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Coastal Economic Transformation in Malang through Fintech Innovation: Digital Strategies for Fishermen's Community Independence and Food Security

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ABSTRAK

The transformation of financial technology (fintech) innovation in strengthening economic independence and food security among coastal communities in Malang Regency. The research employed a qualitative descriptive method with a participatory approach (PAR) through stages of socialization, training, implementation of the Saku Laut application, mentoring, and evaluation. The results show that fintech improves transaction efficiency, financial literacy, and digital market access. Most fishermen have used Saku Laut for financial recording and product marketing. Collaboration among academics, village governments, and local communities is key to realizing an inclusive and sustainable transformation of coastal economies.

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1. INTRODUCTION

Coastal areas have a strategic role in supporting national economic development, especially as a driver of the marine and fisheries sectors that absorb large numbers of workers. However, this great potential has not been fully accompanied by an improvement in the welfare of coastal communities. Around 27% of smallholder fishermen in Indonesia (Ali et al., 2024) still live below the poverty line, including in coastal areas of Malang upaten Regency such as Sendang Biru Village, Tambakrejo, and Sumbermanjing Wetan. This condition indicates a gap between the potential of the marine economy and the social reality of coastal communities who are still grappling with the problems of poverty, inequality of access to capital, and dependence on the traditional economic system based on middlemen.

The main problem faced by coastal communities lies not only in the aspect of low income, but also

in the weak financial and digital literacy. Most economic activities in the region are still carried out conventionally, ranging from buying and selling marine catches to a system of loans based on personal trust without structured records. Research (Royandi, 2019) shows that dependence on middlemen and weak managerial skills are the main inhibiting factors in efforts to increase the added value of fishermen's catches. As a result, society finds it difficult to adapt to modern economic changes and remains in a traditional unproductive economic circle.

In facing these challenges, digital transformation through financial technology innovation (fintech) is a strategic alternative to encourage coastal economic independence. Fintech allows people to access financial services without having to rely on conventional banking institutions, while expanding opportunities for fishermen and small businesses to participate in the digital economy. (Gainau, 2023) emphasized that the effective use of fintech can increase transaction volumes and income for micro-communities through digital payment systems such as QRIS and e-wallets, which are considered more efficient, transparent, and easy to use.

In addition to providing economic benefits, fintech also plays a role as a social empowerment tool that encourages financial inclusion and local community independence. [2] highlights that digital literacy training for coastal women is able to improve entrepreneurial skills, expand the marketing network of seafood products, and reduce dependence on the seasonal fisheries sector. The same thing was expressed by (Yosa et al., 2023), who stated that entrepreneurial awareness combined with the use of digital technology can foster an independent economic mentality and strengthen household financial management. Thus, the application of fintech in coastal communities not only fosters adaptability to the digital era, but also fosters an ethos of community-based economic independence.

The transformation of the digital economy in the coastal sector is also closely related to the food security of fishermen's households. Income stability is an important factor to ensure that food needs are met throughout the year, especially during the famine season. Research [3] shows that people who have good financial literacy and access to financing institutions are better able to maintain the stability of food consumption than groups that are still dependent on daily income. Therefore, the application of fintech in coastal areas not only strengthens the local economic system, but also contributes directly to increasing the food security of fishing families.

In addition to the economic aspect, digital transformation also has a significant social and institutional impact. Through a participatory approach, coastal communities are directly involved in the process of implementing the program starting from socialization, training, implementation of the Saku Laut application, to the evaluation stage. This approach builds public trust in technology while strengthening a sense of ownership of the program. The "Saku Laut" innovation, which was developed through the collaboration of academics and local governments, helps people record income, make digital transactions, and market marine products online. This local needs-based approach has proven effective in increasing public trust in new technologies and strengthening the institutional capacity of the village economy.

The success of coastal economic transformation through fintech is highly dependent on policy support and the availability of digital infrastructure. Some of the obstacles faced in the field include weak internet networks, limitations of smart devices, and cultural resistance to changes in traditional economic systems. To overcome this, synergy is needed between local governments, financial

institutions, academics, and local communities to create an inclusive and sustainable digital ecosystem. (Miranti et al., 2023) emphasized that a continuous mentoring process is an important factor in building trust and ensuring the success of technology adoption in coastal communities.

The transformation of the coastal economy through fintech innovation is not only interpreted as a process of financial digitalization, but also as a socio-economic movement oriented towards community empowerment. Fintech acts as a catalyst towards an independent, inclusive, and adaptive coastal society to the changing times. Through increasing financial literacy, strengthening village institutions, and supporting local policies, fintech innovation is expected to become a sustainable strategy in realizing economic independence and food security in the coastal areas of Malang Regency.

2. LITERATURE REVIEW

2.1 Coastal Economic Transformation

Coastal economic transformation is a process of fundamental change in the economic life patterns of people in coastal areas which is directed at increasing productivity, efficiency, and local economic independence. This transformation is not only interpreted as a transition from a traditional economy to a modern economy, but also as a paradigm shift from dependence on middlemen to sustainable innovation-based and technology-based resource management.

Most of Indonesia's coastal communities still rely on the capture fisheries sector which is seasonal and vulnerable to weather changes and global market fluctuations [6]. Low financial literacy, lack of access to formal financial institutions, and weak managerial skills make fishermen trapped in the ijon system that suppresses the price of catches. In the context of Malang Regency, similar conditions are also found in the Sendang Biru, Tambakrejo, and Sumbermanjing Wetan areas, where the distribution system of seafood is still long so that fishermen's profits are very limited.

The transformation of the coastal economy in Malang needs to be directed at strengthening community capacity through technological innovation, entrepreneurship training, and optimization of digital-based seafood processing. This concept is in line with sustainable coastal economic development, which emphasizes integration between the fishing sector (primary) and the processing and digital marketing sector (secondary). Through this economic model, supply chains can be shortened, distribution efficiency increased, and fishermen's bargaining positions become stronger.

In addition to technological innovation, transformation also requires strengthening social institutions. Local governments, academics, and local communities need to work together to build a collaborative coastal economic ecosystem. Thus, the transformation of the coastal economy in Malang Regency is not only oriented towards modernizing fishing gear, but also building an independent, digitally literate, and competitive society in managing marine resources in a sustainable manner.

2.2 The Concept of Fintech Innovation in Economic Empowerment

Financial technology (fintech) is an innovation in the financial service system that utilizes digital technology to create efficiency, transparency, and accessibility for all levels of society. Fintech allows people, especially micro and medium business groups, to transact without relying on conventional banking institutions.

According to (Rizka, 2021), the implementation of fintech can effectively increase people's income because the transaction system becomes faster, administrative costs are lower, and financial records are more transparent. In the coastal context, fintech serves as a bridge between fishing communities and the formal financial system. Through the "Saku Laut" application, coastal people in Malang can record daily income, make non-cash transactions, and monitor market prices online.

This program has been proven to increase public trust in digital systems and strengthen their managerial skills in managing catches. The results of the study [2] show that digital economy training for coastal women expands entrepreneurial skills and strengthens their contribution to the household economy. The application of fintech in coastal areas is not immune to social and cultural challenges. Some people are still doubtful about the security of digital transactions and the protection of personal data. Therefore, (Agus et al., 2024) a participatory mentoring approach and sustainable education are essential to build public trust in the digital financial system and ensure the sustainability of these innovations in the long term.

2.3 Digital Financial Literacy and Economic Independence

Digital financial literacy is a fundamental element in the successful implementation of fintech, because it determines the extent to which people are able to understand, manage, and utilize financial technology effectively. Based on a report by the Financial Services Authority [12], the financial literacy level of the Indonesian people has only reached around 49%, while financial inclusion is at 85%. Despite the increase in access to financial services, the literacy gap is still quite large, especially in coastal and rural areas. The low level of financial understanding makes it difficult for people to recognize the benefits of fintech optimally, and even risk using these services unproductively, such as being trapped in unhealthy digital loans.

Micro businesses that receive digital financial literacy training have increased their ability to record financial records by up to 60%, and are able to manage business capital more efficiently (Trianthy et al., 2024). These findings confirm that financial literacy not only improves technical ability in managing income, but also builds a more mature economic planning mindset. For coastal communities whose income tends to be uncertain, this ability is very important to maintain household financial stability, regulate consumption, and habituate saving behavior as a form of economic independence.

Digital financial literacy programs also have a significant social dimension, especially in the empowerment of coastal women. Digital economy-based training encourages women to actively participate in family financial management while developing small businesses based on marine products. This role not only strengthens the position of women in the household economy, but is also in line with the principle of gender-inclusive digital empowerment, where women become agents of social and economic transformation at the local level.

The economic independence of the fishing community is not only measured by the increase in income, but also by their ability to adapt to the increasingly competitive dynamics of the global economy. (Josua, 2023) emphasized that entrepreneurial awareness combined with digital capabilities can increase the economic value of marine products by up to 30%, because fishermen can utilize technology to market products directly and expand market reach. Therefore, digital financial literacy is not only a technical skill, but also a social and intellectual capital that strengthens the economic

resilience of coastal communities. With good literacy, people are no longer just users of technology, but economic actors who are adaptive, independent, and oriented towards sustainable coastal development.

2.4 Fintech and Food Security for Coastal Communities

Food security in coastal areas is not only determined by the amount of marine catch, but also by the ability of communities to maintain the economic stability of their households. [3] emphasized that fluctuations in fishermen's income, especially during famine or extreme weather seasons, often have a direct impact on family food consumption patterns. In this context, the use of financial technology (fintech) can be a strategic solution to help fishermen manage their finances in a more planned manner. Through features such as digital savings, e-wallets, and access to microfinance, fintech allows coastal communities to save regularly and manage expenses so that their food needs are met throughout the year.

In addition to strengthening financial management, fintech innovation also plays an important role in creating a digital food ecosystem. With the existence of a digital platform, fishermen's catches can be sold directly to consumers or industry players without going through a long chain of intermediaries. This not only shortens distribution channels, but also increases price efficiency and profit margins for fishermen. Research [2] shows that the integration of digital technology in the seafood marketing system can increase fishermen's income by 20–30%. This means that fintech is not only a financial instrument, but also a means to strengthen the economic stability of coastal families which ultimately supports sustainable food security.

Nevertheless, the success of fintech implementation is highly dependent on the availability of digital infrastructure, continuity of training, and local institutional support. Without a stable internet network and adequate digital devices, it is difficult for fishermen to make optimal use of technology. In addition, ongoing assistance is needed to ensure that the public understands the use of applications and avoids the risk of misuse of digital services. In this case, collaboration between academics, local governments, financial institutions, and village economic institutions such as BUMDes and fishermen's cooperatives is a key factor.

Without institutional support and supervision, financial digitalization programs in coastal areas have the potential to stop at the pilot project stage without producing long-term impacts. Therefore, fintech needs to be positioned not just as a financial technology, but as an economic empowerment tool that is integrated with local social, institutional, and policy systems. With this approach, fintech can serve a dual purpose: to help fishing communities maintain food security while encouraging more resilient economic independence amid global dynamics and climate change.

2.5 Sintesis Conceptual

The transformation of the coastal economy in Malang Regency through the application of financial technology (fintech) innovation requires synergy from several main aspects so that the resulting changes are not only technical, but also have a sustainable socio-economic impact. Conceptually, there are three key components that should be the foundation of this effort

1. Increasing financial and digital literacy is the main foundation that determines the success of fintech implementation. Coastal communities need to understand how financial technology works,

its benefits in managing household economies, and the risks that may arise from its use. This literacy not only aims to introduce technology, but also build awareness of the importance of financial planning, seasonal income management, and digital saving habits. With good literacy skills, people are able to utilize fintech productively and not get caught up in harmful financial practices.

2. A participatory empowerment approach that places the community as the main actor, not just the beneficiary of the program. This approach encourages coastal communities to be actively involved in every stage of activities from planning, training, to program evaluation and sustainability. With direct involvement, people will feel responsible and ownership for the innovations that are applied, thus encouraging sustainability and trust in new technologies.
3. Institutional integration and solid regional policy support. Local governments together with village economic institutions such as BUMDes, fishermen's cooperatives, and local financial institutions need to be strategic partners in overseeing the implementation of fintech programs. Regional policies must support digital infrastructure, continuous training, and monitoring mechanisms so that innovations do not stop only in pilot areas, but can be replicated in other coastal areas.

With these three elements, fintech innovation is not only a transaction tool, but also a means of socio-economic empowerment that supports the independence and food security of coastal communities in a sustainable manner.

3. METHOD

This study uses a descriptive qualitative approach with the Participatory Action Research (PAR) method or participatory action research. This approach was chosen because it provides space for the community to not only become the object of research, but also to become active actors in the process of social and economic change. According to Kemmis and (Semathong, 2023), PAR is a method oriented towards reflective and collaborative actions to achieve social transformation through the direct participation of the community in every stage of activities. Thus, this method not only produces an in-depth understanding of the phenomenon being researched, but also makes a real contribution to coastal community empowerment efforts through digital innovation.

This approach is very relevant to the characteristics of coastal communities in Malang Regency, which are known to have a culture of mutual cooperation and strong social ties. Through active participation, fishermen, coastal MSME actors, and village officials are not only beneficiaries, but also help determine the direction of change. This approach allows for social learning where people gain new knowledge while improving their ability to utilize digital financial technology *(fintech)* to strengthen economic independence. In other words, this research not only examines the phenomenon of digital economic transformation, but also implements empowerment strategies that have a direct impact on financial literacy, food security, and the welfare of coastal communities.

The research was carried out in three coastal areas of Malang Regency, namely Sendang Biru, Tambakrejo, and Sumbermanjing Wetan Villages. The selection of locations was carried out purposively because the three areas are centers of capture fisheries activities and have significant economic potential, but still face classic problems such as dependence on middlemen and low

financial literacy. In addition, this area is the location for the implementation of the "Saku Laut" fintech program, the result of collaboration between universities and village governments in an effort to digitize the economy of coastal communities.

The research subjects consist of three main groups that are directly involved in economic activities and digital transformation, namely:

1. Fishermen are active, as the main users of fintech applications in financial recording, non-cash transactions, and marketing of marine products.
2. Coastal MSME actors, who develop products based on marine products and play an important role in the local economic supply chain.
3. Village apparatus and BUMDes managers, who act as institutional partners in supervision, mentoring, and sustainability of fintech programs.

The selection of informants was carried out using a purposive sampling technique, which is by considering individuals who have direct experience, in-depth knowledge, and an active role in the implementation of the economic digitalization program. The number of informants was adjusted to the needs of the analysis until it reached the saturation point, where no significant new information was found to enrich the research data.

3.1 Types and Techniques of Data Collection

The data in this study consists of two types: primary data and secondary data. This study uses two main types of data, namely primary data and secondary data, which are obtained through various collection techniques so that the research results are more comprehensive and valid.

3.2 Data Primer

1. In-depth interviews were conducted with fishermen, MSME actors, village officials, and financial institution partners. This interview aims to explore their experiences in the use of fintech, the barriers they face, and the perceived social and economic impacts.
2. Participatory observation, where researchers are involved in training activities, application implementation, and community digital transaction activities. This direct involvement allows researchers to understand social dynamics and the level of public acceptance of digital innovations.
3. The Focus Group Discussion (FGD) involved community representatives, academics, and local financial institution partners to reflect together on the results of the activities. This forum functions as a space for collaborative evaluation and validation of field data.

3.3 Data Seconds

Supporting data was collected from various official sources and academic literature, such as the Malang Regency Fisheries Office report, BUMDes, (Ali et al., 2024) In addition, relevant previous research such as [2],[3] was used to strengthen the analysis and interpretation of the results.

The data collection process was carried out in stages over three months, including the planning, implementation, and evaluation phases. Each stage is systematically documented in the form of photos of activities, field notes, interview results, and FGD transcripts. The data obtained is then analyzed to see how *fintech* contributes to increasing economic independence, financial literacy, and food security

of coastal communities in real terms.

With a method design like this, research is not only descriptive but also transformative, as it seeks to combine scientific analysis and real social action. This is in line with the principle of *Participatory Action Research* (Semathong, 2023) which places researchers and the community in an equal position as learning partners towards sustainable social change

3.4 Stages of Research Activities

The implementation of activities is carried out in five main stages that refer to the participatory service model, namely:

1. The first phase of the program socialization

Began with socialization activities to coastal communities that were the target of the program. This activity aims to introduce the goals and benefits of the program to the community, as well as build trust between the research team, the village government, and local partners. The socialization was carried out directly at the village hall, using a participatory communication approach, so that the community feels involved and fully understands how fintech technology can help daily economic activities. In addition, this activity also serves to identify the needs and challenges of the community towards the application of digital technology in the financial sector.

2. The second phase of Training and Capacity Building

Focused on thematic training provided to fishermen, MSME actors, and village officials. The training is conducted in the form of interactive workshops with three main focuses:

a. Digital financial literacy,
b. Use of the Ocean Pocket application, and
c. Modern marine product business management.

In addition, participants were also guided to use social media and marketplaces as a means of promotion and marketing of marine products. This approach not only improves the technical abilities of the participants, but also fosters an adaptive mindset to technological changes.

3. Implementation of Fintech Innovation

In the third stage, fintech innovation in the form of the Saku Laut application is applied directly by the community. This application functions as a financial recording tool, a means of non-cash transactions, as well as a marketing platform for marine catches. The implementation is carried out in stages, with direct assistance from lecturers and students involved in the service program.

The goal is to ensure that the community is able to use the application independently and understand its function in supporting the transparency and economic efficiency of fisher households. Through this direct application, people began to experience changes in economic behavior towards a more modern and scalable financial system.

4. Mentoring and Evaluation

The fourth stage involves an intensive mentoring process during the implementation of the program, to ensure the sustainability and consistency of the use of fintech applications by the community. This assistance includes technical guidance, financial management consulting, and solving obstacles faced by fishermen in the use of technology.

The evaluation was carried out by comparing the economic conditions of the community before and after the program, using several main indicators such as:

1. Increased sales volume of catches,
2. Transaction cost efficiency,
3. Financial record-keeping skills, and
4. Household economic stability.

The evaluation stage also serves to assess the extent to which fintech programs have a real impact on improving financial literacy and economic resilience of coastal communities.

5. Program Sustainability

The last stage is focused on the sustainability of the program so that the research results do not stop at the temporary project level. At this stage, the Coastal Digital Finance Group was formed under the coordination of BUMDes, which functions as a forum for education and supervision of the implementation of fintech in a sustainable manner. This group is expected to become a digital learning hub for other village communities, while maintaining the sustainability of Saku Laut's innovation as a tool for coastal economic transformation. With the establishment of these local institutions, community independence can continue to be improved without dependence on external intervention

Overall, this stage of research activities is designed not only to obtain academic findings, but also to produce a fintech-based economic empowerment model that can be replicated in other coastal areas in Indonesia. This model is expected to be able to encourage the creation of an independent, digitally literate, and economically resilient coastal community in the midst of national digital transformation flows.

4. RESULT AND DISCUSSION

Economy and Coastal Social Challenges Field survey activities in Tambakrejo Village, Sumbermanjing Wetan District, Malang Regency. The main objective of this survey is to identify local economic potential, map the business activity patterns of coastal communities, and recognize the obstacles faced in managing marine products. Based on the results of in-depth observations and interviews, it was found that most people still rely on the cash transaction system and manual financial recording.

Limited digital literacy, low access to capital, and dependence on middlemen are the main problems that hinder economic independence. In discussions with representatives of fishermen, micro business actors, and village officials, it was also revealed that the distribution of marine catch is still long and inefficient. Therefore, people need a new approach that is able to shorten supply chains and strengthen their economic bargaining position.



Figure 1. Field survey activities and discussions with coastal communities of Tambakrejo to identify local economic potential and problems.

Source: Researcher Documentation, 2025

These findings reinforce the opinion [2], that the root of the main problems of coastal communities lies not only in low incomes, but also in weak financial governance and limited access to modern economic systems.

Digital financial literacy training and technology-based marketing of local products. This training was attended by coastal communities, village officials, and local MSME actors. The main goal is to increase public understanding of financial management efficiently, as well as introduce digital marketing strategies for processed seafood products.

The material presented included the introduction of digital transaction systems, simple financial recording, product branding strategies, and the use of social media and marketplaces to expand market reach. This training uses a participatory method, where participants not only listen, but also practice directly how to create a business profile, arrange packaging, and simulate simple digital transactions.



Figure 2. Training and mentoring sessions to coastal communities on digital marketing strategies and financial literacy.

Source: Researcher Documentation, 2025

This training not only has an impact on improving technical knowledge, but also fosters public confidence in facing changes in the digital economy. This is in line with the finding [2] that digital

literacy-based training is able to strengthen the economic capacity of coastal women and increase the added value of household products.

After receiving training, the community began to implement a financial recording system and digital marketing in their business activities. Some small business actors who previously only relied on cash transactions are now starting to adapt to digital methods such as the use of QRIS and electronic wallets.

This approach has a real impact on business efficiency. Transactions become faster, financial records are neater, and business cash flow can be monitored clearly. In addition, the implementation of digitalization also expands market access through online promotion. Processed products such as moringa tea, shredded tuna, shrimp sauce, and pure coconut oil began to be introduced online through social networks and local sales platforms.



Figure 3. Processed products from coastal communities as a result of training and mentoring: Moringa Tea, Shredded Tuna, Shrimp Sauce, and Virgin Coconut Oil.

Source: Researcher Documentation, 2025

These results strengthen the viewref (Josua, 2023) that the adoption of financial technology and digital marketing has the potential to increase the income of micro business actors through transaction efficiency and open market access. Development of product innovations based on the potential of local resources in coastal areas. Based on the results of observations and interviews, some communities have developed various processed products from marine products and surrounding agricultural products that have high economic value. The approach taken is not only to increase production capacity, but also to encourage people's creativity to create product diversification that has competitiveness in the local and digital markets.

Several micro business groups in Tambakrejo Village have succeeded in introducing superior products such as Dapoer Dirman Moringa Tea, Shredded Tuna Pawon Mbok'e, Sambal Squid and Shrimp, and Virgin Coconut Oil (VCO). These products are not born from large industrial processes, but from the initiatives of coastal communities that adapt to changes in the digital economy. Through financial and marketing literacy training, business actors begin to understand the importance of recording sales, online promotion strategies, and managing capital independently.



Figure 4. Processed products from coastal communities as a result of empowerment activities: Moringa Tea, Shredded Tuna, Shrimp Sauce, and Virgin Coconut Oil.

Source: Researcher Documentation, 2025

This activity shows that local economic innovation does not always depend on large capital, but on the ability to manage potential resources creatively and sustainably. This finding is in line with the opinion of Zulfah et al. (2023) who emphasized that entrepreneurial awareness is a fundamental aspect in strengthening the economic independence of coastal communities. Through continuous training and mentoring, the community is starting to be able to utilize digital technology to expand product marketing networks without having to rely on middlemen.

This empowerment program resulted in significant social change. Coastal communities that were previously passive are now starting to be active in managing joint ventures, forming community-based economic groups that play a role in maintaining the sustainability of the economic digitalization program.

Discussions with village officials and representatives of community groups showed that there is a collective awareness to strengthen local economic institutions, especially in the management of marine products and derivative products that have high selling value. The participatory approach applied has proven to be effective because it is able to foster a sense of ownership and social responsibility towards the sustainability of the program



Figure 5. Reflection and evaluation activities with village officials and community groups related to strengthening local economic institutions.

Source: Researcher Documentation, 2025

These findings are in line with the view [3] that the economic stability of coastal households is correlated with the ability of communities to manage resources independently and sustainably.

5. DISCUSSION

The urvey activities conducted in tambakrejo village, sumbermanjing wetan district, malang regency, revealed numerous societal and economic challenges faced by the local coastal communities. The reliance on traditional cash transactions and manual financial recording methods significantly destabilizes the financial governance of these communities. This reliance hampers not only the efficiency of transactions but also the ability of individuals to manage their financial resources effectively within a shifting economic landscape attributed to digital interactions [8], [14]. The observations corroborate findings that low digital literacy levels and restricted access to capital substantially affect economic independence, as indicated by the challenges faced in alternative seafood networks [10].

The presence of middlemen in supply chains further intensifies dependence and creates inefficient distribution systems, leading to reduced profit margins for local producers [16]. To address these challenges, digital financial literacy training was implemented to enhance the business acumen of individuals involved in marine product processing. the training covered crucial elements such as digital transaction systems, efficient financial management, and digital marketing strategies tailored for local seafood products [4]. This initiative aligns with the growing recognition that integrating digital technologies into traditional business models can lead to substantial improvements in operational efficiency and market access for micro-businesses [7].

The participatory approach of engaging community members in practical exercises cultivates autonomy and fosters a collaborative spirit, facilitating greater acceptance of digital methods and broader implementation of financial and marketing strategies among local entrepreneurs [10].

As the community embraced digital financial practices and marketing tactics, the diversification of marine-derived products emerged as a noteworthy response to enhanced economic strategies. local products, such as moringa tea and shredded tuna, began to gain visibility through online platforms

and social media, marking a pivotal shift from reliance on traditional sales models to a more modern approach [1]. These practices resonate with findings emphasizing the importance of entrepreneurial awareness and creativity in building self-sufficient coastal economies [9]. Furthermore, the cultivation of community-based economic groups not only strengthens local initiatives but also anchors the community's commitment to resource management and sustainability [15].

Ultimately, these results signify the profound changes that can arise from empowering coastal communities through education and innovative practices. by equipping coastal populations with the knowledge to navigate digital markets and properly record financial transactions, there is a marked increase in confidence and efficiency within their business endeavors. strengthening local economic institutions is instrumental in enhancing the resilience of coastal households, thereby aligning with broader sustainability goals in the management of marine resources [14].

The transformation observed in tambakrejo village illustrates a strategic shift toward economic independence through the convergence of local resource management and innovative digital practices. Continued support in these areas will be essential for sustaining growth and resilience against future challenges facing coastal communities.

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