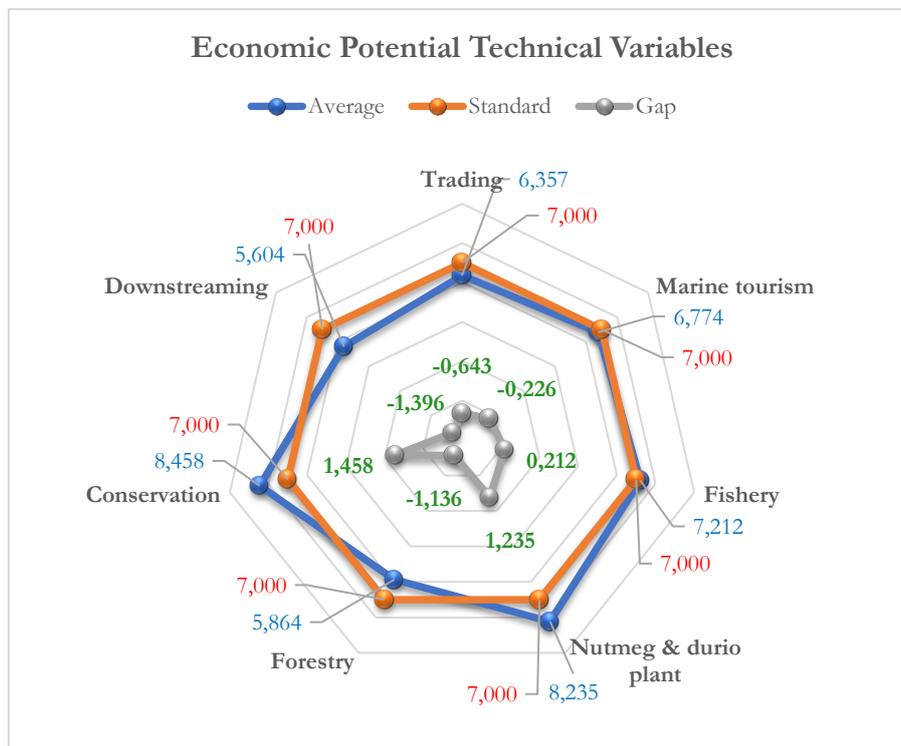


Figure 3. Economic potential technical variable in spider web diagram

Based on Figure 3, it is evident that conservation efforts (+1.458), preservation of nutmeg and durian gardens (+1.235), and the development of fisheries (+0.212) present opportunities to generate foreign exchange for the people of Teluk Patipi district. However, current empirical data indicate that businesses in marine ecotourism (-0.226), forestry (-1.136), downstream processing (-1.396), and trade (-0.643) have yet to be fully tapped or developed into sustainable ventures by the community.

Developing a community-based economy while preserving nature in East Fakfak district must be approached in an integrated manner, leveraging available potential.

Tourism, conservation, renewable energy, and downstream sectors require balanced attention from the government in crafting development plans to accelerate economic growth in Patipi Bay district. Renewable energy plays a crucial role as a reliable electricity source for areas like Patipi Bay district. According to [24], renewable energy ensures stable electricity supply round the clock, thereby boosting business and social activities and accelerating the achievement of various government goals. Moreover, [25] emphasize Indonesia's abundant sunlight, which can be harnessed to produce renewable and environmentally friendly electrical energy.

The presence of renewable energy sources significantly enhances digitalization efforts, enabling 24-hour access to information sources and other benefits beyond lighting. Currently, most areas in Fakfak district rely on fossil fuels for electricity, posing an initial challenge that needs resolution for effective digitalization.

Efforts to build transmission networks should strategically overcome natural landscape obstacles and be complemented by the expansion of renewable energy infrastructure. Renewable energy installations, leveraging sunlight and wind, are well-suited for various locations in Patipi Bay district. According to [26], coastal areas are ideal for wind power plants, optimizing their utilization by fishing communities.

Adequate electricity availability will also catalyze the development of micro and small-scale businesses within the community. Currently, limited electricity supply during specific hours, primarily from diesel generators, imposes significant financial burdens on these businesses. This situation hampers downstream processing and overall economic performance despite the emerging digitalization network.

4. Conclusion

The research findings conclude that digitalization in Teluk Patipi district must be continually refined, underscoring the government's duty and responsibility. The region's abundant natural resources hold significant potential to serve as sustainable economic assets for the community. By enhancing digitalization efforts, individuals will gain access to a multitude of information sources essential for business development. Furthermore, the integration of digital technologies can facilitate efficient resource management and promote economic diversification across sectors such as tourism, conservation, renewable energy, fisheries, and agriculture. This holistic approach not only supports local livelihoods but also enhances environmental sustainability by fostering responsible resource utilization practices. Effective implementation of digitalization initiatives will require ongoing infrastructure development, including expanded internet connectivity and reliable electricity access powered by renewable energy sources. This infrastructure investment is crucial for overcoming existing challenges and maximizing the economic benefits of digital transformation in Teluk Patipi district. In conclusion, prioritizing digitalization as a strategic tool for economic empowerment in conjunction with sustainable resource management is essential for fostering inclusive growth and resilience in Teluk Patipi district.

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